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*** GRAND TOTALS = 1,691: .55-750 ***
File E91879
Project 84NK8275A

June 13, 1985

REPORT

on

FENCE CONTROLLERS

FI-Shock, Inc.
Knoxville, TN

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DESCRIPTION

PRODUCT COVERED:


ELECTRICAL RATINGS:

*Rated 110-120 V, 60 Hz, 10 W.

ENGINEERING CONSIDERATIONS:

The product covered by this Report is a sinusoidal output controller intended for use indoors. The device consists of a timing circuit and output transformer.

All electrical components are housed within a thermoplastic enclosure. The product is provided with a Listed flexible supply cord terminating in a parallel blade attachment plug for connection to a nominal 120 V, 60 Hz supply source.
CONSTRUCTION DETAILS:

Grounding - All exposed dead-metal parts likely to become energized in the event of a single insulation failure are electrically connected to the grounding conductor of the power supply circuit. This connection is maintained by means of separate insulated conductors terminating in closed-loop connectors (or the equivalent) which are secured by rivets, or nuts, bolts, and lockwashers (or other appropriate securing means), supplying reliable metal-to-metal contact.

Spacings - A minimum 1/8 in. spacing is maintained through air and over surface between uninsulated current-carrying parts of opposite polarity in the primary circuit and uninsulated current-carrying parts and accessible metal.

Corrosion Protection - All ferrous metal parts are protected against corrosion by painting, plating or equivalent means.

Internal Wiring - Except where noted, all internal wiring is Recognized Component AWM (AWLV2) and rated minimum 600 V, 105°C. (All wiring is routed away from sharp edges and/or moving parts.)

Solder Connections - All solder connections are made mechanically secure before soldering.

Electrical Connections - Except where noted, internal wiring terminates in crimped-on closed loop or spade with upturned end type connectors for securing under screw terminals or quick disconnect type connectors with positive detent.
MODEL SS750, ENCLOSURE - FIG. 1 (C85-6980)

1. Enclosure - Molded from Recognized Component (QMFZ2), Noryl N190, manufactured by General Electric, with overall dimensions of 10 by 7 by 4-1/2 in., 0.063 in. minimum thick. Consists of two pieces secured together by six rivets.

2. Fuseholder/Fuse - Recognized Component (IZLT2), Cat. No. HKP-HH, manufactured by Bussmann Div., McGraw Edison Co., or any secured Recognized Component (IZLT2), rated *125 V, 1/16 A minimum to enclosure in a 1/2 in. diameter hole by hexagonal nut and washer. Contains Listed fuse, rated 1/16 A, 250 V.

3. Strain Relief - Recognized Component (NZMT2), manufactured by Heyco, Inc., Cat. No. SR-6L-1 or any Recognized Component (NZMT2). Secured by a 1/2 in. diameter hole.

4. Power Supply Cord - Listed, Type SJT, SJE, SJO or SJTO, No. 18 AWG, 2-conductor, terminating in a molded-on-parallel blade attachment plug, rated 120 V, 15 A. Maximum length of cord measured from point of exit from the enclosure to face of attachment plug is 42-1/2 ft.

5. Fence Terminal - Used to connect fence conductor to output circuit. Consists of a 1-3/4 in. to 2 in. long screw, four washers, lock nut, and wing nut mounted on a 3/4 in. long extrusion.

6. Reset Switch - See Fig. 2, Item 5.

7. Ground Terminal - Used to connect grounding conductor for fence. Connected to low side of output. Same as Item 5, Fig. 1.


9. Markings - (Not shown) - See ILL. 2.
ALTERNATE CONSTRUCTION

General - Same as the above except for the following differences. See Figs. 5 and 6 for internal view of alternate construction.

1. Enclosure - Molded from Recognized Component (QMF22), Noryl N190, manufactured by General Electric, with overall dimensions of 5-15/16 by 5-1/16 by 2-1/2 by 5/64 in. minimum thickness. Consists of two pieces secured together by four rivets.

2. Fuseholder/Fuse - Same as Item 2 above except fuses are mounted on top left side of enclosure face.

3. Fence Terminal - Same as Item 3 above except located on the bottom edge of the enclosure face.

4. Pilot Light - Same as Item 4 above except located between fence terminals.

5. Markings - (Not shown) - Contains at least the following information: (1) Listee's name; (2) catalog number; (3) "Use 20 to 12 gauge wire only;" (3) "Use 1/16 amp time delay fuses only."

WCS/SAS:rb
MODEL SS-750, INTERNAL VIEW - FIG. 2 (C85-6982)

*General - Refer to ILL. 1B for wiring diagram, and ILL. 2 for marking.

1. Connectors - Any Listed wire connector suitable for the wire size and number of conductors involved.

2. Printed-Wiring Board - Any Recognized Component (ZPMV) printed wiring board. Secured to enclosure by a screw and washer into a threaded 1-1/4 in. high mount. Rated 94V-0, -1, or -2, and maximum operating temperature of at least 115°C. The soldering and patterning limits should be as described in the Recognized Component Directory.

3. Internal Wiring/Connector - Recognized Component (AVLV) AWG No. 10 AWG rated minimum 600 V, 105°C. Any Listed wire connector (AMVW) suitable for the size wire and number of conductors involved.

4. Transformer -

   Input - 120 V ac, 60 Hz, 10 W

   Output - 800 V ac (+/-200 V), 10 mA ± 2 mA.

CONSTRUCTION DETAILS:

Primary Coil - Enamelled copper wire wound on fiber tube, leads bound in coil covering.

Primary Leads - Labeled appliance wiring material, 1/32 in. PVC wall, No. 22 AWG, extends 3-1/2 in. to 7 in. from coil.

Secondary Coil - Enamelled copper wire wound on fiber tube, leads bound in coil covering.

Secondary Leads - Labeled appliance wiring material, 1/32 in. PVC wall, No. 22 AWG, extends 3-1/2 in. to 6 in. from coil.

Core - Laminated steel, 2-1/2 by 1-7/8 by 5/8 in. thick.

Shunt - Laminated steel, 7/8 by 5/16 by 0.024 in.

DESCRIPTION OF INSULATING SYSTEMS:

Primary Coil - No. 33 AWG magnet wire.

Wiring Tube - Paper 0.030 in. thick with one layer of 0.002 in. polyester mylar film wrap before windings start.

Insulation Between Primary Leads - Insulglass classine paper 0.0015 in. thick.

