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SMD Operations Procedures Manual

8.1.1.13 CALIBRATION OF MAIN HYDRAULIC PRESSURE MEASUREMENT SYSTEM ON COLLARING PRESS

Text Pages 1 through 6
Attachment(s) 1

Hand Processed Changes

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Preparer(s): M. Anerella

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8.1.1.13 Calibration of Main Hydraulic Pressure Measurement System on Collaring Press

1.0 Purpose and Scope

To calibrate the main vertical hydraulic pressure measurement system on the Collaring Press in Building 905.

2.0 Responsibilities

2.1 The Calibration Technician is responsible for performing the main actions of the calibration procedure.

2.2 The Operator is responsible for those parts of the procedure involving:

a. manipulation of the controls of the Collaring Press;

b. operations to the hydraulic pressure lines.

2.3 The Division Calibration Group is responsible for:

a. maintaining a list of Authorized Calibration Technicians;

b. notifying responsible persons when calibrations are due;

c. affixing appropriate labels and stickers indicating calibration status;

d. maintaining a file for all documents related to calibrations.

3.0 Prerequisites

3.1 You must be listed as an Authorized Calibration Technician before performing the sections of the procedure designated to be performed by the "Calibration Technician". A current list is available in the Magnet Division Calibration Group Office.

3.2 You must be an Authorized Operator for the Collaring Press before performing the sections of the procedure designated to be performed by the "Operator".

3.3 Tools and Equipment

A. Calibrated dead weight tester capable of applying 3000 psi.

4.0 Precautions

4.1 The calibration procedure requires operation of equipment for which an authorized Operations Procedure exists: SMD-OPM 8.1.1.5, "Operation of Collaring Press". The applicable steps listed in that Operations Procedure, including all safety precautions, shall be followed.

5.0 Procedure

NOTE 1 ***Calibration frequency is six months.***

NOTE 2 ***In this section, the tasks designated to be performed by the Authorized Operator, the Authorized Calibration Technician, and the Calibration Group Representative are indicated by the headings "<Operator", "<Calibration Technician", and "<Calibration Group Rep".***

NOTE 3 ***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.***

<Operator:

WARNING

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

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

5.2 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.

5.3 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.

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

5.5 Energize the Collaring Press control console, by following the applicable steps in the Operations Procedure for the Press: SMD-OPM 8.1.1.5.

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

<*Calibration Technician:*

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

A. Omega PX303-7.5KG-5V Pressure Transducer.

B. Omega DP354Z Pressure Indicator (located on the control console) associated with the Pressure Transducer.

C. Pressure Reference.

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

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

5.10 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 5.11.

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 5.12.

Case 3: Some or all of the readings are outside of the Specified Tolerance of "50 psi. GO TO section 5.13.

5.11 Case 1: Complete the following steps.

<*Calibration Group Rep:*

5.11.1 Place a calibration sticker on the Pressure Indicator.

<*Operator:*

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

5.11.3 GO TO paragraph 5.14.

5.12 Case 2: Complete the following steps.

<*Calibration Technician:*

5.12.1 Make appropriate adjustments to the system.

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

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

<*Calibration Group Rep:*

5.12.4 Place a calibration sticker on the Pressure Indicator.

<*Operator:*

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

5.12.6 GO TO paragraph 5.14.

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5.13 Case 3: Complete the following steps.

<*Calibration Technician:*

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

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

5.13.3 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.

<*Calibration Group Rep:*

Place a calibration sticker on the Pressure Indicator.

<*Operator:*

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

<*Calibration Technician:*

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

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

<*Calibration Group Rep:*

Place a "DEFECTIVE" label in a prominent location on the system.
<*Operator:*

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

<*Calibration Technician:*

5.14 Complete, date, and sign the Calibration Report. Provide a copy to the Calibration Group.

NOTE: ***The Calibration Group, as per RHIC-MAG-Q-1000, "Magnet Division Procedure for Control of Measurement and Test Equipment", will notify the Cognizant Engineer whenever calibrations fail on the first pass. The Calibration Report is the primary documentation provided to the CE to aid in determining what corrective actions should be taken.***

6.0 Documentation

6.1 Calibration Report form.

6.2 The calibration status of an asset is to be noted on stickers affixed to the asset, if possible.

7.0 References

7.1 SMD-OPM 8.1.1.5, "Operation of Collaring Press".

7.2 RHIC-MAG-Q-1000, "Magnet Division Procedure for Control of Measurement and Test Equipment".

8.0 Attachments

1. Calibration Report Form

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Attachment 1
Calibration Report Form

MAGNET DIVISION CALIBRATION GROUP CALIBRATION REPORT **No._____**

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: Omega PX303-7.5KG-5V ID#_____

Pressure Indicator: Omega DP-354Z ID#_____

Pressure Test Reference: Ashcroft 1305B-30 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.: Temp: Calibration Date:
Service Notes: Humidity: Calibration Due: