



# OPERATING INSTRUCTIONS FOR THE SUNNEN CRH-50 ROD HEATER



**CAUTION:** Read these instructions carefully and observe all safety procedures.

# SUNNEN CRH-50 ROD HEATER

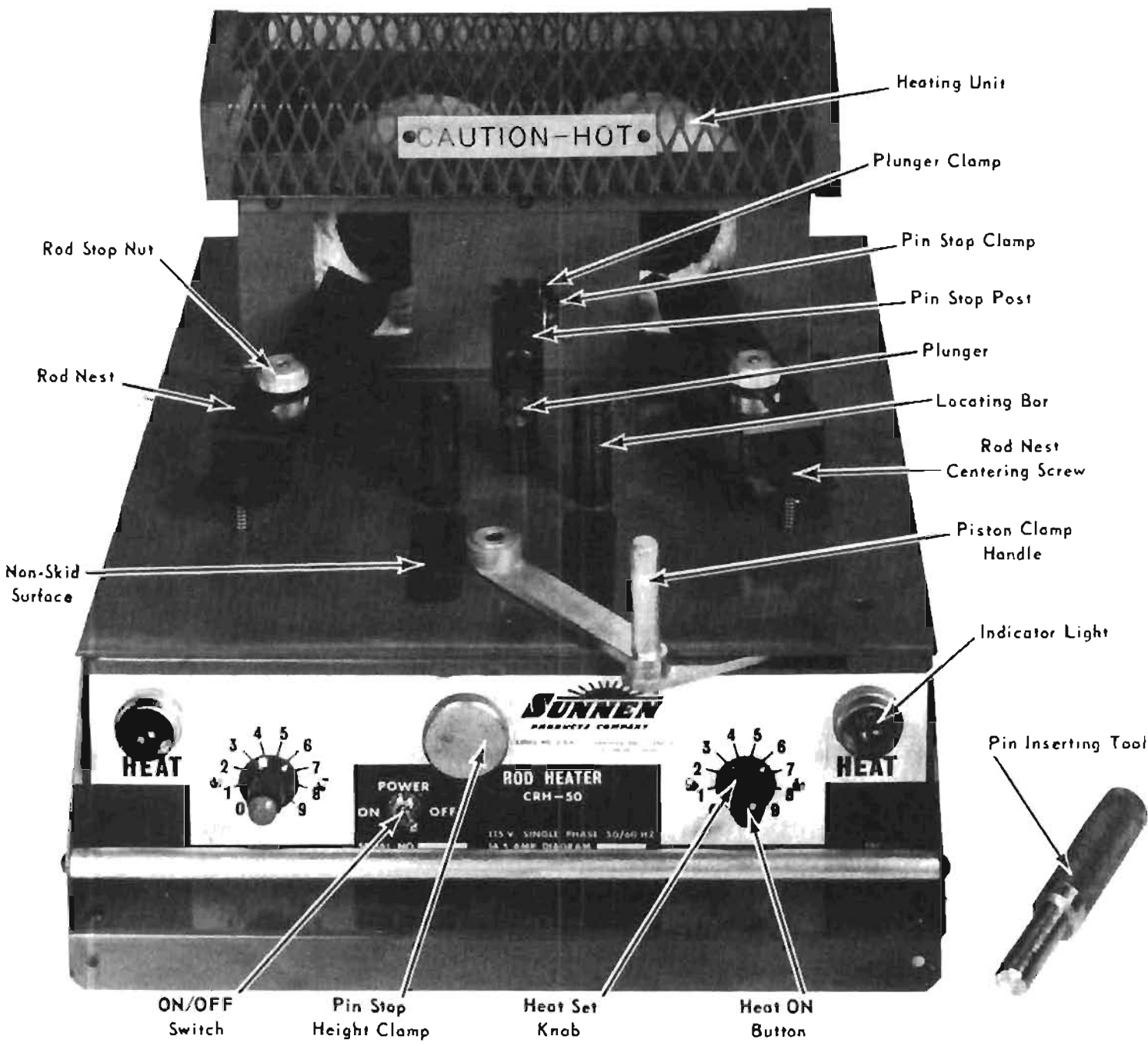


FIGURE 1

The Sunnen CRH-50 Rod Heater (see Figure 1) is designed to assemble press-fit piston pins with a minimum of effort and to eliminate scoring during assembly.

The uniform, controlled heat provided by the CRH-50 expands the pin end of connecting rods so assembly requires only hand force.

## INSTALLING THE CRH-50

The CRH-50 can be installed on most workbenches. A two-way flange is provided to hook over the edge of the bench and keep the Rod Heater from sliding during use. The flange has a one-inch lip and a two-inch lip for benches having a radius. See Figure 2.

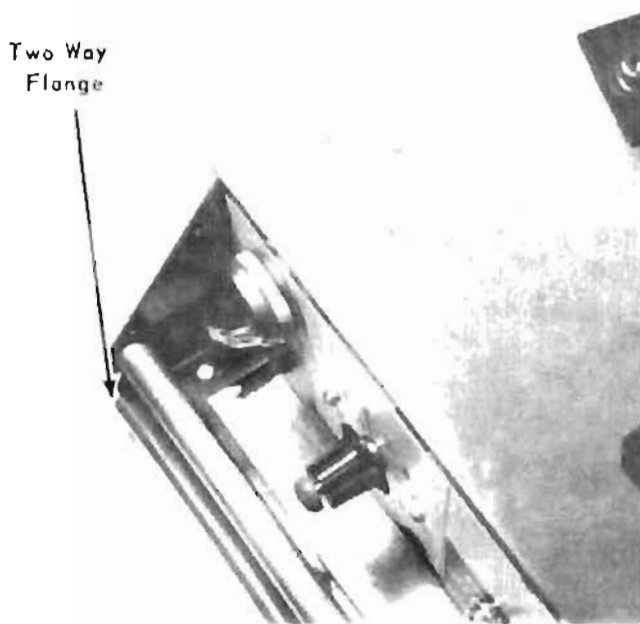


FIGURE 2

## SELECTING THE HEAT CYCLE

The Heat Set Knob may be set between 0 and 9 – the higher the setting, the longer the heating cycle (refer to Chart 1 below). For passenger car rods, such as those for Chevrolets, Plymouths, etc., set the heat cycle to 6 or 7. For smaller rods, set the heat cycle to a lower setting. Larger rods will require higher settings. As you gain experience and become more skilled in assembly, you may reduce the setting.

Heat Set Knob Position	Approximate Time in Seconds
1	17
2	34
3	52
4	70
5	88
6	106
7	124
8	142
9	160

Chart 1 \*

\* All times shown are approximations only.

## PREHEATING THE HEATING UNITS

Note: It is necessary to preheat the Heating Units for one heat cycle (the same cycle used for heating the rods) so they will be at the proper heat levels when heating the rods. While the Units are preheating, you may begin setting the Pin Stop.

1. Turn the ON/OFF Switch to ON.

Note: The CRH-50 may be plugged into any 115-volt, 15-ampere, grounded (3-pin) outlet. Since the Rod Heater will draw about 15 amperes, it is not advisable to operate other equipment on the same circuit.

2. Turn the Heat Set Knob to obtain the desired heating cycle and push the Heat On Button.

## SETTING THE PIN STOP

1. Check the Pin Stop Clamp to be sure it is tight. Loosen the Plunger Clamp and push the Plunger inside the Pin Stop (toward the Heating Units) until it bottoms against the Pin Stop. See Figure 3. Slide the Plunger Clamp forward as far as it will go and tighten it.

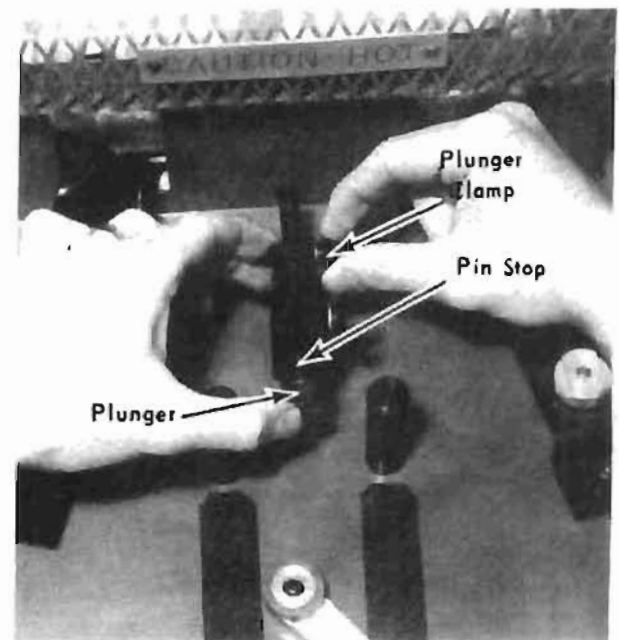
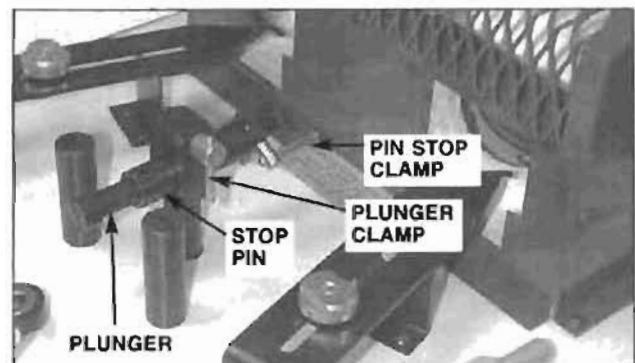