Crossover Lead Insulation - One strip 1/2 in. wide of No. 7 acetate film tape. One strip, 3/4 by 1-1/2 in. varnish glasscloth tape.

Outer Wrapper - Two layers of 5/8 in. wide No. 3 pressure sensitive flatback electrical tape.

Secondary Coil - No. 42 AWG magnet wire.

Winding Tube - Paper 0.030 in. thick with one layer of 0.002 in. polyester mylar film wrap before windings start.

Insulation Between Secondary Layers - 0.00075 in. Insulglass Glassine paper.

Crossover Lead Insulation - One layer of 1/2 in. wide, No. 10 reinforced epoxy film electrical tape. One strip, 3/4 by 1-1/2 in. varnish glasscloth tape.

Outer Wrapper - Two layers of 3/4 in. wide No. 7 acetate film electrical tape.

REG/RAS:int
5. **Resistor** - Rated 330 kilohm ± 5 percent. Secured to ground on one end and soldered to metal strip on the other.

6. **Reset Switch** - Consists of a push button which, when depressed, causes a metal strip, measuring 2-1/4 by 1/4 by 0.022 in. and secured to enclosure by a screw, to contact a wire. The distance between wire tip and metal strip is 3/16 in.
MODEL SS-750, CONTROL BOARD - FIG. 3 (C84-7714)

*General* - Refer to ILL. 1 for timing circuit schematic.

1. **Spacings** - Minimum 1/8 in. spacing between live parts of opposite polarity in the primary circuit.

2. **Resistor** - Rated 1.1M or 1.5M ohm ± 5 percent, 1/4 W.

3. **Diode** - Type 1N4148.

4. **IC Chip** - Timer, Type 555 with suffixes or prefixes, or other monostable, single output, 8-PIN, TTL compatible timer chip.

5. **Capacitor** - Rated 0.01 µF, 100 V.

6. **Capacitor** - Same as Item 5.

7. **Resistor** - Rated 1.5K ohms ± 5 percent, 1/4 W.

8. **Capacitor** - Electrolytic, rated 16 V, 33 µF.

9. **Triac** - Rated 5 mA, Type L2004F51 or any direct replacement.

10. **Resistor** - Rated 100 ohm ± 5 percent, 1/2 W.

11. **Metal Oxide Varistor** - Recognized Component (FOWX2), rated 125 V ac.

12. **Diode** - Type 1N4742A or 1N4736A or 1N4733A.

13. **Capacitor** - Polyester film, rated 0.022 µF, 400 V.

14. **Diode** - Type 1N4005.

15. **Resistor** - Rated 3.9K ohm ± 10 percent, 2 W.

16. **Capacitor** - Tantalum, rated 16 V, 2.2 µF.

17. **Resistor** - Rated 150K ohm ± 5 percent, 1/4 W.
MODEL SS750, REAR ENCLOSURE - FIG. 4 (C85-6983)

1. Mounting Bracket - (Two provided) molded from 0.09-in. thick black ABS thermoplastic, manufactured by Fi-Shock, Inc. Provided with two key hole slots; 3/8 in. diameter at widest point, 1/4 in. diameter at narrow point. Secured to enclosure by rivets.
MODELS SS-550 AND SS-650

General - Models SS-550 and SS-650 are identical to Model SS-750 illustrated in Figs. 1-4 except for the following.

Model SS-650 - Marking, see ILL. 3.

Model SS-550 - Provided with 0.01 uF, 2 kV dc ceramic disc capacitor across the secondary of the output transformer. Marking, see ILL. 3.
ALTERNATE CONSTRUCTION, INTERNAL VIEW - FIG. 5 (C85-17632)

General - Fig. 5 shows the internal view for alternate construction to Fig. 1.

1. Transformer - Same as Fig. 2, Item 4.
2. Resistor - Same as Fig. 2, Item 5.
3. Connectors - Same as Fig. 2, Item 1.
4. Printed Wiring Board - Same as Fig. 2, Item 2.
INSTALLATION INSTRUCTIONS ENCLOSED IN CARTON

SOLID STATE Cow Trainer

Model SS-250

Use 1/16 Amp Time-Delay Fuses Only

Serial No. CT

UL LISTED ELECTRIC FENCE CONTROLLER 110V

110-120 V, 60 Hz AC, 10 W Max.
INSTALL INDOORS ONLY

DANGER—Any alteration to the design of this charger may cause serious electrical shock.

Made in U.S.A. by FI-SHOCK 5300 NATIONAL DRIVE KNOXVILLE, TN 37914

INTERMITTENT OUTPUT

GROUND

FENCE

USE 20 TO 12 GAUGE WIRE ONLY

305-144

INSTALLATION INSTRUCTIONS ENCLOSED IN CARTON

SOLID STATE Anti-Roost Poultry Controller

Model SS-650AR

Use 1/16 Amp Time-Delay Fuses Only

Serial No. AR

UL LISTED ELECTRIC FENCE CONTROLLER 110V

110-120 V, 60 Hz AC, 10 W Max.
INSTALL INDOORS ONLY

DANGER—Any alteration to the design of this charger may cause serious electrical shock.

Made in U.S.A. by FL-CRATER 5300 NATIONAL DRIVE KNOXVILLE, TN 37914

INTERMITTENT OUTPUT

GROUND

FENCE

USE 20 TO 12 GAUGE WIRE ONLY

305-147
SAMPLES:

Representative samples of Model SS750 electric fence controllers were submitted and subjected to the following tests.

INPUT TEST:

METHOD

Sample No. 1 was connected to a maximum rated voltage, 120 V, 60 Hz for the source of supply. The operating conditions were as described below. The peak current was determined by sensing the voltage across a 0.01 ohm noninductive resistance using an oscilloscope.

