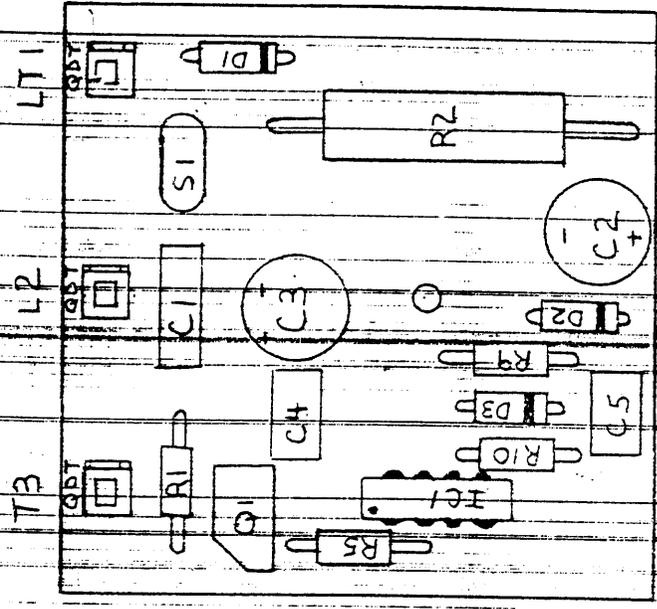


SYM	PART NO.
C1	.022/400V-DPFR 10%
C2	33/16V-GPAERL 10/75%
C3	2.2/16V-DTR 10%
C4	.01/100V-DPFR 10%
C5	.01/100V-DPFR 10%
D1	DIN4005
D2	ZDIN4742A
D3	DIN4148
IC1	IC 555A
Q1	5MA/200V TRIAC
QDT	.187 SERIES FASTON TAB
R1	100Ω - 5% CF - 1/2W
R2	3.9KΩ - 10% CF - 1/4W
R5	1.5KΩ - 5% CF - 1/4W
R9	150KΩ - 5% CF - 1/4W
R10	1.5MΩ - 5% CF - 1/4W
S1	MOV-130

**RESTRICTED**

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31T221 TIMER  
COMPONENT LAYOUT

SCALE: NONE	APPROVED BY
DATE: 7-25-85	DRAWN BY PTM
DRAWING NUMBER ED-0006	

ILLUSTRATIONS FOR MODEL(S)  
 SS-550, SS-650 AND SS-750

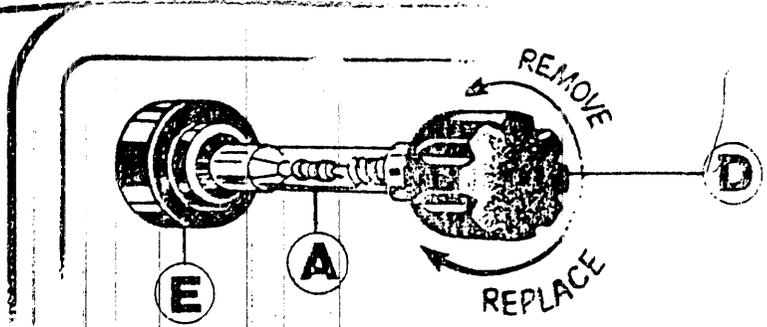
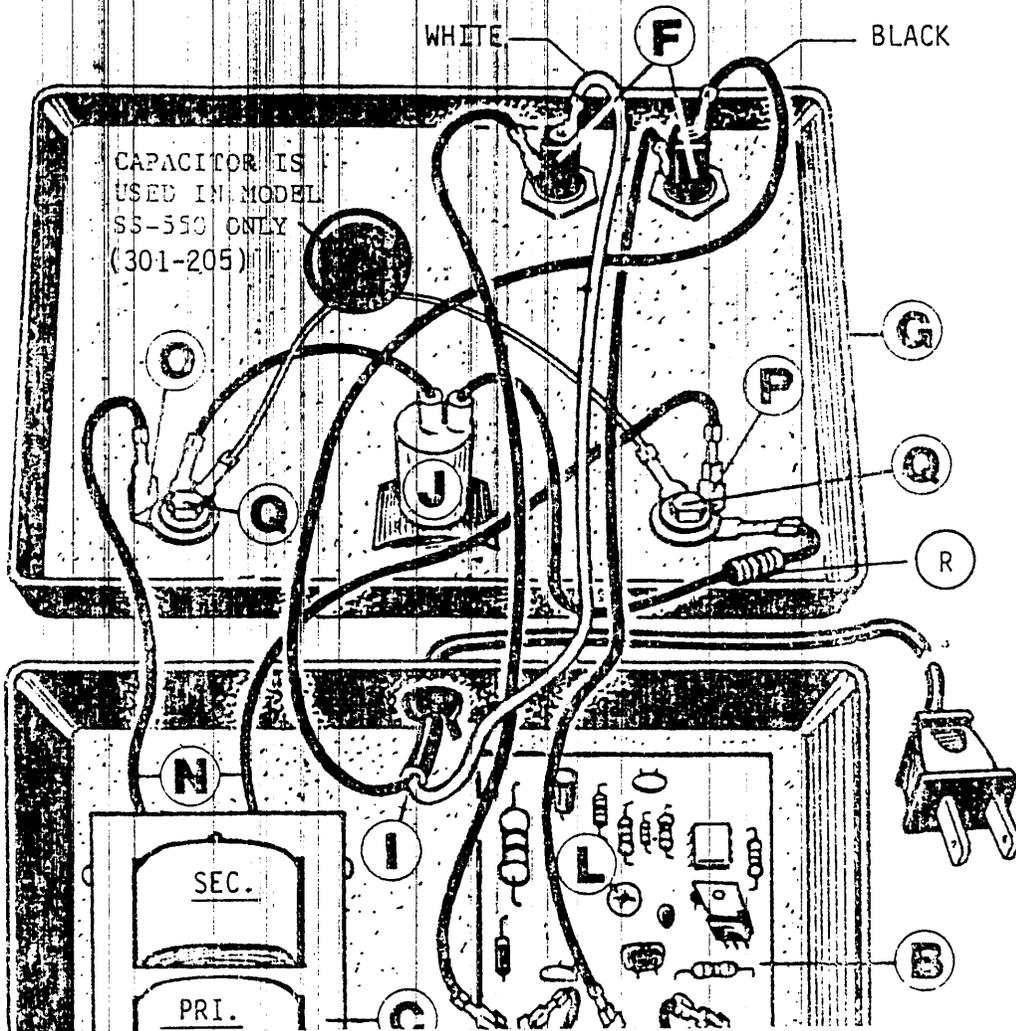


FIGURE 1



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RUN DATE 05/15/89

FI - SHOCK, INC.

PAGE 001

YEAR-TO-DATE SALES ANALYSIS BY CUSTOMER

12 MONTHS ENDING 03/89

CUST #	NAME	RANK	GROSS SALES	GROSS PROFIT	GROSS MARGN	RETURNS NET CST	NET MARGN
129000	LOWES CORP TRADE PAY	1	2,278				
088460	HOME DEPOT	2	2,112				
088500	HOME QUARTERS WAREHO	3	786				
029680	W AILEE BURPEE CO	4	390				
035600	CIMARRON LUMBER SUPP	5	168				
029200	BUILDERAMA, INC	6	141				
213000	UNIVERSAL FEED	7	120				
130300	MCCOY'S BUILDING SUP	8	72				
027650	BROOKSTONE	9	72				
197950	STOCKLIN SUPPLY COMP	10	37				
233600	WATERFORD GARDENS	11	36				
162500	PASS PETS	12	33				
039000	COTTER & CO. DS#0494	13	27				
012410	AGWAY INC FARM & HOM	14	25				
020490	B & T WHOLESALE DIST	15	24				
162690	THE PATY COMPANY	16	24				
030700	CANINE BEHAVIOR	17	24				
011100	ACE HDWE CORP #63362	18	21				
233510	WATERFORD GARDEN	19	18				
131250	M & M SUPPLY COMPANY	20	18				
039070	COUNTRY GENERAL STOR	21	12				
232650	WALCO INTERNATIONAL	22	12				
017050	ANIMAL CARE	23	12				
237600	WILLIAMSON, BEN SUPP	24	8				
190000	SAMPLE ACCOUNT	25	7				
132650	MANNA PRO FARM SUPPL	26	7				
237820	WINSTON ENTERPRISES	27	6				
131390	WALCO COUNTRY STORE	28	6				
030400	COD ACCOUNTS	29	6				
011150	ACOMA PET CENTER	30	6				
190240	SACO	31	6				
132640	MANNA PRO	32	6				
201757	TERMINAL BUILDER MAR	33	4				
194350	SOUTHERN FARMERS ASS	34	3				
205800	TRACTOR SUPPLY COMPA	35	1				
199170	SUN WEST IND	36	1				
067790	FRALEY FENCE SERVICE	37	1				
060100	TAXABLE FRONT OFFICE	38	1				
060000	NON TAXABLE FRONT OF	39	1				

\*\*\* GRAND TOTALS = 6,532 .....SS-750RP

=====

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CONFIDENTIAL

RUN DATE 05/15/89

FI - SHOCK, INC.

