

# NSC HEAT SEAL MANUAL

MODEL NUMBER: HS163 & HS169



**Natmar Services Company**

139 Beattie Street • P.O.Box 6743 • Syracuse, NY 13217

Toll Free 800-798-8206 • Local (315) 445-2419 • Fax (315) 445-8046

Visit us on the web at [www.natmar-nsc.com](http://www.natmar-nsc.com)

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## Section A Warranty

Natmar Services Company, Syracuse, New York ("Seller") warrants this Heat Seal machine to be free from defects in material and workmanship under normal use and service. Any part which proves to be defective in material or workmanship within one year of the date of original purchase for use, will be repaired or replaced, at Seller's option, free of service or labor charges, with a new or functionally operative part. Seller's liability under the Warranty shall be limited to repairing or replacing at its own factory or through an authorized service distributor or dealer, material which is determined by Seller to have been defective in manufacture and upon which a claim has been made by the original purchaser or user to Seller (or an authorized distributor or dealer) within the warranty period. An authorized officer of Seller will honor claims under this Warranty only upon written approval. Approved return of parts or products will be on a prepaid transportation charges basis only. Claims under this Warranty will be honored only upon Seller's determination that the claim is covered by this Warranty, and Seller shall incur no obligation under this Warranty prior to such determination. This Warranty does not apply: (1) To any machinery or equipment which has been altered or repaired, except by Seller or its authorized representatives, or (2) to any machinery or equipment which has been subject to misuse, negligence, or accident, including, without limitation, use an operation of such machinery or equipment while parts are loose, broken, out of order, or damaged by the elements. Parts replaced under this Warranty are warranted only through the remainder of the original Warranty. Any and all claims for warranty service must include such information as Seller designates, and shall include specifically the serial number of each unit (if appropriate).

The foregoing shall constitute the sole and exclusive remedy of any using purchaser and the sole an exclusive liability of Seller in connection with this product. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, INCLUDING BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS AND ALL OTHER OBLIGATIONS OR LIABILITIES OF SELLER, INCLUDING ANY TORT LIABILITY, FOR NEGLIGENT DESIGN OR MANUFACTURE OF THIS PRODUCT, OR OTHERWISE. It is expressly agreed that Buyer shall not be entitled to recover any incidental or consequential damages, as those terms are defined in the Uniform Commercial Code, and that Buyer shall have no right of rejection or of revocation of acceptance of any part or of revocation of acceptance If any part or all f the goods covered hereby.

Natmar Services Company reserves the right to make changes in design and changes or improvements upon its product without imposing any obligation upon itself to install the same upon its products previously manufactured.

### HOW TO ORDER REPAIR PARTS:

It is important that proper information is included on the repair parts order, so the correct part can be promptly shipped. The following information must be included on the repair parts order:

1. The complete model and serial number as stamped on the nameplate located on the back of the machine.
2. The part number as listed in the part number column
3. The part description as listed in the description column
4. The quantity required.

**NOTE:** WHEN ORDERING ANY ELECTRICAL COMPONENTS, SPECIFY ELECTRICAL DATA FOUND ON NAMEPLATE LOCATED ON BACK OF MACHINE FRAME (VOLTAGE, PHASE, AND HERTZ).

## **Description of HS163 & HS169 Heat Seal Machines**

These manually actuated heat-seal machines provide the heat, time and pressure required for the application of a wide range and variety of Natmar products.

The handle of the model HS163 Heat Seal Machine is manually lowered to its locked position and manually raised at the completion of the variable time cycle, which is signaled by a buzzer.

The handle of the model HS169 Heat Seal machine is manually lowered to its locked position and automatically released and raised at the end of the time cycle.

## Section B

### Safety Information

This machine is equipped with a fully grounded 3-wire cord and plug must be used only in conjunction with a properly grounded outlet of the correct voltage.

**CAUTION:** The heating iron can cause skin burns

### Machine Specifications

Width:	6.25" (16cm)
Length:	19.75" (50cm)
Height (Open)	21.5" (55 cm)
(Closed)	12.25 (31 cm)
Sealing Platen:	3.75" X 4.75" (9.5 cm X 12 cm)
Time:	0 to 30 seconds
Heat Range:	265 °F to 465°F (130°C to 240°C)
Electrical Requirements:	3.8 Amps @ 110 VAC, 50/60 HZ <b>OR</b> 1.9 Amps @ 220 VAC, 50/60 HZ

## **Section C**

### **Setting Up**

Set the machine on the work table in a desired location

Insert thermometer in hold at the right side of the sealing iron

Plug electrical power cord into the socket at the back of the machine.

Plug the electrical power cord into a properly grounded outlet of the correct voltage.

## Section D

### Operating Instructions

**Important:** Read this entire section before operating machine. If not already done, insert thermometer into hole in sealing iron.

Raise handle to its full upright position.

