

RHO/RMS/EP
OPERATIONS CHANGE NOTICE

OCN No. 1590

Date Effective: 8/13/98

Effective until:

SOP Revised
 Date _____

DMF Revision:

Required
 Completed
 Not applicable

1. Document Affected:

- a. Title: "Model 1500 Loading Procedure"
- b. Chapter and Section: XIX Revision 11/16/92 Page(s) Attachment I
- c. Form No.: N/A Revision Code N/A

2. Description of Change:

- a) Delete current 3-page Attachment I, (Vacuum Drying Procedure, Cask Cavity Drying Procedure, and Model 1500 drawing). Replace with new 2-page Attachment I (Vacuum Drying Procedure and Model 1500 drawing).
- b) First paragraph "Note"; change to read: "... (A) the cask cavity has been drained of water, (B) the drain line is unobstructed by observing the quality of the stream, (C) all lid bolts have been installed and torqued according to procedure, and (D) vent port pipe plug has been installed and tightened."
- c) Step 3, change to read: "...vacuum gauge, valve and quick disconnect as shown in the diagram."
- d) Step 10, change 15 torr to 3 torr.
- e) Step 11, change first sentence to read: "...pressure reads less than 1.0 torr for a period of no less than 30 minutes."

3. Reason for Change:

To add clarification to the procedure and to incorporate the requirement for a longer evacuation period below 1.0 torr.

4. Document Indexes Affected: N/A

Initiated by: _____ Date _____

Reviewed by:

Mgr., RHO <u>Joe Jensen</u> <u>8/13/98</u>	Mgr., RC <u>[Signature]</u> <u>8-13-98</u>
Mgr., RMS _____	QA _____
Mgr., EP <u>WR [Signature] R Pomares</u> <u>8/13/98</u>	Safeguards _____
Supervisor, RHO _____	Specialist, SS _____

Approved by: Mgr. (RHO)/RMS/EP [Signature]
Date 8-13-98

Revision recorded in Master SOP by: _____ Date _____

ATTACHMENT I

VACUUM DRYING PROCEDURE

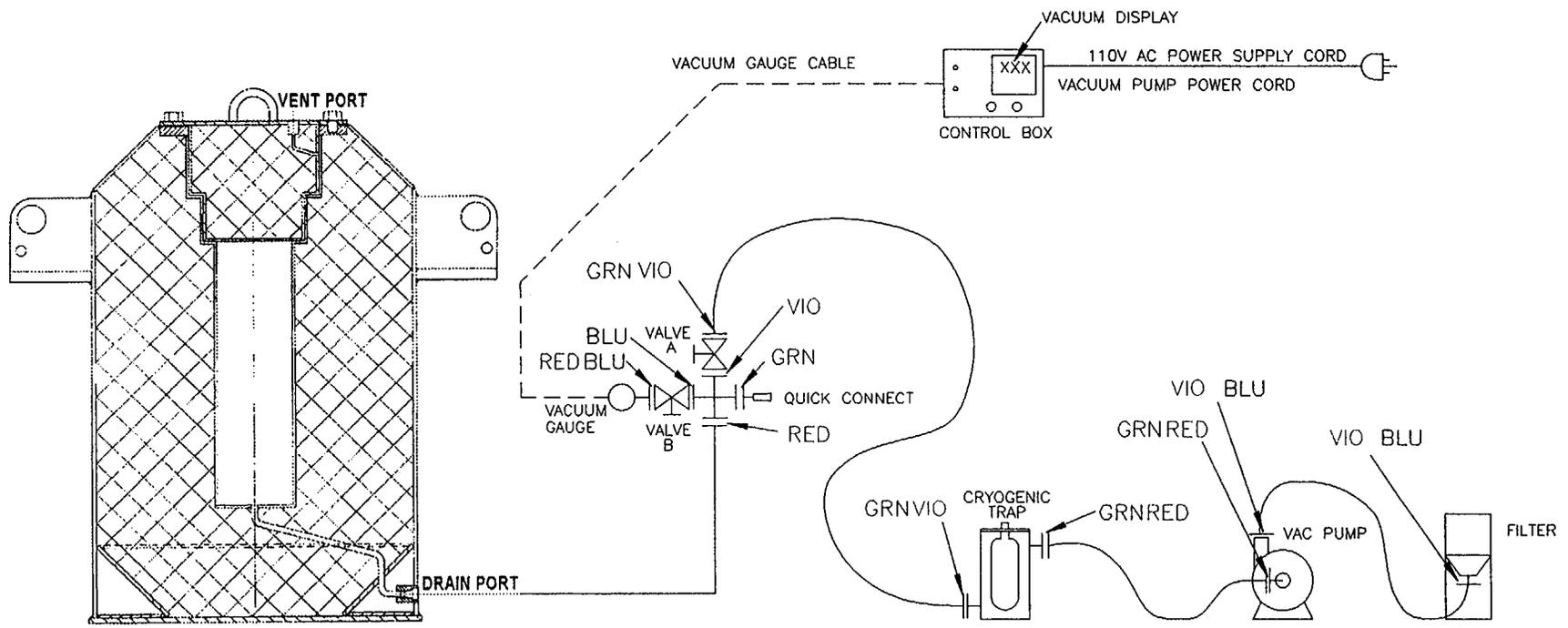
NOTE: BEFORE STARTING THE DRYING PROCEDURE, VERIFY THAT: (A) THE CASK CAVITY HAS BEEN DRAINED OF WATER, (B) THE DRAIN LINE IS UNOBSTRUCTED BY OBSERVING THE QUALITY OF THE STREAM, (C) ALL LID BOLTS HAVE BEEN INSTALLED AND TORQUED ACCORDING TO PROCEDURE, AND (D) VENT PORT PIPE PLUG HAS BEEN INSTALLED AND TIGHTENED.

1. Fill vacuum pump with oil supplied.
2. Attach male adapter fitting marked with red band to the drain port on the cask body.
CAUTION: DO NOT OVERTIGHTEN.
- ***| 3. Attach color-coded tee, vacuum gauge, valve and quick disconnect as shown in the diagram.
4. Connect color-coded vacuum hoses between valve, cryogenic trap (cryogenic trap must be dry inside and lid snug), vacuum pump, and HEPA filter. See diagram.
5. Connect vacuum gauge cable to vacuum gauge and vacuum pump power cord to the control box.
6. Turn on power to control box.
7. Calibrate vacuum gauge to atmospheric pressure (760 torr) by turning the ATM screw located on the face of the vacuum display instrument (control box).
- *| 8. Close valve and fill cryogenic trap with liquid nitrogen. Verify the trap is filled by viewing the liquid level. Procedure will require periodic addition of liquid nitrogen to keep trap full.
9. Turn on vacuum pump and gradually open the valve. **CAUTION: CRYOGENIC TRAP MAY BOIL OVER.**
- ***| 10. Verify that vacuum pressure is reduced by reading the vacuum display. Typically, the vacuum pressure will stabilize at approximately 3 torr while the moisture is being drawn from the cask cavity.
- ***| 11. Continue the procedure until the vacuum pressure reads less than 1.0 torr for a period of no less than 30 minutes. Pressure must continue dropping during this period. A rise of pressure may indicate trapped moisture in the cask cavity. The cask cavity is vacuum dried once a continuous drop in pressure is obtained.
- *|
- | 12. Close valve.
- | 13. Turn off pump.
- **| 14. Disconnect vacuum hose from the valve.
- | 15. Empty liquid nitrogen from cryogenic trap, and dry cavity. **CAUTION: MOISTURE IN TRAP MAY BE CONTAMINATED.**
- | 16. Drain vacuum oil from pump. **CAUTION: OIL MAY BE CONTAMINATED.**
- | 17. Proceed to the leak testing procedure.

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SK98026

Delete these 3 pages

ATTACHMENT I

VACUUM DRYING PROCEDURE
(Ref. SK-91-39)

1. Equipment

- a. Vacuum pump
- b. Vacuum gage
- c. Cask drain plug adapter
- d. Vacuum lines
- e. Absolute filter
- f. Appropriate size wrenches
- *| g. Liquid nitrogen (LN)

2. Procedure

- a. Tighten lid bolts to 120 ± 10 ft-lbs torque in a criss-cross pattern.
- b. Install special drain plug adapter.
- c. Attach vacuum pump line to drain plug.
- d. Direct discharge line to a ventilation duct and away from personnel working areas.
- e. Verify all fittings are tight.
- f. Turn on vacuum pump.
- *| g. Fill cryogenic trap with liquid nitrogen (LN). Verify the trap is full by viewing the liquid level. Periodic addition of LN to the trap will be required.
- **| h. Evacuate cask cavity until 2.5 torr pressure or less is obtained for a period of 5 minutes or more. Cask cavity will be dry at this pressure. Pressure must continue dropping during this period. A rise of pressure may indicate trapped moisture in the cask cavity. The cask cavity is vacuum dried once a continuous drop in pressure is obtained.
- i. Shut off vacuum pump.
- j. Vent system to atmosphere.
- k. Remove and store all equipment.

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ATTACHMENT I

CASK CAVITY DRYING PROCEDURE

NOTE: BEFORE STARTING THE DRYING PROCEDURE, VERIFY THAT: (A) THE CASK CAVITY HAS BEEN DRAINED OF WATER AND (B) ALL LID BOLTS HAVE BEEN INSTALLED AND TORQUED ACCORDING TO PROCEDURE.

1. Fill vacuum pump with oil supplied.
2. Attach male adapter fitting marked with red band to the drain port on the cask body.
CAUTION: DO NOT OVERTIGHTEN.
3. Attach color-coded tee, vacuum gauge, and valve as shown in the diagram.
4. Connect color-coded vacuum hoses between valve, cryogenic trap (cryogenic trap must be dry inside and lid snug), vacuum pump, and HEPA filter. See diagram.
5. Connect vacuum gauge cable to vacuum gauge and vacuum pump power cord to the control box.
6. Turn on power to control box.
7. Calibrate vacuum gauge to atmospheric pressure (760 torr) by turning the ATM screw located on the face of the vacuum display instrument (control box).
- * 8. Close valve and fill cryogenic trap with liquid nitrogen. Verify the trap is filled by viewing the liquid level. Procedure will require periodic addition of liquid nitrogen to keep trap full.
9. Turn on vacuum pump and gradually open the valve. **CAUTION: CRYOGENIC TRAP MAY BOIL OVER.**
10. Verify that vacuum pressure is reduced by reading the vacuum display. Typically, the vacuum pressure will stabilize at approximately 15 torr while the moisture is being drawn from the cask cavity.
- **| 11. Continue the procedure until the vacuum pressure reads 2.5 torr or less for a period of 5 minutes or more. Pressure must continue dropping during this period. A rise of pressure may indicate trapped moisture in the cask cavity. The cask cavity is vacuum dried once a continuous drop in pressure is obtained.
12. Close valve.
13. Turn off pump.
- * 14. Disconnect vacuum hose from the valve.
15. Empty liquid nitrogen from cryogenic trap, and dry cavity. **CAUTION: MOISTURE IN TRAP MAY BE CONTAMINATED.**
16. Drain vacuum oil from pump. **CAUTION: OIL MAY BE CONTAMINATED.**
17. Proceed to the leak testing procedure.

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