

# **SERVICE MANUAL (SUPPLEMENT)**

## **NUTONE MODEL 2300 SECURITY/FIRE ALARM SYSTEM**

THE CORRECTIONS AND ADDITIONS LISTED IN THIS SUPPLEMENT SHOULD BE ENTERED IN THE S-2300 SERVICE MANUAL (Part No. 47229-000), DATED 12-75.

SPECIAL NOTE SHOULD BE MADE OF THE CHANGES AND ADDITIONS TO THE REPLACEMENT PARTS LIST. ALWAYS REFER TO THE SUPPLEMENT WHEN ORDERING S-2300 SYSTEM PARTS FROM THE FACTORY.

**NuTone Housing Products**

**Scovill**

MADISON & RED BANK ROADS

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Part No. FE-925-1  
Printed in U.S.A. 10/76 HI

- Page 3: Under POWER SUPPLY-120VAC 60 HZ. OPERATION  
Para (5), first line: change "R23" to read "R53"  
Para (6), first line: change "R22" to read "R44"
- Page 7: Under INTRUDER ALARM (S2 IN PERIMETER ON POSITION)  
Para (4.2), first line: change "Z2A-2" to read "Z2A-3"
- Page 11: Under MODEL S-2330 ALARM SHUTDOWN TIMER  
(1) FIRE DETECTION CIRCUIT  
Para (1.18.2), second line: change "Z46-8/9" to read "Z4C-8, 9"  
Para (1.19.3), third line: change "Z603-10" to read "Z603C-10"  
Para (1.19.7.1), fourth line: change "Z407-8" to read "Z402-8"
- Page 14: Under (2) PERIMETER INTRUDER DETECTION CIRCUIT  
Para (2.20.3.1), first line: change "Z1D-11" to read "Z4D-11"  
Para (2.20.3.2), first line: change "Z1D-11" to read "Z4D-11"
- Page 15: Under (4) RESET  
Para (4.3), first line: change "h" to read "(h)"  
third line: change "C1D" to read "Z1D"
- Page 16: Under MODEL S-2375 PHONE DIALER  
Para (4.3), second line: change "Z1C-10" to read "Z1C-9"  
Para (6), third line: change "Z-2330" to read "S-2330"
- Page 24/25: To SCHEMATIC DIAGRAM, make following corrections:  
Output terminal of Buzzer Pulser Z3C should be Pin 10  
Z1A inverting (-) input terminal should be Pin 3  
27K resistor "R8" (located in line between output of Alarm Pulser Gate Z2A-3 and base of Q4 should read "R48"  
In later production units, R35 is a fixed 100K resistor and the Buzzer Pulser's Frequency is approximately 150 Hz.
- To S-2330 ALARM SHUTDOWN TIMER, add:  
.1 microfarad capacitor C610 between P600-2 and circuit common ground  
.01 microfarad capacitor C609 between P600-10 and circuit common ground  
NOTE: C609 and C610 in later production units only  
C604 used in early production units only

To S-2280 EXIT ENTRY TIMER:

Correct wiring color code between PC board and S401 as follows:

PC TERMINAL	ORIGINAL PRODUCTION UNITS	LATER PRODUCTION UNITS
Ⓒ	BLK	YEL
Ⓗ	RED	RED
Ⓓ	ORN	VIOL
Ⓔ	BLU	ORN
Ⓕ	GRN	BLU
Ⓖ	YEL	GRAY

Pages 26-29: REPLACEMENT PARTS LIST, correct as follows:

Under MODEL S-188-L SMOKE DETECTOR

Change Complete Assembly Part No. from 10391-900 to 10352-900

Under MODEL S-188-LH SMOKE/HEAT DETECTOR

Change Complete Assembly Part No. from 10392-900 to 10353-900

Under MODEL S-22/23R MASTER UNIT ROUGH-IN HOUSING

Change Complete Assembly Part No. from 10515-900 to 10518-900

Under MODEL S-2300 MASTER UNIT

Change Complete Assembly Part No. from 10650-900 to 10760-900

Under CAPACITORS

Change C3 Part No. from 35091-108 to 35091-116

Change C9 Part No. from 35100-146 to 35024-103; and its description to read ".047, ±20%, 100V Polyester Film

Under INDICATOR LAMPS

Change I1 description to read "AC ON PILOT, LED, green, 50 ma. maximum, 5 PIV, Xciton XC556-g-2"

Change I2 description to read "INTRUDER CIRCUIT ARMED, LED, green, 50 ma. maximum, 5 PIV, Xciton XC556-g-2"

Change I3 description to read "TROUBLE/ALARM, LED, yellow,

Under RESISTORS

Change R35 listing to read as follows:

R35	34042-000	100K, Rheostat, Buzzer Pulser Frequency Adjust (Early Production Units)
R35	33082-104	100K (Later Production)

All resistors whose Part No. is (33081-(suffix)) is changed to "33082-suffix"

Example: R6 Part No. is changed from 33081-822 to 33082-822.

Resistors with Part No. 33082-suffix are ±5%, ¼ watt, carbon film

## Under INTEGRATED CIRCUITS

Insert listing below

Add IC SOCKETS listing below

### INTEGRATED CIRCUITS

Z1	36625-000	14-Pin Monolithic Quad Norton Operational Amplifier: Motorola MC-3301-P Nat Semiconductor LM-3900N or LM2900N
Z2	36630-000	14-Pin, Quad 2-input AND Gates: Motorola MC 14081 CP Solid State Scientific SCL-4081-AE
Z3, Z4	36644-000	14-Pin, Quad 2-input Nor Gates: RCA CD4001 AE (only)

### IC SOCKETS

39501-000 14-Pin

Replace Parts List for the following components with those shown below:

MODEL S-2280 EXIT ENTRY TIMER  
 MODEL S-2330 ALARM SHUTDOWN TIMER  
 MODEL S-2370 BATTERY CHARGER  
 MODEL S-2375 AUXILIARY CONTACTS (replaces MODEL S-2375  
 TELEPHONE DIALER listing)

Schematic Symbol	NuTone Part No.	Description
<b>MODEL S-2280 EXIT ENTRY TIMER</b>		
	10660-900	Complete Assembly
<b>CAPACITORS</b>		
C401, C402	35100-127	.1, + 80%, - 10%, 100V, Ceramic Disc
C403, C405	35100-139	.01, + 80%, - 20%, 50V, Ceramic Disc
C404	35100-139	.01, + 80%, - 20%, 50V, Ceramic Disc (Early Production)
C404	35100-166	.01, ± 20%, 25V Ceramic Disc (Later Production)
C406	35024-101	.47, ± 20%, 75V Polyester Film
<b>DIODES</b>		
D401-D404	36549-000	Silicon Rectifier Type, 1 Amp DC, 100 PIV; 1N4002
<b>CONNECTORS</b>		
P400	39521-103	Plug, 10 Pin, Male, for connecting to Control Unit
<b>TRANSISTORS</b>		
Q401	36613-000	NPN Silicon Motorola MPS-A20 Texas Instrument T1S-98
Q402, Q403	36580-000	NPN Planar Silicon, low noise; Motorola SPS-1216 National Semiconductor SMO-7329 Texas Instrument SKA-4220
<b>RESISTORS</b>		
R401, R407, R409	33082-104	100K
R402	33082-225	2.2M
R403	33082-105	1M
R404, R405	33082-103	10K
R406	33082-681	680
R408, R410	33082-473	47K
R411	33082-154	150K
R412	34042-000	100K, ± 30%, 0.1 watt, Rheostat 255° rotation minimum; C.T.S. Corp Type X-201 Stackpole Carbon Co #1556
R413	33082-183	18K
<b>SWITCHES</b>		
S401	39495-000	Slide Type, DP3T, DEPART (position 1, momentary contact), TIMED ENTRY; HOME: 39524-000 Mounting Channel, Switch S401 25511-015 Screw, #6-32 x 1/4", Slit Pan, switch to channel mounting 41730-000 Switch, Wire, and Channel Assembly

Schematic Symbol	NuTone Part No.	Description
<b>INTEGRATED CIRCUITS</b>		
Z401	36629-000	Quad, 2-input NOR Gates; Motorola MC14001CP RCA CD4001AE Solid State Scientific SCL 4001AE Solitron CM 4001AE
Z402	36633-000	Timer Motorola MC14541 CP
<b>MISCELLANEOUS</b>		
	47171-000	Installation Instructions
	5553-003	Screw, #4 x 1/4", Slit Rd. Switch Assembly to Chassis Mounting
<b>MODEL S-2330 ALARM SHUTDOWN TIMER</b>		
	10780-900	Complete Assembly
<b>CAPACITORS</b>		
C601, C602, C603, C608	35100-127	.1, + 80%, - 20%, 100V, Ceramic Disc
C604	35100-127	.1, + 80%, - 20%, 100V, Ceramic Disc (Early Production Only)
C605, C606	35024-101	.47 ± 20%, 75V Polyester Film
C607	35100-159	.01 ± 10%, 500V Ceramic Disc
C609	35100-166	.01 ± 20%, 150V Ceramic Disc (Later Production Only)
C610	35100-127	.1, + 80%, - 20%, 100V Ceramic Disc (Later Production Only)
<b>DIODES</b>		
D601-D607	36617-000	Silicon Switching, 50ma., 75 PIV; 1N914
<b>CONNECTORS</b>		
P600	39521-103	10-Pin (12-sockets), male: Connect at J6 to Master Unit PC Board
<b>TRANSISTORS</b>		
Q601	36613-000	NPN Silicon: Motorola MPS-A20 Texas Inst. T1S-98
<b>RESISTORS</b>		
R601	34058-000	750K Rheostat, Timer Control C.T.S. Corp. X-201
R602	33082-474	470K
R603, R604, R607	33082-105	1M
R605	33082-564	560K
R606	33082-104	100K
R608, R609, R610, R612	33082-225	2.2M