PAGE 001

YEAR-TO-DATE SALES ANALYSIS BY CUSTOMER

12 MONTHS ENDING 03/89

CUST #	NAME	RANK	GROSS SALES	GROSS PROFIT	GROSS MARGN	RETURNS NET CST	NET MARGN
088460	HOME DEPOT	1	1,206				
039000	COTTER & CO. DS#0494	2	65				
131250	M & M SUPPLY COMPANY	3	42				
167920	POULTRY HEALTH SERVI	4	39				
190240	SACO	5	30				
197950	STOCKLIN SUPPLY COMP	6	26				
088500	HOME QUARTERS WAREHO	7	25				
020490	B & T WHOLESALE DIST	8	24				
232650	WALCO INTERNATIONAL	9	24				
196200	STALNAKER FARM & RAN	10	24				
162500	PASS PETS	11	24				
119230	KNOX FARMERS COOP	12	24				
132600	MANNA-PRO CORP	13	24				
013200	ALASKA MILL & FEED C	14	18				
232500	WALCO INTERNATIONAL	15	14				
011150	ACOMA PET CENTER	16	12				
194350	SOUTHERN FARMERS ASS	17	12				
199170	SUN WEST IND	18	12				
131390	WALCO COUNTRY STORE	19	12				
029200	BUILDERAMA, INC	20	8				
227400	VETERINARY SERVICES	21	6				
065730	FLORIDA HARDWARE COM	22	6				
012410	AGWAY INC FARM & HOM	23	5				
011100	ACE HOWE CORP #63362	24	4				
051200	EAGLE MILLING CO	25	1				
132000	JOHN F MAHANEY	26	1				
129000	LOWES CORP TRADE PAY	27	1				
203780	THOMPSON VETERINARY	28	1				
034800	CENTRAL TRACTOR FARM	29	1				

\*\*\*

GRAND TOTALS =

1,691...SS-750

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**UNDERWRITERS LABORATORIES INC.**  
NORTHBROOK, IL · MELVILLE, NY · SANTA CLARA, CA · TAMPA, FL

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SEP AL:  
SEP

File E91879  
Project 84NK8275A

June 13, 1985

REPORT

on

FENCE CONTROLLERS

FI-Shock, Inc.  
Knoxville, TN

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DESCRIPTIONPRODUCT COVERED:

Electric fence controllers, Models SS-250, SS-550, SS-650AR, SS-650 and SS-750.

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 (AVLV2) 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 (QMF22), 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., Mc-Graw 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 4-1/2 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.
8. \*Pilot Light - Any Recognized Component (OIM22) pilot light. \*125 V, 1.2 mA minimum.
9. Markings - (Not shown) - See ILL. 2.

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SEC I

FIG I

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C 85 - 6980

## 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 (QMFZ2), Noryl NL90, 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 5 above except located on the bottom edge of the enclosure face.
4. Pilot Light - Same as Item 8 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 (ZPMV2) 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 (AVLV2) AWM, No. 18 AWG rated minimum 600 V, 105°C. Any Listed wire connector (AMVV) suitable for the size wire and number of conductors involved.

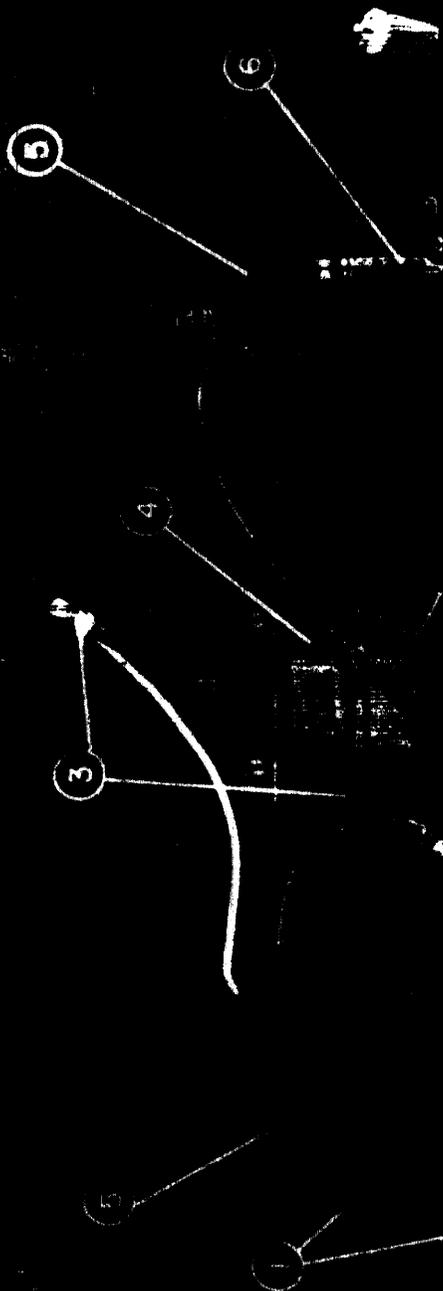
4. Transformer -

Input - 120 V ac, 60 Hz, 10 W

Output - 800 V ac (+/-200 V), 10 mA  $\pm$  2 mA.

Transformer Manufacturer - FI-Shock, Inc., Knoxville, TN,  
Part No. 311-155.

AND REPORT



C 85-6982



CONSTRUCTION DETAILS:

Primary Coil - Enameled 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 - Enameled 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 glassine 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.

5. Resistor - Rated 330 kilohm  $\pm$  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, caused 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  $\pm$  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-PN, TTL compatible timer chip.
5. Capacitor - Rated 0.01 uF, 100 V.
6. Capacitor - Same as Item 5.
7. Resistor - Rated 1.5K ohms  $\pm$  5 percent, 1/4 W.
8. Capacitor - Electrolytic, rated 16 V, 33 uF.
9. Triac - Rated 5 mA, Type L2004F51 or any direct replacement.
10. Resistor - Rated 100 ohm  $\pm$  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 uF, 400 V.
14. Diode - Type 1N4005.
15. Resistor - Rated 3.9K ohm  $\pm$  10 percent, 2 W.
16. Capacitor - Tantalum, rated 16 V, 2.2 uF.
17. Resistor - Rated 150K ohm  $\pm$  5 percent, 1/4 W.

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VOL. I

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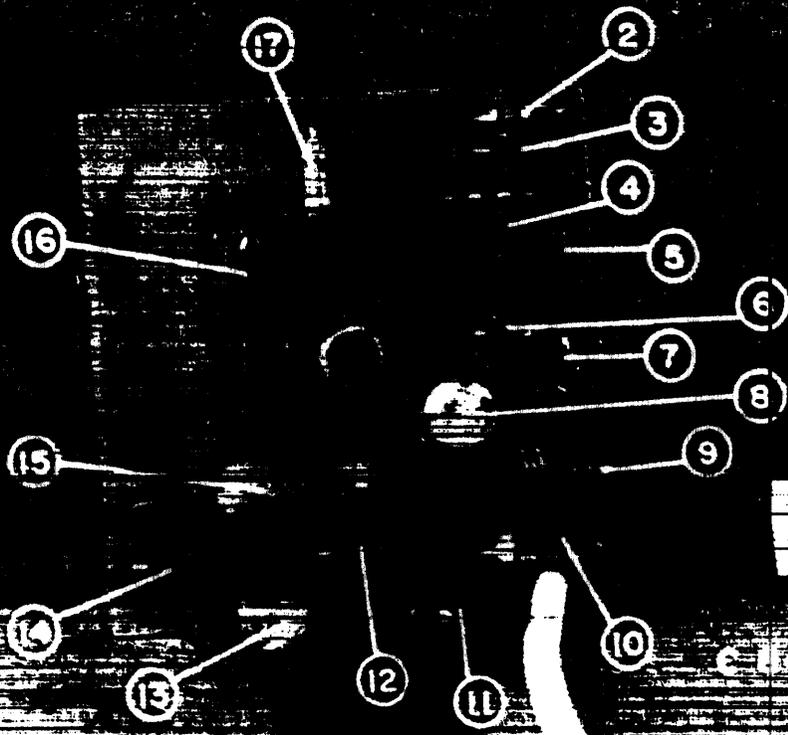
FIG. 3

AND REPORT



3361 RE

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3361 RE

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.

DPS/KEG:iw

## 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.

KEG/SAS:sb

VOL. I

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FIG. 4

AND REPORT



1

C85-6983

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.

WCS/SAS :rb

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VOL. I

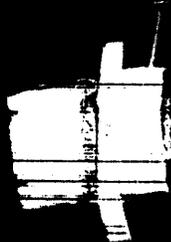
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FIG. 5

AND REPORT



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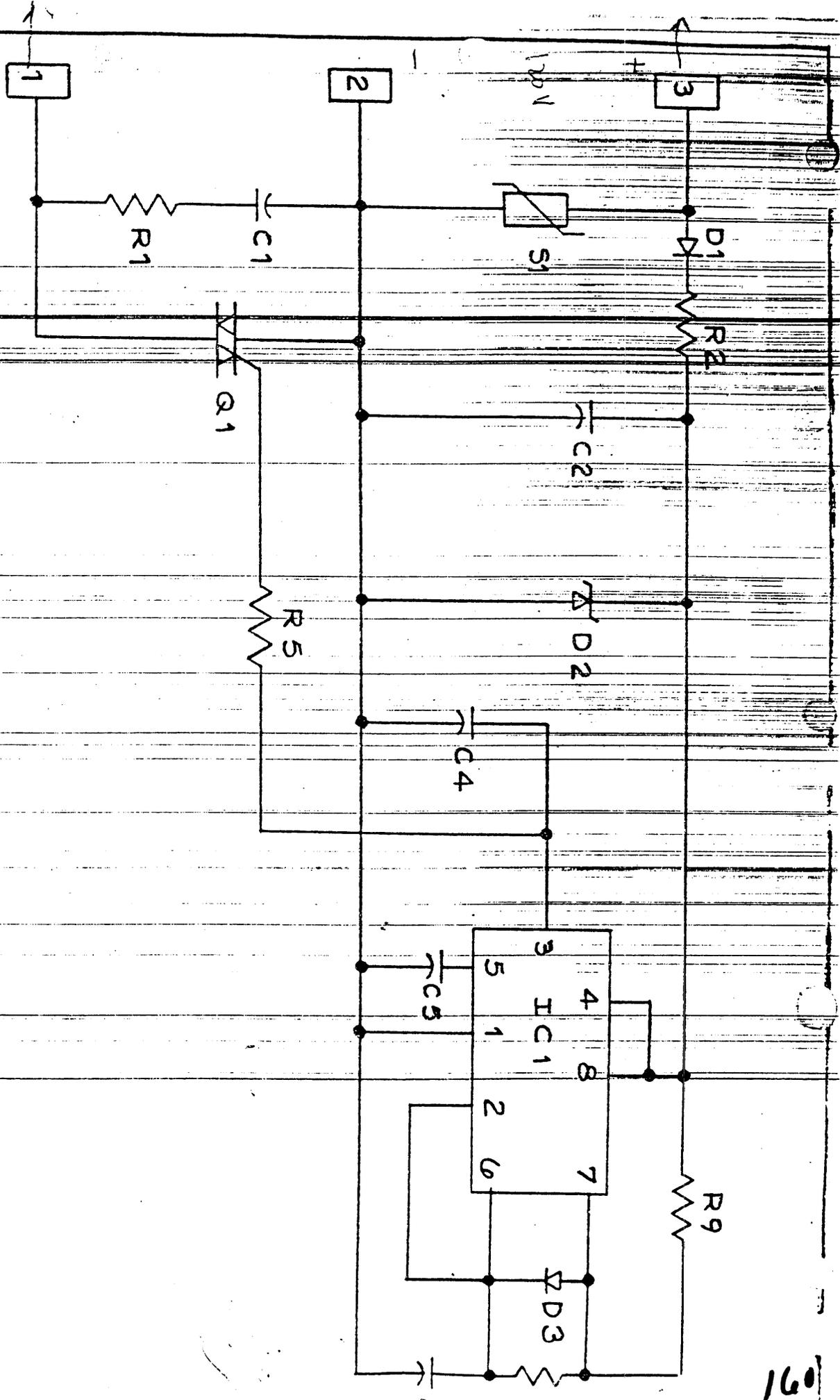
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VOL. 1  
E91879

TOLERANCE UNLESS NOTED	MAT'L.	DRN. J. LASHINSKY
.XX		3-28-83
.XXX		CHECK
FRACT.	FINISH	APPR.
ANGLE		SCALE

PRECISION TIMER CO., INC.  
WESTBROOK INDUSTRIAL PARK, WESTBROOK, CONN.  
TITLE  
SCHEMATIC FOR  
MODEL F616 TIMER  
DWS NO.

THIS DRAWING IS THE PROPERTY OF AND MAY ONLY BE REPRODUCED BY PERMISSION OF PRECISION TIMER CO., INC.

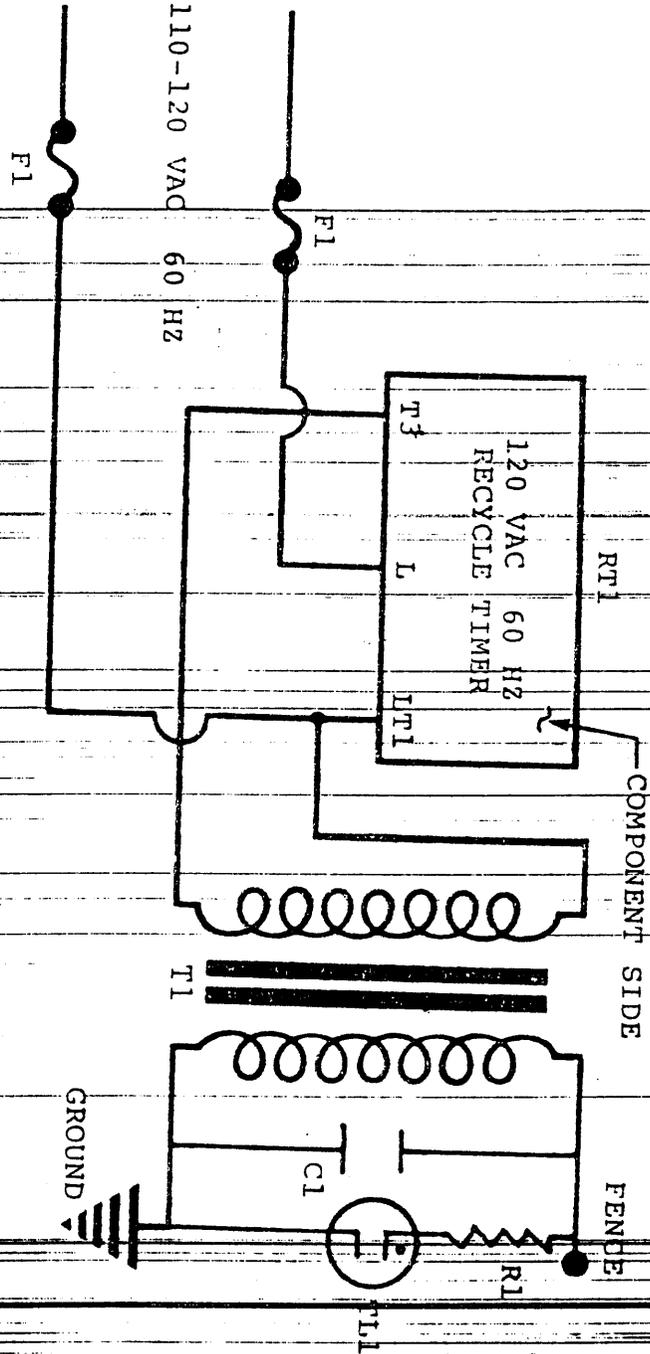
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 UNDERWRITERS  
 LABORATORIES, INC.

**Fi-Shock** Inc.

ELECTRICAL SCHEMATIC OF A.C. SOLID STATE CONTROLLERS  
 110-120 VOLT 60 HERTZ OPERATION

Model(s):

SS-550



CIRCUIT REF.

PART NO.

DESCRIPTION

F1	301-404B	3AG, 1/16 AMP TIME-DELAY FUSE
RT1	311-221	RECYCLE TIMER
T1	311-155	OUTPUT TRANSFORMER
C1	301-205	.01MFD, 3KVDC CERAMIC DISC CAPACITOR
R1	301-106	1MΩ OHM-CC-5&-1/2W RESISTOR
TL1	301-510A	NEON LAMP - SPECIAL

NOTE: ALL COMPONENT VALUES AND PART NUMBERS ARE SUBJECT TO CHANGE

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 ILL. 1A

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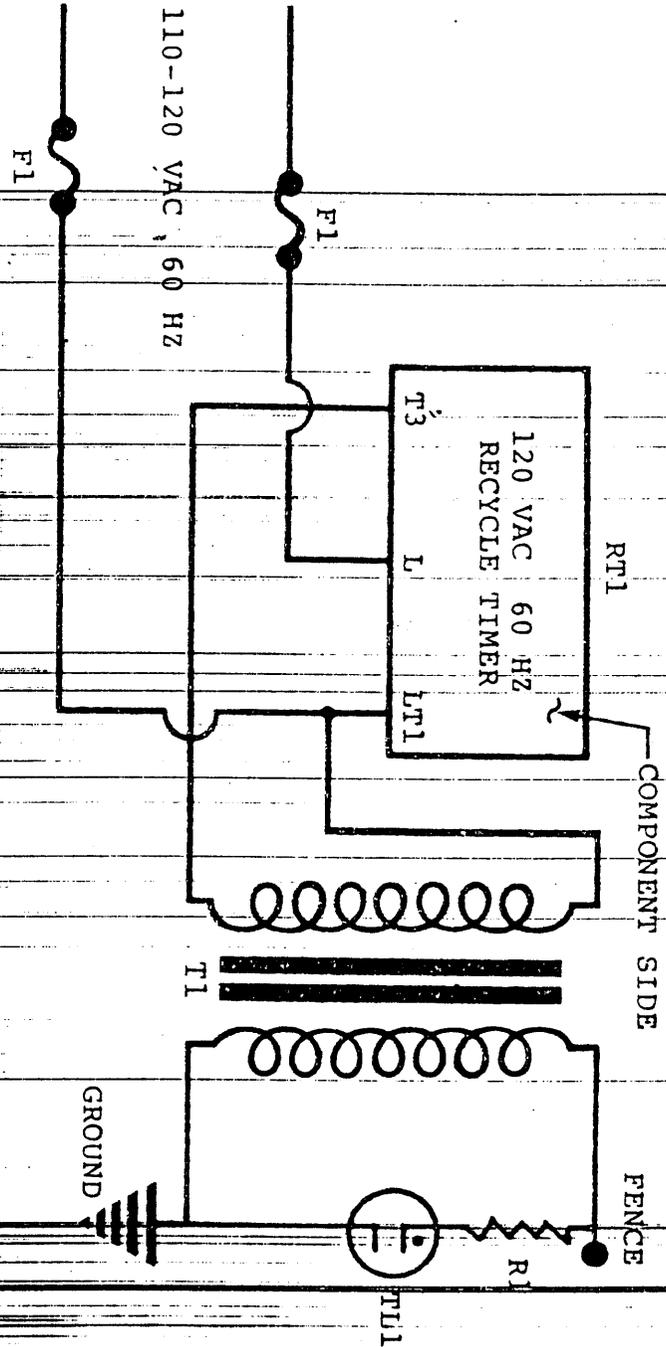
UNDERWRITERS  
LABORATORIES, INC.

**Fi-Shock** inc.

# ELECTRICAL SCHEMATIC OF A.C. SOLID STATE CONTROLLERS 110-120 VOLT 60 HERTZ OPERATION

Model(s):

SS-650 & SS-750



CIRCUIT REF.

PART NO.

DESCRIPTION

F1  
RT1  
T1  
R1  
TL1

301-404B  
311-221  
311-155  
301-103  
301-510A

3AG, 1/16 AMP TIME-DELAY FUSE  
RECYCLE TIMER  
OUTPUT TRANSFORMER  
330K OHM-CC-58-1/2W RESISTOR  
NEON LAMP - SPECIAL

NOTE: ALL COMPONENT VALUES AND PART NUMBERS ARE SUBJECT TO CHANGE

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VOL. 1  
SEC. 1  
ILL. 1B

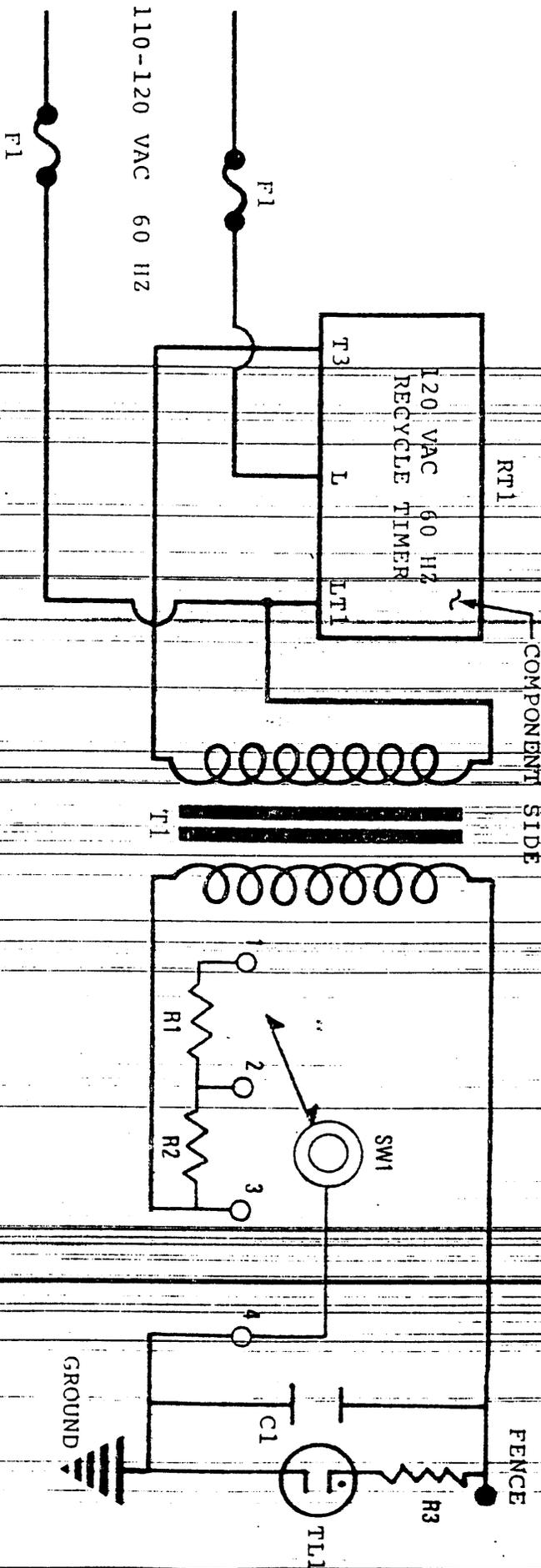
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ELECTRICAL SCHEMATIC OF A.C. SOLID STATE CONTROLLERS  
 110-120 VOLT 60 HERTZ OPERATION

**Fi-Shock** inc.

Model(s):

SS-250



CIRCUIT REF.

PART NO.

DESCRIPTION

APPROX. PEAK OUTPUT  
 VOLTAGE - INTERMITTENT

F1	301-404B
RT1	311-221
T1	311-155
SW1	301-564
R1&R2	301-126
R3	301-106
C1	301-205
TL1	301-510A

3AG, 1/16 AMP TIME-DELAY FUSE  
 RECYCLE TIMER  
 OUTPUT TRANSFORMER  
 ROTARY SWITCH-1POL., 3POS.-SHORTING  
 100K OHM-CC-5%-1/2W RESISTOR  
 1MEG OHM-CC-5%-1/2W RESISTOR  
 .01 MFD-3 KVDC CERAMIC DISC CAPACITOR  
 NEON LAMP - SPECIAL

LOW (1)	1000
MED. (2)	1500
HIGH (3)	2000

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 ILL. 1C

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NOTE: ALL COMPONENT VALUES AND PART NUMBERS ARE SUBJECT TO CHANGE

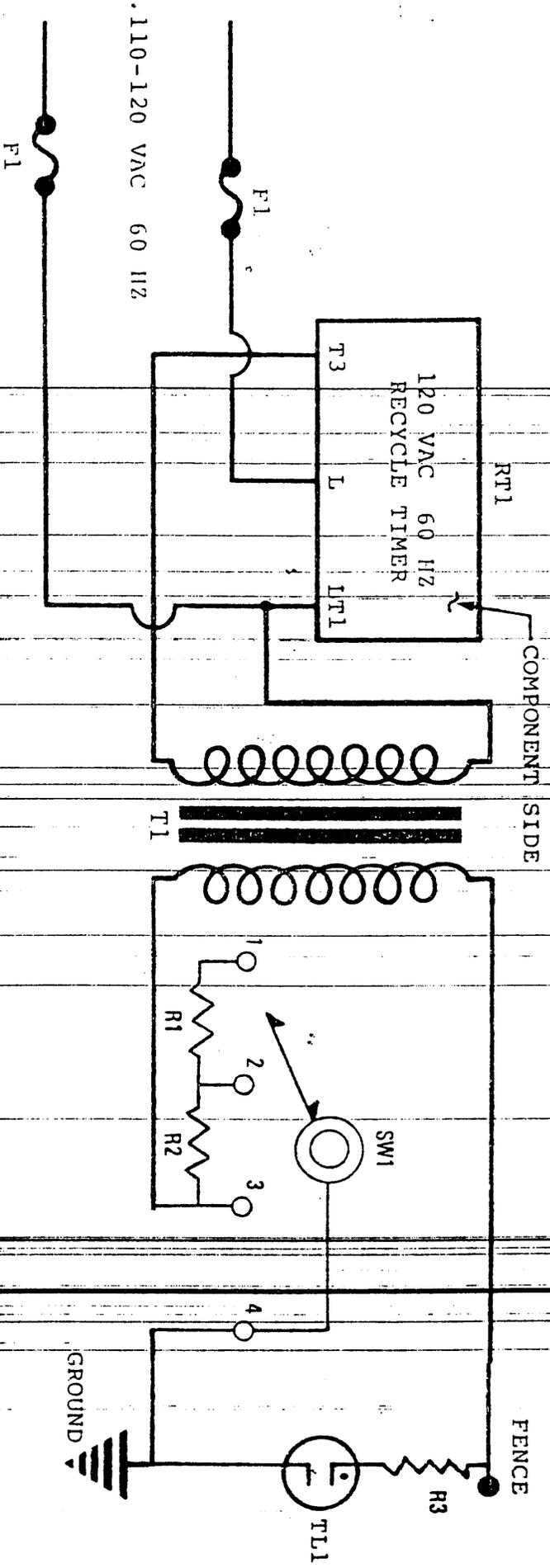
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**Fi-Shock Inc.**  
 ELECTRICAL SCHEMATIC OF A.C. SOLID STATE CONTROLLERS  
 110-120 VOLT 60 HERTZ OPERATION

Model(s): SS-650AR



CIRCUIT REF.	PART NO.
F1	301-404B
RT1	311-221
T1	311-155
SW1	301-564
R2	301-127
R1&R3	301-103
TL1	301-510A

DESCRIPTION
3AG, 1/16 AMP TIME-DELAY FUSE
RECYCLE TIMER
OUTPUT TRANSFORMER
ROTARY SWITCH-1POL.
220K OHM-CC-5%-1/2W RESISTOR
330K OHM-CC-5%-1/2W RESISTOR
NEON LAMP - SPECIAL