Push power switch at rear of machine to “on” position. The light on the front panel will glow red indicating that power is being supplied and that the sealing iron is not at the proper temperature. Allow a minimum of 15 minutes for iron temperature to stabilize (temperature was factory pre-set @ 410°F (232°C). Always check thermometer reading prior to operating the press.

**Caution:** The heating iron can cause skin burns.

Turn knob of timer located on the front of the press to the required time cycle.

See Section E if pressure adjustment is necessary. Generally speaking, higher pressures will produce more effective heat sealing, while excess pressure may force adhesive through the fabric with unsightly result.

With heat, time and pressure at recommended levels, center the work on the pad.

Place the repair patch, emblem or label tape adhesive (shiny) side down. (Transfers should be placed ink side down)

Lower the handle to its locked position. When the buzzer sounds, raise the handle to its upright position (HS163). The HS169 will automatically release and return to the upright position at the completion of the time cycle. If the handle on an HS169 does not return automatically, it can be manually opened by pushing in the red button on the right side of the machine.

**Caution:** For best results, sealed material should be handled carefully until it has cooled to room temperature.

## Section D-2

### Heat Sealing Guide

	<u>Pressure Setting</u>	<u>Time Cycle</u>
Emblems	High (8 to 10)	12 Seconds
Mending Materials	Medium (5 to 7)	10 Seconds
Identification Tapes	Medium (5 to 7)	10 Seconds
Transfers	Low (0 to 4)	4-6 Seconds
Sublimation Transfers	Low (0 to 4)	24 Seconds

\*See Section E

## Section E

### Adjustments

#### Temperature

Insert a very small screwdriver through the hole in the front panel. Turn the adjustment screw about 1/8 turn clockwise to increase the temperature or 1/8 turn counterclockwise to decrease. Allow about 5 minutes for the temperature to stabilize, then check the thermometer reading.

*Note:* Turning the adjustment screw just a small amount can cause a large change in temperature.

If you suspect the thermometer is defective, test by immersing the thermometer stem in rapidly boiling water. It should read within 5° of 212°F (100°C)

The machine has been factory preset to 410°F (210°C)

**DO NOT EXCEED 450°F (232°C)**

#### Sealing Pressure

Referring to the label at the front of the machine, turn the lower platen base counterclockwise to increase the pressure or clockwise to decrease. The Pressure Setting numbers in the Heat Sealing Guide on page D-2 are used as follows:

Turn the base clockwise until it bottoms out against the base, then turn counterclockwise slightly until the first “click”. This is the number zero. Now turn the platen base counterclockwise, counting the number of “clicks” which is the pressure setting number. Let’s say you are using the machine and want to know the pressure setting you are using so you can write it down for future reference. Turn the platen base clockwise, counting the number of “clicks” until the base reaches bottom. The number of “clicks” is the pressure setting. To get this same setting in the future, bottom out the base as described above and count the same number of “clicks” while turning the base counterclockwise.

Settings may vary depending upon how thick the garment is. Generally speaking, higher pressures will produce more effective heat sealing, while excess pressure may force adhesive through the fabric, with unsightly result.

## Section F

### Problem Analysis & Solutions

<b>Problem</b>	<b>Possible Cause</b>	<b>Solution</b>
No Heat	<ul style="list-style-type: none"> <li>• Machine is unplugged or power source is faulty</li> <li>• Main power switch is not “ON”</li> <li>• Thermometer reading is incorrect</li> <li>• Heat Sensor is defective</li> <li>• Sealing iron is defective</li> <li>• Heat controller is defective</li> </ul>	<ul style="list-style-type: none"> <li>• Check</li> <li>• Check</li> <li>• See Section E to check</li> <li>• Replace</li> <li>• Replace</li> <li>• Return circuit board to factory for repair</li> </ul>
Temperature Too High or Too Low	<ul style="list-style-type: none"> <li>• Heat control requires adjustment</li> <li>• Thermometer reading is incorrect</li> <li>• Heat sensor is defective</li> <li>• Sealing iron is defective</li> <li>• Heat controller is defective</li> </ul>	<ul style="list-style-type: none"> <li>• See section E to adjust</li> <li>• See section E to adjust</li> <li>• Replace</li> <li>• Replace</li> <li>• Return circuit board to factory for repair</li> </ul>
Time Malfunction	<ul style="list-style-type: none"> <li>• Loose wires</li> <li>• Timer is defective</li> <li>• Micro switch is defective</li> </ul>	<ul style="list-style-type: none"> <li>• Check</li> <li>• Return circuit board to factory for repairs</li> <li>• Replace</li> </ul>
Handle does not return at end of cycle	<ul style="list-style-type: none"> <li>• Insufficient pressure</li> <li>• Solenoid is defective</li> <li>• Linkage is binding</li> <li>• Springs are weak</li> </ul>	<ul style="list-style-type: none"> <li>• See section E-1</li> <li>• Replace</li> <li>• Check</li> <li>• Replace</li> </ul>
Inadequate Bond or transfer	<ul style="list-style-type: none"> <li>• Insufficient sealing time</li> <li>• Insufficient pressure</li> <li>• Insufficient temperature</li> <li>• Pad worn</li> <li>• Teflon shield soiled or worn</li> </ul>	<ul style="list-style-type: none"> <li>• Increase time in 2 sec intervals and test</li> <li>• Increase pressure in one half turn increments and test</li> <li>• See Section E to adjust</li> <li>• Replace</li> <li>• Clean or replace</li> </ul>
Bleed Through	<ul style="list-style-type: none"> <li>• Too much time</li> <li>• Too much pressure</li> </ul>	<ul style="list-style-type: none"> <li>• Decrease time in 2 second increments</li> <li>• Decrease pressure in one half turn increments</li> </ul>

