SMD Operations Procedures Manual

8.1.1.5 OPERATION OF COLLARING PRESS

Text Pages 1 through 10
Attachment(s) 1, 2, 3

Hand Processed Changes

HPC No.	Date	Page Nos.	Initials

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8.1.1.5 Operation of Collaring Press

1.0 Purpose and Scope

1.1 To Provide Instruction on Operating the Collaring Press System located in Building 905. Areas addressed are:

1.1.1 Function and use of operator controls.

1.1.2 Sequential activities necessary to start up, operate, and shut down the Press.

1.1.3 Safety features of the Press and how to test them.

1.1.4 Maintenance & Calibration information.

1.2 This information is provided for any person who will operate the Collaring Press.

2.0 Responsibilities

2.1 Authorized operators (Operators) of the Press will perform the tasks described here. A list of Operators is kept in a controlled location near the Press.

2.2 The Operator shall complete the magnet traveler associated with the cold mass being collared.

2.3 The Operator shall complete any magnet fabrication procedures that require operator input.

2.4 The Operator shall perform a safety test of the emergency stop switches each time the Press is used. The test procedure is described later in this document. The Operator shall complete the Emergency Stop Safety Test check-off sheet (Attachment 2) after each test.

2.5 The operator shall ensure that a calibration of the pressure transducer has been performed within a one year period.

3.0 Prerequisites

3.1 Training

3.1.1 Operators shall be instructed by the Cognizant Engineer or his designee before using this procedure.

3.2 Manpower

3.2.1 One Operator and two technicians are required for the collaring process. The Operator controls the operation from the control console. Two technicians stand on either side of the Press and insert the locking keys.

4.0 Precautions

4.1 If access to the inside of the Collaring Press Control Console is required, perform Lockout/Tagout per SBMS Subject Area. This will include locking and tagging the input disconnect switch FDN I3, located on the column behind the Press, which provides 208VAC, 3 phase, to the Press. If it is necessary to test the system by powering it up while the console is open, then obtain a proper Working Hot Permit. Terminals with a potential of 120VAC to ground will be exposed.

4.2 Wear eye protection with splash guards. Operation involves working near hydraulic oil and metal parts under high pressures.

4.3 Exercise caution while the conveyor is moving. Do not wear loose clothing or jewelry.

4.4 Be aware of the location and function of the Emergency Stop button (on the control console) and the Emergency Stop pull cords (along both sides of the conveyor). The function of the button and the pull cords is the same:

A. Cause the conveyor to stop.
B. Put the hydraulic press into OFF after one minute.

Note: *All power to the Press is not disconnected during an Emergency Stop.*

4.5 Check that all guards and cover panels are in place.

4.6 Check that the work area is clear of unauthorized personnel.

5.0 Procedure

5.1 Detailed step-by-step instructions for coil collaring are documented as part of the applicable traveler.

5.2 This section provides additional details on start-up, operation, shut-down, safety feature testing, and maintenance of the Collaring Press.

5.3 Before powering up the Press check the following console settings:
- A. Both hydraulic pressure potentiometers set to zero;
- B. Conveyor RUN and JOG speed potentiometers set to zero;
- C. Conveyor ON/OFF toggle set to OFF.

5.4 Power Up the Press

5.4.1 Place Input Disconnect Switch #FDN I3 (located behind the Hydraulic Power Unit), the Console Door Switch, and the POWER key switch in the ON position.

5.4.2 Press RESET. The Press will go into the UP mode automatically. However, since the pressure potentiometers are set to zero, the Platen will not rise. After 60 seconds the pump motor will shut off.

5.5 Set Up the Conveyor

5.5.1 Place the uncollared coil onto the Lower Contact Tool Assembly

5.5.2 Check that the RUN and JOG potentiometers are set to zero.

5.5.3 Set the Conveyor ON/OFF breaker switch to ON.

5.6 Raise the Platen

5.6.1 Press the Hydraulic Pump ON button. The pump motor should turn on. The UP button should light, indicating that the Press is in the UP mode.

5.6.2 Adjust lift pressure by adjusting the Lift Cylinder potentiometer until the Platen rises (> 2000 psi). Monitor pressure on the Lift Cylinder digital readout.

5.6.3 When the desired height is reached, press the Vertical Stop button.

5.7 Run the Conveyor

5.7.1 **Note:** If there is pressure in the Platen Cylinders, the Pressure Disable light will go on and the conveyor will not move.

5.7.2 Set the FWD/REV switch to the desired setting:
- A. FWD for right to left motion (westward).
- B. REV for left to right motion (eastward).

5.7.3 Set the RUN/JOG switch to the desired setting:
- A. In the RUN mode, pushing the OPERATE button momentarily will cause continuous motion of the conveyor; the conveyor is stopped by pressing the STOP button.
- B. In the JOG mode, the conveyor will move only while the OPERATE button is depressed.

5.7.4 Adjust the RUN or JOG potentiometer upward from zero until the desired conveyor speed is reached.

5.8 Test the Emergency Stop Switches Each Time the Press is Used

5.8.1 Refer to the Emergency Stop Switch Safety Test check-off sheet (Attachment 2) for the test locations.

5.8.2 With the Platen raised and the conveyor moving, press the Emergency Stop button on the console.

5.8.3 Verify that the conveyor stops and the hydraulic system goes into the UP and OUT mode (check the lighted switches on the console). The Reset light should turn on.

5.8.4 Press RESET; the Reset light will turn off.

5.8.5 Repeat steps 5.8.2 thru 5.8.4 for each of the remaining test locations (both ends and middle positions of the four pull cords).

5.8.6 Date, check off, and initial the Safety Test check-off sheet.

5.9 Operate the Hydraulic Press

5.9.1 Raise the Platen per step 5.6.

5.9.2 Run the conveyor until the uncollared coil assembly is in place.

5.9.3 Lower the Platen by slowly reducing the lift cylinder pressure.

5.9.4 When the Platen is at rest, press the Vertical Stop button.

5.9.5 To exert downward force on the coil assembly, push the DOWN button. Check the downward pressure on the Platen digital readout.

5.9.6 Adjust the pressure using the INCREASE/DECREASE control.

5.9.7 Insert the locking keys.

5.9.8 Press the Vertical STOP and Horizontal STOP buttons.

5.9.9 Press the UP and OUT buttons.

5.9.10 Wait two to three minutes for the oil to be pumped out of the Platen Cylinders.

5.9.11 Raise the Platen using the Lift Cylinder potentiometer (at >2000 psi).

5.10 For long coils, advance the collared section of the coil assembly and repeat the collaring operation on the uncollared section.

5.11 Shut Down the Press

5.11.1 Move the coil assembly out from under the Platen.

5.11.2 Turn the SPEED potentiometer to zero.

5.11.3 Flip the Conveyor ON/OFF switch to OFF.

5.11.4 Lower Platen by reducing Lift Cylinder pressure slowly, until the Platen comes to rest.

5.11.5 Turn the hydraulic pressure potentiometers to zero.

5.11.6 Press the Hydraulic Pump OFF button.

5.11.7 Turn the POWER key switch to OFF.

5.12 Maintenance Procedure

5.12.1 Oil filter on the Hydraulic Power Unit must be changed when the "Change Filter" light is lit.

5.12.2 Check the operation of the thermostatically-controlled radiator fan periodically. Set the thermostat to a low temperature to turn the fan on.

5.13 Calibration of Pressure Measurement System

NOTE 1 ***Calibration frequency is one year.***

NOTE 2 ***The "ID numbers" referred to are hand written on white labels affixed to an easily visible surface of the equipment. In the absence of a label, the serial number or bar code of the equipment may be used as an ID number.***

WARNING

Disturbing a hydraulic line while it is pressurized could cause injury.

5.13.1 Verify that all hydraulic lines on the Press are depressurized.

5.13.2 Disconnect the Omega model PX303-7.5KG-5V Pressure Transducer from the Platen Pressure hydraulic line. Install a temporary cap on the hydraulic line pressure fitting.

WARNING

Pressures up to 3000 PSI are applied to the transducers during the procedure. Failure to use proper high-pressure fittings could result in severe injury.

5.13.3 Attach the Pressure Reference (Dead Weight Tester) to the Pressure Transducer input.

WARNING

Use caution when energizing the control console. Failure to follow step 5.4 could result in injury or equipment damage.

5.13.4 Verify that energizing the Collaring Press control console will NOT result in energizing of pumps or other equipment not intended to be energized.

5.13.5 Energize the Collaring Press control console, by following the applicable steps in this procedure

5.13.6 Verify that the pressure indicators on the console are energized.

5.13.7 Record the following ID numbers on the Calibration Report (Attachment 1):

A. Pressure Transducer.

B. Pressure Indicator (located on the control console) associated with the Pressure Transducer.

C. Pressure Reference.

5.13.8 Apply the test pressures called out in the "Applied Input" column of the "Before Adjustment" section of the Calibration Report (Attachment 1).

5.13.9 Record the Pressure Indicator readings in the "Read" column. DO NOT adjust the equipment before all test readings have been recorded.

5.13.10 Select the appropriate choice and continue as directed:

Case 1: All of the readings are within the Specified Tolerance of ±50 psi of the Applied Input. You WILL NOT make any adjustments. GO TO paragraph 5.13.11.

Case 2: All of the readings are within the Specified Tolerance of ±50 psi. You WILL make adjustments to the system because you have judged that the accuracy of the system may be further improved. GO TO section 5.13.12.

Case 3: Some or all of the readings are outside of the Specified Tolerance of ±50 psi. GO TO section 5.13.13.

5.13.11 Case 1: Complete the following steps.

i. Place a calibration sticker on the Pressure Indicator.

ii. Remove the Pressure Transducer from the Pressure Reference and re-install it onto the hydraulic line.

iii. GO TO paragraph 5.14.

5.13.12 Case 2: Complete the following steps.

i. Make appropriate adjustments to the system.

ii. Re-apply the test pressures called out in the "Applied Input" column of the Calibration Report.

iii. When the best possible accuracy has been attained, record the final run of data in the "Read" column of the "After Adjustment" section.

iv. Place a calibration sticker on the Pressure Indicator.

v. Remove the Pressure Transducer from the Pressure Reference and re-install it onto the hydraulic line.

vi. GO TO paragraph 5.14.

5.13.13 Case 3: Complete the following steps.

i. Place a "*" in the "Fail" column next to the reading(s) that are outside the Specified Tolerance.

ii. Adjust and re-check the system as necessary until the best possible accuracy has been attained.

iii. IF the system can be adjusted to within the Specified Tolerance,

THEN Record the final run data in the "Read" column in the "After Adjustment" section.

Place a calibration sticker on the Pressure Indicator.

Remove the Pressure Transducer from the Pressure Reference and re-install it onto the hydraulic line.

5.13.14 IF the system can not be adjusted to within the Specified Tolerance,

THEN Notify the Cognizant Technical Supervisor and the Cognizant Engineer immediately.

Place a "DEFECTIVE" label in a prominent location on the system.

Take appropriate steps to resolve the problem and restore the system to working order.

5.13.15 Complete, date, and sign the Calibration Report. Provide a copy to SMD QA.

6.0 Documentation

6.1 Magnet Traveler.6.2
6.3 Emergency Stop Switch Safety Test check-off sheet.

7.0 References

7.1 SBMS Subject Area, "Lockout/Tagout (LOTO)".
7.2 SBMS Subject Area 'Calibration'

8.0 Attachments

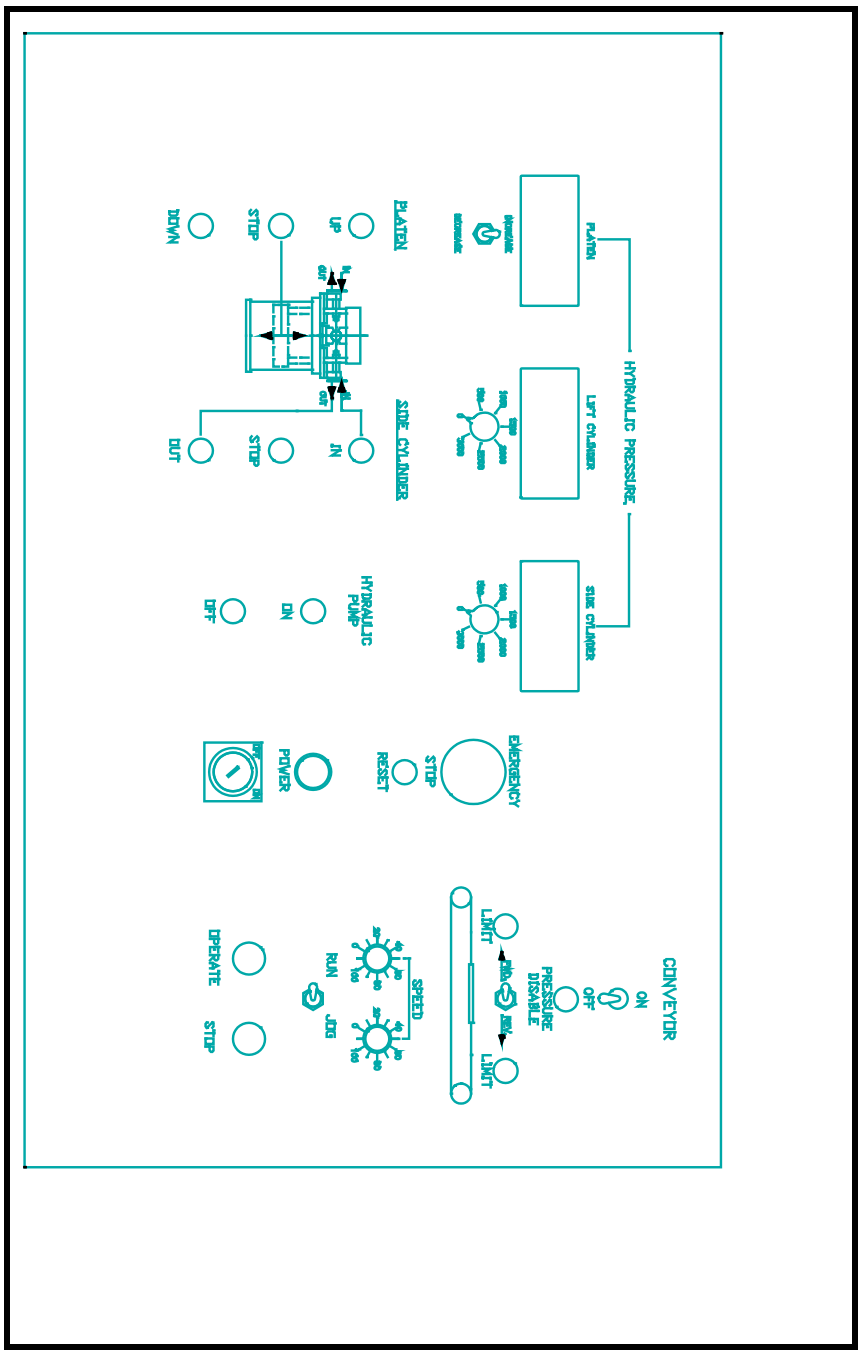
1. Collaring Press Control Panel
2. Emergency Stop Switch Safety Test Check-off Sheet
3. Calibration Report Form

