

IRRADIATION PROCESSING OPERATION RADIOACTIVE PRODUCTS AND SERVICES OPERATING PROCEDURE

REVISION 1

APPROVED MANAGER RADIOACTIVE PRODUCTS AND SERVICES <i>PE Butler</i> DATE: 5/15/81		CHAPTER: SHIPPING PACKAGE XVIII. ASSEMBLY/DISASSEMBLY	SECTION: GE Model No. 200 - K. Loading/Unloading	
REVIEWED <input type="checkbox"/> MGR. SG <input checked="" type="checkbox"/> MGR. NST <i>Wm. C. S. G. R.</i> <input type="checkbox"/> MGR. QA <input type="checkbox"/> INDUST. SAFETY		<p>1. <u>Purpose</u></p> <p>The purpose of this procedure is to provide instructions for loading and unloading the GE Model 200 shipping package with radioactive materials using dry (hot cell) or wet (underwater) facilities, and for preparing the package for return shipment to the GE-Vallecitos Nuclear Center (GE-VNC).</p> <p>2. <u>Reference Documents</u></p> <p>a. NRC Certificate of Compliance No. 5971 for GE Model No. 200 Shipping Package.</p> <p>b. DOT IAEA Certificate of Competent Authority, (1967 Regulations), DOT Certificate No. USA/5971/B()F.</p> <p>3. <u>Equipment Required</u></p> <p>a. GE supplied Model No. 200 cask and protective jacket assembly (see Attachment I).</p> <p>b. Internal hardware (holders, spacers, etc.) as may be required to provide containment and/or shoring for materials being shipped. The description and instructions for the use of such hardware, when required, are provided separately from this procedure.</p> <p>c. Equipment adequate to safely lift and move package assembly and components. Package weights are: Total assembly (without cask liner) - 8860 lb. (4020 kg); Cask - 6700 lb. (3040 kg); Cask lid - 400 lb. (180 kg); Liner - 520 lb. (240 kg).</p> <p>d. Wrenches for removing and installing the 2 in. hex hd. protective jacket bolts, 1 in. hex hd. cask lid bolts, and 1/2 in. NPT hex socket hd. drain plug.</p>		
REVIEWED SOP REVIEW DATE CHANGED <i>Joe Thompson 5-1-81</i> <input checked="" type="checkbox"/> MGR. RHO <i>Joe Thompson</i> <input checked="" type="checkbox"/> ANALYST <i>D. L. Zimmerman</i>		<p>DATE ISSUED 5/15/81</p> <p>ISSUED BY: D. L. Zimmerman</p>		
DMF REVISION BY: <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES <input type="checkbox"/> MGR. EE <input type="checkbox"/> MGR. IPM <input type="checkbox"/> MGR. PD&S		<p>SUPERSEDES ISSUE</p> <p>DATED: 2/18/81</p> <p>PAGE 1 OF 7</p> <p>REVIEW DATE 8/85</p>		

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- e. Radiation survey instruments to determine package dose rate and surface contamination levels.
- f. Decontamination materials, e.g. water/detergent, cloths, absorbent pads, brushes, etc.
- g. Teflon thread sealant tape, or equivalent (required for underwater loading/unloading only).
- h. Duct tape, or equivalent.

4. Requirements and Precautions

- a. The protective jacket and the exterior of the cask are free of smearable (non-fixed) contamination when shipped from GE-VNC. The package must be returned to GE-VNC in the same condition.
- b. Do NOT lift the protective jacket/cask assembly by the top rectangular holes of the jacket (jacket lifting eyes, Item 1 of Attachment 1). These are for removing the jacket from the jacket base (Item 2) only.
- c. The tie-down lugs (Item 3) located on the upper sides of the jacket are used to tie down the package during transportation. They are also approved for lifting the jacket from the base (Item 2), and for lifting the entire package.
- d. The jacket lifting eyes (Item 1) must NOT be used for tie-down purposes; they are to be closed with anti-tie-down covers (Item 4) to prevent use during transport.
- e. The protective jacket and jacket base should be removed in an uncontaminated area. Only the cask should be subjected to potential contamination.
- f. Do NOT attempt to lift the cask by the eye (Item 5) on the cask lid. The eye is for lifting the cask lid only.
- g. Component parts of the shipping package (protective jacket, cask, base, gasket, etc.) may not be repaired, replaced, or modified without written permission from General Electric Company, Valleclitos Nuclear Center (GE-VNC), Pleasanton, California. Any damage to the package sustained during transport or handling operations must be reported to GE-VNC.

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5. Package Disassembly Instructions

- a. Survey the package in accordance with internal procedures to assure that radiation dose rate levels do not exceed acceptable limits.
- b. Using appropriate capacity handling equipment, transfer the package assembly into an area free of radioactive contamination. The total package assembly weight is 8860 lb. (4050 Kg.).
- c. Remove the wire security seal located at the base of the jacket. Unscrew and remove the bolts (Item 6) from the base of the jacket. Remove the anti-tiedown covers (Item 4). Use care not to damage covers or to lose the bolts.
- d. Carefully lift the jacket off the cask, either by using the rectangular lifting eyes (Item 1) on top of the jacket, or by using the tiedown lugs (Item 3) and appropriately rated slings.
- e. Place the jacket in a noncontaminated area.
- f. Survey the external cask surfaces for radioactive contamination. If smearable contamination is detected, follow appropriate internal procedures for contamination control.

6. Dry Loading/Unloading Instructions

- a. Lift the cask from the jacket base (Item 2) using the lifting ears (Item 8) and transfer it to the shielded (hot cell) facility designated for the dry loading/unloading operations in accordance with internal procedures.
- b. Remove the cask lid bolts (Item 7) and store to prevent loss, contamination, or damage.
- c. Carefully remove the lid from the cask using the lid lifting eye (Item 5) and sling. Monitor cask dose rates during this step as prescribed by internal procedures.
- d. Inspect the seal gasket (Item 9), lid seal area, and lid bolts for damage which could affect the integrity of the closure seal. This inspection should be conducted prior to loading material into the empty cask cavity, or after the cask contents have been removed and safely stored. If any damage is observed, notify GE-VNC (see Section 4.g. of this procedure).

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- e. Transfer the radioactive materials and associated internal hardware being shipped, or being received, into or out of the cask cavity in accordance with separately provided special procedures and/or applicable internal procedures.

NOTE: When required, special instructions regarding the use of internal hardware (e.g. sample containers, holders, spacers, etc.) provided by GE-VNC for the specific material being shipped will be provided in a separate document.

- f. Check the seal gasket for proper positioning and install the cask lid, taking care not to displace the gasket.
- g. Monitor cask per internal procedures, to assure that dose rates are within prescribed limits.
- h. Re-install and tighten all lid bolts to assure good lid seal.
- i. Remove all old labels from cask and apply new label as appropriate for this shipment, i.e., "Full" or "Empty".
- j. Survey the external cask surfaces for smearable contamination and decontaminate per internal procedures as necessary to reduce smearable contamination levels to below the following GE-VNC limits:

alpha	200 dpm/square foot (65 dpm/300 sq. cm.)
beta/gamma	100 cpm/square foot (32 cpm/300 sq. cm.)

NOTE: "Fixing" contamination by painting or other means is not permitted.

- k. Tape the interface between the cask lid and cask body with "duct" tape or a comparable tape.

7. Wet Loading/Unloading Instructions

- a. Lift the cask from the jacket base (Item 2) using the lifting ears (Item 8) and transfer it to the facility designated for the wet (underwater) loading/unloading operations in accordance with internal procedures.
- b. Remove the cask lid bolts (Item 7) and store to prevent loss, contamination, or damage.
- c. Remove the drain plug (Item 10) and store with cask lid bolts.

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- d. Rig cask for lowering into water pool with overhead crane in accordance with internal procedures. Clevis bolts may be mounted to the cask lifting ears for crane hook attachment points.

CAUTION: Cask may be lifted only by side lifting ears.

An appropriate length sling or hook should be attached to the cask lid lifting eye to facilitate subsequent underwater removal of the lid with the crane.

NOTE: If the cask is to be lowered to rest on the pool floor, secure a sheet of uncontaminated plywood or metal to the bottom of the cask to prevent embedding particulate contaminants in the bottom of the cask.

- e. Carefully lower the cask into the pool and position it for loading/unloading operations as prescribed by internal procedures.
- f. Carefully lift the cask lid from the cask with the crane and move aside to provide access to cask cavity. Lid may be set down or remain suspended.
- g. Transfer the radioactive materials and any associated internal hardware being shipped, or received, into or out of the cask cavity in accordance with separately provided special procedures and/or applicable internal procedures.

NOTE: When required, special instructions regarding the use of internal hardware (e.g., sample containers, holders, spacers, etc.) provided by General Electric for the specific material being shipped, will be provided in a separate document.

- h. Check the seal gasket for damage and proper positioning. If damage is observed, notify GE-VNC (see Section 4.g. of this procedure).
- i. Re-install the cask lid, taking care not to displace the gasket.
- j. Raise cask out of pool and monitor per internal procedures to assure that dose rates are within acceptable limits.
- k. Rinse cask thoroughly with clean (uncontaminated) water to remove any residual contaminated pool water from external cask surfaces.
- l. Allow water to completely drain from cask cavity.

NOTE: To assure complete drainage of water, the cask lid should be raised slightly to break the cavity seal and provide venting.

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- m. Inspect the lid bolts and the drain plug for damage. If damage is observed, notify GE-VNC.
- n. Re-seat cask lid and install and tighten all cask lid bolts to assure good lid seal.
- o. Remove old Teflon tape sealant from drain plug threads and apply new Teflon tape (or equivalent thread sealant).
- p. Install the drain plug and tighten to assure good plug seal.
- q. Remove all old labels from cask and apply new label as appropriate for this shipment, i.e., "Full" or "Empty".
- r. Survey the external cask surfaces for smearable contamination and decontaminate per internal procedures as necessary to reduce smearable contamination levels to below the following GE-VNC limits:

alpha	200 dpm/square foot (65 dpm/300 sq.cm)
beta/gamma	100 cpm/square foot (32 cpm/300 sq.cm)

NOTE: "Fixing" contamination by painting or other means is not permitted.

- s. Tape the interface between the cask lid and cask body with "duct" tape or a comparable tape.

8. Package Assembly and Preparation for Shipment

- a. Return the cask to the protective jacket storage area.
- b. Inspect the protective jacket, base, and bolts for damage. Notify GE-VNC if any damage requiring repair or replacement of parts is observed.
- c. Place cask on jacket base and align so that protective jacket can be properly positioned over cask lifting ears and mate with base bolt holes.
- d. Position protective jacket on jacket base.
- e. Install the jacket bolts and tighten.
- f. Fasten anti-tiedown covers to jacket lifting eyes.
- g. Perform final radiation survey of assembled package (including smear check of external jacket surfaces) and complete shipping papers as required by applicable internal procedures and government regulations.

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- h. Remove all old labels and attach appropriate shipping labels and security seal to jacket.
- i. Return the shipping package, in accordance with appropriate internal shipping instructions, to:

General Electric Company
Vallecitos Nuclear Center
Pleasanton, California 94566
U.S.A.

DATE ISSUED 5/15/81

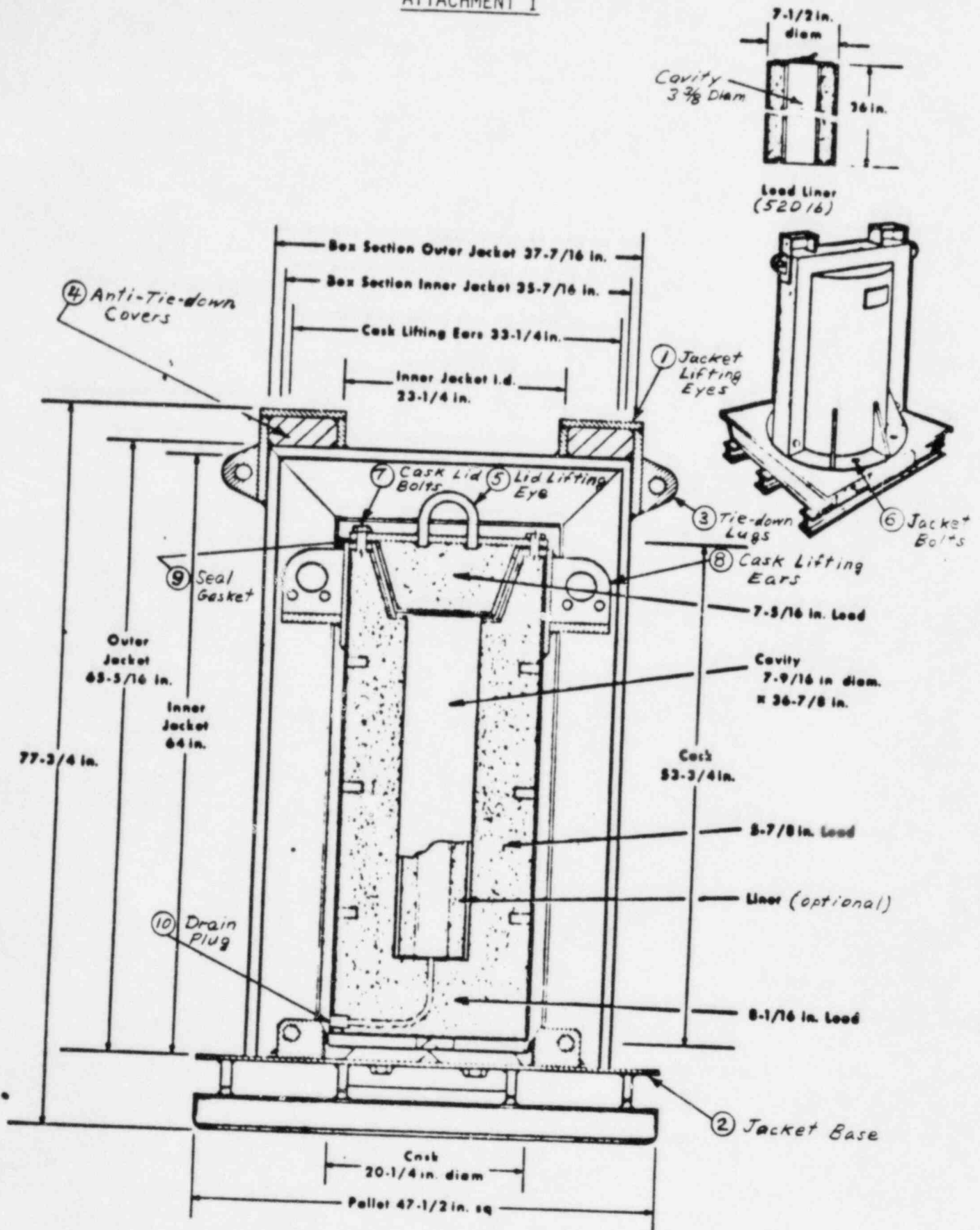
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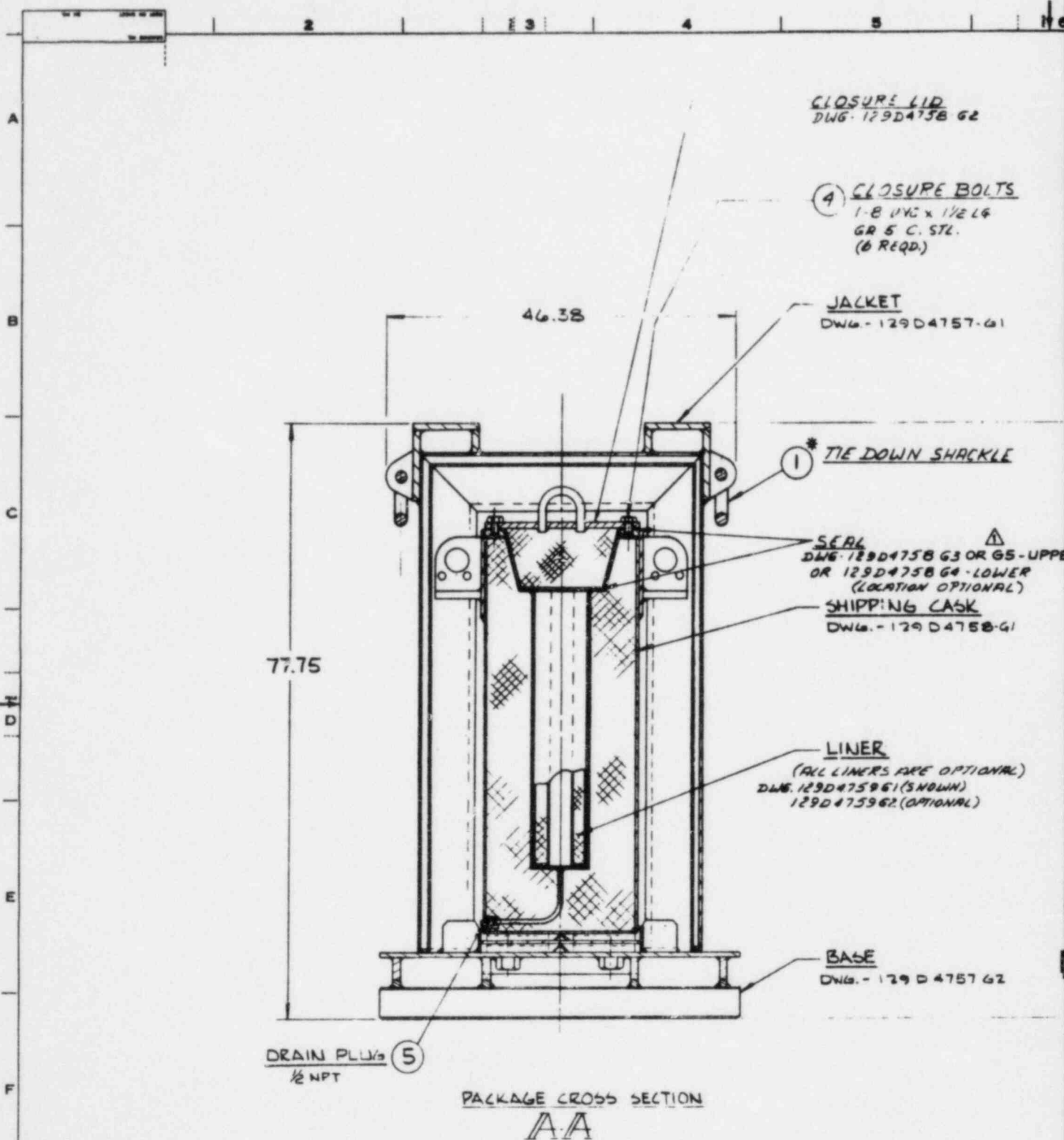
PAGE / **OF** /

ISSUED BY: D. L. Zimmerman **DATED:** 2/18/81

ATTACHMENT I



GENERAL ELECTRIC - MODEL 200 SHIELDED CONTAINER



NOTES:

1. BASE AND JACKET INSIDE AND OUTSIDE ARE PAINTED WITH RUSTOLEUM GRAY OR EQUIV.
2. DIMENSIONS AND TOLERANCES INDICATE MAXIMUM VARIATIONS BETWEEN PACKAGES AND ARE NOT INDICATIVE OF "FIT" OR "INTERCHANGEABILITY."
3. NOMINAL DIMENSIONS FOR STRUCTURAL SHAPES, PLATES, TUBES, ETC. WILL FALL WITHIN STD. MILL TOLERANCES.
4. ALL OTHER DIMENSIONS ARE $\pm .5$ UNLESS SHOWN OTHERWISE.
5. PACKAGING WT. = 8800 LBS. (± 300 LBS.) WITHOUT LINER, WITH LINER 9450 LBS. (± 300 LBS.)
6. THE JACKET LIFTING EARS (129D4757 P5) ARE BOLTED CLOSED DURING TRANSPORT WITH A STL. FLAP WHICH IS MARKED TO DENOTE THAT THEY ARE NOT TO BE USED FOR TIE DOWN.

ENERGY ABSORPTION ANGLES-UPPER

1/4 x 1/4 x 1/4 C. STL.
SHORT 8 1/2" LONG 20 1/2"

ENERGY ABSORPTION ANGLES-LOWER

1/4 x 1/4 x 1/4 C. STL.
SHORT 8 1/2" LONG 20 1/2"
ONE LEG ONLY
TYP. 1/2 V. 5-3

JACKET MTG. HOLES
2-12 DIA. CLEAR HOLES
FOR NUTS WELDED
ON UNDER SIDE.
ON 30.25 B.C.

* FORK GUIDE PLATES (2)
(OPTIONAL)

RETAINER RING
21.25 I.D. x 3.0 HIGH
x 3/8 THK. C. STL.

BASE PLATE
1/2 THICK C. STL.

* GUIDE BLOCK

PLATE-UPPER
21 DIA x 3/8 THK.
C. STL.

* RETAINER BAR
(OPTIONAL)

* LOCATING PIN

PLATE-UPPER (REF)

DRAIN HOLE
2 REQD.

3/8 V. TYP.

BAR
47.5 x 3 x 1 THK.
C. STL. (4 REQD.)

BLOCK
2.75 x 1 x 1 THK.
C. STL. (12 REQD.)

HEX NUT
2-4 1/2 UNCL
STN. STL. (4 REQD.)

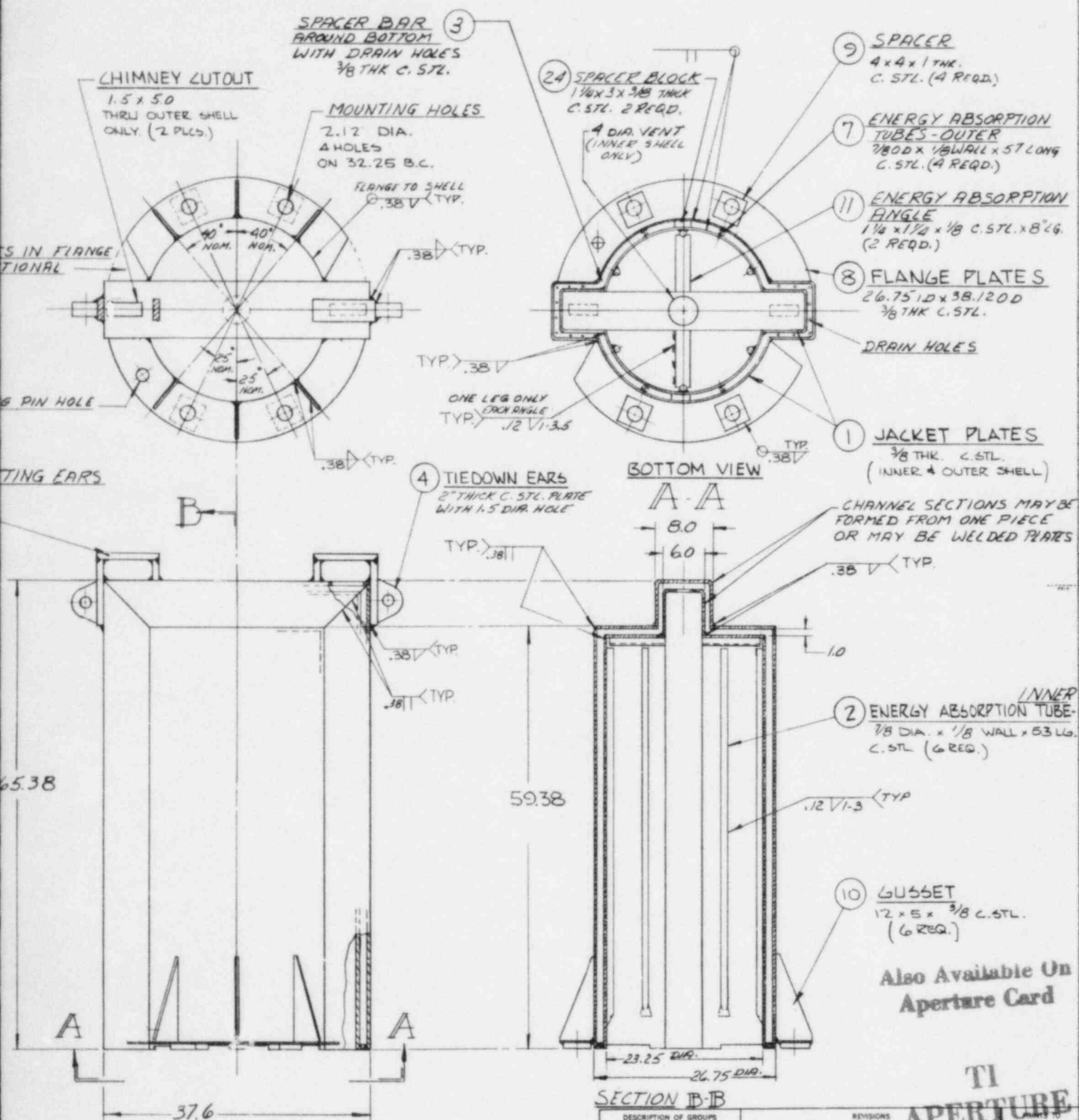
PALLET BEAMS
4 I.D. 9.5"/FT.
47.5 LG. C. STL.
(3 REQD.)

BASE

NOTES:

1. DIMENSIONS AND TOLERANCES INDICATE MAXIMUM VARIATIONS BETWEEN PACKAGES AND ARE NOT INDICATIVE OF "FIT" OR "INTERCHANGEABILITY."
2. NOMINAL DIMENSIONS FOR STRUCTURAL SHAPES, PLATES, TUBES, ETC. WILL FALL WITHIN STD. MILL TOLERANCES.
3. ALL OTHER DIMENSIONS ARE $\pm .5$ UNLESS SHOWN OTHERWISE.
4. BASE WEIGHT = 750 lbs. (± 50 lbs.).
5. JACKET WEIGHT = 1790 lbs. (± 100 lbs.).

* NOT SAFETY RELATED
SHOWN FOR CLARITY

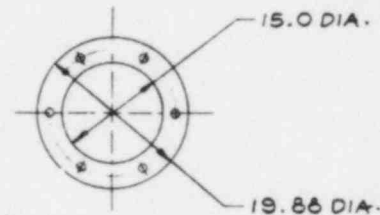
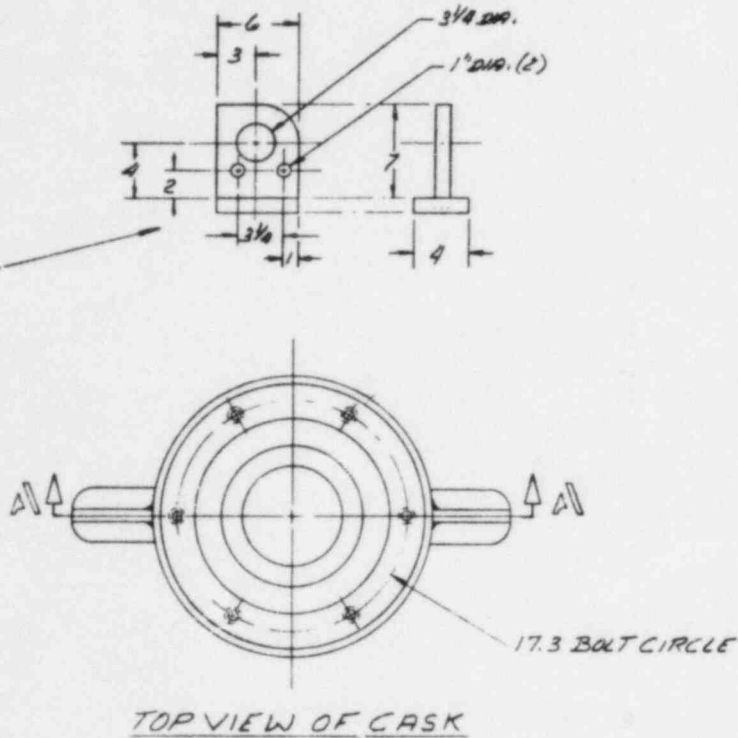


DESCRIPTION OF GROUPS	REVISIONS
NOT FOR FABRICATION	
SEPT 9, 80	129D4757
7-1-83	VNC

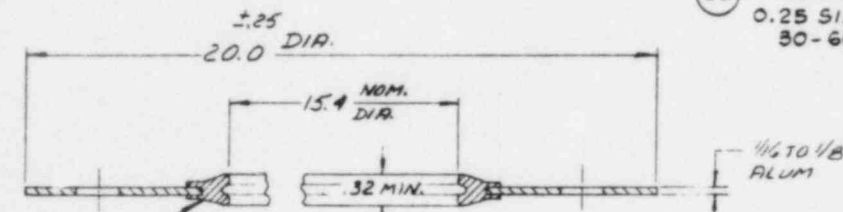
8507080021 - 02

LUG
 C. STL.
 LATE
 W/THK C. STL.
 (IONAL)
 LDING
 T. PLATES
 STL.

UNLESS OTHERWISE SPECIFIED USE THE FOLLOWING:		7		8		9		GENERAL ELECTRIC		129D4758	
APPLIED PRACTICES	SURFACES	FINISHES	STRENGTHS	TEMPERATURES	WEIGHTS	UNIT OF MEASUREMENT	BY	DATE	TITLE		
✓	✓	✓	✓	✓	✓	✓	✓	✓	MODEL 200 SHIPPING CASK		
NEXT ASSEMBLY: 129D4758									CERTIFICATION DWG		

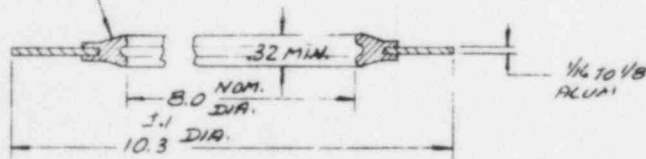


G5 SEAL-UPPER (OPTIONAL)
 0.25 SILICONE RUBBER
 30-60 DUROMETER



G3 SEAL-UPPER

SILICONE RUBBER
 (BOND TO ALUM WITH
 GE RTV 102)



G4 SEAL-LOWER

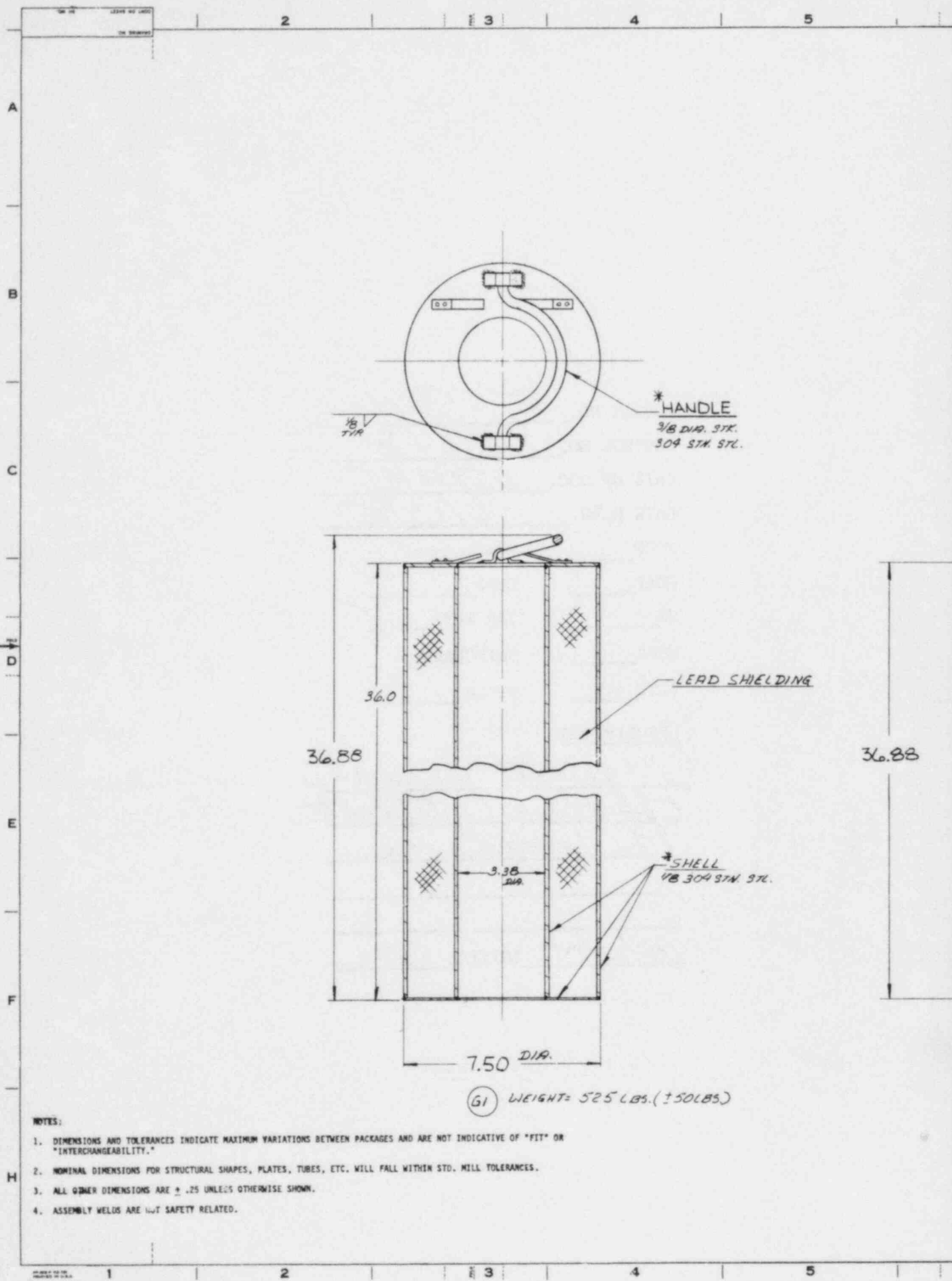
Also Available On
 Aperture Card

TI
 APERTURE
 CARD

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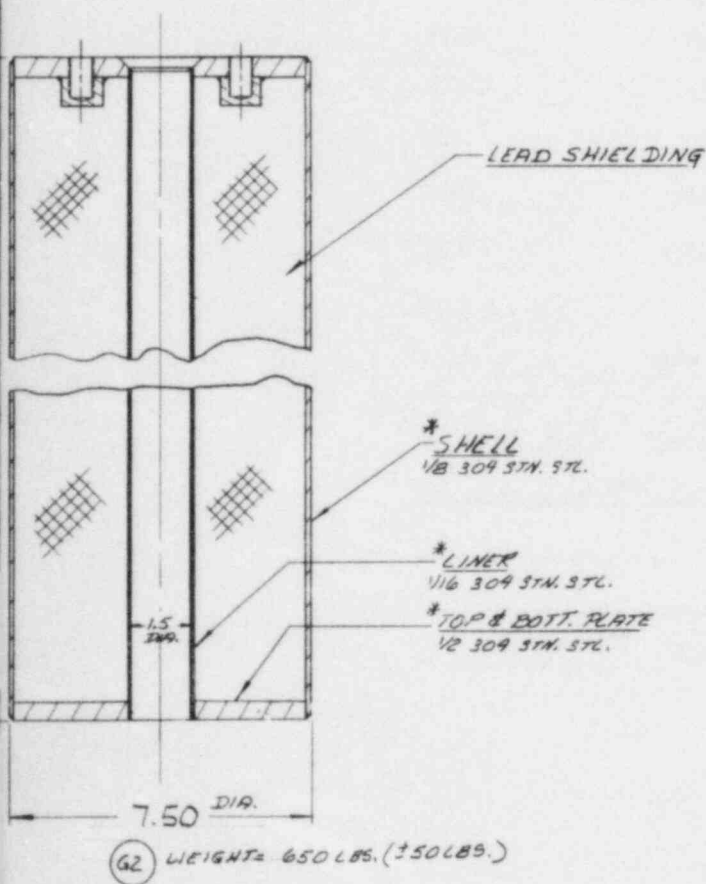
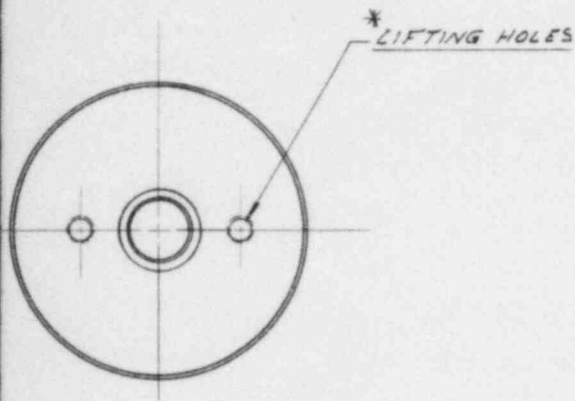
SAFETY RELATED COMPONENT,
 IN FOR CLARITY ONLY

DESCRIPTION OF GROUPS	REVISIONS	PRINTS TO
NOT FOR FABRICATION	1 ECNNG 4794	
SEPT 8, 80	170 VNC	179D4758



UNLESS OTHERWISE SPECIFIED USE THE FOLLOWING—				
APPLIED PRACTICES	SURFACES	TOLERANCES ON MACHINED DIMENSIONS		
		FRACTIONS	DECIMALS	UNITS
-----	✓	+ -	+.25 -	+ -

TITLE MODEL 200
CASK LINER (LEAD)
PART MADE FOR CERTIFICATION DWG.
NEXT ASSEM: 129D4756



Also Available On
Aperture Card

11
APERTURE
CARD

8507080021 - 04

DESCRIPTION OF GROUPS		REVISIONS		PRINTS TO	
NOT FOR FABRICATION					

* NOT SAFETY RELATED COMPONENT,
SHOWN FOR CLARITY ONLY.

DOCKET NO. 71-5971
CONTROL NO. 25342
DATE OF DOC. 05/30/85
DATE RVD. 06/03/85
FCOF _____ PDR ✓
FCAP _____ LPDR _____
WFO _____ TAG REF. ✓
WNET _____ SAFEGUARDS _____
FOTC ✓ OTHER _____

DESCRIPTION:

request renewal
of their Certificate
of Compliance

06/12/85 INITIAL CRC