SMD Operations Procedures Manual

8.1.1.45 OPERATION OF THE LARP CABLE SPOOLER

Text Pages 1 through 9
Attachment(s) 1-7

Hand Processed Changes

HPC No.	Date	Page No.	Initials

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SMD Division Head Date

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1 Purpose and scope

1.1 To provide instruction in the operation of the LARP Cable Spooler located in building 902.

2 Responsibilities

2.1 The authorized operator shall test the Emergency Stop systems every six months.

2.2 The operator shall read and complete the following documentation:

2.2.1 Maintenance log. Entries shall include.

- Each repair and maintenance procedure.
- Parts and material used.

2.2.2 Traveler associated with the cable being spooled.

3 Prerequisites

3.1 Training

3.1.1 Operators shall be instructed by the Technician supervisor before using this procedure.

3.1.2 Operator shall be trained as an "knowledgeable employee" as defined by BNL SBMS Subject Area: “Lockout/Tagout (LOTO)

3.2 Equipment

3.2.1 Safety glasses with side shields, or goggles.

4 Precautions

4.1 Verify that all guards and shields are in place.

4.2 Wear eye protection.

4.3 Do not wear loose clothing or hanging jewelry. Keep long hair tied up.

4.4 Install barriers (ie: Caution Tape) around perimeter of cable spool arrangement (see figure #2) during operations.

5 Procedure

5.1 Overview Of The LARP Cable Spooler

5.1.1 The spooler provides a means of 1) spooling cable onto appropriately sized cable pancakes for winding or handling. 2) Inspecting cable using both visual and lump detection methods during spooling.

- *Spooling:* Specifically sized pancake spools are needed to properly fit the Universal Coil Winder. The spooler allows for this by using an opposed pair of motorized spoolers. A mechanical counter on the inspection table allows for length measurements.

- *Inspection:* The cable passes through an inspection table which allows for both visual inspection and mechanical inspection by means of a lump detector.

5.2 Operator Controls

5.2.1 Control Panel

5.2.1.1 Phase Indicator Lights (A-B-C)

5.2.1.2 Circuit Breaker

5.2.1.3 Spooler Motor FWD - Spool to “Payout”

5.2.1.4 Spooler Motor REV - Spool to “Take-up”

5.2.1.5 Stop - Does not function

5.2.1.6 RHigh (Speed) motor speed set @ 60 cycles (HZ)

5.2.1.7 RMedium (Speed) motor speed set @ 30 cycles (HZ)

5.2.1.8 RLow (Speed) motor speed set @ 10 cycles (HZ)

5.2.1.9 Jog motor speed set @ 5 cycles (HZ)

5.2.1.10 Output Stop - switch to “ON” to engage magnetic brake. Brake is enabled when either motor spindle switches are “ON”.

5.2.1.11 Reset - used to reset activated protective circuit.

5.2.1.12 Motor Speed - turn knob to adjust spooler motor speed.

5.2.1.13 Run Light - indicates spooler motor running.

5.2.1.14 Up to Freq - indicates motor speed > 0.00 cycles (HZ).

5.2.1.15 Overload Alarm - indicates power is > 24 VDC.

5.2.1.16 Power Failure - indicates power is < 6 cycles (HZ).

5.2.1.17 Frequency Detection - indicates motor speed > 6 cycles (HZ).

5.2.2 Tension Controller

5.2.2.1 Power ON OFF - switches 120 VAC power to controller.

5.2.2.2 Tension ON OFF - switches power to tension control function.

5.2.2.3 Mode - switch "AUTO"-closed loop using tension force sensor to maintain tension setting. Switch "MANUAL" - open loop. Tension force sensor not used. Tension varies during spooling.

5.2.2.4 Tension (Automatic) - turn knob to set tension at calibrated set points on meter. Applied tension remains constant during spooling.

5.2.2.5 Tension (Manual) - turn knob to set tension at calibrated set points on meter. Applied tension varies during spooling.