Schematic Symbol	NuTone Part No.	Description
R611, R614	33082-224	220K
R613	33081-473	47K (Early Production)
R613	33082-183	18K (Later Production)
R616	33082-104	100K (Later Production only)

#### INTEGRATED CIRCUITS

Z601	36633-000	14-Pin, Oscillator Timer Motorola MC 14541 CP
Z602, Z603	36644-000	14-Pin, Quad 2-input Nor Gates: RCA CD4001 AE (only)

#### MODEL S-2370 BATTERY CHARGER

10860-900	Complete Assembly
41732-000	PC Board, complete assembly

#### CAPACITORS

C301	35091-108	100, + 100%, - 10%, 25WVDC Electrolytic
C302	35055-102	.15 ±20%, 100V Polyester Film
C303	35091-113	330, + 100%, - 10%, 35WVDC Electrolytic

#### DIODES

D301	36638-000	Zener, Silicon, 13V ±1%: Motorola .5M13ZS1 1N4743
D302-D308	36549-000	Silicon Rectifier Type 1 Amp DC, 100 PIV: 1N4002

#### FUSES

F301	31160-000 41735-000	2 Amp, AGC3 Fuseholder, for F301, complete Assembly
	47521-000 39528-000	Label, Fuse Rating Insulating Pod, fuseholder

#### INDICATOR LIGHT

LED301	36637-000	Light Emitting Diode, Green, 50 ma Maximum, 5PIV; BATTERY CHARGING INDI- CATOR Xciton XC556-G-2
	41785-000	LED301, wire, and sleeving, complete assembly

#### CONNECTORS

P307	39521-101	3-connections (6-sockets), male, for connecting at J7 to Master Unit Control PC Board
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#### TRANSISTORS

Q301	36605-000	NPN Silicon, Power: Motorola MPS-U05
Q302	36577-000	PNP Epitaxial Planar Silicon: Texas Instrument SKA-4223
Q303, Q304	36613-000	NPN Silicon Motorola MPS A-20 Texas Instrument T1S-98

Schematic Symbol	NuTone Part No.	Description
Q305	36614-000	PNP Silicon single diffused: Motorola MJE-A-20
	38613-000	Heat Sink for Q305
	31990-015	Screw, #4-40 x 1/2" Ph. Pan, Heat Sink Mounting
	11159-003	Nut, #4-40, Hex
Q306	36606-000	PNP Silicon Motorola MPS-K71

#### RESISTORS

R301, R305	33101-151	150 ±10%, 1/2 watt Carbon
R302	33101-180	18 ±10%, 1/2 watt Carbon
R303, R309	33101-102	1K ±10%, 1/2 watt Carbon
R304	33101-221	220 ±10%, 1/2 watt Carbon
R306	33030-110	5 ±10%, 5 watt, Wire Wound
R307	33082-471	470
R308	33082-223	22K
R310	33101-391	390 ±10%, 1/2 watt Carbon

#### MISCELLANEOUS

41733-000	Envelope Assembly including Insulating Pod for battery connecting cables; LED301 Label; Cable Clamp; and Mounting Screw
47104-000	Label, Battery, Neg
47105-000	Label, Battery, Pos

#### MODEL S-2375 AUXILIARY CONTACTS

10885-900	Complete Assembly
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#### DIODES

D501, D502	36549-000	Silicon Rectifier Type 1 Amp DC, 100 PIV: 1N4002
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#### RELAYS

K501, K502	39522-000	SPDT, Auxiliary power switch- ing. Contact Rating: 2 Amp Resistive; 1 Amp inductive; @ 24V. Coil: 400 ohms ±10%; nominal 12Vdc; must pull-in at 9Vdc or less at 25°C. Sigma Instruments 78RE1-12DC
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#### CONNECTORS

P500	39521-102	3-Pin (6-socket), male, connect at J7 to Master Unit PC Board
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#### TRANSISTORS

Q501, Q502	36613-000	NPN Silicon Motorola MPS-A20 Texas Instrument T1S-98
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#### RESISTORS

R501, R502	33082-393	39K
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