RESULTS

<table>
<thead>
<tr>
<th>Condition</th>
<th>Current, A</th>
<th>Power, W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open circuit output</td>
<td>0.36</td>
<td>43.2</td>
</tr>
<tr>
<td>Connected to 500 ohm load</td>
<td>0.8</td>
<td>96.96 W</td>
</tr>
</tbody>
</table>

NORMAL TEMPERATURE TEST:

METHOD

The fence controller was connected to a maximum rated 120 V, 60 Hz source of supply. It was operated with a 500 ohm noninductive resistive load placed across the output terminals. The device was mounted as intended. The appliance was operated until constant temperatures were obtained in an average room ambient of 22.86°C. All temperatures were obtained by thermocouples.
RESULTS

<table>
<thead>
<tr>
<th>Location of Thermocouples</th>
<th>Recorded Temperature, °C</th>
<th>Maximum Rise Temperature, °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Resistor - R1</td>
<td>46.8</td>
<td>46.8</td>
</tr>
<tr>
<td>- R2</td>
<td>114.2</td>
<td>113.9</td>
</tr>
<tr>
<td>Capacitor - C1</td>
<td>40.1</td>
<td>40.0</td>
</tr>
<tr>
<td>- C2</td>
<td>52.9</td>
<td>52.7</td>
</tr>
<tr>
<td>Diodes - D1</td>
<td>52.1</td>
<td>51.9</td>
</tr>
<tr>
<td>- D2</td>
<td>60.4</td>
<td>60.3</td>
</tr>
<tr>
<td>Triac - Q1</td>
<td>46.7</td>
<td>46.6</td>
</tr>
<tr>
<td>Transformer - 1</td>
<td>32.0</td>
<td>32.3</td>
</tr>
<tr>
<td>- 2</td>
<td>31.9</td>
<td>32.2</td>
</tr>
<tr>
<td>- 3</td>
<td>32.3</td>
<td>32.8</td>
</tr>
<tr>
<td>- 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 5</td>
<td>31.8</td>
<td>32.2</td>
</tr>
<tr>
<td>Ambient</td>
<td>23.1</td>
<td>22.8</td>
</tr>
</tbody>
</table>

DIELECTRIC VOLTAGE WITHSTAND TEST:

METHOD A

A 60 Hz potential of 1500 V (1500 V minimum) was applied to sample No. SS750 between (1) current-carrying parts of the supply circuit and accessible noncurrent-carrying parts, and (2) the power transformer primary and secondary windings. The potential was started at zero and gradually increased to the final value where it was held for a period of 1 min. The appliance was in a normally heated condition.

RESULTS A AND B

No dielectric breakdown occurred during CTE Method A described above. These results are considered acceptable.
VARIATION OF OUTPUT CHARACTERISTICS WITH SECONDARY RESISTANCE LOAD:

METHOD

Sample No. 2 was tested under fixed conditions with the variable noninductive resistive load connected between the fence and ground terminals. The unit was energized from a 120 V (60 Hz) supply. The output was observed with the shock regulator switch in the high and low positions, if provided, and the output was observed at the high and low fence terminals, if provided.

The resistance was varied between 500 and 10,000 ohms.

The duration of the initial pulse (T1) was measured as the time between its first rising above and last falling below the 300 mA level.

The "On" time (Tt) was measured as the time between the initial rise of the pulse above 5 mA to the point where the pulse permanently drops below 5 mA.

Tt = T1

The average mA-s, A_p, above the 300 mA level during T1 was determined.

The average mA-s, A_l below the 300 mA level during T1 was determined.

The average mA-s, A_2, during T2 was determined.

The off time (T_o) was determined by counting the total number of pulses (N) during a 60 s period and using the following equation: T_o = (60 divided by N) - T_t.
<table>
<thead>
<tr>
<th>No.</th>
<th>Board Resistance (Ohms)</th>
<th>&quot;On&quot; Time (s)</th>
<th>&quot;Off&quot; Time (s)</th>
<th>Peak Current (A)</th>
<th>Pulse Duration Tt (s)</th>
<th>Average Pulse Duration T1 (s)</th>
<th>Output Current 300 mA Ap</th>
<th>Equals A1 + A2 Ap + A1 + A2 Output Total (mA-s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>500</td>
<td>0.1778</td>
<td>0.913</td>
<td>0.017</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.1778 (mA-s)</td>
</tr>
</tbody>
</table>

Effective current is 12.0 mA.

These results are considered acceptable.

(1) Tt was greater than or equal to 0.75 s;

(2) T1 was less than or equal to 300 us;
VARIATION OF OUTPUT WITH TEMPERATURE:

METHOD A

Sample No. 2 was placed in an oven adjusted for 39°C for a total of 4 h. A 500 ohm noninductive resistance was used to load the output terminals only during observation of the output waveform.

The fence controller was inoperative for the first 2 h and operating with switches set to provide the highest output for the last 2 h.

METHOD B

Sample No. 2 was allowed to cool to room temperature and was then placed in a freezer adjusted to -18 ± 2°C (0 ± 4°F) for 4 h. The sample was not operating for the first 2 h. The device was allowed to operate for the last 2 h, removed from the freezer and loaded and set as indicated above.

RESULTS A AND B

The waveforms did not change. The milliampere-second level remained the same. These results are considered acceptable.

VARIATION OF OUTPUT CHARACTERISTICS WITH CAPACITANCE LOAD:

METHOD

Sample No. 2 was tested with a load consisting of a variable noninductive resistance which was paralleled by a variable capacitance. Photographs were taken of the oscilloscope trace with capacitor values of 0.005 to 0.045 μF paralleling the resistance loads which produced the greatest milliampere-second output value and which produced the lowest duration pulse greater than 300 mA.
RESULTS

The output pulse did not increase in height and width of oscillations. The total number of oscillations above the 5 mA level did not increase and the average value of milliamperes-seconds did not exceed allowable limits. These results are considered acceptable.

VARIATION OF OUTPUT CHARACTERISTICS WITH A REDUCED SUPPLY VOLTAGE:

METHOD

Sample Nos. 2 and 3 were connected to a variable supply voltage. The fixed conditions for this test are as described for the above test (variation of output characteristics with secondary resistance load) except that the supply voltage was lowered to 105 V, 60 Hz.

RESULTS

The allowable milliamperes-second level was not exceeded. The results are considered acceptable. (See variation of output with change of resistance test).

ENDURANCE TEST:

METHOD

At time equal to zero Sample No. 1 was tested under fixed conditions with a 500 ohm noninductive resistive load connected between the fence and ground terminals. The unit was energized from a 120 V (60 Hz) supply.

If available with a shock regulator switch, the shock regulator switch was put in the highest output position. The output was observed with a storage type oscilloscope, or was photographed.

The unit was operated without load for a period of 15 days. The output was observed and compared to the output at time zero.
The unit was then allowed to operate for an additional 168 days with a 0.015 μF capacitor across the output terminals.

At the end of this period the unit was loaded with a 500 ohm noninductive resistive and observed with a storage type oscilloscope or was photographed.

RESULTS

The output waveform did not significantly change. If the waveform did change, the output timing, repetition rate, and peak output were considered acceptable.