## Section G

### Maintenance

Teflon/Fiberglass Shield – Clean often by wiping with a soft clean rag. A non-flammable cleaner such as “EZ-OFF” may be used according to the manufacturer’s instructions.

**Never use a flammable solvent or abrasive cleaner.** To ensure the best heat sealing results, regularly replace the shield whenever it becomes torn or too soiled to clean.

Sponge Rubber Pad - Clean often by wiping with a soft, clean rag. Replace the pad whenever it becomes deteriorated. To replace, see above instructions for replacing shield.

Lubrication - No lubrication is necessary since permanently lubricated bearings are used in this machine.

## Section H

### Customer Service

Natmar Services U.S. as well as its internal Customer Service Department offer their assistance in the development of effective heat-seal mending, marking, and identification programs.

Natmar markets a complete line of heat-seal and marking machine, as well as a complete line of materials and supplies.

- Heat-Seal Machines- manual, semi-automatic, and completely automatic, with high inter-platen pressure to assure excellent adhesion of label tapes and mending materials
- Label Tapes- specially woven 100% poly and blends

When ordering machine parts, please include model and serial number of the equipment.

Worldwide: Natmar Services Company  
139 Beattie Street  
P.O. Box 6743  
Syracuse, NY 13217-6743

Toll Free: 1-800-798-8206 (USA Only)  
Phone: 315-445-2419  
Fax: 315-445-8046  
Internet: [www.natmar-nsc.com](http://www.natmar-nsc.com)

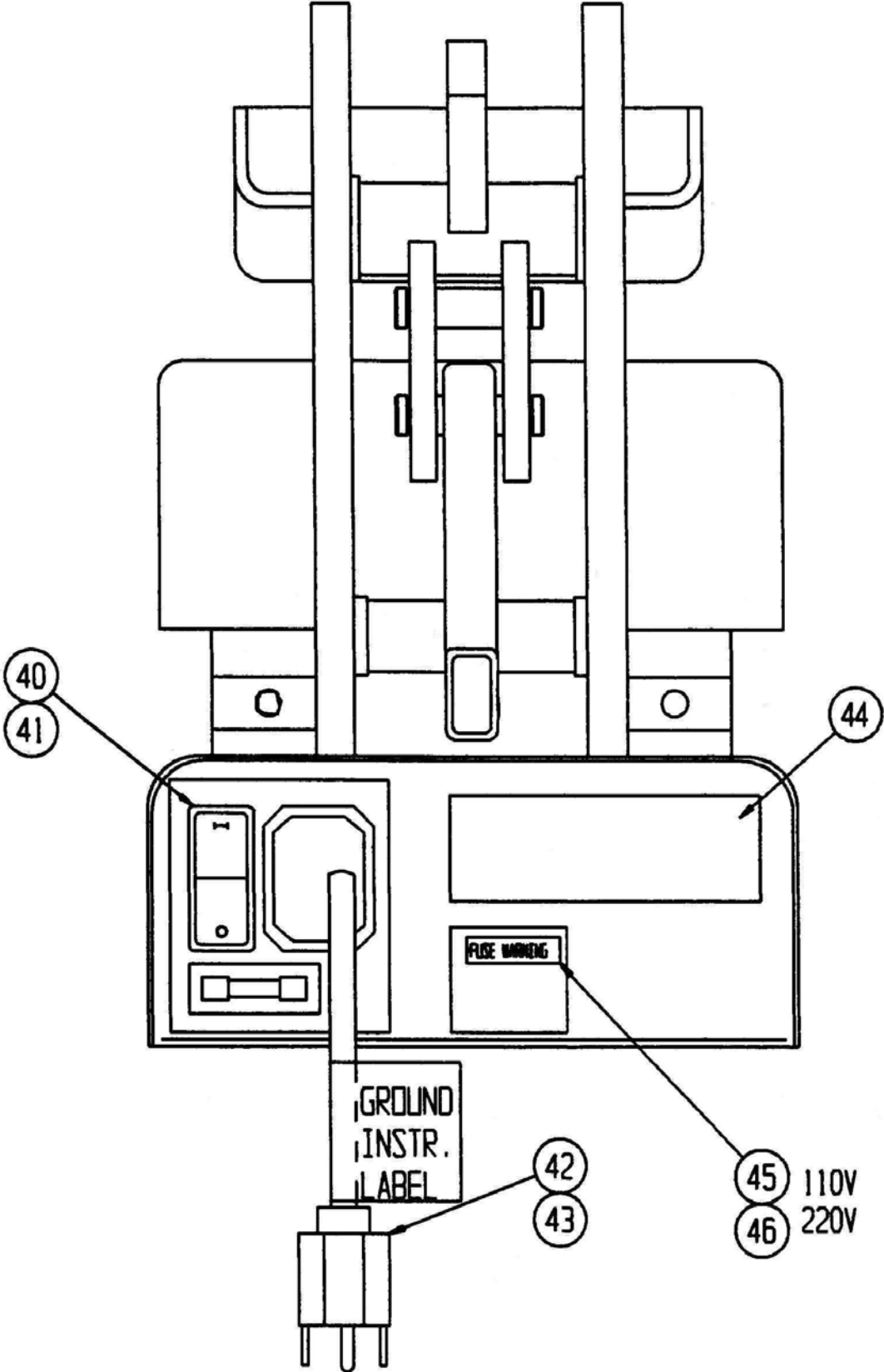


## HS163 PARTS LIST

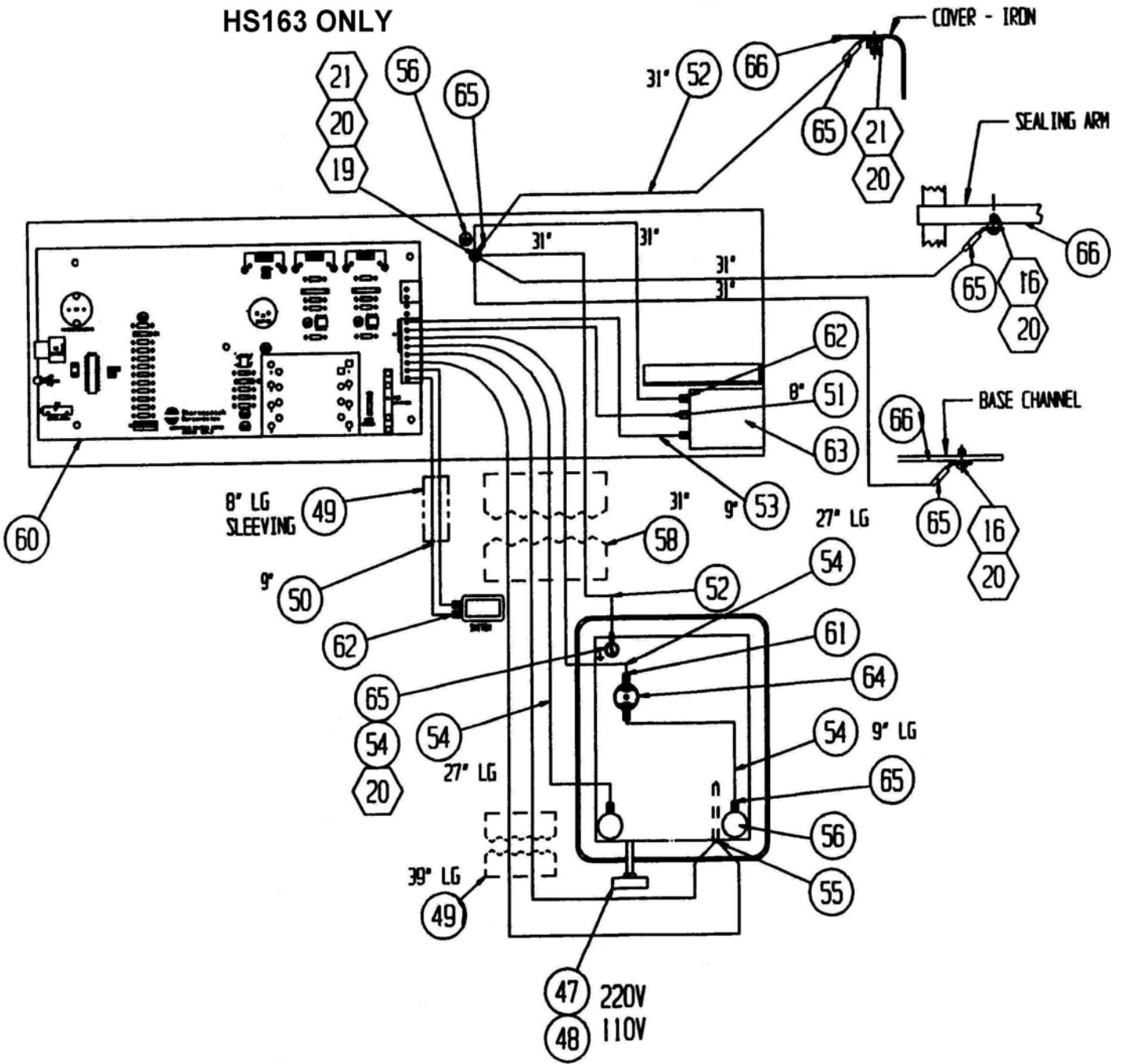
<b>Item #</b>	<b>Description</b>	<b>Qty</b>	<b>Part Number</b>
34	Brush Seal Assembly- Top	2	45551
33	Handle-Rod	1	43651
32	Switch Mounting Nut 3/8 – 32	2	DH-5565
31	Heater Machine 220V	1	45545
30	Mounting Bracket, Brush Seal Front	2	45550
29	Brush Seal, Front	2	45532
28	Spring, Iron Retainer	2	24075-29
27	Screw, Shoulder Stn/steel	2	21005-02
26	Switch Actuator	1	45539
25	Bracket Switch Mounting	1	45538
24	Cover Iron	1	45541
23	Heater Machining 120V	1	45544
22	Sealing Arm Weldment/Machining	1	45537
21	Cover Weldment	1	45531
20	Base Assembly Weldment	1	45524
19	Feet, Rubber	4	24090-79
18	Ring, Retaining	4	21025-04
17	Shaft, Pivot	2	42952
16	“O” Ring	1	24090-05
15	Knob Timer	1	21050-65
14	Cover, Bottom	1	43751
13	Shaft, Pivot	2	43748
12	Micro Switch	1	20055-62
11	Stop Washer	1	43644
10	Spring, Index	1	43656
9	Stop, Bumper Assembly	2	43612
8	Shield, Teflon	1	43063
7	Stop, Pressure Adjust	2	43895
6	Plate, Linkage	2	42948
5	Shaft, Threaded	1	43643
4	Spring, Compression	2	24075-37
3	Assembly-Sealing Platen	1	43941
2	Base, Platen	1	43663
1	Assembly-Handle Weldment	1	43752

## HARDWARE

<b>Item #</b>	<b>Description</b>	<b>Qty</b>	<b>Part #</b>
18	1/4-20 x 1/4 Set Screw	1	21011-05-L
17	Washer, Flat # 6	12	21020-0-9604
16	8-32 X 1/4" BH	2	21060-03-F
15	Lock-washer, Split 3/8"	4	21021-11-C
14	Hex Nut 10-32	2	21051-09-A
13	Lock-washer, Split 3/8"	4	21021-11-C
12	3/8-16 x 1/2 SHCS	4	21063-04-0
11	Lock-washer, Internal Tooth #4	2	21021-03-A
10	Hex Nut, 4-40	2	21051-03-A
9	Screw, Round Head 4-40 x 5/8	2	21057-08-C
8	Washer, Flat # 10	2	21023-01
7	Lock-washer, #10 Internal Tooth	2	21021-07-A
6	Screw, Bind Head 6-32 x 1/4	4	21058-03-E
5	Lock-washer, #6 Internal Tooth	20	21021-05-A
4	Screw, Bind Head 6-32 x 1/4	4	21058-03-E
3	Screw, Pan Head 10-32 x 3/4	4	21058-09-H
2	Screw Flat Head Soc 10-32 x 1/2	2	21062-03-F
1	Internal Lock-washer	1	21021-11-A



# Electrical Schematic for HS163 ONLY



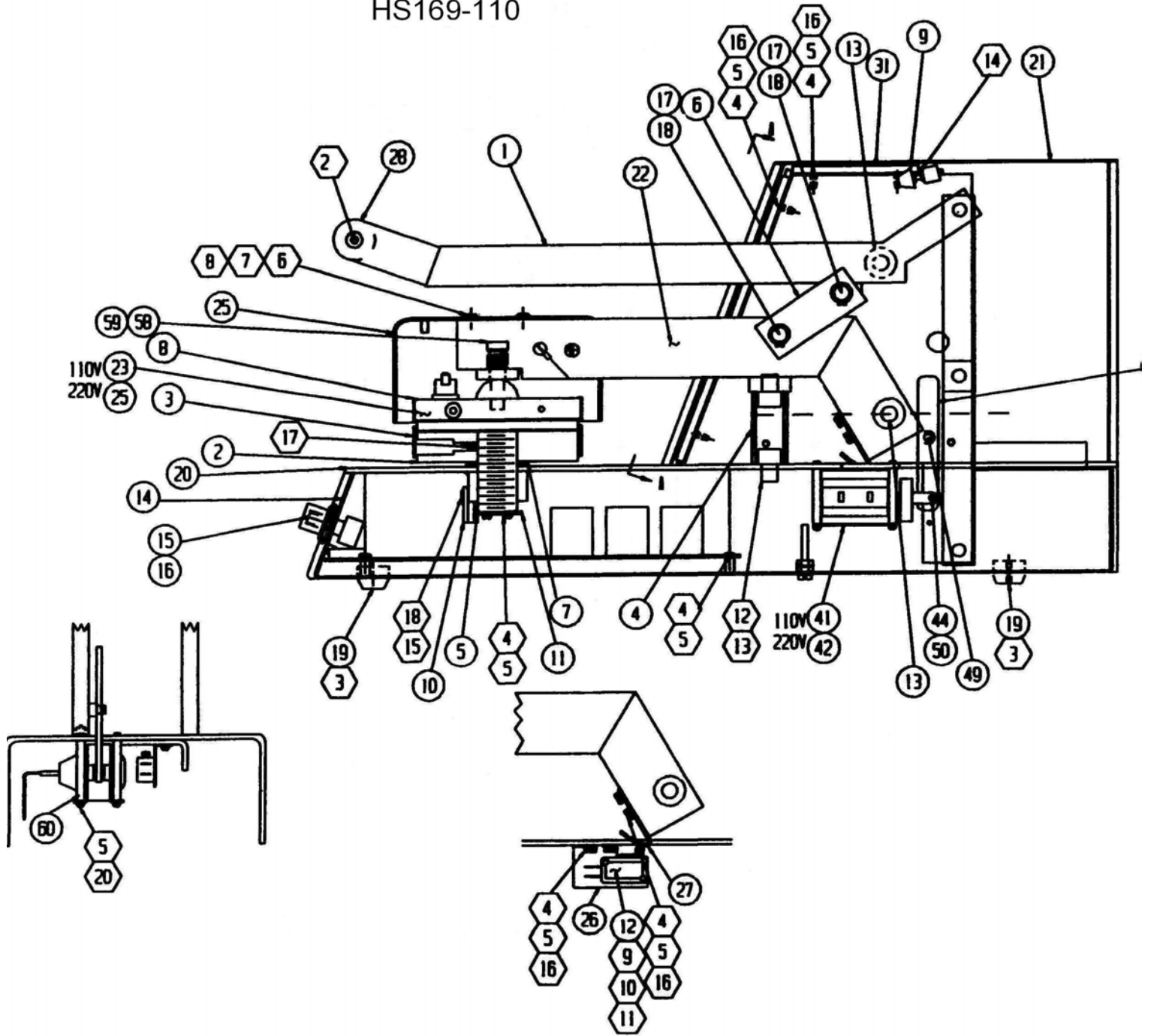
## HS163 ELECTRICAL PARTS LIST

Item	Description	Qty	Part #
67	Screw, Pan Head 8/32 x ¼ Stainless	1	21058-03-F
66	Label, Ground Symbol	4	45413
65	Ring Terminal #10	11	20003-19
64	Thermostat- Hi Limit	1	20018-18
63	Power Entry Mod/Switch	1	20055-66
62	Quick Conn. ¼ Female	5	20003-16
61	Quick Conn. ¼ Female High Temp	2	20003-16
60	Circuit Board Assembly	1	43747
59	Label, Spec.	1	41595
58	Sleeving	31"	DH-6634
57	Hole Plug ½"	1	21050-47
56	Ceramic Term, Cover	2	20080-75
55	Low Temp Thermistor	1	20018-08
54	Wire, High Temp 20 Gauge	63"	40133
53	Wire, White 16 Gauge	9"	23001-06
52	Wire, Ground Green/Yellow	155"	23001-15
51	Wire, Black 16 Gauge	8"	23001-07
50	Wire, Black 20 Gauge	18"	23001-21
49	Sleeving	47"	20080-05
48	Thermometer, Fahrenheit, 110V	1	15057-1
47	Thermometer, Celsius, 220V Only	1	40541
46	Label-Fuse Warning 2.5 AMP	1	45434
45	Label-Fuse Warning 4 AMP	1	45433
44	Label-Spec	1	41595
43	Cord, Line 220V Only IEC Conn.	1	41969
42	Cord, Line 110V Only IEC Conn.	1	20080-70
41	Fuse, 2.5 AMP	1	20015-15
40	Fuse, 4 AMP	1	20015-33

### Hardware

Item	Description	Qty	Part #
21	Hex Nut, 8/32	7	21051-07-A
20	External Tooth Lockwasher	11	21021-06-8
19	Screw, Pan Head 8-32 X 1 ¼	1	21058-14-F

HS169-110



## HS169 Parts List

<b>Item</b>	<b>Description</b>	<b>Qty</b>	<b>Part #</b>
60	Spacer, 3/16 X 1 ½ LG	4	24015-80
59	Spring, Iron Retainer	2	24075-29
58	Screw, Shoulder Stn/Steel	2	21005-03
57	Switch Mounting Nut 3/8 – 32	2	DH-5565
56	Washer (Bronze)	5	21050-208
55	Spacer 1/8”	1	43761
54	Spacer 3/16”	2	43760
53	Spacer, 3/8	1	43759
51	Retaining Ring	4	21025-25
50	Retaining Ring 1/8”	2	D-9711
49	Retaining	1	D-9708
48	Ring- Retaining	2	D-9704
47	Ring – Retaining	1	21025-26
46	Screw Set, Ball Plunger	1	21050-207
45	Button, Palm	1	43648
44	Solenoid Linkage Pin	1	46047
43	Arm – Solenoid Pivot	1	43654
42	Solenoid Assembly 220V	1	44091
41	Solenoid Assembly 110V	1	44090
40	Linkage- Lower	1	43757
38	Pin, Manual Release	1	43655
37	Spring, Linkage Ret.	1	24080-29
36	Pin, Pivot	1	43732
35	Linkage- Upper	1	43734
34	Pin-Linkage Pivot Lower	1	43729
33	Assembly-Lower Link w/Pin	1	43758
32	Shaft-Lower Pivot	1	43731
31	Brush Seal Assembly-Top	2	45551
30	Mounting Bracket Brush Seal Front	2	45550
29	Brush Seal-Front	2	45532
28	Handle-Rod	1	43651
27	Switch-Actuator	1	45539
26	Bracket Switch Mounting	1	45538
25	Cover Iron	1	45541
24	Heater Machining 220V	1	45545
23	Heater Machining 110V	1	45544
22	Sealing Arm Weldment/Machining	1	45537
21	Cover Weldment	1	45531
20	Base Assembly Weldment	1	45524

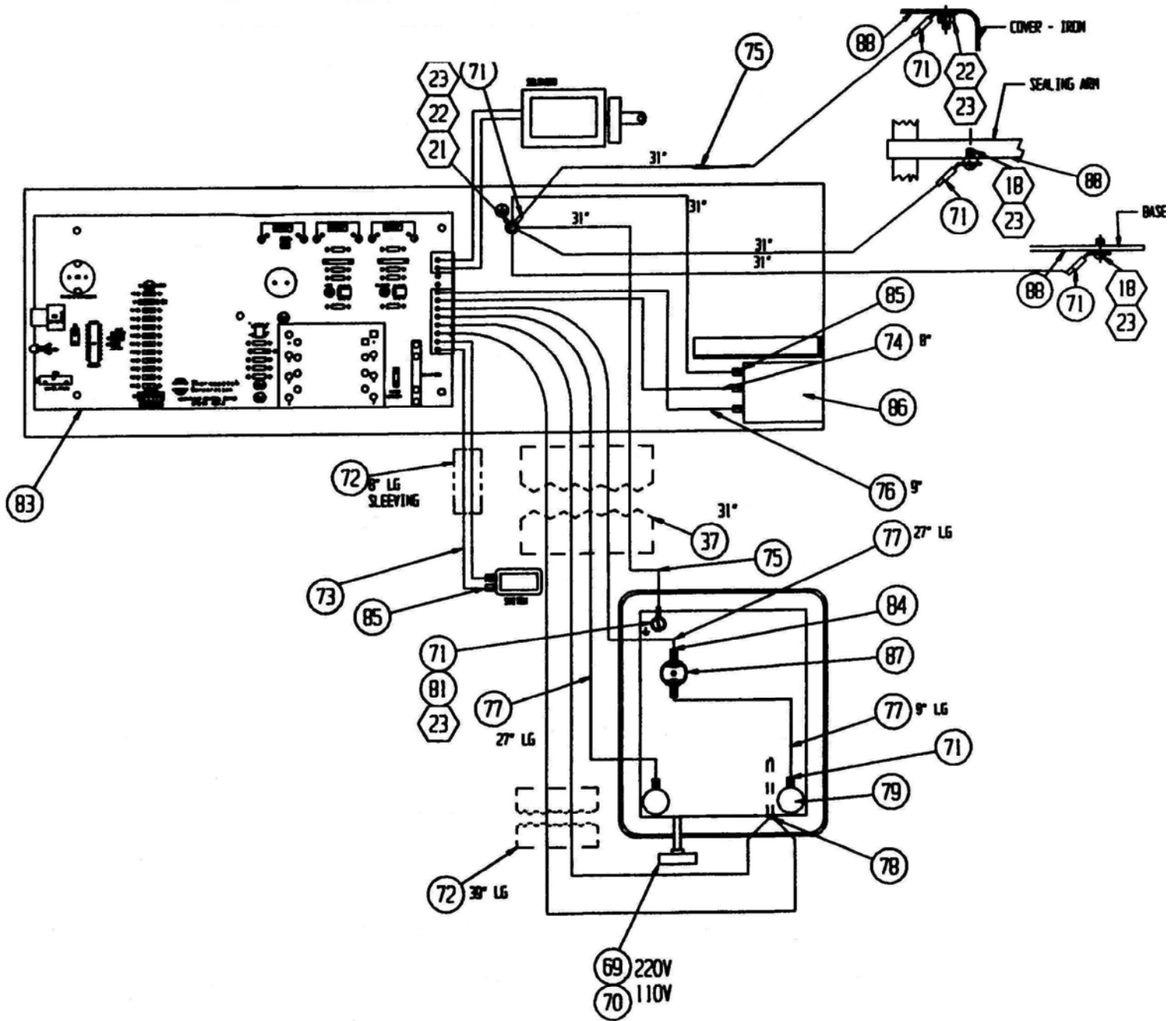
## HS169 Parts List-Cont'd

Item #	Description	Qty	Part #
19	Feet-Rubber	4	24090-79
18	Ring-Retaining	4	21025-04
17	Shaft-Pivot	2	42952
16	“O” Ring	1	24090-05
15	Knob Timer	1	21050-65
14	Cover-Bottom	1	43751
13	Shaft-Pivot	2	43748
12	Micro Switch	1	20055-62
11	Stop-Washer	1	43644
10	Spring Index	1	43656
9	Stop-Bumper Assembly	1	43612
8	Shield-Teflon	1	43063
7	Stop Pressure Adjust	2	43895
6	Plate-Linkage	2	42948
5	Shaft-Threaded	1	43643
4	Spring-Compression	2	24075-38
3	Assembly-Sealing Platen	1	43941
2	Base-Platen	1	43663
1	Assembly-Handle Weldment	1	43752

## Hardware

Item #	Description	Qty	Part #
20	Screw Pan Head 6/32 X 1 ¾ LG	4	21058-15-E
19	Internal Lock Washer 3/8	1	21021-11-A
18	8-32 X ¼ BH	2	21060-03-F
17	¼-20 X ¼ Set Screw	17	21011-05-L
16	Washer-Flat #6	12	21020-D-9604
15	Lockwasher, Internal Tooth #8	2	21021-06-A
14	Hex Nut 10-32	1	21051-09-A
13	Lockwasher, Split 3/8”	4	21021-11-C
12	3/8-16 X ½ SHCS	4	21063-04-D
11	Lockwasher, Split 3/8”	4	21021-11-C
10	Hex Nut, 4-40	2	21051-03-A
9	Screw, Round Head 4-40 X 5/8	2	21057-08-C
8	Washer-Flat #10	2	21023-01
7	Lockwasher, #6 Internal Tooth	2	21021-07-A
6	Screw, Bind Head 6-32 X ¼	2	21060-05-H
5	Lockwasher #6 Internal Tooth	20	21021-05-A
4	Screw, Bind Head 6-32 x ¼	20	21030-03-E
3	Screw, Pan Head 10-32 X ¾	4	21058-09-H
2	Screw Flat Head SOC 10-32 X ½	2	21062-03-F
1	8-32 X ¾” Flat Head Screw	1	21056-09-F

# ELECTRICAL SCHEMATICS FOR HS169-110 ONLY



## HS169 Electrical Parts

<b>Item #</b>	<b>Description</b>	<b>Qty</b>	<b>Part #</b>
89	Sleeving	31''	DH-6634
88	Label, Ground Symbol	4	45413
87	Thermostat- Hi Limit	1	20018-18
86	Power Entry Mod/Switch	1	20055-66
85	Quick Conn. ¼ Female	5	20003-16
84	Quick Conn. ¼ Female High Temp	2	20003-20
83	Circuit Board Assembly	1	43747
82	Label-Spec.	1	41595
81	Screw-Pan Head 8/32 X ¼ Stainless	1	21058-03-F
80	Hole Plug ½''	1	21050-47
79	Ceramic Terminal Cover	2	20080-75
78	Low Temp Thermistor	1	20018-08
77	Wire-High Temp 20 Gauge	63''	40133-06
76	Wire, White 16 Gauge	9''	23001-06
75	Wire-Ground Green/Yellow	155	23001-15
74	Wire, Black 16 Gauge	8''	23001-07
73	Wire, Black 20 Gauge	18''	23001-21
72	Sleeving	47''	20080-05
71	Ring Terminal #10	11	20003-19
70	Thermometer-Fahrenheit 110V Only	1	15057-1
69	Thermometer-Celsius 220V Only	1	40541
68	Fuse 2.5 AMP	1	20015-15
67	Fuse 4 AMP	1	20015-33
66	Line Cord 220V IEC Conn.	1	41969
65	Line Cord 110V IEC Conn.	1	20080-70

## Hardware

<b>Item #</b>	<b>Description</b>	<b>Qty</b>	<b>Part #</b>
23	External Tooth Lockwasher #8	11	21021-06-B
22	Hex Nut 8-32	7	21051-07-A
21	Screw, Pan Head 8-32 X 1 1-4''	1	21058-14-F