APPROX. PEAK OUTPUT VOL TAG - INTERMITTENT	LOW (1)	MED (2)	HIGH (3)
	1000	1200	1400

NOTE: ALL COMPONENT VALUES AND PART NUMBERS ARE SUBJECT TO CHANGE

E91879  
 VOL. 1  
 SEC. 1  
 ILL. 1D

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A5

# SOLID STATE

Model  
SS-750

Serial No. G-

# STOCK

## PET DETERRENT

ELECTRIC FENCE CONTROLLER

INSTALL INDOORS ONLY

110-120 V, 60 Hz AC

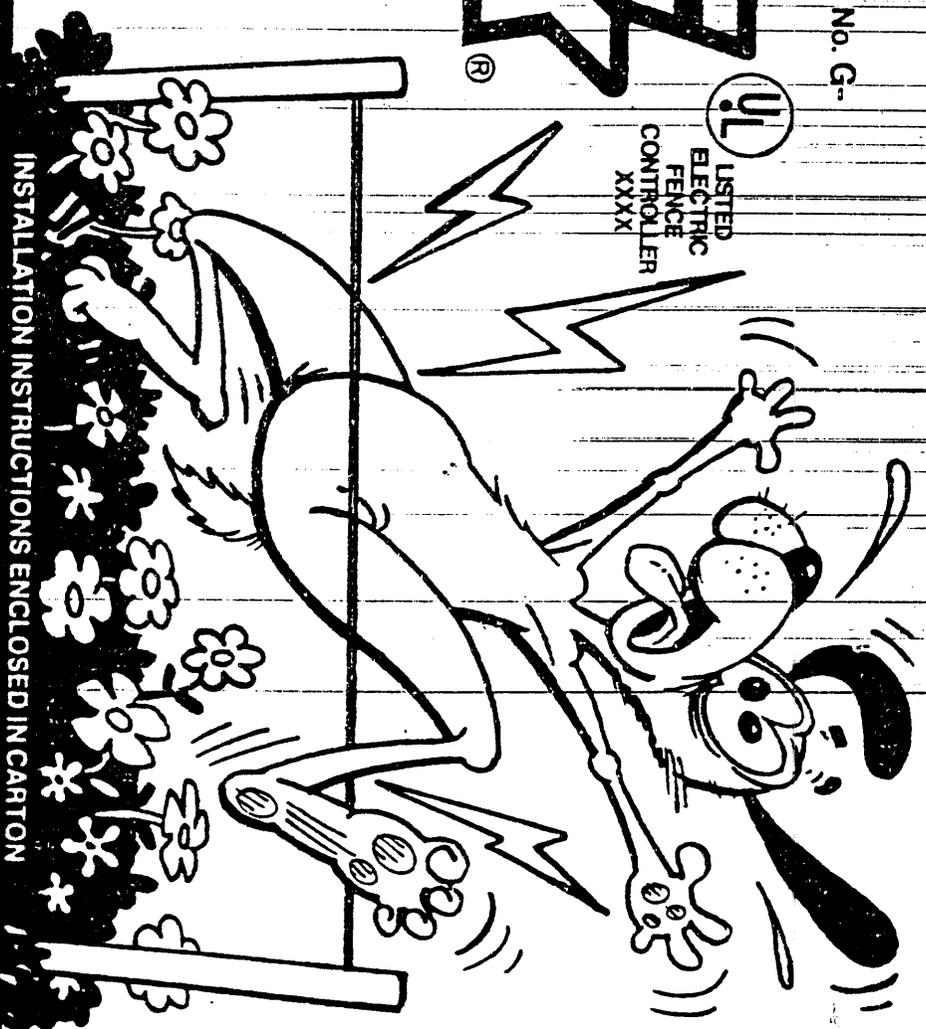
Use 1 Amp Fuses Only

**DANGER** - ANY ALTERATION TO THE DESIGN OF THIS CHARGER MAY CAUSE SERIOUS ELECTRICAL SHOCK. INTERMITTENT OUTPUT

Made in U.S.A. by **Fi-Shock Inc.**  
5360 NATIONAL DRIVE, KNOXVILLE, TN 37914



UL LISTED  
ELECTRIC  
FENCE  
CONTROLLER  
XXXX



INSTALLATION INSTRUCTIONS ENCLOSED IN CARTON

ILL. 2  
SEC. 1  
VOL. 1  
E91879



**GROUND**

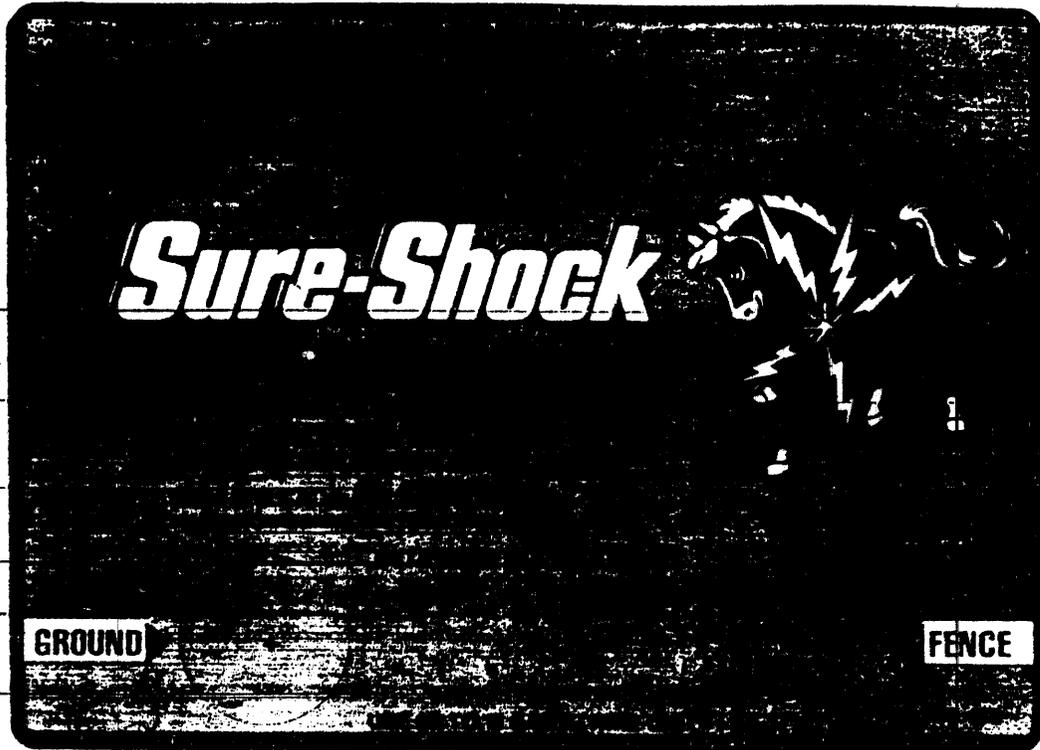
PRESS

TO TEST

Use a 20 to 12 Gauge Wire Only

**FENCE**





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LABORATORIES, INC.

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LABORATORIES, INC.

INSTALLATION INSTRUCTIONS ENCLOSED IN CARTON

Model SS-250  
**SOLID STATE Cow Trainer**  
ELECTRIC FENCE CONTROLLER

Use 1/16 Amp Time-Delay Fuses Only

Serial No. CT—

 LISTED ELECTRIC FENCE CONTROLLER 11NO

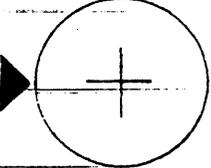
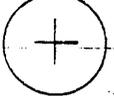
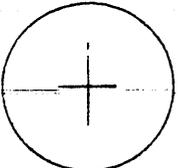
110-120 V, 60 Hz AC, 10 W Max.  
INSTALL INDOORS ONLY

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

Made in U.S.A. by **FI-SHOCK**  
5360 NATIONAL DRIVE, KNOXVILLE, TN, 37914



HI MED LO  
INTERMITTENT OUTPUT

GROUND    FENCE

USE 20 TO 12 GAUGE WIRE ONLY

305-144

INSTALLATION INSTRUCTIONS ENCLOSED IN CARTON

Model SS-650AR  
**SOLID STATE Anti-Roost**  
POULTRY CONTROLLER  
ELECTRIC FENCE CONTROLLER

Use 1/16 Amp Time-Delay Fuses Only

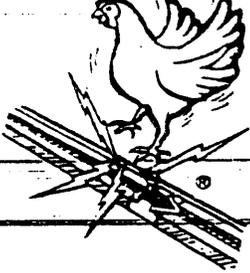
Serial No. AR—

 LISTED ELECTRIC FENCE CONTROLLER 11NO

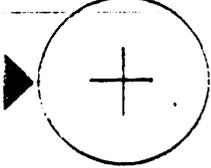
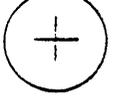
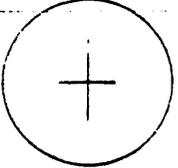
110-120 V, 60 Hz AC, 10 W Max.  
INSTALL INDOORS ONLY

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

Made in U.S.A. by **FI-SHOCK**  
5360 NATIONAL DRIVE, KNOXVILLE, TN, 37914



HI MED LO  
INTERMITTENT OUTPUT

GROUND    FENCE

USE 20 TO 12 GAUGE WIRE ONLY

305-147

E91879  
VOL. 1  
SEC. 1  
ILL. 4

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T E S T R E C O R D N O. 1SAMPLES:

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

<u>Condition</u>	<u>Current, A</u>	<u>Power, W</u>
Open circuit output	0.36	43.2
Connected to 500 ohm load	0.8	96 96 W

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.

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## RESULTS

Location of Thermocouples No.	Recorded Temperature, °C			Maximum Rise Temperature, °C
	1	2	3	
Resistor - R1	46.8	46.8	46.3	24
- R2	114.2	113.9	113.4	91.1
Capacitor - C1	40.1	40.0	39.7	17.2
- C2	52.9	52.7	52.3	29.9
Diodes - D1	52.1	51.9	51.4	29.1
- D2	60.4	60.3	59.9	37.5
Triac - Q1	46.7	46.6	46.2	23.8
Transformer - 1	32.0	32.3	32.4	9.7
- 2	31.9	32.2	32.2	9.5
- 3	32.3	32.8	32.8	10.1
- 4	-	-	-	-
- 5	31.8	32.2	32.2	9.5
Ambient -	23.1	22.8	22.7	-

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 the 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.

The Tt - T1 equals T2.

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

The average mA-s, A1 below the 300 mA level during T1 was determined.

The average mA-s, A2, during T2 was determined.

The off time (To) was determined by counting the total number of pulses (N) during a 60 s period and using the following equation:  $To = (60 \text{ divided by } N) - Tt$ .

RESULTS

Board No.	Resistance (Ohms)	"On" Time Tt (s)	"Off" Time To (s)	Peak Current (A)	Pulse Duration Above 300 mA T1 (s)	Initial Pulse Average Output AP (mA-s)	Tt-T1 Equals T2 (s)	Average Output Below 300 mA A1 + A2 (mA-s)	Total Average Output Ap+A1+A2 (mA-s)
2	500	0.1778	0.913	0.017	0	0	0.1778	-	0.1778

Effective current is 12.0 mA.

These results are considered acceptable.

(1) To 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 59°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  $-18 \pm 2^\circ\text{C}$  ( $0 \pm 4^\circ\text{F}$ ) 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 milliamper-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  $\mu\text{F}$  paralleling the resistance loads which produced the greatest milliamper-second output value and which produced the longest 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 uF 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

Component (Schematic Designation)	Output +	Observation And Comments
Resistor, R9	Y	Continuous output until fuse opened 32 s later.
Capacitor, C3	Y	Continuous output until fuse opened 8 s later.
Diode, D3	Y	Continuous output until fuse opened 8 s later.
Resistor, R10	N	Initial output, fuse opened almost immediately

+ -- 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

Component (Schematic Designation)	Output +	Observation And Comments
Diode, D3	Y	Continuous output until fuse opened 30 s later
Resistor, R10	Y	Continuous output until fuse opened 30 s later

+ - 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

Material	Observation
Cotton (dense)	Slight charring
Wood chips	Nothing
Gauze	Nothing
Dried grass	Slight charring & more spark
Dried leaves	Slight charring & more spark
Cotton (very loosely packed - information only)	Nothing

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

Fault Condition	Observations and Comments
The triac, Q1, was shorted to cause continuous output	Fuse opened

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.

~~DPS/KEG:iw~~

T E S T R E C O R D N O . 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

T E S T R E C O R D N O . 3SAMPLES :

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

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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  $\pm$  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  $\pm$  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.

WCS/SAS:rb

T E S T R E C O R D N O . 4SAMPLES:

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 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 (T<sub>1</sub>) was measured as the time between its first rising above and last falling below the 300 mA level.

The "On" time (T<sub>t</sub>) 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 (T<sub>o</sub>) was determined by counting the total number of pulses (N) during a 60 s period and using the following equation:

$$T_o = (60 \text{ divided by } N) - T_t.$$

## RESULTS

Sample No.	Resistance (Ohms)	"On" Time Tt (s)	"Off" Time To (s)	Peak Current (A)	Pulse Duration Above 300 mA Tl (s)
1	500	0.13	1.09	0.0163	0

Effective output is 11.5 mA.

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

C O N C L U S I O N

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:

Reviewed by:

*D. P. Schofield*

*K. E. Gettman*

D. P. SCHOFIELD  
Engineer  
Electrical Department

K. E. GETTMAN  
Engineering Team Leader  
Electrical Department

DPS/KEG:iw

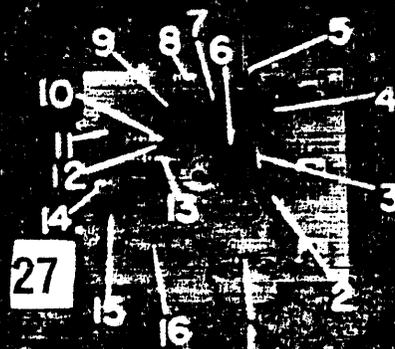
## / ALTERNATE CONTROL BOARD - FIG. 6 (C85-17633)

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.

WCS/SAS:rb

AND REPORT



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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.

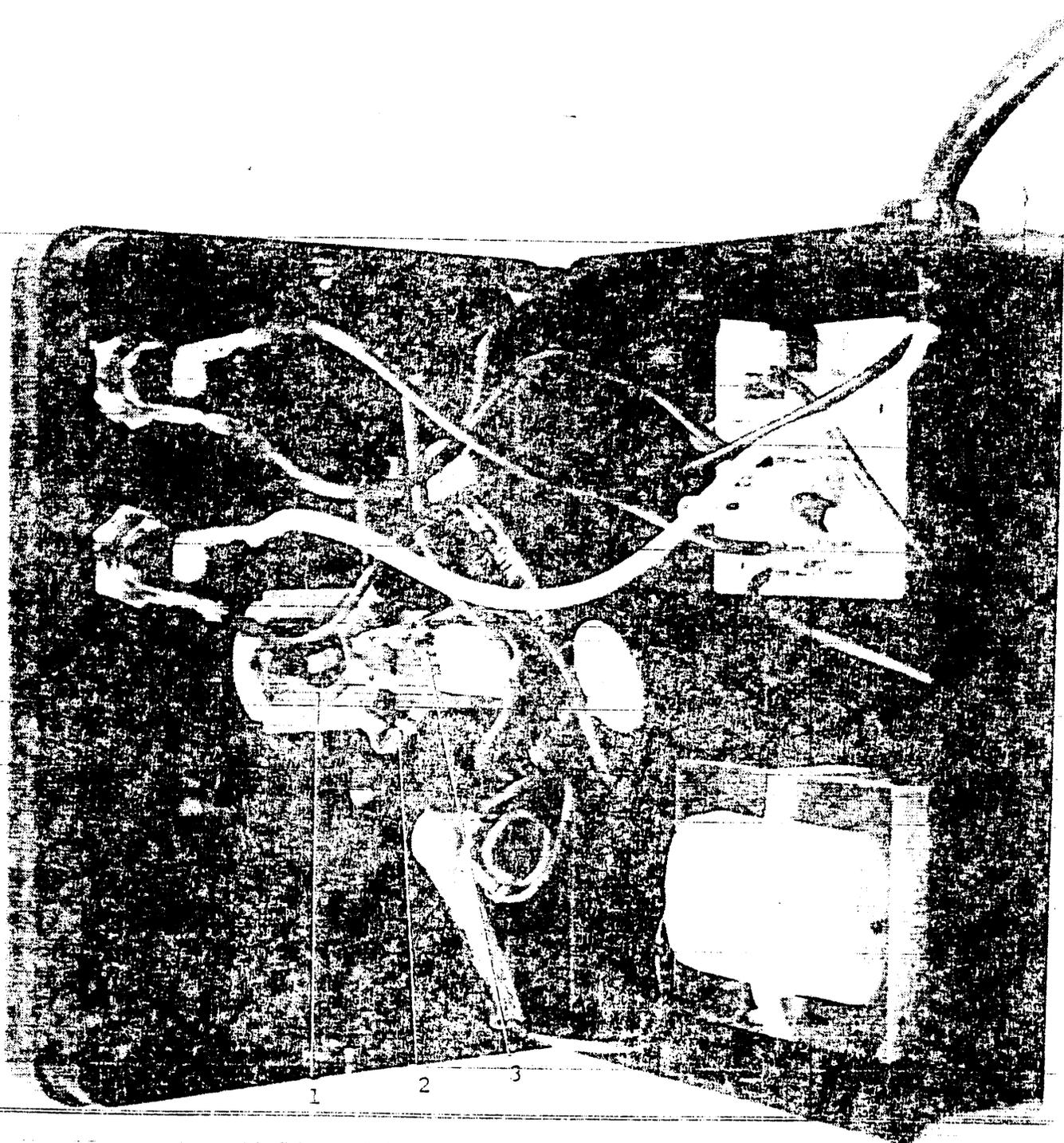
Model SS-650 - Marking, see ILL. 3.

\*Model SS-550 - Provided with 0.01 uF, 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

Time \_\_\_\_\_

Firm Name: Fi-Shock, Inc.

Firm Address: Knoxville, Tenn.

Caller Name & Title: Don McCarter

Telephone Number: 615-524-7380

Subject: RP 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, that the product could not deliver lethal electrical energy to the person. He said that the product

Copy to: \_\_\_\_\_

steps ~~the~~ line voltage (120 VAC) up to 700-800 volts, and reduced the 191 amperage to 12 m.a. Further he said

~~RESTRICTED~~  
COPY

MAY 04 1989

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. § 1015.13 (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

FORM 1A  
Initial input and staff worksheet

RECEIVED BY: Jenni Rogers  
TIME: 10:15  
HAZARD PRIORITY: \_\_\_\_\_

CORRECTIVE ACTIONS DIVISION  
REPORT SHEET: OFFICE USE ONLY

NUMBER: RP 890087 DATE OPENED 890417 (yyymmdd) DT CLOSED \_\_\_\_\_

CACA CONTACT: T. JONES RO: FOCR

COMPANY NAME: Fi-Shock, Inc.

ADDRESS: 5360 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 pet deterrent

MODEL: ~~701~~ # SS-750

CEO/Delegate if different from above:

BRAND: FIDO-SHOCK

POT. HAZARD: electric shock

COMMENTS: ID188115CCC2060

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:

*Unit is UL listed  
Listing Report available*

III. ADDITIONAL DEFECT AND HAZARD INFORMATION

A. Description of defect: unk

*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 rec'd IDI from CPSC 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 of 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 complaint 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--  
Explanation 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)

File 7

FIELD ACTIVITY COVERSHEET

1. REGION/STATE  FOCR/ATL-SO	2. OPERATION (Check One) <input type="checkbox"/> Inspection <input type="checkbox"/> Establishment Visit <input type="checkbox"/> Telephone Contact <input checked="" type="checkbox"/> Investigation <input type="checkbox"/> Other _____	3. DATE 12/01/88
		4. NUMBER (For RO Use) 881115CCC2060

5. ESTABLISHMENT  
 Name Fi-SHOCK, Inc.  
 Address 530 National Drive  
 City Knoxville State TN Zip 37914 Telephone No. (615) 524-7384

6. RELATED FIRM       Parent     Headquarters     Subsidiary     Other \_\_\_\_\_  
 Name \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_

7. PRODUCTS COVERED <u>FIDO SHOCK Pet Deterrent</u>	8. OTHER CONSUMER PRODUCTS <u>N/A</u>
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9. ESTABLISHMENT TYPE    N/A <input type="checkbox"/> Manufacturer <input type="checkbox"/> Importer <input type="checkbox"/> Wholesaler <input type="checkbox"/> Own Label Distributor <input type="checkbox"/> Retailer <input type="checkbox"/> Repackager <input type="checkbox"/> Other _____	10. ANNUAL PRODUCTION Products Covered \$ _____ Units _____ Other Products    \$ _____ Units _____
--	--

11. I.S. BUSINESS    N/A % Received _____ % Shipped _____	12. SAMPLES COLLECTED <u>None</u>	13. MIS CODE <u>32626</u>	14. HOURS Activity <u>14</u> Travel <u>4</u>
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15. REASON FOR ACTIVITY (Assignment Reference)  
In Depth Investigation #381115CCC2060

16. EMPLOYEE'S NAME <u>David M. Galanti</u>	TITLE <u>PSI</u>	SIGNATURE <i>David M. Galanti</i>
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17.  ENDORSEMENT       REMARKS       SUMMARY       OTHER \_\_\_\_\_

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 the uncle 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.

18. REVIEWER'S NAME <u>George L. Lester</u>	TITLE <u>SPSI</u>	SIGNATURE <i>George L. Lester</i>
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19. REVIEW DATE <u>1/25/89</u>	DISTRIBUTION O: EPDS, cc: FOCR Inv file, ATL (LGG), CACA, cs: LGG, GLL, RF
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1. DATE NO. 881115CCC2060			2. INVESTIGATOR'S ID 8 9 3 5			3. OFFICE CODE 8 3 8			<b>EPIDEMIOLOGIC INVESTIGATION REPORT</b>		
4. DATE OF ACCIDENT YR MO DAY 8 8 0 9 1 7			5. DATE INVESTIGATION INITIATED YR MO DAY 8 8 1 2 0 6								
6. SYNOPSIS OF ACCIDENT OR COMPLAINT <u>A four year old male victim died of Cardiac/Respiratory arrest after receiving an electric shock by falling across a 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.</u>											
7. LOCATION (Home, school, etc.) Home - Back Yard				8. CITY Ridge Top		9. STATE Tennessee					
10A. FIRST PRODUCT Electric Wire				11A. TRADE/BRAND NAME, MODEL NUMBER, MANUFACTURER & ADDRESS "FIDO-SHOCK", Model #SS-750 FI-Shock Inc., 5360 National Drive, Knoxville, TN							
10B. SECOND PRODUCT None				11B. TRADE/BRAND NAME, MODEL NUMBER, MANUFACTURER & ADDRESS N/A							
12. AGE OF VICTIM 0 0 4		13. SEX (Use numerical code) MALE -1 FEMALE -2 UNKNOWN -3 1		14. DISPOSITION Fatality			15. INJURY DIAGNOSIS Electric Shock			6 7	
16. BODY PART All Parts		17. RESPONDENT(S) (Mother, Friend) Police Detective			18. TYPE INVESTIGATION ON SITE 1 TELEPHONE 2 OTHER 3 1			19. TIME SPENT 1 4 0			
20. ATTACHMENTS Multiple		21. CASE SOURCE Newspaper			22. REVIEWED BY 8298			YR MO DAY 8 9 0 1 2 5			
23. PERMISSION TO DISCLOSE NAMES (NON-NEISS CASES ONLY) CPSC MAY DISCLOSE MY NAME <input type="checkbox"/> CPSC MAY NOT DISCLOSE MY NAME <input checked="" type="checkbox"/>											
24. NARRATIVE (See Instructions on Other Side)						25. REGIONAL OFFICE DIRECTOR REVIEW DATE					

(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,  $\frac{1}{2}$  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:

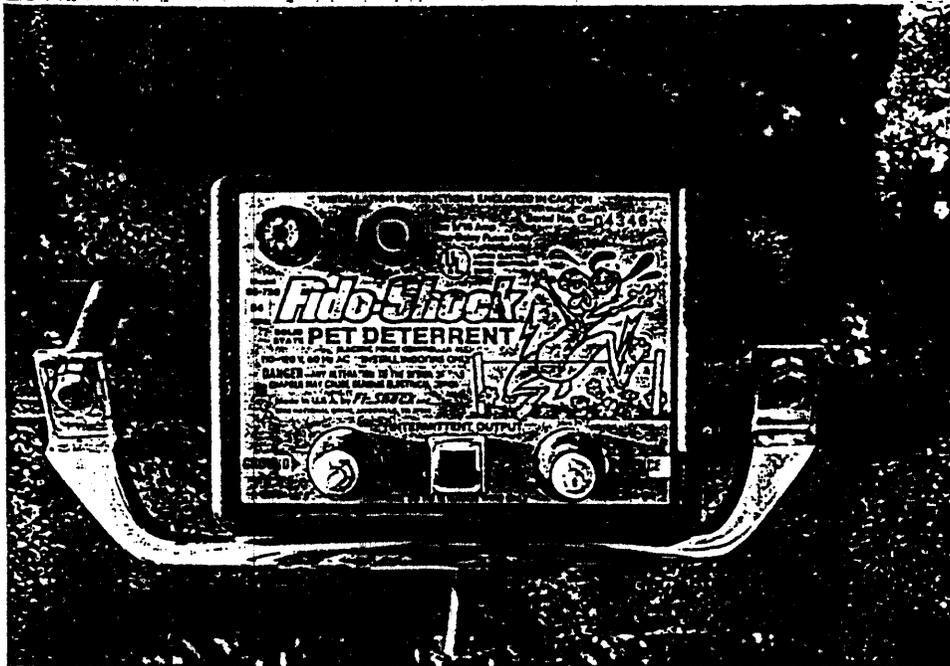
The product is an electrical control box enclosed in black plastic and generally mounted indoors, on the walls of a building. Product is manufactured by Fi-SHOCK, Inc., 5360 National Drive, Knoxville, Tennessee, 37914. Additional labeling states: FIDO-SHOCK, Solid State Pet Deterrent, Electric Fence 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.

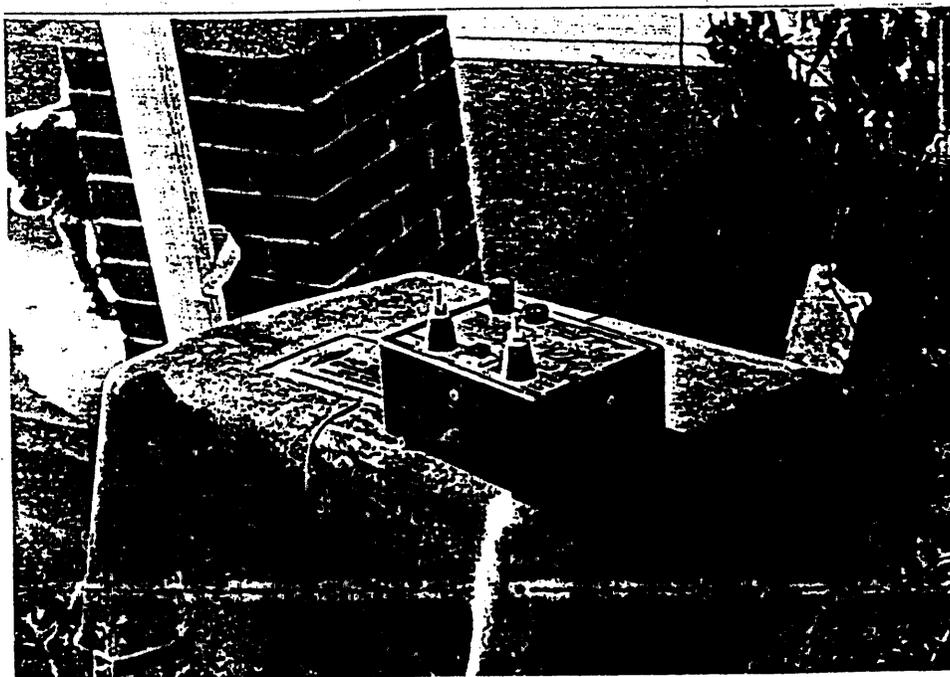
Attachments:

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

CPSC EXHIBIT 1 DATE 12/07/88  
FIRM IDI # 881115CCC2060  
  
  
NAME David M. Galanti, Invest. CPSC



*ELECTRIC  
CONTROLLER*



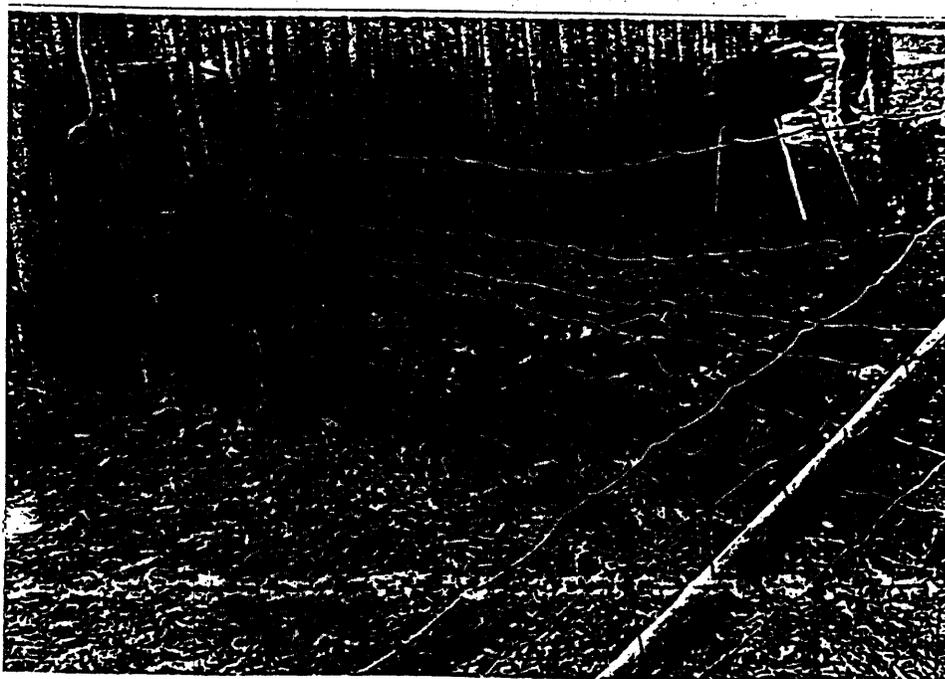
CPSC EXHIBIT 2 DATE 12/07/88

FIRM \_\_\_\_\_ IDI# 881115CCG2060

NAME David M. Galanti, Invest. CPSC



N.E. CORNER  
of Dog compound



INSIDE PRE-EXISTING  
FENCE WHERE VICTIM  
WAS FOUND.

RM B-

METROPOLITAN NASHVILLE  
AND DAVIDSON COUNTY  
OFFICE OF THE MEDICAL EXAMINER  
FORENSIC SCIENCES CENTER  
84 HERMITAGE AVENUE  
NASHVILLE TN 37210-2110  
(615) 259-6920

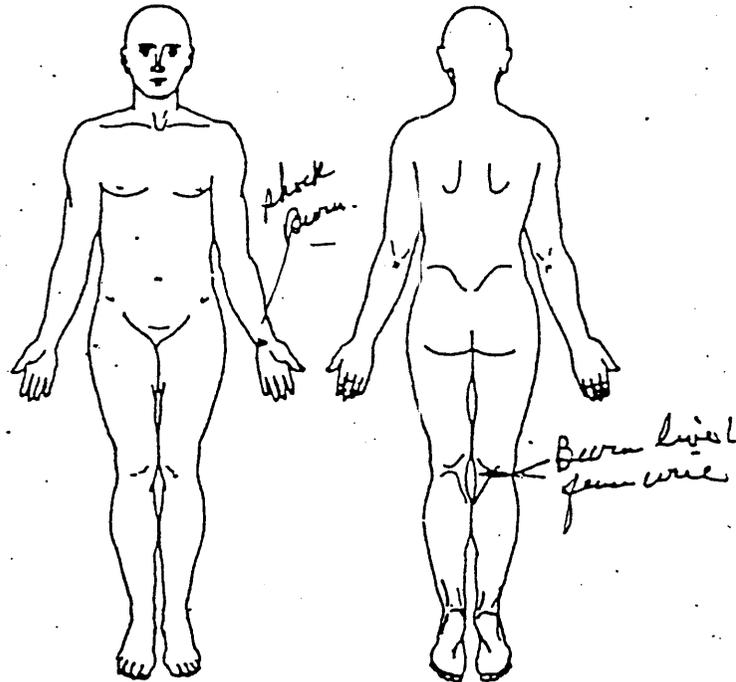
CASE NO. MEC 88-1666

REPORT OF INVESTIGATION BY COUNTY MEDICAL EXAMINER

DECEASED Steven Winfree RACE: W SEX: M AGE: 3  
 First name Middle name Last name  
 HOME ADDRESS P O Box 303 Greenbriar Tn M W S D OCCUPATION: \_\_\_\_\_  
 Number and Street City or County State  
 TYPE OF DEATH: Violent  Casualty  Suicide  Suddenly when in apparent health  Found Dead   
 (Check one only) In Prison  Suspicious, unusual or unnatural  Cremation   
 Comment electric shock  
 If Motor Vehicle Accident Check One: Driver  Passenger  Pedestrian  Unknown   
 Notification by Dr. Ann Byers / Vandy ER 322-0145 Address Nashville  
 Investigating Agency M. P. D.

DESCRIPTION OF BODY: Clothed  Unclothed  Partly Clothed  Circumcised Yes  No   
 Eyes Brown: Hair Brown: Mustache \_\_\_\_\_: Beard \_\_\_\_\_  
 Weight 38.6 Pounds: Length 40 Inches: Body Temp \_\_\_\_\_: Date and Time 9/17/88  
 Fahrenheit  
 Rigor: Yes  No  Lysed  Livor Color \_\_\_\_\_ Fixed  Non-Fixed

Marks and Wounds \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
Cyanosis  
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PROBABLE CAUSE OF DEATH	MANNER OF DEATH	DISPOSITION OF CASE
<u>Cardio-Resp Arrest due to Electric Shock from Dog Fence.</u>	(Check one only) Accident <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Suicide <input type="checkbox"/> Unknown <input type="checkbox"/> Homicide <input type="checkbox"/> Pending <input type="checkbox"/>	1. Not a medical examiner case <input type="checkbox"/> 2. Autopsy requested Yes <input type="checkbox"/> No <input type="checkbox"/> Autopsy ordered Yes <input type="checkbox"/> No <input type="checkbox"/> Pathologist _____

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.

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) \_\_\_\_\_

	LAST SEEN ALIVE	INJURY OR ILLNESS	DEATH	DISCOVERY	MEDICAL EXAMINER NOTIFIED	VIEW OF BODY	POLICE NOTIFIED
DATE	9-17-88	9/17/88	9-17-88	/	9-17-88	9-17-88	Same
TIME	1700	± 1700	1904		1925	1300	
	LOCATION		CITY OR COUNTY		TYPE OF PREMISES (HOSPITAL, HOTEL, HIGHWAY, ETC.)		
INJURY OR ONSET OF ILLNESS	Davidson Ridge Rd		Robertson County		Residence		
DEATH	Vanderbuilt ER		Davidson		Hospital		
VIEWING OF BODY BY MEDICAL EXAMINER	F S C		Davidson		County Morgue		

MEDICAL ATTENTION AND HOSPITAL OR INSTITUTIONAL CARE

NAME OF PHYSICIAN OR INSTITUTION	ADDRESS	DIAGNOSIS	DATE

CIRCUMSTANCES OF DEATH

	NAME	ADDRESS
FOUND DEAD BY		
LAST SEEN ALIVE BY		
WITNESS TO INJURY OR ILLNESS AND DEATH		
N O K FH	(Mother- Wanda Winfree) Cole & Garrett	865-6164

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 Vanderbuilt and has been there several times for various reason but has no personal Doctor.

@ P.R. & therapy, no response began in 2 R U and 18 2 3.

Continued downing 1901 (see Card record on this chart)

Electrical burn small area left foot wrist area. & larger longer burn area behind at knee joint on leg. response to therapy Negative. (no other evidence of trauma.)

Cardio Respiratory Arrest ( ) due to Electric fence shock.

(Blood drawn for toxicology) No urine could be

Happen at Davidson Ridge Rd. Robertson County - Toxicologic