UNRELIABLE COMPONENT OPEN:

METHOD

Components described below were disconnected from the circuit to simulate a component opening during normal operation. The output terminals were loaded with a 500 ohm noninductive resistance. The device was connected to the manufacturer's recommended source of supply 120 V (60 Hz) and adjusted for high output if available.

RESULTS

<table>
<thead>
<tr>
<th>Component (Schematic Designation)</th>
<th>Output</th>
<th>Observation And Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistor, R9</td>
<td>Y</td>
<td>Continuous output until fuse opened 32 s later.</td>
</tr>
<tr>
<td>Capacitor, C3</td>
<td>Y</td>
<td>Continuous output until fuse opened 8 s later.</td>
</tr>
<tr>
<td>Diode, D3</td>
<td>Y</td>
<td>Continuous output until fuse opened 8 s later.</td>
</tr>
<tr>
<td>Resistor, R10</td>
<td>N</td>
<td>Initial output, fuse opened almost immediately.</td>
</tr>
</tbody>
</table>

+ - Y = Yes
N - No
UNRELIABLE COMPONENT SHORT:

METHOD

Components described below were each in turn short-circuited. The output of the device was loaded with a 500 ohm noninductive resistance. The device was connected to the manufacturer's recommended source of supply - 120 V, (60 Hz) and adjusted for high output if available.

RESULTS

<table>
<thead>
<tr>
<th>Component</th>
<th>Output</th>
<th>T</th>
<th>Observation And Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diode, D3</td>
<td></td>
<td>Y</td>
<td>Continuous output until fuse opened 30 s later</td>
</tr>
<tr>
<td>Resistor, R10</td>
<td></td>
<td>Y</td>
<td>Continuous output until fuse opened 30 s later</td>
</tr>
</tbody>
</table>

- Y - Yes
- N - No

IGNITION TEST:

METHOD

The fence terminal of Sample No. 2 was connected to a pointed steel probe (simulating a wire barb). Various materials were placed on a flat aluminum plate connected to the ground terminal and an effort was made to ignite these materials by means of an arc drawn the probe to the grounded plate.
RESULTS

<table>
<thead>
<tr>
<th>Material</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton (dense)</td>
<td>Slight charring</td>
</tr>
<tr>
<td>Wood chips</td>
<td>Nothing</td>
</tr>
<tr>
<td>Gauze</td>
<td>Nothing</td>
</tr>
<tr>
<td>Dried grass</td>
<td>Slight charring &amp; more spark</td>
</tr>
<tr>
<td>Dried leaves</td>
<td>Slight charring &amp; more spark</td>
</tr>
<tr>
<td>Cotton (very loosely packed - information only)</td>
<td>Nothing</td>
</tr>
</tbody>
</table>

These results are considered acceptable.

OVERVOLTAGE TEST:

METHOD

Sample No. 2 was used for this test. The controller was operated under no load conditions while connected to a supply circuit of 187.5 V, 60 Hz (150 percent rated input) for a period of 1 min. If the output voltage is limited by spark gap devices, the devices are to be removed or relocated during this test.

RESULTS

There was no visible arcing or breakdown of the transformer or wiring insulating material and the controller was operating at the end of the test.

These results are considered acceptable.
BURNOUT:

METHOD

Sample No. SS750 was prepared by shorting the output current interrupting mechanism. An intentional fault condition was placed on the internal circuits which was intended to cause the greatest amount of available primary current to flow. The controller was draped with a double layer of cheesecloth and connected to a 120 V (60 Hz) supply. This test was conducted immediately following the temperature test, and while the device was still heated from the temperature test. The device was operated for 7 h until a final-condition developed.

RESULTS

<table>
<thead>
<tr>
<th>Fault Condition</th>
<th>Observations and Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>The triac, Q1, was shorted to cause continuous output</td>
<td>Fuse opened</td>
</tr>
</tbody>
</table>

This result is considered acceptable because the device did not emit molten metal or flame under this condition and the cheesecloth did not ignite.

ENCLOSURE IMPACT TEST:

METHOD

One sample was subjected to three separate drops not any two of which were in the same plane. The impact resulted from the samples being dropped a distance of 3 ft onto a hardwood surface.

RESULTS

There was no accessibility to live parts nor any other condition that increased by using a 1/4 in. diameter probe measuring 6 in. in length with a conical tip 1/8 in. long.
ENCLOSURE MOLD STRESS RELIEF TEST:

METHOD

Three complete samples of the electric fence controller enclosure were placed in a circulating air oven for 7 h at a temperature of 70°C (normal operating temperature +10°C or 70°C minimum whichever is greater).

RESULTS

There was no softening of the enclosure material as determined by handling immediately after conditioning nor was there any appreciable distortion of the material.

STRAIN RELIEF (REPEATED):

METHOD

The test method described above was repeated after the enclosure was subjected to the mold-stress test and allowed to cool to room temperature.

RESULTS

There was no measurable movement of the cord in the strain relief bushing during the duration of this test.

ENCLOSURE FLAME RESISTANCE TEST:

METHOD

Three samples of the electric fence controller enclosure were placed in an oven for seven days and maintained at 70°C (normal operating temperature +10°C or minimum 70°C whichever is the greater).
The samples of the enclosure were allowed to cool to room temperature and then were clamped in place and oriented as in actual use.

A Bunsen burner was adjusted to have a 3/4 in. high yellow flame with no blue cone. The flame was applied for two 30 s applications to the same area. There was a 1 min interval between applications.

RESULTS

The material did not continue to flame for more than 1 min after the second application of flame.
TEST RECORD NO. 2

SAMPLES:

The manufacturer submitted representative production samples of Models SS-550 and SS-650. No tests were considered necessary because of the similarity of these products to Listed Model SS-750. Tests were considered covered by Test Record No. 1.

KEG/SAS: sb
TEST RECORD NO. 3

SAMPLES:

Representative samples of Model SS-750 electric fence controllers were submitted and subjected to the following tests.

These tests were conducted on samples of the alternate construction described in Figs. 1, 5, and 6.

DIELECTRIC VOLTAGE WITHSTAND TEST:

METHOD

A 60 Hz potential of 1500 V (1500 V minimum) was applied to Sample No. SS-750 between (1) current-carrying parts of the supply circuit and accessible noncurrent-carrying parts, and (2) the power transformer primary and secondary windings. The potential was started at zero and gradually increased to the final value where it was held for a period of 1 min. The appliance is normally heated condition.

RESULTS

No dielectric breakdown occurred. These results are considered acceptable.

ENCLOSURE IMPACT TEST:

METHOD

Each of three samples was subjected to a separate drop. The impact resulted from the samples being dropped a distance of 3 ft onto a hardwood surface.

RESULTS

There was no accessibility to live parts nor any other condition that increased the shock hazard of the appliance. Accessibility was determined by using a 1/4 in. diameter probe measuring 6 in. in length with a conical tip 1/8 in. long.

WCS/SAS: rb
ENCLOSURE MOLD STRESS RELIEF TEST:

METHOD

Three complete samples of the electric fence controller enclosure were placed in a circulating air oven for 7 h at a temperature of 70°C (normal operating temperature +10°C or 70°C - minimum whichever is greater).

RESULTS

There was no softening of the enclosure material as determined by handling immediately after conditioning nor was there any appreciable distortion of the material.

ENCLOSURE FLAME RESISTANCE TEST:

METHOD

Three samples of the electric fence controller enclosure were placed in an oven for seven days and maintained at 70°C (normal operating temperature +10°C or minimum 70°C whichever is the greater).

The samples of the enclosure were allowed to cool to room temperature and then were clamped in place and oriented as in actual use.

A Bunsen burner was adjusted to have a 3/4 in. high yellow flame with no blue cone. The flame was applied for two 30 s applications to the same area. There was a 1 min interval between applications.

RESULTS

The material did not continue to flame for more than 1 min after the second application of flame.
TEST RECORD NO. 4

SAMPLES:

Representative samples of Model SS-250 electric fence controllers were submitted and subjected to the following tests. The tests conducted on Model SS-250 were considered to represent Model SS-650AR. The samples were each tagged with a number which was used to identify each fence controller during the complete test program.

Only the following tests were conducted due to construction similarities to Models SS-550 and SS-650.

VARIATION OF OUTPUT CHARACTERISTICS WITH SECONDARY RESISTANCE LOAD:

METHOD

Model SS-250 was tested under fixed conditions with a variable noninductive resistive load connected between the fence and ground terminals. The unit was energized from a 120 V, 60 Hz supply. The output was observed with the shock-regulator switch in the high and low positions, if provided, and the output was observed at the high and low fence terminals, if provided.

The resistance was varied between 500 and 10,000 ohms.

The duration of the initial pulse (T1) was measured as the time between its first rising above and last falling below the 300 mA level.

The "On" time (Tt) was measured as the time between the initial rise of the pulse above 5 mA to the point where the pulse permanently drops below 5 mA.

The off time (To) was determined by counting the total number of pulses (N) during a 60 s period and using the following equation:

\[ T0 = \frac{60}{N} - Tt \]
RESULTS

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Resistance (Ohms)</th>
<th>&quot;On&quot; Time (s)</th>
<th>&quot;Off&quot; Time (s)</th>
<th>Peak Current (A)</th>
<th>Pulse Duration Above 300 mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>500</td>
<td>0.13</td>
<td>1.09</td>
<td>0.0163</td>
<td>0</td>
</tr>
</tbody>
</table>

Effective output is 11.5 mA.

These results are considered acceptable. (1) To was greater than or equal to 0.75 s; (2) Ti was less than or equal to 300 μs.
CONCLUSION

Samples of the products covered by this Report have been found to comply with the requirements covering the class and the products are judged to be eligible for Listing and Follow-Up Service. The manufacturer is authorized to use the Laboratories' Mark on such products which comply with the Follow-Up Service Procedure and any other applicable requirements of Underwriters Laboratories Inc. Only those products which properly bear the Laboratories' Mark are considered as Listed by Underwriters Laboratories Inc.

Report by: 
D. P. Schofield
Engineer
Electrical Department
DPS/KEG: iw

Reviewed by:
K. E. Gettman
Engineering Team Leader
Electrical Department
ALTERNATE CONTROL BOARD - FIG. 6 (C85-17633)

General - Same as Fig. 3 except for changes in component layout.

1. Same as Fig. 3, Item 14.
2. Same as Fig. 3, Item 11.
3. Same as Fig. 3, Item 13.
4. Same as Fig. 3, Item 10.
5. Same as Fig. 3, Item 9.
6. Same as Fig. 3, Item 16.
7. Same as Fig. 3, Item 5.
8. Same as Fig. 3, Item 7.
9. Same as Fig. 3, Item 4.
10. Same as Fig. 3, Item 2.
11. Same as Fig. 3, Item 6.
12. Same as Fig. 3, Item 3.
13. Same as Fig. 3, Item 17.
14. Same as Fig. 3, Item 12.
15. Same as Fig. 3, Item 8.
16. Same as Fig. 3, Item 15.
17. Same as Fig. 3, Item 1.
AND REPORT
MODELS SS-550 AND SS-650

General - Models SS-550 and SS-650 are identical to Model SS-750 illustrated in Figs. 1-4 except for the following.
*Refer to ILLS. 1A and 1B for wiring diagram.

Model SS-650 - Marking, see ILL. 3.

*Model SS-550 - Provided with 0.01 µF, 3-kV dc ceramic disc capacitor across the secondary of the output transformer.
Marking, see ILL. 3.
MODELS SS-250 AND SS-650AR - FIG. 7 (C88-6759)

General - Model SS-250 and Model SS-650AR are identical to Models SS-550 and SS-650 respectively except as noted below. *Refer to ILLS. 1C and 1D for wiring diagram. For marking, refer *to ILL. 4.

1. Rotary Switch - Manufactured by Mepco/Centralab, Part No. 2APA02150124, rated 1.5 A, 28 V dc/0.23 A, 115 V ac. Switch is secured in enclosure with lock washers and nut.

2. Resistor - Rated 100K ohms or 220K ohms. Resistor is mechanically secured and soldered to switch terminals.

3. Resistor - Carbon type, rated 100K ohms or 330K ohms. Resistor is mechanically secured and soldered to switch terminals.
MEMORANDUM OF TELEPHONE CALL

Date 5/11/89

Firm Name:  Fi-Shock, Inc.

Firm Address:  Kansas City, Mo.

Caller Name & Title:  Dan McCarter

Telephone Number:  615-574-7380

Subject:  RF 89-87

CACA Contact:  Tim Jones

Mr. McCarter asked several questions about responding to the CACA 5/4/89 letter. I answered his questions.

Mr. McCarter indicated that no lawsuit had been filed against Fi-Shock Inc.

