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September 17, 1990

Mr. Charles E. MacDonald, Chief  
Transportation Branch  
Division of Safeguards and  
Transportation, NMSS  
U.S. Nuclear Regulatory Commission  
OWFN, 4E4  
Washington, DC 20555

Re: Docket No. 71-9033

Dear Mr. MacDonald:

We request that USNRC Certificate of Compliance Number 9033 issued for the model 660 type B(u) package, reflect all of the following model numbers.

<u>Model</u>	<u>Description</u>
660	Drawing number 66025 revision B
660A	Drawing number 66030
660B	Drawing number 66025 revision D
660E (A or B)	Any of the models with the addition of an electrical hookup as previously approved

All of the above models are structurally equivalent and have demonstrated their ability to withstand all the required type B tests, described in 10 CFR Part 71, 49CFR173 and IAEA safety series No. 6 (1973 edition) as amended as evidenced in our Type B Safety Analysis Reports previously submitted.

9009250090 930917  
PDR ADOCK 07109033  
C FDC

**Amersham**

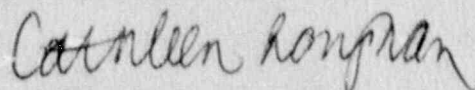
NT01

In addition, due to the agreement states not immediately adopting the new rule in 10CFR Part 34 requiring automatic securing mechanisms we request that the certificate include all the model numbers listed without a cut off date as we previously requested. We cannot predict when we will be able to phase out the model 660 without the automatic securing mechanism, until the agreement states all take final action on the rule.

I have updated the operating instructions to reflect the operation of both the 660 and 660A and B. These are submitted as revised pages.

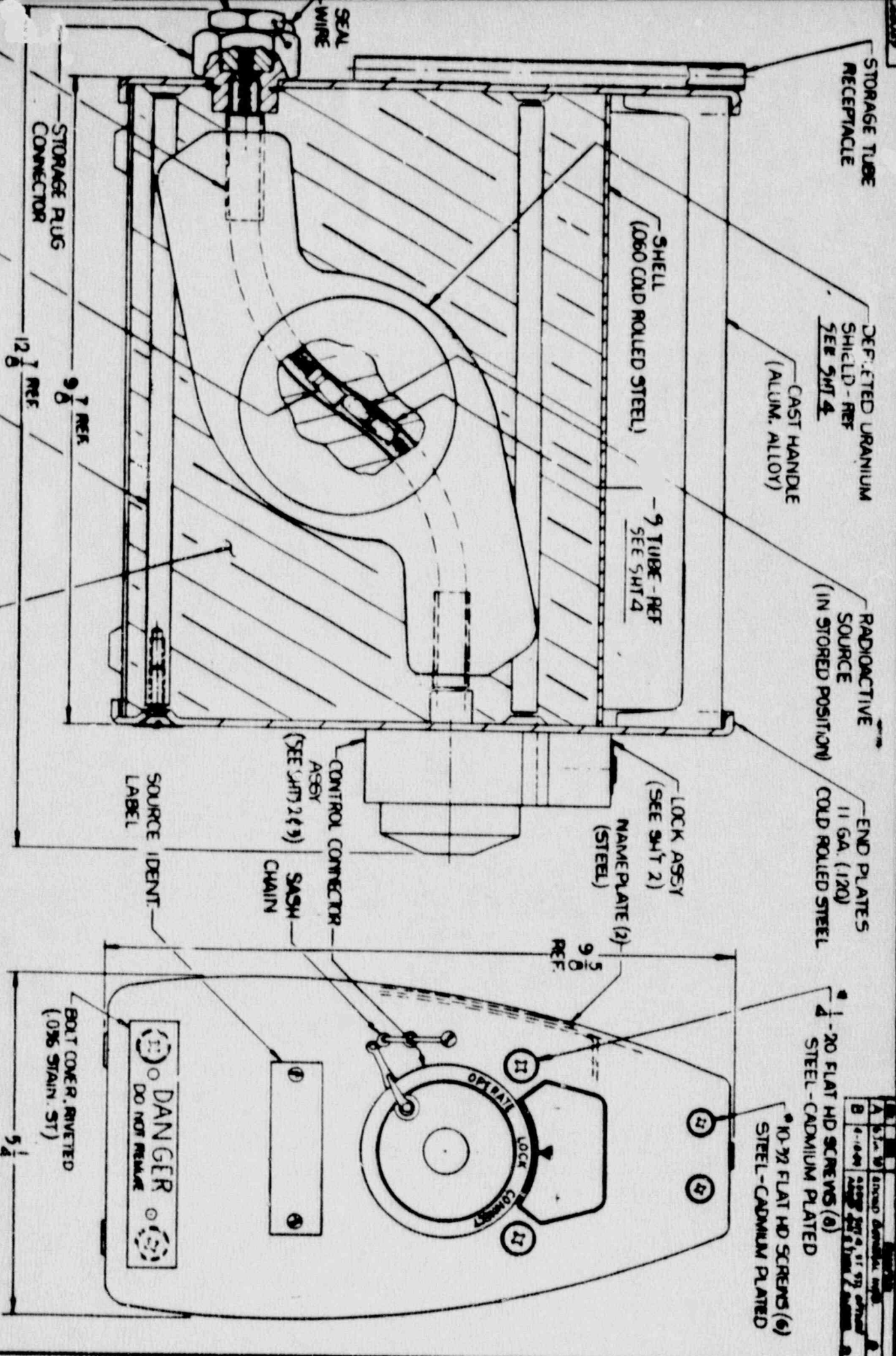
This should clarify any remaining issues on the USNRC Certificate 9033. Please let me know if you require any additional information.

Sincerely,



Cathleen M. Roughan  
Radiation Safety Officer

CMR/td



REINFORCEMENT RUBBER - REF SEE SHIT 4

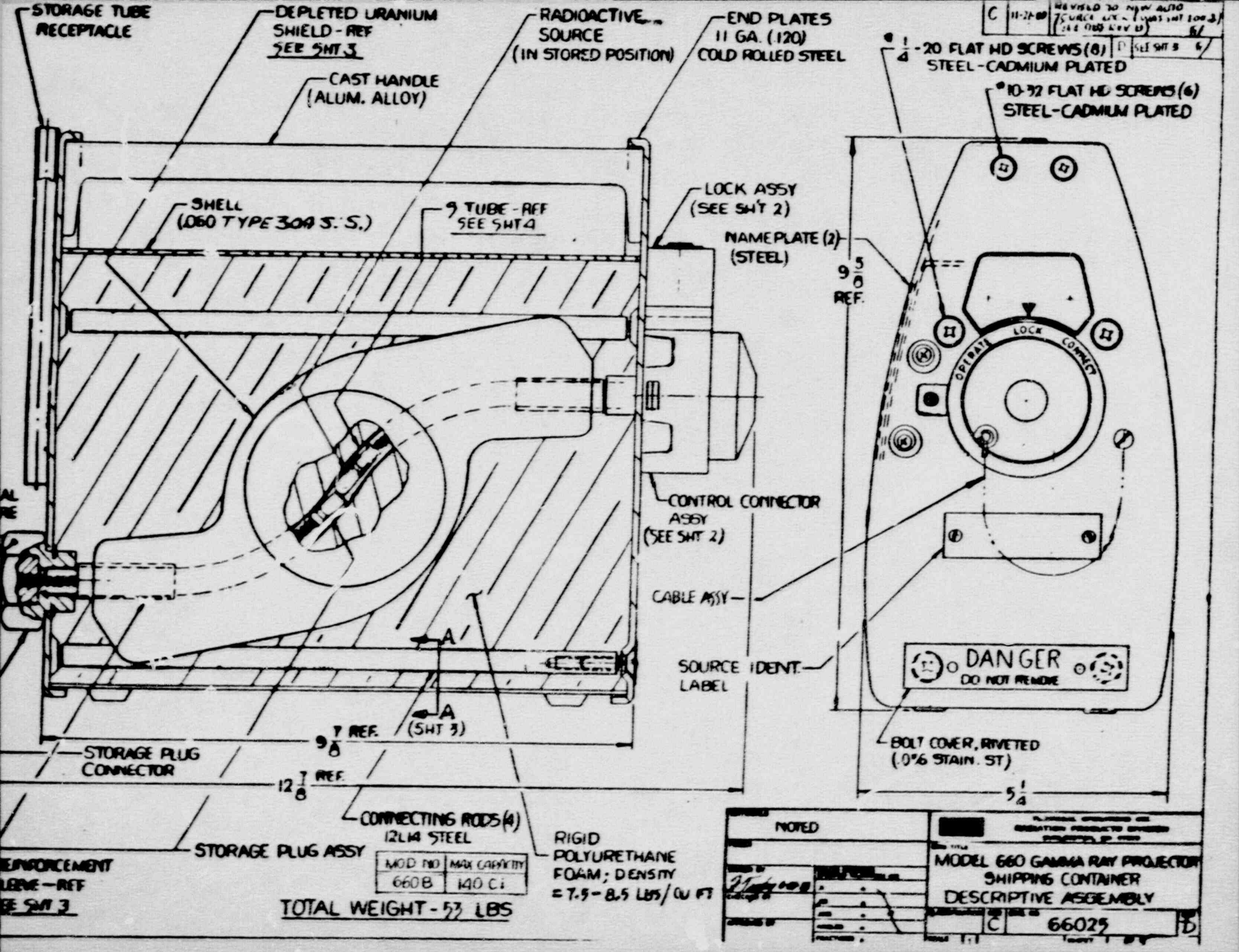
STORAGE PLUG ASSY

MOD. NO	MAX CAPACITY
660	130CT

TOTAL WEIGHT - 48 LBS

NOTED	
MODEL 660 GAMMA RAY PROTECTION SHIPPING CONTAINER	
DESCRIPTIVE ASSEMBLY	
66025	

A	5 1/4	11 1/2	11 1/2
B	4 1/4	11 1/2	11 1/2



C 11-27-68 REVISED TO NEW AUTO SOURCE LEX. (PART INT 1003) (SEE SH 3 6)

STORAGE TUBE RECEPTACLE

DEPLETED URANIUM SHIELD - REF SEE SH 3

RADIOACTIVE SOURCE (IN STORED POSITION)

END PLATES 11 GA. (120) COLD ROLLED STEEL

CAST HANDLE (ALUM. ALLOY)

20 FLAT HD SCREWS (8) STEEL-CADMIUM PLATED  
 10-32 FLAT HD SCREWS (6) STEEL-CADMIUM PLATED

SHELL (060 TYPE 304 S. S.)

TUBE - REF SEE SH 4

LOCK ASSY (SEE SH 2)

NAMEPLATE (2) (STEEL)

5/8 REF.

CONTROL CONNECTOR ASSY (SEE SH 2)

CABLE ASSY

SOURCE IDENT. LABEL

DANGER DO NOT REMOVE

BOLT COVER, RIVETED (0% STAIN. ST)

5 1/4

STORAGE PLUG CONNECTOR

7/8 REF. (SH 3)

12 7/8 REF.

CONNECTING RODS (4) 12L14 STEEL

STORAGE PLUG ASSY

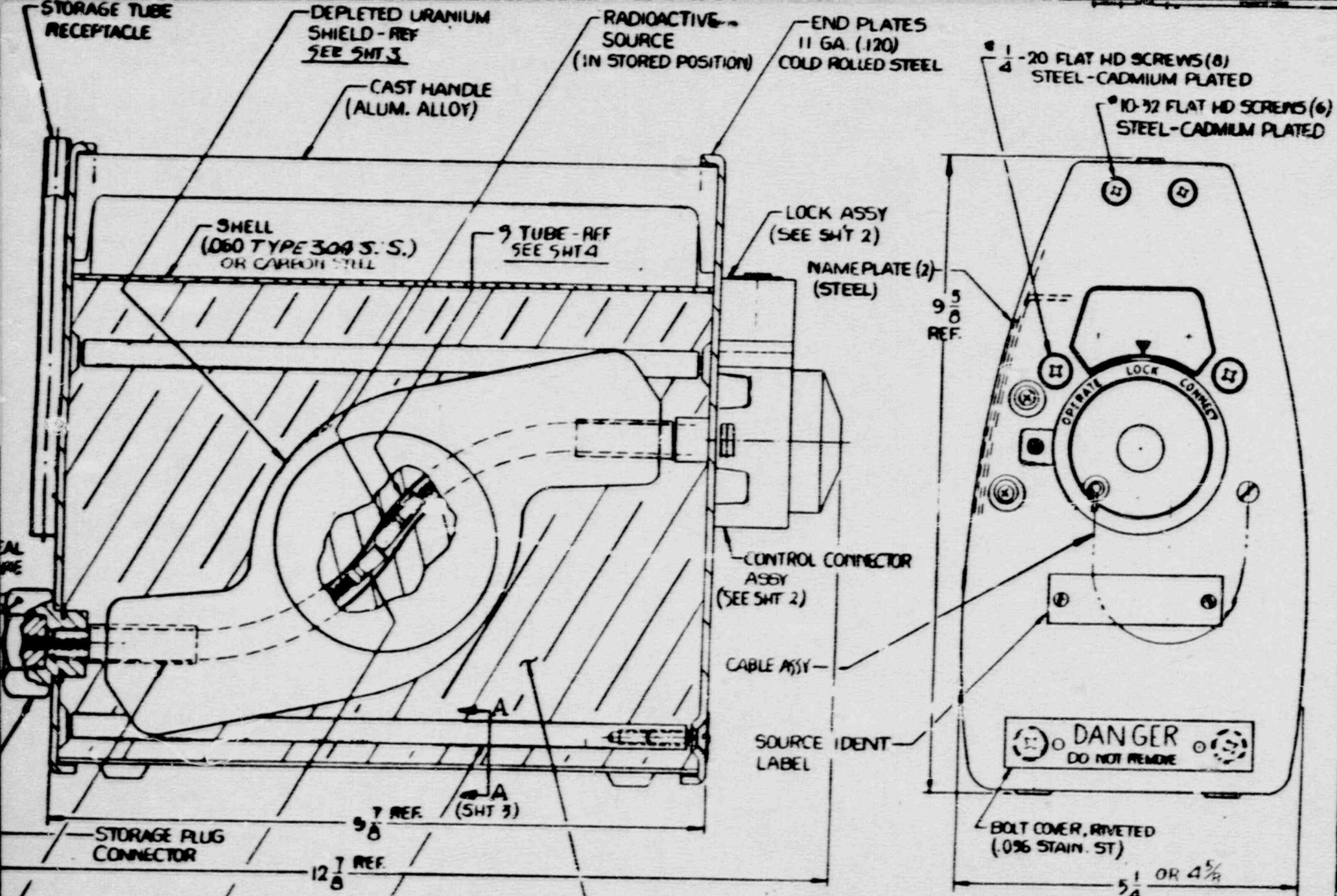
MOD. NO.	MAX. CAPACITY
660B	140 Ci

TOTAL WEIGHT - 53 LBS

RIGID POLYURETHANE FOAM; DENSITY = 7.5 - 8.5 LBS/CU FT

REINFORCEMENT LEME - REF SEE SH 3

NOTED		MODEL 660 GAMMA RAY PROJECTOR SHIPPING CONTAINER DESCRIPTIVE ASSEMBLY	
REVISED BY	DATE	C	66025
APPROVED BY	DATE	D	



TOTAL WEIGHT - 53 LBS

MOD NO	MAX CAPACITY
660A	120 Ci

NOTED		REVISIONS	
DATE		BY	
DESCRIPTION		REASON	
MODEL 660 GAMMA RAY PROJECTOR SHIPPING CONTAINER		DESCRIPTIVE ASSEMBLY	
C		66030	

3. Determine where the exposure device will be positioned and connect the extended source guide tubes as required, laying them as straight as possible and with no bend radii less than twenty inches. (Smaller bend radii will restrict the movement of the control cable).

NOTE: Never operate the system with more than three guide tube sections (including the master).

4. Remove the storage plug from the exposure device and connect the source guide tube(s) to the exposure device.
5. Determine where the control unit will be positioned (as far away from the radiographic focal position as possible and preferably behind a radiation shield) and lay out the control housing with no bend radii less than 36 inches.
6. Connect the control unit to the exposure device according to the illustrated sequence in Figures 1 through 5.
7. Before operation check all connections and bend radii, and check the position of the source stop, which represents the radiographic focal position of the source.
8. Check the operation of the survey meter by reading the radiation level at the surface of the exposure device. It should read no more than 200 mR/hr for a 140 curie Iridium-192 source.
9. Unlock the exposure device lock and rotate the selector ring to the OPERATE position. For cameras with the automatic securing mechanism, move the lock slide to the right, so that the red indicator shows. The source is now free to move.
10. Return to the control unit. Adjust the odometer reset knob to obtain a 000 reading on the odometer.
11. Recheck to be sure that no unauthorized personnel are inside the Restricted Area.
12. Rapidly rotate the crank in the EXPOSE (counterclockwise) direction to move the source to the radiographic focal position. The survey meter should read about full scale (1000 mR/hr) for a 100 curie Iridium 192 source when the source first leaves the exposure device, drop gradually as the source is driven to the radiographic focal position, and remain steady during the exposure. The survey meter readings will be substantially reduced if the meter is operated behind a radiation shield or if a collimator is used.

13. When the source reaches the source stop, the hand crank will stop turning. Never exert more than 5 ft.-lbs. of torque on the hand crank, as this may cause damage to the control unit or drive cable. The odometer reading will indicate the total distance the source has traveled (approximately 7 ft. for one source guide tube section, 14 ft. for two source guide tube sections, and 21 ft. for three sections). Set the brake to ON to prevent movement of the source during the exposure.
14. Figure the specimen exposure time from the moment the source reaches the source stop.
15. During the exposure, spent as little time as possible in the Restricted Area to minimize personnel exposure.
16. To return the source to the exposure device after the desired exposure time has elapsed, turn the brake to OFF and rapidly turn the crank in the RETRACT (clockwise) direction until the crank will no longer move. The odometer should read 000. During this process, the survey meter should indicate a continually increasing radiation level up to approximately 1000 mR/hr for a 100 curie Iridium-192 source, then drop to background level when the source is shielded in the exposure device.
17. Approach the exposure device with the survey meter and survey the exposure device on all sides. The meter should indicate the same radiation level as observed in step 8 of Operation.
18. Secure the camera in the lock position by rotating the selector ring to the lock position. For cameras with the automatic securing mechanism, the lock slide will automatically secure the source in the shielded position. The slide will show the green indicator when the source is properly stored.
19. Survey the entire source guide tube with the survey meter. If the meter shows a sharp increase, the source could still be exposed or incompletely shielded.
20. If the source is still exposed, attempt to store it properly by cranking the source a short distance toward the source stop and retracting it, repeating if necessary.
21. If the source becomes jammed in an exposed position, do not try to retrieve the source. Treat the situation as an emergency; notify the supervisor and Amersham for help if necessary.