FIGURE 3



2. Loosen the Pin Stop Clamp and slide the Pin Stop to the rearmost position (toward the Heating Units). See Figure 4.

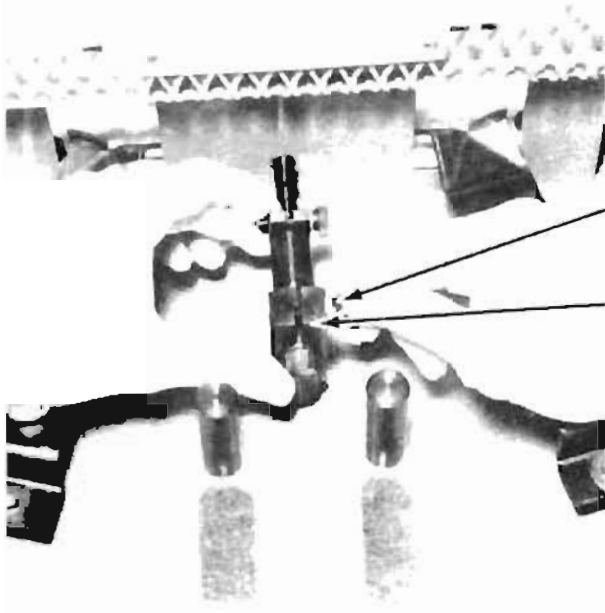


FIGURE 4

3. Pull the Piston Clamp Handle forward and slightly to the right. Place the piston on the non-skid surface of the Rod Heater deck so the pin hole is aligned with the Plunger (see Figure 5). Then release the Piston Clamp Handle.

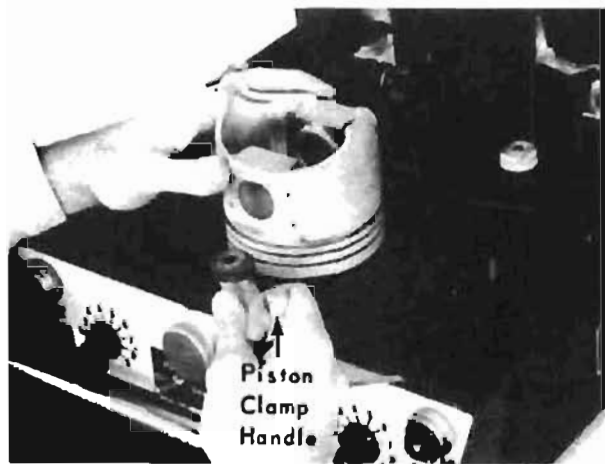


FIGURE 5

Note: Most pistons have a mark or notch on the piston head. In some cases, the way you place the rod in the piston will depend on the location of the piston notch.

4. Place the wrist pin in the piston. Loosen the Pin Stop Height Clamp and raise the Pin Stop (see Figure 6) until the face of the Plunger butts squarely against the end of the wrist pin. Tighten the Pin Stop Height Clamp.

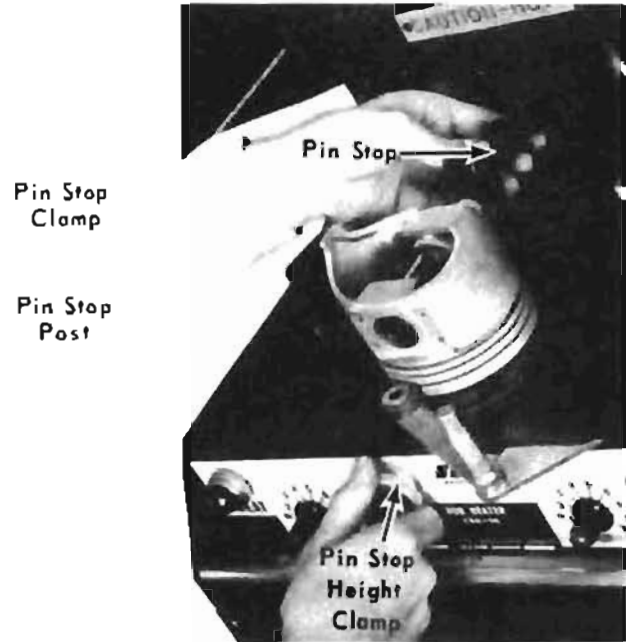


FIGURE 6

5. Center the wrist pin in the piston.

6. Rest the pin end of the connecting rod on the piston pin so both the rod and pin are centered in the piston.

7. Mark the pin with a pencil at the rear edge (or Pin-Stop side) of the rod. See Figure 7. Then remove the rod.



FIGURE 7

8. Slide the pin rearward (toward the Pin Stop) until the mark is even with the inside of the rear pin boss. This is the correct position for the pin during assembly.