5.3 Operation of the LARP Cable Spooler

5.3.1 Verify tensioner has been calibrated.

5.3.2 Load spool onto spooler payout station, payout over top of reel.

5.3.3 Mount empty reel on take-up station

5.3.4 Connect 208 VAC plug from the spooler control cabinet to wall receptacle.

5.3.5 Switch "ON" service disconnect located on side.

5.3.6 Switch 3-phase breaker to "ON". Insure that all 3 phase indicators are illuminated.

5.3.7 Set motor speed control knob to "ZERO"

5.3.8 Align payout spool with inspection table using the hand-held traverse drive motor controller.

5.3.9 Switch "ON" motor spindle forward (FWD) switch.

5.3.10 Zero cable footage counter. Calibrate lump detector.

5.3.11 Slowly increase motor speed knob.

5.3.12 Payout cable to inspection table guide wheels and on to take up reel.

5.3.13 Stop spooler motor

5.3.14 Lock cable end into take-up reel hub.

5.3.15 Switch "ON" power strip

5.3.16 Turn"MAGPOWER TRAC-2" power switch to "ON"

5.3.17 Select automatic mode.

5.3.18 Set tension adjustment knob to zero (fully CCW).

5.3.19 Set tension switch to "ON"

5.3.20 Adjust tension to 20 lbs.

5.3.21 Switch motor spindle FWD to "ON"

5.3.22 Begin inspecting /transferring cable.

5.3.23 Adjust motor speed to suit.

5.3.24 Be sure cable is properly passing thru inspection station and onto take-up reel.

5.4 Calibration TRAC-2 Cable Tensioning System

NOTE 1

This procedure should be performed by an Authorized Operator at the start of every production run and once a month thereafter during production.

NOTE 2

Adjustment of the TRAC-2 system should be performed by a qualified Calibration Technician with a generic Energized Work Permit.

5.4.1 Attach force gage to inspection table.

5.4.2 Mount spool of cable to take-up motor table.

5.4.3 Run cable through guide wheels. (See Table 1) Attach to other end of force gage.

5.4.4 Rest the gage on the mandrel. Zero the gage.

5.4.5 Turn on the tension controller as per section 5.2.2.

5.4.6 Adjust the potentiometer until the force gauge reads 5 lbs.

5.4.7 Record the "actual" tension (force gauge reading) and the tension shown on the TRAC-2 display.

5.4.8 Increase the tension in 5 lb. increments as read on the force gauge, recording the actual tension and the TRAC-2 displayed tension at each point.

5.4.9 Repeat step 5.4.8 until a tension of 45 lbs., as read on the force gauge, is reached.

5.4.10 IF all of the readings are within the Specified Tolerance of ± 2.5 lbs.,

THEN perform the following steps:

5.4.10.1 Dismantle the set-up.

5.4.10.2 Check off, date, and initial the "TRAC-2 Calibration" form posted on the Winder (Attachment 4).

5.4.10.3 Note in the Log Book that no adjustment to the system was required.

5.4.11 IF one or more readings are outside the Specified Tolerance of ± 2.5 lbs.,

THEN perform the following steps:

□ Calibration Technician:

WARNING

You will be exposed to 120 VAC line voltage during the performance of steps 5.4.11.1 and 5.4.11.2. An Energized Work Permit is required.

5.4.11.1 Open the TRAC-2 cover.

5.4.11.2 Adjust the TRAC-2 tension controller by following the instructions in the TRAC-2 Instruction Manual, page 2.

5.4.11.3 Close and secure the TRAC-2 cover.

5.4.11.4 Check off and initial the "TRAC-2 Calibration" form.

□Operator:

5.4.12 IF the Calibration Technician is able to adjust the TRAC-2 so that all readings are within the Specified Tolerance,

THEN perform the following steps:

5.4.12.1 Record the final readings in the Log Book. Note in the Log Book that the system was adjusted to within spec.

5.4.12.2 Dismantle the set-up.

5.4.12.3 Check off, date, and initial the "TRAC-2 Calibration" form.

5.4.13 IF the Calibration Technician is NOT able to adjust the TRAC-2 so that all readings are within the Specified Tolerance,

THEN perform the following steps:

5.4.13.1 Immediately inform the Cognizant Engineer and the Coil Fabrication Supervisor.

5.4.13.2 Do not dismantle the set-up before consulting with your supervisor. Others may want the opportunity to verify your findings.

5.4.13.3 Note in the Log Book that the system could not be adjusted to within spec.

5.4.13.4 Check off, date, and initial the "TRAC-2 Calibration" form.

5.5 Set-Up of Lump Detector

5.5.1 Set Lump Detector Power switch to ON.

5.5.2 Insert 5 mil shim between insulated cable and detector.

5.5.3 Adjust Voltage Potentiometer counter clockwise until alarm trips.

5.5.4 Hit reset. If alarm does not stop, adjust voltage potentiometer downward in small increments, hitting reset button at each increment, until alarm stays off.

5.5.5 Remove shim. The Lump Detector alarm is set.

6 Documentation

6.1 Maintenance Log.

6.2 Calibration Report

7 References

7.1 BNL SBMS Subject Area "Lockout /Tagout (LOTO).

7.2 BNL ES & H Manual 1.5.0, Rev 6 "Electrical Safety".

8 Index of Attachments

1. Cable Path
2. Spooler Arrangement
3. Control Panel
4. Control Panel Detail
5. Inspection Table
6. Tension Controller
7. Calibration Form

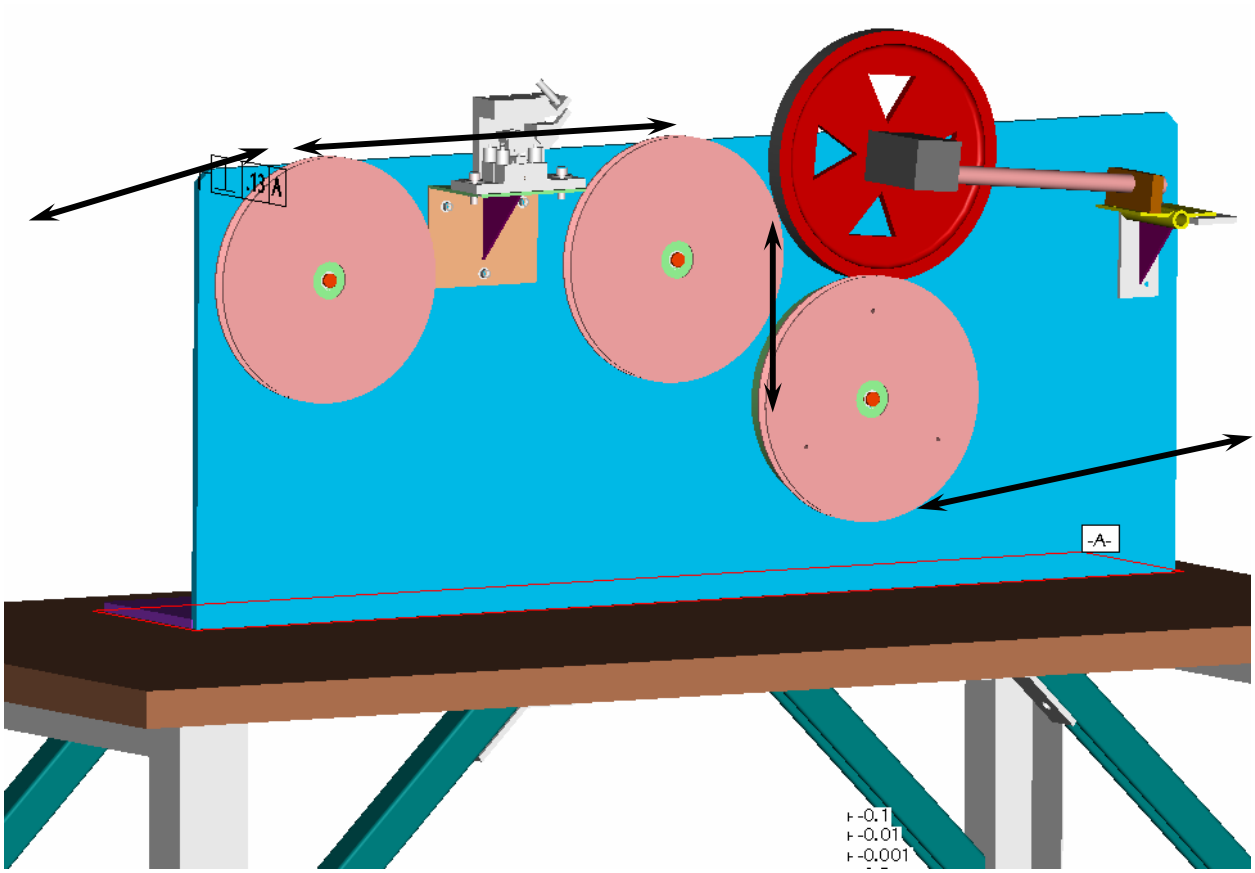

Figure 1
Cable Path

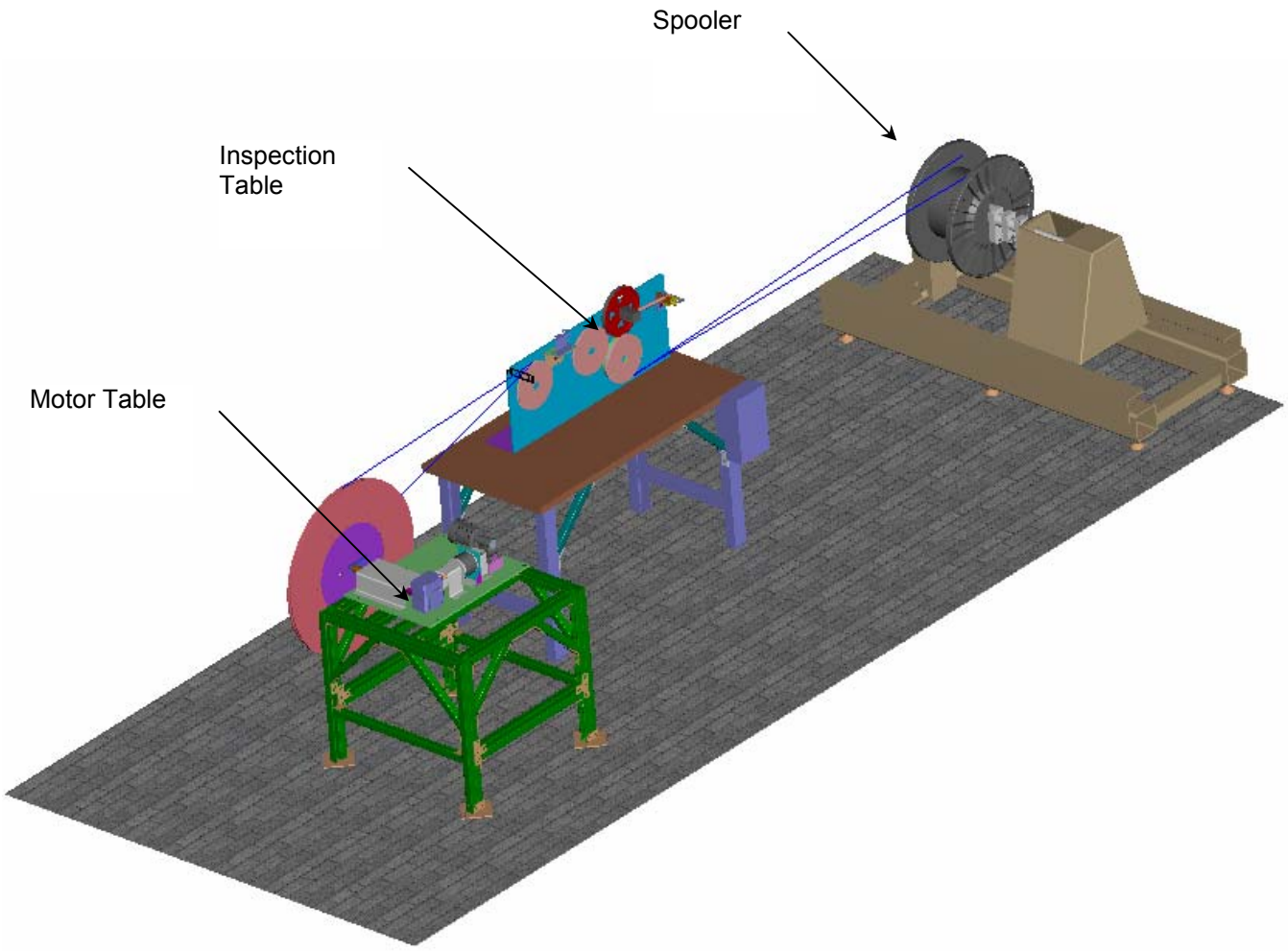

Figure 2
Spooler Arrangement

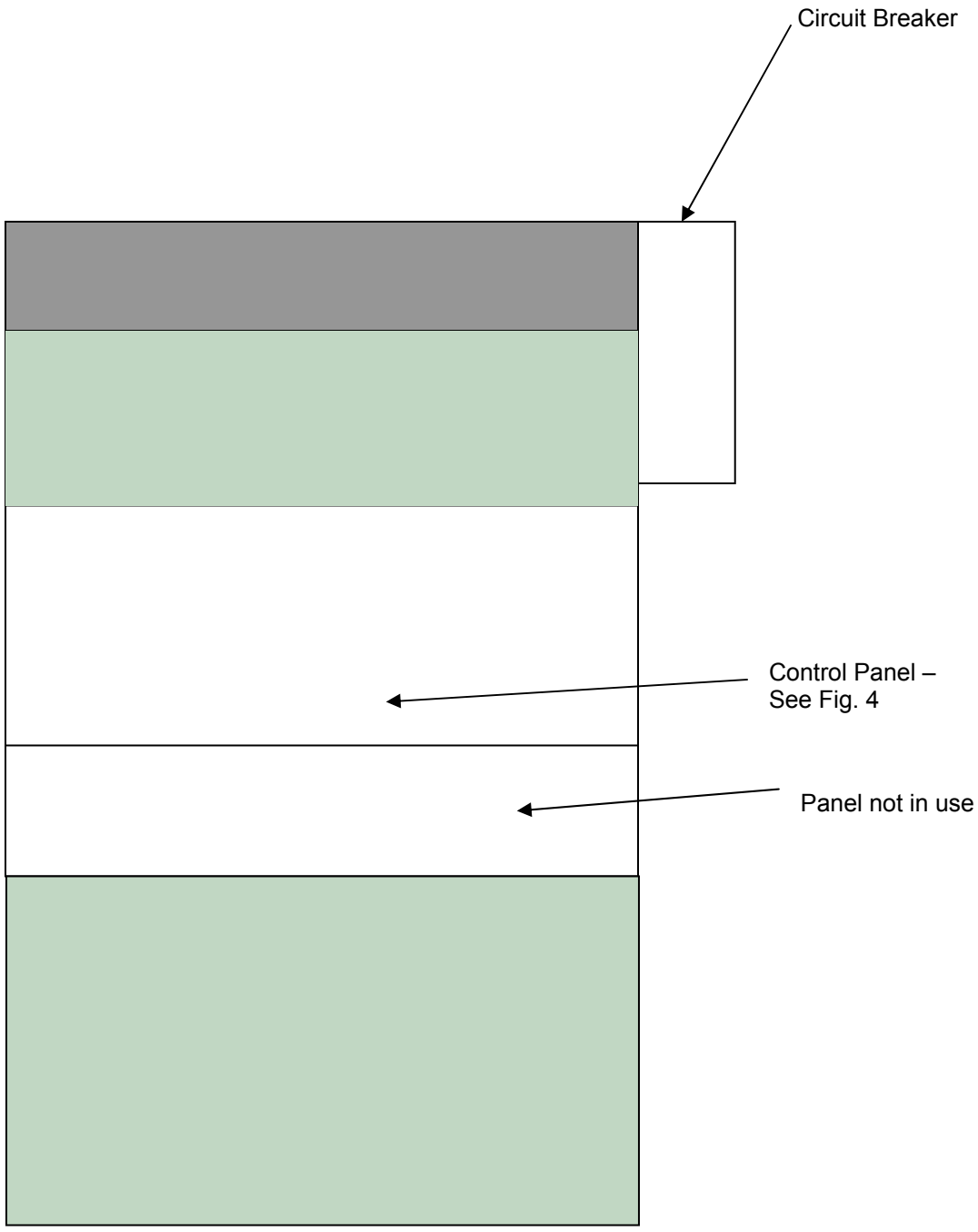

Figure 3
Spooler Control Panel

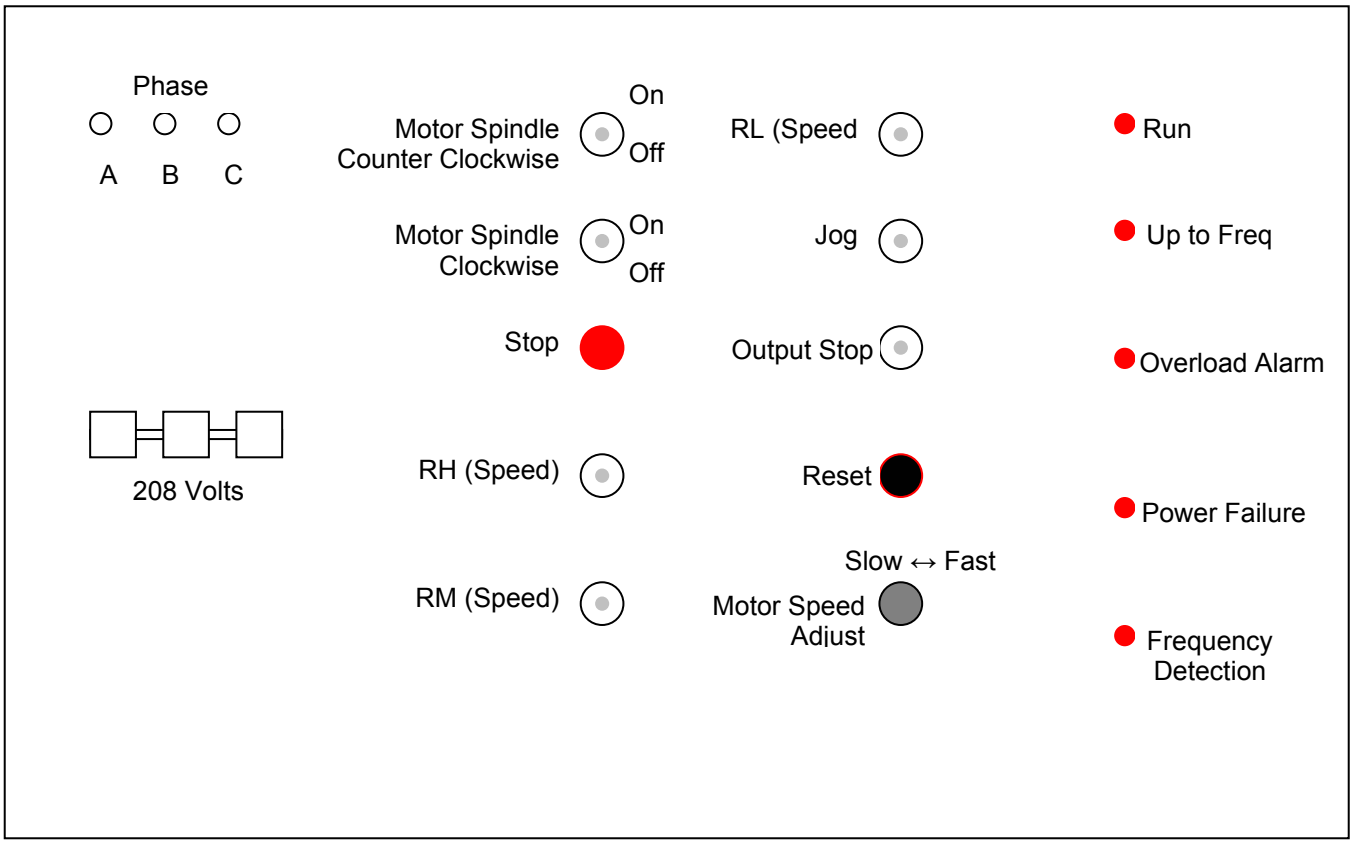

Figure 4
Spooler Control Panel Detail

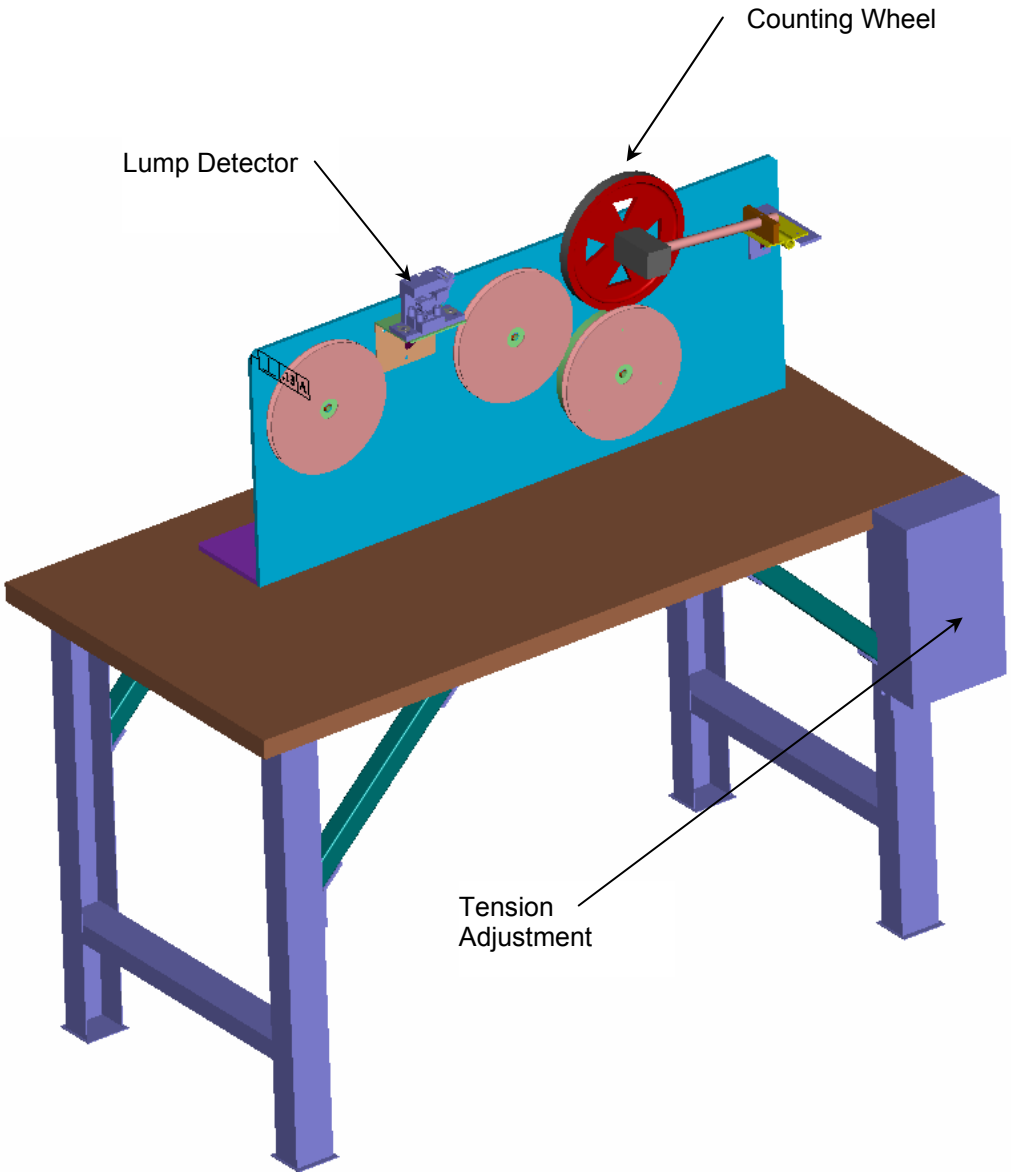

Figure 5
Inspection Table

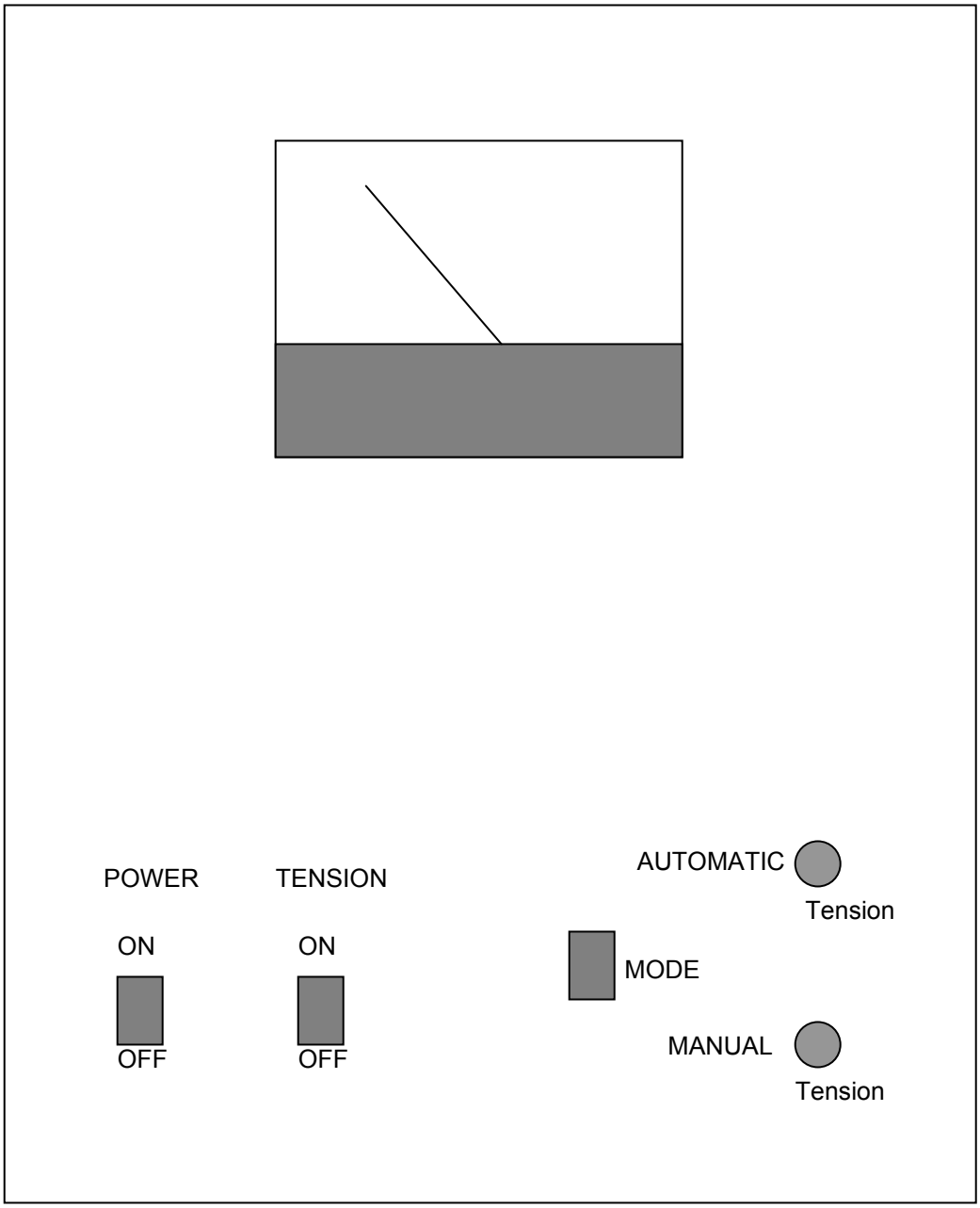

Figure 6
Tension Controller

Figure 7

Calibration Form

Notes:

1. Calibration Procedure: SMD-OPM 8.1.1.45
2. Specified Tolerance: ±2.5 lbs.

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Check One:

No adjustment required……..<> Date _____

Adjusted to within specification…… <> Operator Initials _____

Could not adjust to within specification…… <> Technician Initials _____

Comments:

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Check One:

No adjustment required……..<> Date _____

Adjusted to within specification…… <> Operator Initials _____

Could not adjust to within specification…… <> Technician Initials _____

Comments:

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Check One:

No adjustment required……..<> Date _____

Adjusted to within specification…… <> Operator Initials _____

Could not adjust to within specification…… <> Technician Initials _____

Comments: