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SMD Operations Procedures Manual

8.1.1.16 OPERATION OF CORRECTOR COIL OVERWRAP MACHINE

Text Pages 1 through 6
Attachment(s) 1, 2, 3

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
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Approved:

Signature on File
Division Head

3/7/03
Date

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8.1.1.16 Operation of Corrector Coil Overwrap Machine

1.0 Purpose and Scope

- 1.1 This procedure provides instruction in the operation of the Overwrap Machine, located at 902A.
- 1.2 This procedure establishes the minimum qualification for any person who will operate the Overwrap Machine.

2.0 Responsibilities

- 2.1 Authorized operators of the Overwrap Machine will perform the tasks described here. A list of authorized operators is maintained by the Cognizant Technical Supervisor in Building 902.
- 2.2 The operator shall complete the following documentation:
 - 2.2.1 Log Book. Entries shall include: 1) machine settings; 2) notes of any irregularities regarding operation of the Overwrap Machine.
 - 2.2.2 Interlock Test Form (Attachment 3). The form shall be completed when the safety interlocks are tested. A copy of the form shall be posted near the Overwrap Machine.

3.0 Prerequisites

3.1 Training

- 3.1.1 Operator shall be instructed by the Cognizant Technical Supervisor before operating the Overwrap Machine.
- 3.1.2 Operator shall be trained as an "affected employee" as defined by ESH Standard 1.5.1., "Lockout/Tagout Requirements".

3.2 Initial state of Overwrap Machine

- 3.2.1 Operator controls shall be set to their "initial" settings (see para. 5.3) before activating power to the Overwrap Machine.
- 3.2.2 To maximize airflow, lower the sliding window panels as much as possible during overwrapping operations and block off any unnecessary openings that could reduce hood face velocity (see ESH Coordinator for any questions).

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3.2.3 Ensure exhaust dampers (2) are open for the Overwrap Machine and closed for the adjacent oven (3).

3.3 Equipment

3.3.1 Safety glasses with side shields, or goggles.

4.0 Precautions

4.1 Eye protection shall be worn by the operator and any person(s) observing the overwrapping process.

4.2 Entanglement with rotating machinery/moving parts can occur if loose fitting clothing or hanging jewelry is worn or if long hair is not tied up.

4.3 Do not use if a test of interlocks were not performed within the last six months and the dated Interlock Test Form (Attachment 3) is not posted near machines.

4.4 Specific steps of this procedure contain Electrical & Mechanical Assembly operations that impact the environment. Prior to performing these steps, personnel shall complete the applicable facility specific environmental training.

5.0 Procedure

5.1 Overview

The Overwrap Machine provides a means of overwrapping a corrector coil with fiberglass tape or a tensioned roving.

5.2 Operator Controls

5.2.1 Exhaust Fan Power Control Box

NOTE:

Exhaust fan powered by power panel P 2-1 (located in room 1-2), Circuit breakers: 19, 21, 23.

A. EXHAUST FAN CONTROL disconnect switch: Placed in the ON position to activate power to the exhaust fan.

B. START green push button: Depressed to turn on the exhaust fan.

STOP red push button: Depressed to stop the exhaust fan.

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5.2.2 Control Panel

NOTE:

Overwrap Machine power supplied by power panel P 2-2 (located on west wall), Circuit breaker: 7.

A. EMERGENCY STOP mushroom push button: Causes all machine motion to stop.

B. BRAKE TENSION potentiometer: Adjusts tension on the spools.

MOTOR SPEED potentiometer: Adjusts motor speed, which in turn changes the rotational speed of the coil and the linear speed of the spool carriage.

5.2.3 Power Control Box

A. CONTROL PANEL POWER keyswitch: Activates power to the components of the Overwrap Machine.

B. ON red indicator light next to keyswitch: Illuminates when the keyswitch is turned ON.

C. RESET red push button: Resets the system and "enables" (makes active) the footswitch after power to the system is activated.

D. ON amber indicator light: Illuminates when on.

5.2.4 Linear Transversing Tool Lever

Sets the ratio of the linear speed of the spool carriage assembly to the rotation of the coil.

5.3 Initial Control Settings

5.3.1 MOTOR SPEED potentiometer set to zero.

5.3.2 BRAKE TENSION set as per MAP.

5.3.3 Linear Transversing Tool Lever set to zero.

5.4 To Activate Power to the Overwrap Machine

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- 5.4.1 Verify that the controls are set to their "initial" settings (5.3).
- 5.4.2 Turn the CONTROL PANEL POWER keyswitch to the ON position (clockwise). The red ON indicator light should illuminate.
- 5.5 To mount spools and set spool tension:
 - 5.5.1 Remove the collars from the end of the two spindle shafts.
 - 5.5.2 Press-fit the fiberglass tape spool and the roving spool onto the spindle shafts. Replace the collars.
 - 5.5.3 Thread the roving through the pulley/capstan arrangement.
 - 5.5.4 Thread the fiberglass tape through the lead positioning device.
 - 5.5.5 To set tension on the fiberglass tape or roving:
 - 5.5.5.1 Attach a push-pull gage to the end of the fiberglass tape or roving.
 - 5.5.5.2 Pull on the gage while adjusting the BRAKE TENSION potentiometer until the tension is as specified in the MAP.
- 5.6 To Turn on the Exhaust Fan
 - 5.6.1 Place the disconnect switch, labeled EXHAUST FAN CONTROL, in the ON position.

**CAUTION
PERSONNEL INJURY
EXPOSURE TO VOLITILE FUMES**

To ensure proper ventilation exhaust, verify that the machine dampers (2) are open and the adjacent oven dampers (3) are closed.

- 5.6.2 Depress the green START push button. Observe that the red indicator light illuminates and listen for a loud "whooshing" sound as the fan turns on.
- 5.7 To Rotate the Coil and Move the Spool Carriage
 - 5.7.1 Set the Linear Transversing Tool Lever to the setting prescribed in the Magnet Assembly Procedure.
 - 5.7.2 Depress the red RESET push button. Observe that the amber ON light illuminates.

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5.7.3 Adjust MOTOR SPEED potentiometer upwards from zero until the coil is rotating at a "comfortable" speed.

5.7.4 To momentarily stop or pause machine motion, turn down potentiometer.

5.8 To Shut Down the Overwrap Machine

5.8.1 Turn the keyswitch to the OFF position (counter-clockwise).

5.8.2 Set the operator controls to their "initial" settings (5.3).

CAUTION

Do not shut off the exhaust fan if fumes are still present from the completed process.

5.8.3 To shut down the exhaust fan, depress the red STOP push button and place the EXHAUST FAN CONTROL disconnect switch in the OFF position.

5.8.4 Close the sliding window panel.

5.9 To Test the Safety Interlocks

NOTE The test procedure shall be performed at a six month interval.

5.9.1 Activate power to the Overwrap Machine (5.4).

5.9.2 Depress the red RESET push button. Observe that the amber ON indicator light illuminates.

5.9.3 Adjust the MOTOR SPEED potentiometer up from zero until the motor is turning slowly.

5.9.4 Depress the EMERGENCY STOP mushroom push button.

5.9.5 Verify that the motor shuts off, the amber light extinguishes, and the footswitch is disabled.

5.9.6 Use potentiometer.

5.9.7 Open the cover on the Gear Mechanism.

5.9.8 Verify that the motor shuts off, the amber light extinguishes, and the footswitch is

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disabled.

5.9.9 Check the appropriate boxes on the Interlock Test Form. Initial and date the Form and post it near the Overwrap Machine.

5.9.10 Set controls to their "initial" settings (5.3).

5.9.11 If an interlock fails, stop work, write "fail" on the Form, and notify the Cognizant Engineer and the ES&H Coordinator immediately.

6.0 Documentation

5.10 Log Book

5.11 Interlock Test Form

7.0 References

7.1 ESH Standard 1.5.1., "Lockout/Tagout Requirements".

8.0 Attachments

1 Control Panel Diagram

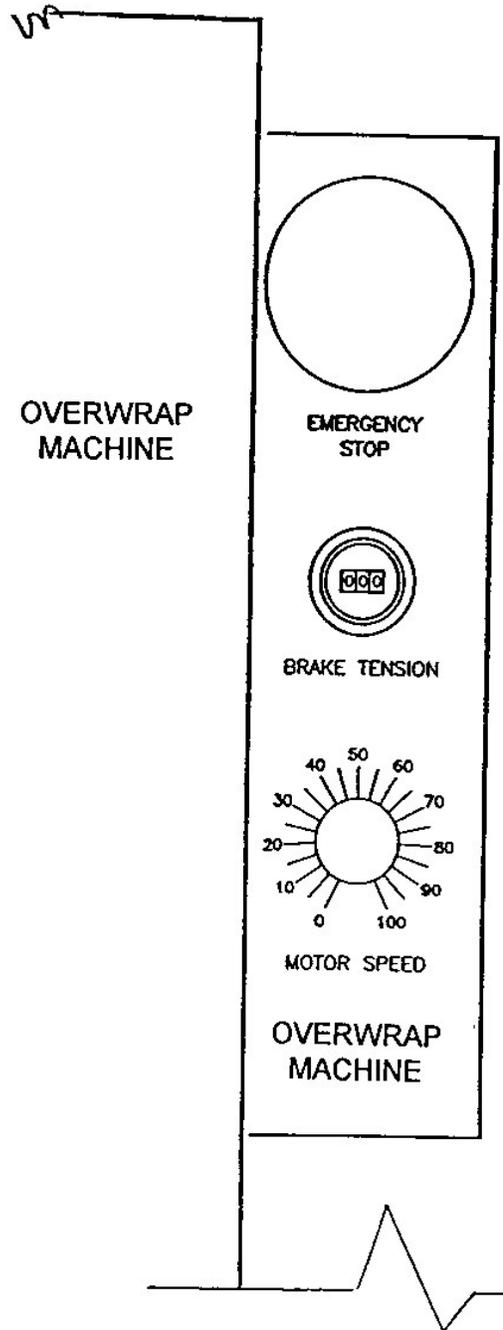
2 Power Control Box Diagram

3 Interlock Test Form

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Attachment 1

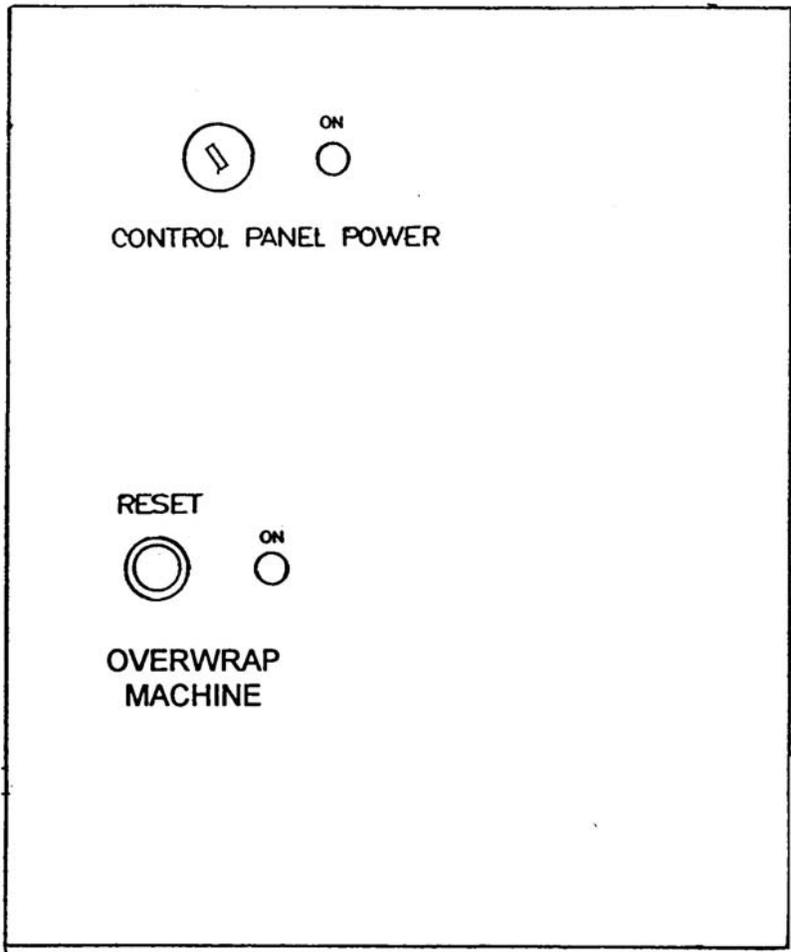
Control Panel Diagram



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Attachment 2

Power Control Box Diagram



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Attachment 3

INTERLOCK TEST - COIL OVERWRAP MACHINE

Instructions

1. Post this form near the Machine.
2. Do not operate the Machine if the test has not been performed within the last six months.
3. The interlocks to be tested are as follows:

Note: Refer to SMD-OPM 8.1.1.16, "Operation of Corrector Coil Overwrap Machine", para. 5.9, for the proper test procedure for Interlocks #3 and #4.

Interlock #3: Emergency Stop red mushroom push button located on the control panel of the Overwrap Machine.

Interlock #4: Microswitch under the cover of the Gear Mechanism of the Overwrap Machine.

4. Check box as each device is tested; initial and date the form. If a failure occurs, write "fail" in the appropriate box, and notify the CE and the ES&H Coordinator immediately.

Interlock Test Form

#3									
#4									
INIT.									
DATE									