9. Slide the Pin Stop against the Pin. See Figure 8.

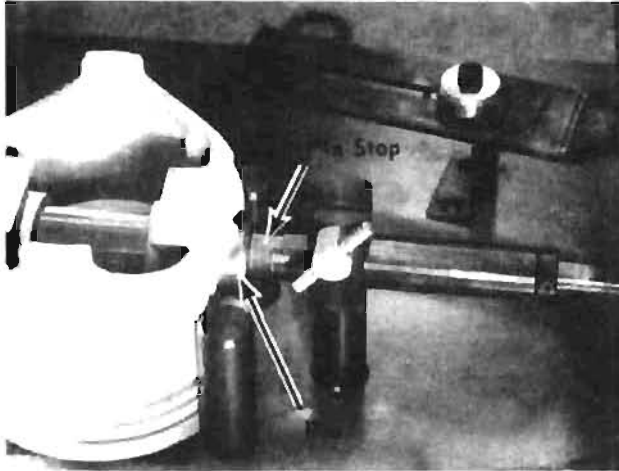


FIGURE 8

10. Tighten the Pin Stop Clamp and recheck the pencil mark to be sure the pin is positioned correctly. Then slide the pin forward out of the way.

11. Carefully, loosen the Plunger Clamp and position the Plunger so it protrudes through the pin boss at least 1/16 inch. See Figure 9. Tighten the Plunger Clamp.

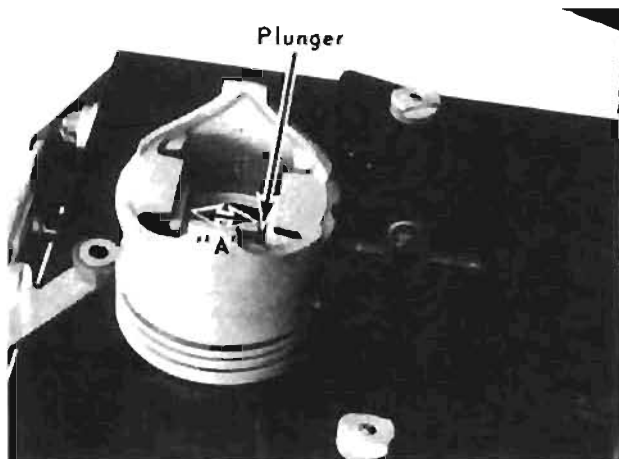


FIGURE 9

Note: Space "A" must be large enough for the rod to enter freely.

12. Loosen the Pin Stop Height Clamp and, holding down on the piston, raise the Pin Stop until the Plunger rests against the inside top edge of the pin hole. Rotate piston slightly while lifting Plunger to allow piston and Plunger to align themselves. Tighten the Pin Stop Height Clamp.

## HEATING THE ROD

Note: Be sure you have preheated the Heating Unit — then proceed to heat the rod as described below.

1. Place the journal end of the rod in the Rod Nest and the pin end or eye of the rod in the Heating Unit. See Figure 10.

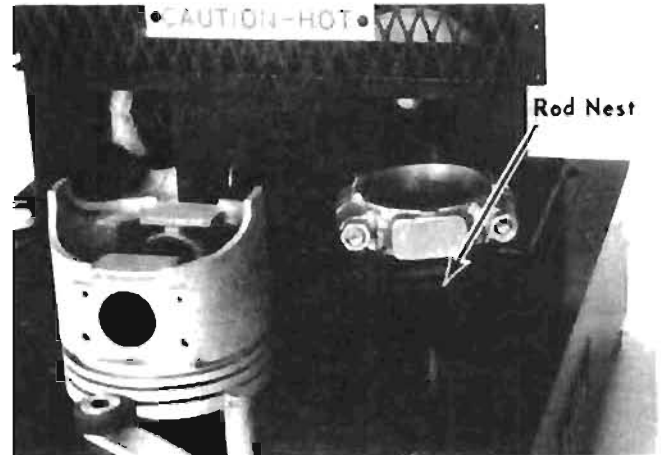


FIGURE 10

2. Adjust the Rod Stop Nut so the eye of the rod is centered in the Heating Unit. See Figure 11.

Note: The Rod Stop Nut is provided with flats for a 5/8-inch open-end wrench in case you are unable to tighten it sufficiently by hand.



FIGURE 11

3. Using the 3/16-inch hex wrench, adjust the Rod Nest Centering Screw so the rod is centered vertically in the Heating Unit. See Figure 12.

Note: The Rod Nest Centering Screw probably will not need frequent adjustment, but check each rod series to be sure they are centered in the Heating Units.

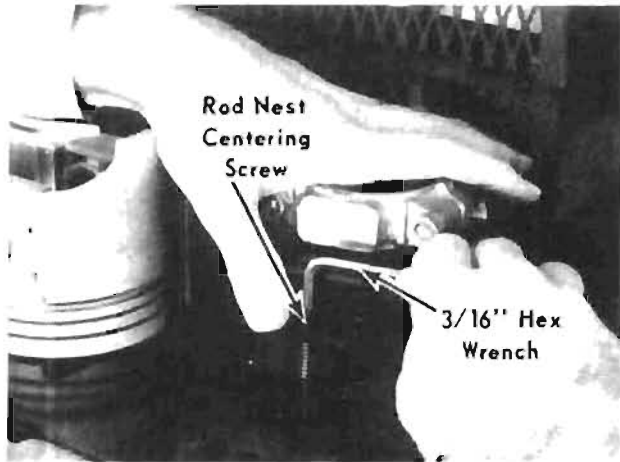


FIGURE 12

4. Check the Heat Set Knob to be sure it is on the desired heating cycle and push the Heat On Button. Note: Refer to the PREHEATING instructions for selecting the heat cycle.

5. When the Indicator Light on the control panel goes off, the rod is heated and ready for assembly. Note: The Heating Unit will hold temperature for about 60 seconds after the light shuts off.

## ASSEMBLY

Note: Steps 1 through 3 below may be done while the rods are heating. Steps 4 through 6 should be done with a **continuous, fairly rapid motion** to prevent undue heat loss and the resultant contraction of the rod.

1. Clean the piston pin and piston pin hole thoroughly. Check the fit and remove any burrs. The pin must slide freely into the pin hole.

2. Locate the wrist pin in the piston pin bore furthest from the Plunger.

3. Place the Pin Inserting Tool in the wrist pin.

4. With a quick and continuous motion, remove the rod from the Heating Unit and place the eye of the rod in the piston so it rests on the Plunger. See Figure 13.

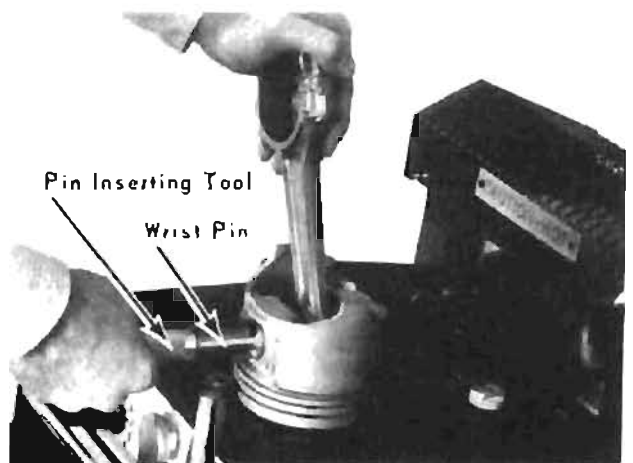


FIGURE 13

5. Align the rod eye with the pin bore in the piston.

6. Push the pin into the piston with the Pin Inserting Tool and hold firmly against the Pin Stop while the rod is against the face of the rear piston pin boss. Hold in this position momentarily until the rod cools off and contracts enough to hold the pin.

## CALIBRATING THE HEAT SET KNOB

To calibrate the Heat Set Knob:

1. Tighten the Heat Set Knob to its shaft, using the set screw in the Knob, and turn the Knob and shaft fully counterclockwise (to mechanical stop). Do not force beyond stop.

2. Loosen the set screw in the Heat Set Knob and rotate the Knob only until the white arrow aligns with the "0" index line. Tighten the set screw.



**PARTS LIST**

**FOR**

**CRH-50**

**ROD HEATER**



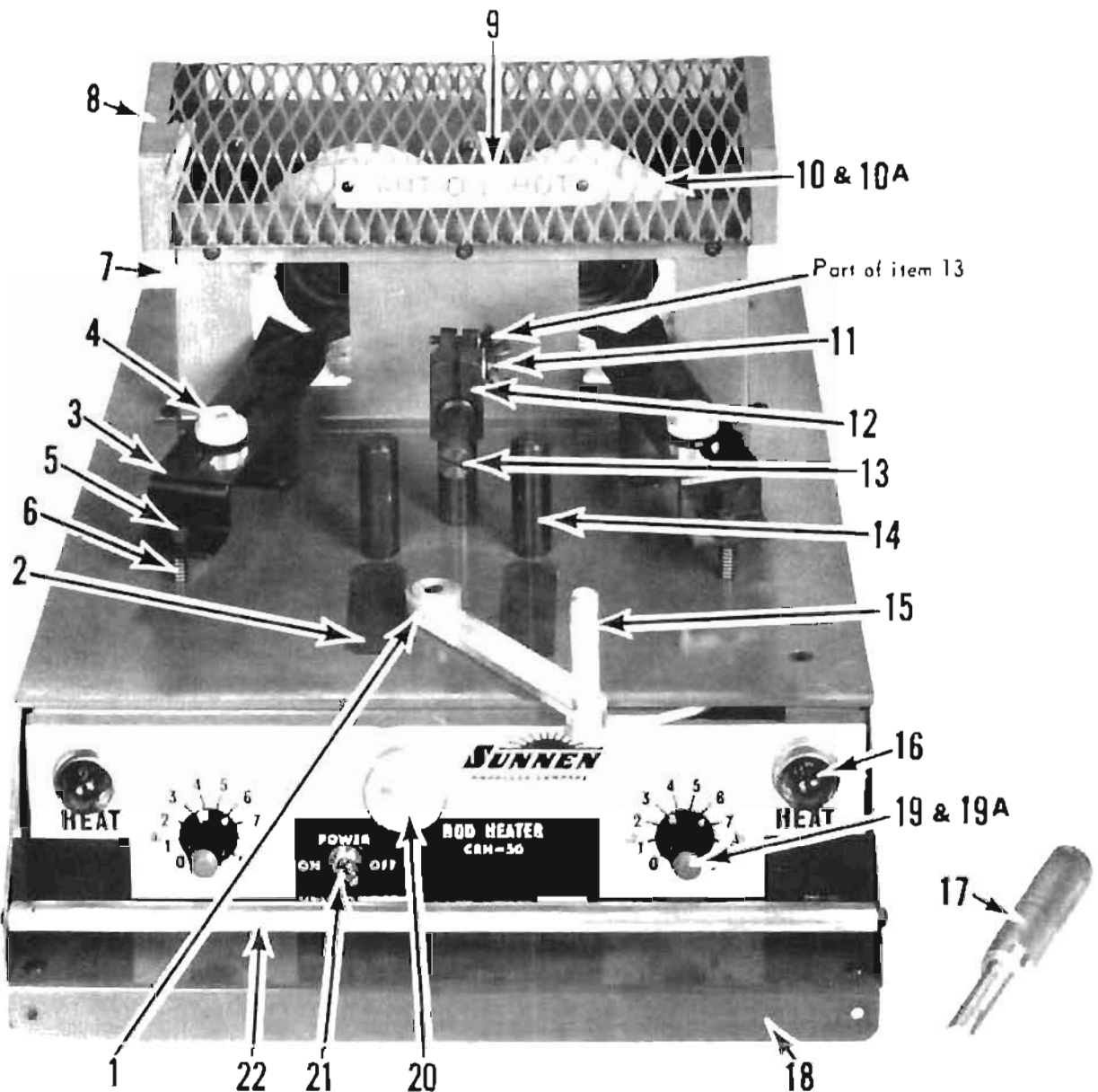


FIGURE A

PARTS LIST COVERING FIGURE "A"

ITEM NO.	ORDER BY PART NUMBER	QUANTITY PER PACKAGE	DESCRIPTION
1	CH-187C	1	..... Bumper with
		1	..... Bumper Sleeve
		1	..... Screw (10-32 x 1/2 But. Hd. Cap)
		1	..... Washer (Special)
2	CRH-177A	2	..... Non-Skid Surface Set
3	CRH-130A	1	..... Rod Nest with
4	CRH-176A	2	..... Screws (10-32 x 1/4 But. Hd. Cap)
		1	..... Rod Stop Nut with
		1	..... Round Hd. Bolt (1/4-20 x 5/8 Rd. Hd. Sq. Neck)
		1	..... Washer (3/8 Special)
		1	..... Washer (1/4 Plain)

(Parts continued on next page)



PARTS LIST COVERING FIGURE "A" (cont'd)

ITEM NO.	ORDER BY PART NUMBER	QUANTITY PER PACKAGE	DESCRIPTION
5	PHS-584C	1	Centering Screw <i>with</i>
6	PG-2753A	1	Spring and Washer
7	CRH-125A	1	Heat Shield <i>with</i>
		6	Screws (10-32 x 1/4 But. Hd. Cap)
8	CRH-140A	1	Top Guard <i>with</i>
		6	Screws (10-32 x 1/4 But. Hd. Cap)
9	PNP-504A	1	Caution Plate and Top Strip <i>with</i>
		2	Screws (5-40 x 1/4 Rd. Hd. I.M.S.)
	CRH-102A	1	Coil Mounting Plate
	CRH-103A	1	Mounting Plate Insulator
	CRH-111A	1	Coil Insulator
	CRH-108A	6	Spacers (Separates Coil Mounting Plate from Housing)
10	CRH-105A	1	Heating Unit for 220/230 Volt, 50/60 Hz Machines <i>includes</i>
		2	Screws, Washers, Nuts and Gaskets
10A	CRH-106A	1	Heating Unit for 115 Volt, 50/60 Hz Machines <i>includes</i>
		2	Screws, Washers, Nuts and Gaskets
11	CRH-230A	1	Pin Stop Clamp <i>with</i> Washer
12	CRH-232A	1	Pin Stop Post
13	CRH-210A	1	Plunger and Plunger Clamp <i>with</i>
	CRH-222A	1	Stop Screw
13A	CRH-228A	1	Plunger Clamp Block <i>with</i>
		1	Washer
		1	Retaining Ring
		1	Lock Screw Assembly
14	CRH-123A	1	Locating Bar <i>with</i>
		1	Lock Washer (5/16 Lock)
		1	Screw (5/16-18 x 3/4 Hex Hd. Cap)
15	CRH-90A	1	Piston Clamp Handle <i>with</i>
	CRH-97A	1	Pivot Nut <i>with</i>
		1	Screw (10-32 x 1/2 Flat Hd. Soc. Cap)
16	PEM-400A	1	Indicator Light (Does not include Lamp)
	PEM-399A	1	Lamp for Item 16 (220/230 Volt, 50/60 Hz Machines)
	PEM-401A	1	Lamp for Item 16 (115 Volt, 50/60 Hz Machines)
17	CRH-237A	1	Pin Inserting Tool
		1	Spring Clip (For Pin Inserting Tool) <i>with</i>
		1	Screw (6-32 x 3/16 Self Tapping Pan Hd.)
18	CRH-148A	1	Bottom Lip <i>with</i>
		2	Screws (10-32 x 1/4 But. Hd. Cap)
		2	Nuts (10-32 Hex)
19	CRH-115A	1	Timer for 220/230 Volt, 50/60 Hz Machines <i>includes</i>
			Knob and Button
19A	CRH-117A	1	Timer for 115 Volt, 50/60 Hz Machines <i>includes</i>
			Knob and Button
20	CRH-85A	1	Pin Stop Height Clamp Knob <i>with</i> Washer
21	CRG-299E	1	Switch
22	CRH-153A	1	Front Bar <i>with</i>
		2	Screws (10-32 x 1/4 But. Hd. Cap)

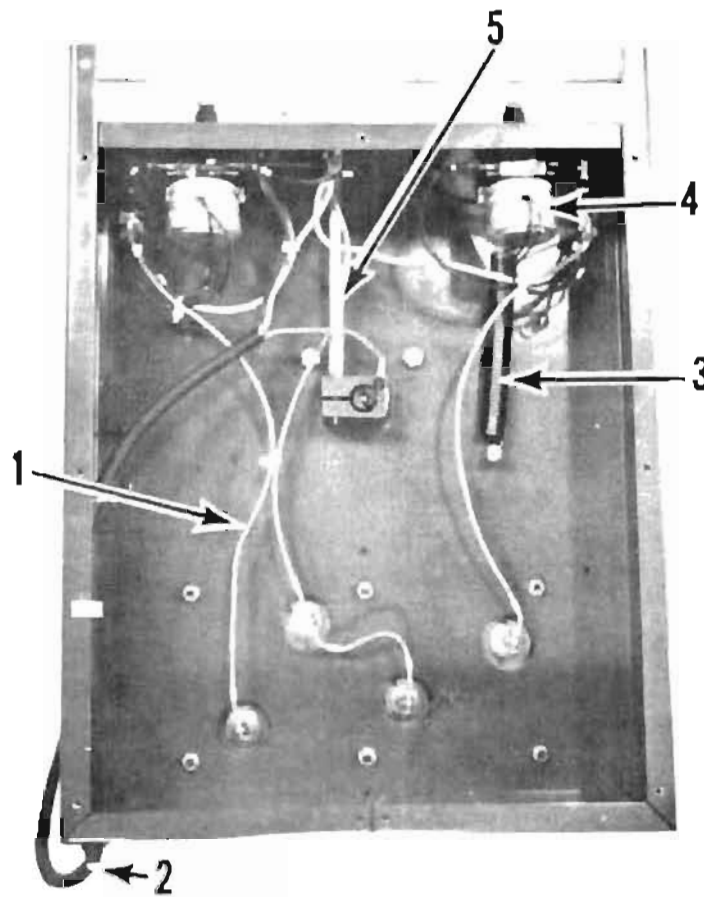
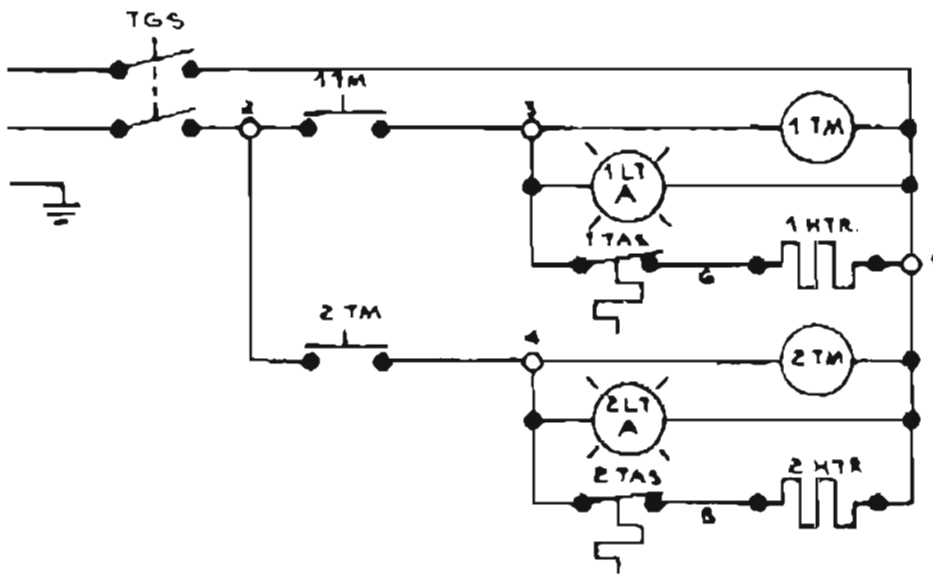


FIGURE B

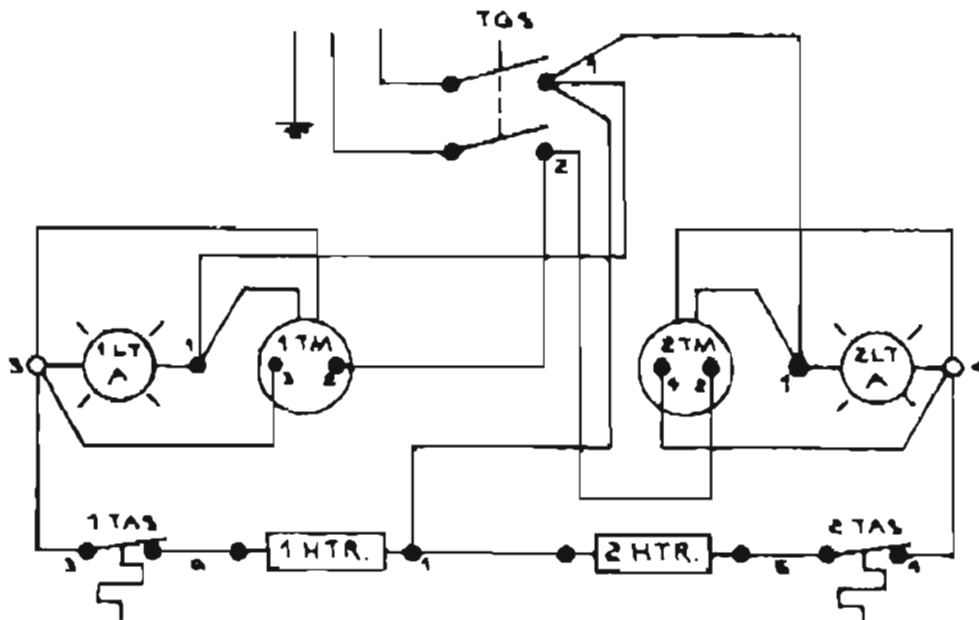
PARTS LIST COVERING FIGURE "B"

ITEM NO.	ORDER BY PART NUMBER	QUANTITY PER PACKAGE	DESCRIPTION
1	EWL-301A	1	Wire Set (14 Gage Hi-temp Cable - 4 pcs.)
2	CRH-120A	1	Cord and Plug for 115 Volt, 50/60 Hz Machines includes Bushing
2	CRH-121A	1	Cord and Plug for 230 Volt, 60 Hz Machines includes Bushing
2	CRH-122A	1	Cord and Bushing for 220 Volt, 50 Hz Machines includes Bushing (does not include Plug)
3	PSP-303A	1	Spring
Not Shown	CRH-98A	1	Bracket (to anchor PSP-303A Spring Item 3) with
Not Shown		2	Washers (Special;
Not Shown		2	Screws (10-32 x 1/4 But. Hd. Cap)
4		1	Timer (See Item 19 and 19A, Figure A)
5		1	Pin Stop Height Clamp Knob (See Item 20, Figure A)
Not Shown	CRH-170A	1	Bottom Cover with
		1	Attention Label
		4	Screws (10-32 x 1/4 But. Hd. Cap)
Not Shown	PHM-736A	4	Feet (Pkg. of 4) with
		4	Screws (10-32 x 1/2 But. Hd. Cap)
Not Shown	KN-229A	1	Hex Key Wrench (3/16 Across Flats)

WD-1226



WD-1226 CRH-50 K/A/B/C



SYMBOL	AMT	SUPPLY VOLTS	DESCRIPTION	SYMBOL	AMT	SUPPLY VOLTS	DESCRIPTION
			BY RIHML				DATE
			8-15-78				8-15-78
			BY RIHML				8-15-78
				<b>BANNER PRODUCTS COMPANY</b> ST. LOUIS, MISSOURI, U.S.A.			
							WIRING DIAGRAM WD-1226