

U.S. NUCLEAR REGULATORY COMMISSION  
CERTIFICATE OF COMPLIANCE  
For Radioactive Materials Packages

1.(a) Certificate Number	1.(b) Revision No.	1.(c) Package Identification No.	1.(d) Pages No.	1.(e) Total No. Pages
5939	3	USA/5939/D( )F	1	3

2. PREAMBLE

- 2.(a) This certificate is issued to satisfy Sections 170.203a, 170.204, 170.205, and 170.206 of the Department of Transportation Hazardous Materials Regulations (49 CFR 170.160 and 14 CFR 100) and Sections 146-19-10a and 146-19-100 of the Department of Transportation Dangerous Cargoes Regulations (49 CFR 146-140), as amended.
- 2.(b) The packaging and contents described in item 5 below, meets the safety standards set forth in Subpart G of Title 10, Code of Federal Regulations, Part 71, "Packaging of Radioactive Materials for Transport and Transportation of Radioactive Material Under Certain Conditions."
- 2.(c) This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

3. This certificate is issued on the basis of a safety analysis report of the package design or application:

3.(a) Prepared by (Name and address)  
General Electric Company  
P.O. Box 400  
Pleasanton, California 94566

3.(b) Title and identification of report or application  
General Electric Company application dated  
November 27, 1968, as supplemented.

3.(c) Docket No. 71-5939

4. CONDITIONS

This certificate is conditional upon the fulfilling of the requirements of Subpart D of 10 CFR 71, as applicable, and the conditions specified in item 5 below.

5. (Description of Packaging and Authorized Contents, Model Number, Fissile Class, Other Conditions, and References)

(a) Packaging

(1) Model No.: GE-1500

(2) Description

A steel encased lead shielded shipping cask. The cask is a double-walled steel circular cylinder, 31-inch-diameter by 48 inches high with a central cavity 7-inch-diameter by 25 inches high. The diameter is reduced from 31 inches to 17-1/2 inches by cone construction at the top 7-1/2 inches of the cask. Approximately 11 inches of lead surround the central cavity. The cask is equipped with a cavity drain line and lifting device. Closure is accomplished by a gasketed and bolted steel lead-filled plug. A protective jacket consisting of an upright circular cylinder with open bottom and a protruding box section diametrically across the top and vertically down the sides attaches to a square pallet. Dimensions of the protective jacket are 60-7/8 inches high by 49-3/4 inches wide across the box section. The outer cylindrical diameter is 36-1/2 inches and the pallet is 59-1/2 inches square. The maximum weight of the packaging is approximately 15,000 pounds.

POOR ORIGINAL

90008274

8001090213

5. (a) Packaging (continued)

(3) Drawings

The packaging is constructed in accordance with the following General Electric Company Drawings Nos.:

70GE441, Rev. 6  
70GE792, Rev. 2  
106D3353, Rev. 2  
106D3070, Rev. 3  
135C5598, Rev. 0

(b) Contents

(1) Type and form of material

Byproduct material and special nuclear material as solid metal or in solid oxide form.

(2) Maximum quantity of material per package

Plutonium in excess of twenty (20) curies per package must be in the form of metal, metal alloy or reactor fuel elements, and radioactive decay heat not to exceed 3,120 watts and 500 grams U-235 equivalent mass. (U-235 equivalent mass equals U-235 mass plus 1.66 times Pu mass.)

(c) Fissile Class

III

Maximum number of packages  
per shipment

22

6. The radioactive material shall be clad, encapsulated or contained in a metal encasement in accordance with the statements and representations contained in the General Electric Company's submittal dated November 27, 1968, as supplemented February 10, 1969.
7. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 571.12(b).
8. Expiration date: March 31, 1980.

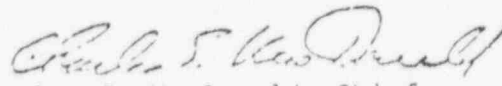
90008275

REFERENCES

General Electric Company application dated November 27, 1968.

Supplements dated: February 10 and 20 (two submittals) and March 6, 1969;  
and May 3, 1976.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

  
Charles E. MacDonald, Chief  
Transportation Branch  
Division of Fuel Cycle and  
Material Safety

Date: SEP 06 1978

90008276

# HANFORD WASTE ENCAPSULATION AND STORAGE FACILITY CAPSULES

	FORM	LOADING	PER CENT OF THEORETICAL DENSITY BASED ON TOTAL VOID SPACE IN CAPSULE	TEMPERATURE			
				AIR		WATER	
STRONTIUM FLUORIDE	COMPACTED POWDER	150 P.L.	78	CENTER LINE 860° C	SURFACE 410° C	CENTER LINE 860° C	SURFACE 71° C
CESIUM CHLORIDE	MELT CAST	400 P.L.	85	CENTER LINE 430° C	SURFACE 300° C	CENTER LINE 337° C	SURFACE 56° C

CAPSULE CAP STAINLESS STEEL, 316-L



HELIUM SATURATED DISC 30% VOID AREA  
STAINLESS STEEL, 316-L



METAL O-RING  
STAINLESS STEEL, 316-L  
REQUIRED FOR VACUUM SEAL  
DURING CsCl MELT TRANSFER



O-RING RETAINER  
STAINLESS STEEL, 316-L



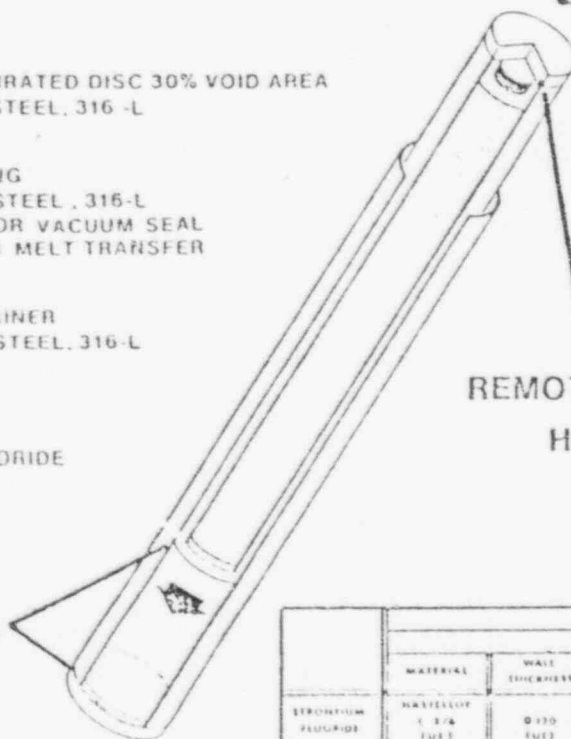
CAPSULE



CESIUM CHLORIDE

CROSS SECTION  
CESIUM CHLORIDE CAPSULE  
TOP ASSEMBLY COMPONENTS

GAS TUNGSTEN ARC WELD  
ULTRASONIC TESTED (UT)



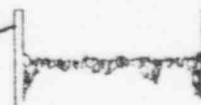
CAPSULE CAP  
HASTELLOY C-276



HELIUM SATURATED DISC  
30% VOID AREA  
HASTELLOY C-276



CAPSULE



STRONTIUM FLUORIDE

CROSS SECTION  
STRONTIUM FLUORIDE CAPSULE  
TOP ASSEMBLY COMPONENTS

REMOTE GAS TUNGSTEN ARC WELD  
ULTRASONIC TESTED (UT)

REMOTE GAS TUNGSTEN ARC WELD  
HELIUM LEAK CHECKED

	CAPSULE									
	INNER					OUTER				
	MATERIAL	WALL THICKNESS	OUTSIDE DIAMETER	TOTAL LENGTH	TOTAL LRP THICKNESS	MATERIAL	WALL THICKNESS	OUTSIDE DIAMETER	TOTAL LENGTH	TOTAL CAP THICKNESS
STRONTIUM FLUORIDE	HASTELLOY C-276 (UT)	0.120 (UT)	2.350	19.010	0.400	HASTELLOY C-276 (UT)	0.120 (UT)	2.425	20.100	0.400
CESIUM CHLORIDE	STAINLESS STEEL 316-L (UT)	0.095 (UT)	2.350	19.725	0.400	STAINLESS STEEL 316-L (UT)	0.100 (UT)	2.425	20.775	0.400

NOTE: ALL DIMENSIONS ARE IN INCHES

SEPTEMBER 1973

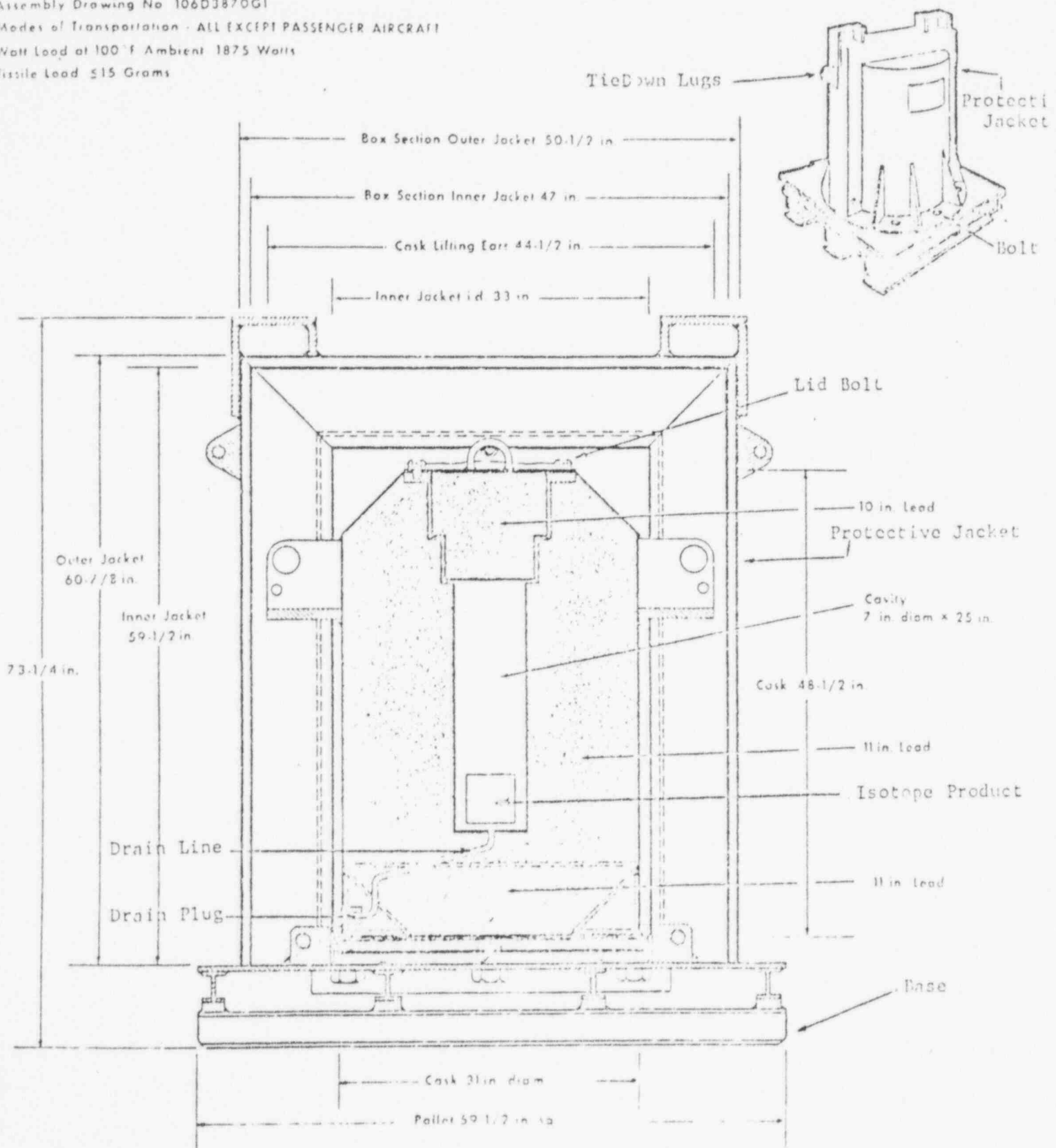
Fig. 1

90008277

ARH-2967

1500 Series D O T S P No 5939 ( & IAEA Certified )  
 Cask Weight 12,000 lbs - 5455 Kgs  
 Assembly Weight 15,160 lbs - 6890 Kgs  
 Assembly Drawing No 106D3870G1  
 Modes of Transportation - ALL EXCEPT PASSENGER AIRCRAFT  
 Watt Load at 100 °F Ambient 1875 Watts  
 Fissile Load ≤15 Grams

POOR ORIGINAL



GENERAL ELECTRIC - MODEL 1500 SHIELDED CONTAINER

90008278

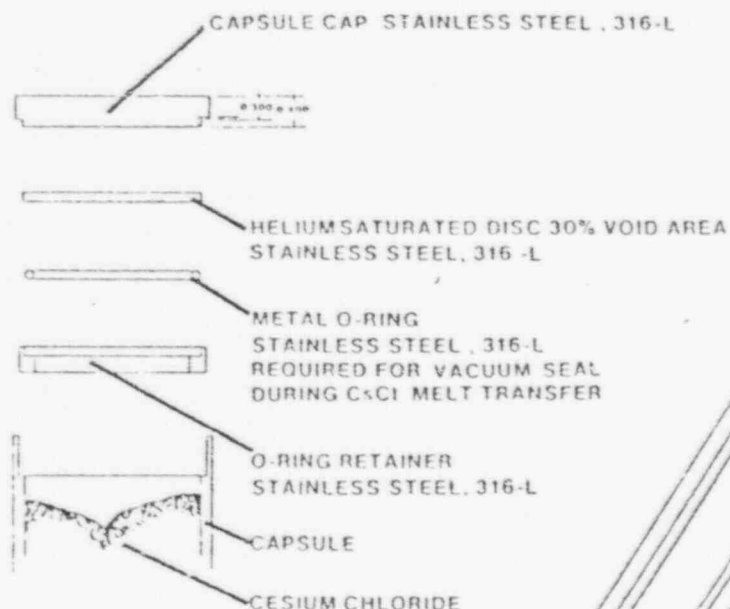
VAL 6786 A

POOR ORIGINAL

# HANFORD WASTE ENCAPSULATION AND STORAGE FACILITY CAPSULES

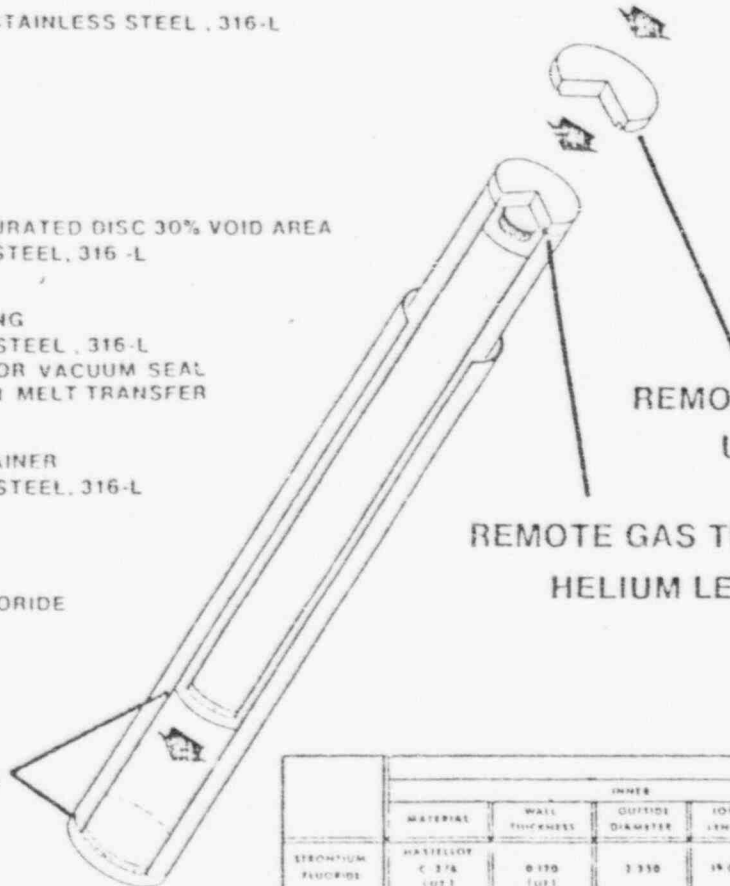
90008279

	FORM	LOADING	PER CENT AT THEORETICAL DENSITY BASED ON TOTAL VOID SPACE AT CAPTURE	TEMPERATURE			
				AIR		WATER	
				CENTER LINE	SURFACE	CENTER LINE	SURFACE
STRONTIUM FLUORIDE	COMPACTED POWDER	150 KC.	78	840° C	410° C	840° C	31° C
CESIUM CHLORIDE	MELT CAST	60 KC	85	450° C	300° C	357° C	18° C



CROSS SECTION  
CESIUM CHLORIDE CAPSULE  
TOP ASSEMBLY COMPONENTS

GAS TUNGSTEN ARC WELD  
ULTRASONIC TESTED (UT)



CAPSULE CAP  
HASTELLOY C-276

HELIUM SATURATED DISC  
30% VOID AREA  
HASTELLOY C-276

CAPSULE

STRONTIUM FLUORIDE

CROSS SECTION  
STRONTIUM FLUORIDE CAPSULE  
TOP ASSEMBLY COMPONENTS

	CAPSULE									
	INNER					OUTER				
	MATERIAL	WALL THICKNESS	OUTSIDE DIAMETER	TOTAL LENGTH	TOTAL CAP THICKNESS	MATERIAL	WALL THICKNESS	OUTSIDE DIAMETER	TOTAL LENGTH	TOTAL CAP THICKNESS
STRONTIUM FLUORIDE	HASTELLOY C-276 (UT)	0.120 (UT)	2.330	19.050	0.400	HASTELLOY C-276 (UT)	0.120 (UT)	2.675	20.100	0.400
CESIUM CHLORIDE	STAINLESS STEEL 316-L (UT)	0.075 (UT)	2.330	19.725	0.400	STAINLESS STEEL 316-L (UT)	0.100 (UT)	2.435	20.775	0.400

NOTE: ALL DIMENSIONS ARE IN INCHES

SEPTEMBER 1975

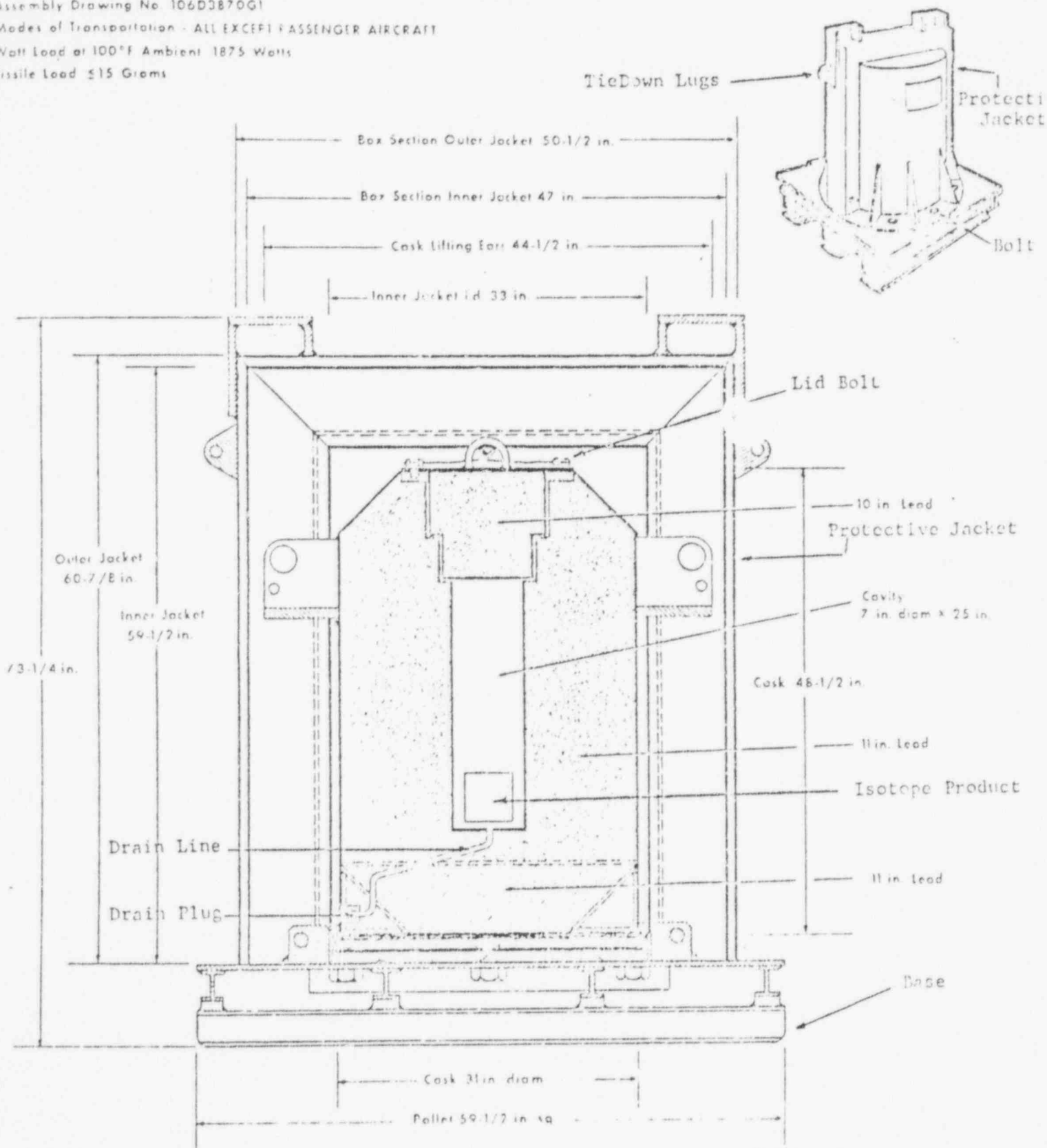
Fig. 1

ARH-2967

SECRET

1500 Series D O T SP No 5939 ( & IAEA Certified )  
 Cask Weight 12,000 lbs - 5455 Kgs  
 Assembly Weight 15,160 lbs - 6890 Kgs  
 Assembly Drawing No. 106D3870G1  
 Modes of Transportation - ALL EXCEPT PASSENGER AIRCRAFT  
 Watt Load at 100°F Ambient 1875 Watts  
 Fissile Load  $\leq 15$  Grams

POOR ORIGINAL



90008280