Mr. McCarter said that unless the product was incorrectly modified so that the product could not deliver lethal electrical energy to the fence. He said that the product stepped line voltage (120VAC) up to 700-800 volts and reduced the amperage to 12 mA. Further, he said
Dan McCarter  
Fi-Shock, Inc.  
5360 National Drive  
Knoxville, TN  37914  

RE: CPSC RP89-87  
Fido-Shock  
Pet Deterrent  
Model No. SS-750  

Dear Mr. McCarter:

Thank you for your telephone report of April 17, 1989 under Section 15(b) of the Consumer Product Safety Act, as amended (CPSA), 15 U.S.C. § 2064(b). In your report, you indicated that on April 14, 1989 you received a copy of CPSC Epidemiologic Investigation Report No. 881115CCC2060. The case involved a four year old boy who was reportedly electrocuted when he contacted a Fido-Shock electric fence.

Enclosed for your information are the Consumer Product Safety Act and the Commission's regulations 16 C.F.R. Part 1115 "Substantial Product Hazard Reports." These documents explain the Commission's authority and policy with regard to products which may present substantial product hazards and also explain your rights and obligations under the Act.

For the Division of Corrective Actions to assess accurately the potential hazard associated with your product, it needs certain information from you, the manufacturer of this product. Please provide the "Full Report" information specified by 16 C.F.R. § 1115.13(d) on pages 35001-02 of the enclosed regulations. Please be sure to provide the following:

1. A copy of the Underwriters Laboratories Inc. certification report for this product.

2. Copies of all engineering drawings, engineering change notices and material specifications relevant to the product and any identified problem.

3. Copies of lawsuits involving the product and a description of the resolution of those lawsuits, if any.
4. A complete customer list for this product.

5. A sample of one unit.

If the written documents requested in Paragraph 3 are unavailable, please indicate the reason for such unavailability, and provide a summary of the requested items containing the name, address and telephone number of the plaintiff's attorney.

After receiving your response, the Commission Compliance staff will make a preliminary determination as to whether it believes your product presents a substantial product hazard. It is, therefore, of primary importance that you now provide all of the requested information so that the staff can make an accurate assessment of the potential safety hazard associated with the product.

The Commission often receives requests for information provided by firms under Section 15(b) of the CPSA. Section 6(b)(5) of the CPSA, 15 U.S.C. § 2055(b)(5), prohibits the release of such information unless a remedial action plan has been accepted in writing, a complaint has been issued or a firm consents to such release. (See Section 6(b) of the CPSA, as amended (enclosed)).

In addition to the above, if you submit any information that you consider to be a trade secret, or confidential commercial or financial information, you must mark it "confidential" in accordance with Section 6(a)(3) of the CPSA, as amended, 15 U.S.C. § 2055(a)(3) and 16 C.F.R. § 1015.18 (enclosed). If you do not request confidential treatment at the time of your submission or within ten days thereafter, the staff will assume that you do not consider information in your submission to be a trade secret or otherwise exempt from disclosure under Section 6(a) of the CPSA and the Freedom of Information Act, 5 U.S.C. § 552(b)(4).

Please note that your firm has a continuing obligation to supplement or correct its "Full Report" as new or different information becomes known. For instance, if after filing your "Full Report" you receive information concerning other incidents or injuries, or information that affects the scope, prevalence or seriousness of the defect or hazard, you are obligated to report such information to this Division.
The Corrective Actions Division requests that you provide a response within 10 working days of your receipt of this letter. Please provide a copy of your response to the Commission Regional Center listed below. If you seek assistance or if you have any questions, you may contact Tim Jones, Corrective Actions Division, U.S. Consumer Product Safety Commission, 5401 Westbard Avenue, Room 230, Washington, D.C. 20207, telephone: (301) 492-6608. Thank you for your cooperation in reporting under Section 15 of the Consumer Product Safety Act.

Sincerely,

Carlos L. Perez, Director
Division of Corrective Actions
Directorate for Compliance and Administrative Litigation

Enclosures
- Consumer Product Safety Act
- Substantial Product Hazard Regulations
- FOIA Regulations
- Information Disclosure Sheet

Certified Mail

cc: CPSC Central Regional Center
230 South Dearborn Street, Room 2944
Chicago, Illinois 60604

Tom Boyd, President
Fi-Shock, Inc.
5360 National Drive
Knoxville, TN 37914
CORRECTIVE ACTIONS DIVISION
REPORT SHEET: OFFICE USE ONLY

NUMBER: RP 890082  DATE OPENED 890417  (yymmdd) DT CLOSED
CACA CONTACT: T. JONES  RO: FOCR
COMPANY NAME: Fi-Shock, Inc.
ADDRESS: 530 National Drive
CITY: Knoxville  STATE: TN  ZIP: 37914
COMPANY CONTACT: DAN McCARTER  TELEPHONE: 615-524-7380
OUTSIDE COUNSEL

TYPE: MFG  DIST  RETAIL  Pvt LBLR  Importer
NEIS CODE: 0605  TOTAL INVOLVED  10000
PRODUCT DESCRIPTION

MODEL: # SS-750
BRAND: Fido-Shock
POT. HAZARD: Electric Shock

COMMENTS: ID188115C00C2060
REPORTEDLY INVOLVES THE ELECTROCUTION OF A FOUR YEAR OLD BOY.
(END COMPUTER ENTRY)

II. ADDITIONAL PRODUCT IDENTIFICATION
A. Identification/Serial Number:
B. Location of Serial/Model Numbers:
C. Certification on Product (UL, etc.):
D. Average Lifetime of Product:
E. Unit Retail Value:

III. ADDITIONAL DEFECT AND HAZARD INFORMATION
A. Description of defect: MKE

Unit is UL listed
Listing Report Available

Tom Boyd 195
(Product Defect Continued)

B. Cause of Defect (for example, design, quality control, materials, production error): UNK

C. Date Discovered, How and by Whom (name of person and title): Firm need IDI from C PSC on April 14, 1989. Joel Friedman's letter dated 4-5-89

D. When were Affected Products Produced (and how determined): Firm began making this product in July 1985

E. Estimated Proportion of Affected Products in Total Number of Products Involved (and how determined):

F. Injury and Property Damage:

(1) Nature and severity of injury/property damage:

(2) Number and type of injuries or incidents reported to date: One death

G. Total Number of Products Involved: Will provide, but estimates about 2500/year or ~10,000 (may be a bit high)

Number with manufacturer/importer:
Number with Distributors:
Number with retailers:
Number with consumers:

H. Geographical Distribution:

National

This is the only compliant firm is aware of. They have not been contacted by attorney or insurance firm about this.
IV. MANUFACTURER/IMPORTER (if different from "Reporting Firm")
   A. Name:
   B. Address:
   C. Telephone Number: ( )
   D. Contact and Title:
   E. If an Imported Product, Names of Other Importers of Product (if known)

V. DISTRIBUTOR/PRIVATE LABELER (if manufacturer unknown or if large company; for example, Penney, Sears Ward)
   A. Name:
   B. Address:
   C. Telephone Number: ( )
   D. Contact and Title:

VI. COMPONENT PART MANUFACTURER (if applicable)
   A. Name:
   B. Address:
   C. Telephone Number: ( )
   D. Contact and Title:
   E. Description of Component Part Involved:
VII. PRODUCT DOES NOT COMPLY WITH CPSA RULE OR STANDARD UNDER TRANSFERRED ACTS

A. Act Involved:

B. Standard or Ban Involved:

C. Description of Noncompliance:

D. Date Discovered and How:

VIII. CORRECTIVE ACTION

A. Notification to:
   [ ] Distributors
       Date:
       Method:

   [ ] Retailers
       Date:
       Method:

   [ ] Consumers
       Date:
       Method:

B. Recall (and date begun):

C. Repurchase, Refund, Repair (and date begun):

D. Technical Fix:

E. Disposition of Returned Units:
IX. REMINDERS AND STAFF REQUESTS

[ ] Exemption Claimed for Fact and Content of Report—Explaination That This Confidentiality Lapses With Preliminary Staff Determination Re Hazard

[ ] Exemption Claimed as Proprietary Data—Detailed Written Request to Follow

[ ] Written Verification of Initial Telephone Report Within 48 Hours

[ ] Written Full Report Requested, Attn: Hazard Evaluation Branch (to be requested of manufacturers and importers only)

[ ] Copy Area Office

[ ] Sample Request (only where have prior approval from small purchases)
A 4-year-old boy was electrocuted when he fell across an electric "Pet Deterrent" fence. There were no witnesses to the incident. The victim's adult relatives found the victim after they had missed him from playing for a few minutes.

The victim's uncle installed the electrically charged fence. When he was putting the fence up, he found that the recommended 1/16 amp fuses would blow each time power was supplied to the control box. The victim's uncle inserted 2-1/4 amp fuses into the control box and the fence worked. The victim's aunt stated that the only way to get the fence to work was to use stronger fuses than those recommended.

The electric fence had been discarded at the time of the investigation. The investigator was unable to obtain the control box as a sample and for examination due to possible future litigation.

F/U: An inspection of the manufacturer will be assigned.
6. SYNOPSIS OF ACCIDENT OR COMPLAINT: A four year old male victim died of cardiac/respiratory arrest after receiving an electric shock by falling across an electric dog fence. The victim was playing "frisby" with his cousin and was attempting to retrieve the toy which had inadvertently gone over the fence. Examination of the controller for the electric dog fence identified two fuses which were four times the strength recommended for use by the manufacturer.

7. LOCATION (Home, school, etc.)
   Home - Back Yard

8. CITY
   Ridge Top

9. STATE
   Tennessee

10A. FIRST PRODUCT
   Electric Wire

10B. SECOND PRODUCT
   None

11A. TRADE/BRAND NAME, MODEL NUMBER, MANUFACTURER & ADDRESS
   "FIDO-SHOCK", Model #SS-750
   FI-Shock Inc., 5360 National Drive, Knoxville, TN

11B. TRADE/BRAND NAME, MODEL NUMBER, MANUFACTURER & ADDRESS
   N/A

12. AGE OF VICTIM
   Male: 1
   Female: 2
   Unknown: 3
   0 0 4

13. SEX (Use numerical code)

14. DISPOSITION
   Fatality

15. INJURY DIAGNOSIS
   Electric Shock

16. BODY PART
   All Parts

17. RESPONDENT(S) (Name, Phone)
   Police Detective

18. TYPE INVESTIGATION
   On Site
   Telephone
   Other
   1 1 0

19. TIME SPENT
   1 4 0

20. ATTACHMENTS
   Multiple

21. CASE SOURCE
   Newspaper

22. REVIEWED BY
   8298
   8 9 0 1 2 5

23. PERMISSION TO DISCLOSE NAMES
   (Nondefense cases only)
   CPSC may disclose my name
   CPSC may not disclose my name

24. NARRATIVE (See instructions on other side)

25. REGIONAL OFFICE DIRECTOR REVIEW
   201

(USE OTHER SIDE AND ADDITIONAL SHEETS IF NECESSARY)
Pre-Accident:

This investigation was conducted in response to a newspaper report that a four year old male child died as a result of injuries received after he fell across a electric dog fence. Information gained in this case was obtained through an on-scene examination of the accident area, and conversations with the victim's aunt and police officials.

Victim's aunt stated that her husband purchased the entire electric dog fence system approximately one year ago at Lowe's Building and Supply, Clarksville, Tennessee. The electric fence was installed by victim's uncle inside of a existing dog compound that measured approximately 36 feet by 42 feet. The purpose of the electric fence was to prevent two Chow dogs from jumping up on the inside of the pre-existing fence and climbing out of their enclosure. The electric dog fence consisted of two strands of electrical fence wire attached to wooden stakes approximately one foot from the inside of the pre-existing fence. The bottom wire of the electric fence was approximately one foot from the ground and the top wire was approximately three feet from the ground.

Victim's aunt stated that the victim was approximately four feet tall and weighed approximately fifty pounds. Victim had brown hair and brown eyes. Victim was a very active child and had a history of bronchitis. Victim's mother brought the victim to their house in order for him to play with his cousin. Victim was wearing tennis shoes, a pull-over "T" shirt and short pants at the time of the accident. Victim's mother was not present at the time of the accident.

At approximately 5:15 pm, September 17, 1988, victim was playing "Frisby" with his three year old cousin in the back yard. Weather conditions were cloudy and overcast, and the temperature was approximately 75 degrees fahrenheit. It had rained earlier in the day and the ground was still wet.

Accident:

At approximately 5:30 pm, victim's uncle, who was sitting on his back porch, noticed that the victim was no longer in sight. Victim was discovered by his uncle inside of the dog compound slumped across the electric dog fence, but not in contact with the outside pre-existing fence. Victim was unconscious and a burn mark was observed behind his right knee.
Post Accident:

Victim's uncle immediately picked up victim (without being shocked) and carried him into the house. A county police patrol responded to the location and attempted to revive the victim by Cardio Pulmonary Resuscitation (CPR). Victim was subsequently transported to Vanderbilt Hospital, Nashville, Tennessee where he was pronounced dead. Cause of death, as reported by the medical examiner, was identified as cardio/respiratory arrest due to electric shock and the manner of death identified as accidental.

Victim's uncle subsequently removed both strands of the electric dog fence and threw them away, however, the electrical control box was not discarded and was taken by county police detectives for examination. Their examination revealed the existence of two fuses, 1/4 Amp, 250 Volts each, inserted in the control box. It was observed from the labeling on the control box panel that both of the fuses that were used in the control box were four times the strength recommended by the manufacturer. Victim's aunt stated that when her husband was putting up the fence he attempted to use the fuses that came with the electric fence system, however, each time the recommended fuses were used the fuses would "blow" as soon as power was supplied to the control box. Victim's aunt stated that the only way to get the fence to work was to use stronger fuses.

A request was made by the CPSC investigator to obtain the control box for a sample and examination however, due to possible future litigation, the request was refused.

Telephonic contact with Lowe's Building and Supply, Clarksville, Tennessee revealed that they no longer had the Fido-Shock, pet deterrent in stock, and they have not experienced any product complaints.

Standards:

No voluntary or mandatory standards information was observed on the product.

Product Identification:

The product is an electrical control box enclosed in black plastic and generally mounted indoors, on the walls of a building. Product is manufactured by Fi-SHOCK, Inc., 5360 National Drive, Knoxville, Tennessee, 37914. Additional labeling states: FIDO-SHOCK, Solid State Pet Deterrent, Electric Fence Controller. The controller is powered by 110-120 Volt 60Hz ac. Additional warnings include: "DANGER" any alterations to the design of this charger may cause serious electrical shock. At top center of the box a warning states "use one sixteenth Amp time delay fuses only"

No assembly instructions or additional warnings information was available.
Attachments:

1. Photographs
2. Medical Examiners Investigative Report, dtd 9/18/88
3. Robertson County Offense Report, dtd 9/17/88
4. Investigation Report, dtd 9/19/88
5. Newspaper Article, 9/19/88 (Nashville Banner)
6. Copy of CPSC Assignment
N.E. CORNER of Dog Compound

Inside pre-existing fence where victim was found.
REPORT OF INVESTIGATION BY COUNTY MEDICAL EXAMINER

DECEASED:

Name: Steven Winfield
Race: W
Sex: M
Age: 2
DOB: 9-24-84

HOME ADDRESS:
P.O. Box 303 Greenbriar TN
(Include number and street)

TYPE OF DEATH:
Violent □
Casualty □
Suicide □
Suddenly when in apparent health □
Found Dead □
In Prison □
Suspicious, unusual or unnatural □
Cremation □

Comment: Electric Shock

Notification by:
Dr. Ann Byers / Vandy 23 322-0145
Address: Nashville

Investigating Agency:

DESCRIPTION OF BODY:
Clothed □
Unclothed □
Partly Clothed □
Circumcised Yes □ No □

Eyes: □
Hair: □
Mustache: □
Beard: □

Weight: 38.6 lbs.
Length: 4 feet
Body Temp: 97.4° Fahrenheit

Rigor: Yes □
No □
Lysed □
Liver Color: □
Fixed: □
Non-Fixed: □

Marks and Wounds:

Cyanoosis

PROBABLE CAUSE OF DEATH: Electric Shock from Drag Wire.

MANNER OF DEATH:
(Check one only)

1. Not a medical examiner case □
2. Autopsy ordered Yes □ No □
3. Autopsy requested Yes □ No □
4. Homicide □
5. Suicide □
6. Accident □
7. Natural □

DISPOSITION OF CASE:

Pathologist □
Pending □

I hereby declare that after receiving notice of the death described herein I took charge of the body and made inquiries regarding the cause of death in accordance with Section 38-701-38-714 Tennessee Code Annotated; and that the information contained herein regarding such death is true and correct to the best of my knowledge and belief.

(Handwritten Signature)

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PERSONAL HISTORY: Suicide attempts ☐ Suicide threats ☐ Hobbies, aptitude and skills with firearms, chemicals, etc. ☐ Domestic, premarital or marital conflicts ☐ Financial or business reverses ☐ Social or religious conflicts ☐ Legal difficulties ☐ Criminal record ☐ Unemployment ☐ Fear of disease ☐ Other (specify) ☐

CONDUCT BEFORE DEATH: Efforts to prevent help ☐ Efforts to obtain help ☐ Suicide attempt: Admitted ☐ Denied ☐ Refusal to talk ☐ Written declaration of intended suicide ☐ Accusations against others ☐ Other (specify) ☐

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<th>LAST SEEN ALIVE</th>
<th>INJURY OR ILLNESS</th>
<th>DATE</th>
<th>DISCOVERY</th>
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<th>VIEW OF BODY</th>
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LOCATIONS: City or County: Academy

Type of Premises: Hospital

DATE OF DEATH: 9-17-88

PLACE OF DEATH: Vanderbilt ER

NATURE OF DEATH: Hospital

VIEWING OF BODY: FSC

DATE: Davidson County Morgue

MEDICAL ATTENTION AND HOSPITAL OR INSTITUTIONAL CARE

NAME OF PHYSICIAN OR INSTITUTION

ADDRESS

DIAGNOSIS

DATE

CIRCUMSTANCES OF DEATH

NAME

ADDRESS

NARRATIVE SUMMARY OF CIRCUMSTANCES SURROUNDING DEATH:

HX- A three year old baby was life flown from Greenbriar, Tenn to V U M C. The patient had an electrical shock received from a vent. He was coded for approximately 40 minutes then died. The baby was born at Vanderbilt and has been there several times for various reason but has no personal Doctor.

A P R & thereby, resequence began in 2 P.M. 18-30 Continued negatively 10.01 (see Chart record on this Chart).

Electrical burn extended to head, back, and lower legs behind it demarcated by... (wrote)

response to therapy negative.

Candidia infection present due to Electrical shock.

Blunt trauma (post mortem) No evidence could happen at Acoustig Edge Co., Houston County - Medical time 208.