9.0 Version History Log

Revision	Description of Changes	Reviewers	Effective Date
05	• Implemented Version History Log • No other major changes to content	J. Cozzolino B. Brenton H. Hocker M. Anerella M. Samms A. Volk	9/4/2024

Attachment 1

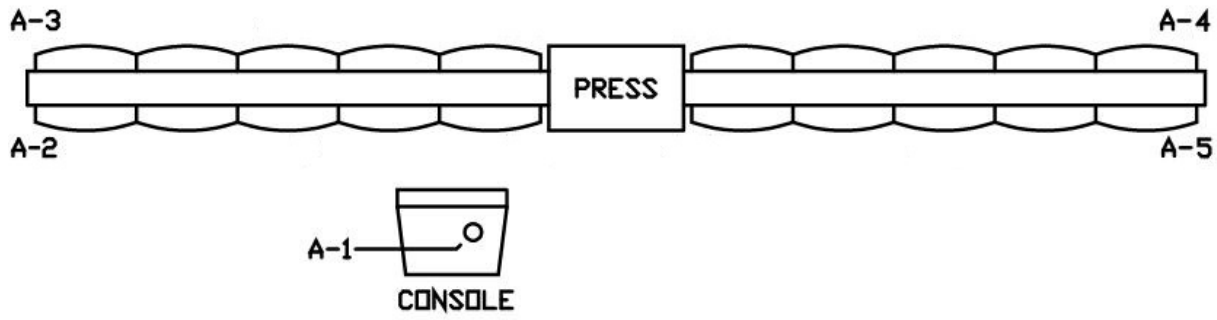
Collaring Press Control Panel



Attachment 2

Collaring Press – Emergency Stop Switch Safety Test (Rev 6/12)

Date	A-1	A-2	A-3	A-4	A-5	Initial



Attachment 3 - Calibration Report Form

Title: Collaring Press--Hydraulic Pressure Measurement System.

Service Date_____ By_____

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THIS ASSET WAS CALIBRATED USING TEST EQUIPMENT WHOSE ACCURACY IS TRACEABLE TO THE NIST, OR ACCEPTED VALUES OF NATURAL PHYSICAL CONSTANTS.

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TEST DATA

Pressure Transducer: ID#_____

Pressure Indicator: ID#_____

Pressure Test Reference: ID#_____

		Before Adjustment		After Adjustment	
Specified Tolerance	Applied Input (psi)	Read	Fail (*)	Read	Fail (*)
±50 psi (all readings)	0				
	500				
	1000				
	1500				
	2000				
	2500				
	3000				
	2500				
	2000				
	1500				
	1000				
	500				
	0				

Procedure No.: OPM 8.1.1.5 Temp: Calibration Date:

Service Notes: Humidity: Calibration Due: