

IAEA/ANL
Interregional Training Course



**Technical and Administrative Preparations
Required for Shipment of Research Reactor
Spent Fuel to Its Country of Origin**

Argonne National Laboratory
Argonne, IL
13 - 24 January 1997

Lecture L.3.1a

**Savannah River Site Appendix A Agreement
Preparation Guidelines**

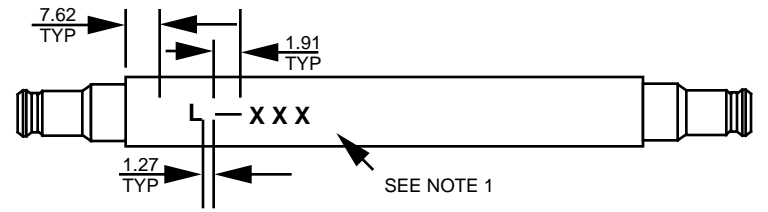
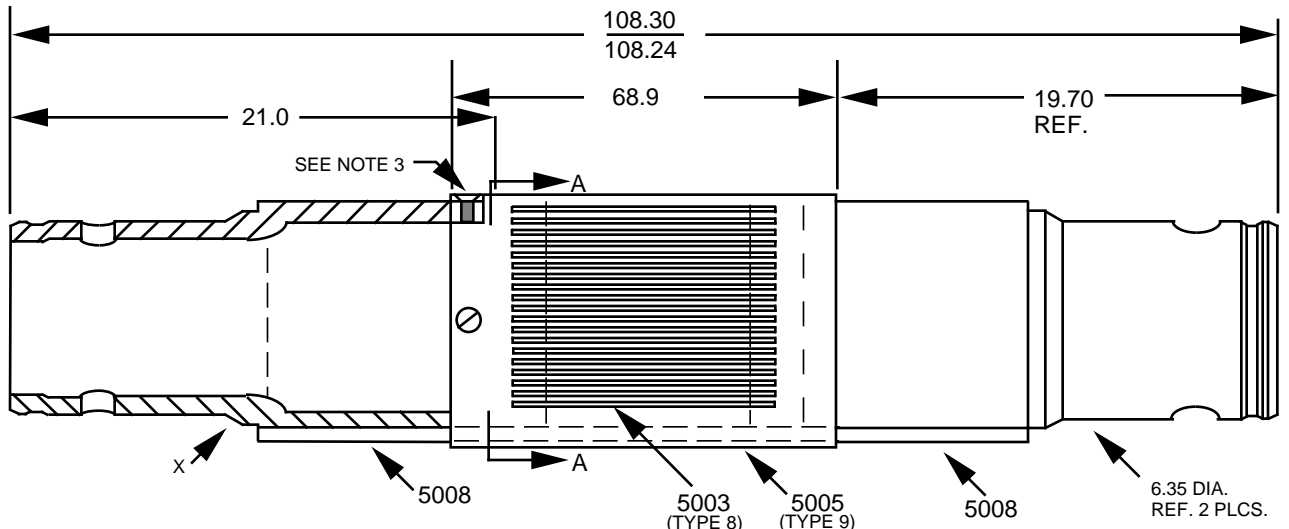
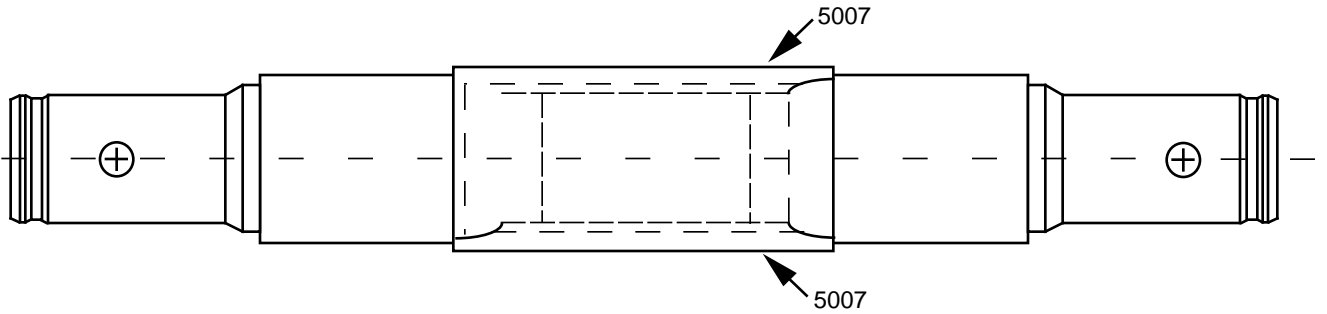
Sample MTR Assembly Drawings

Trent C. Andes

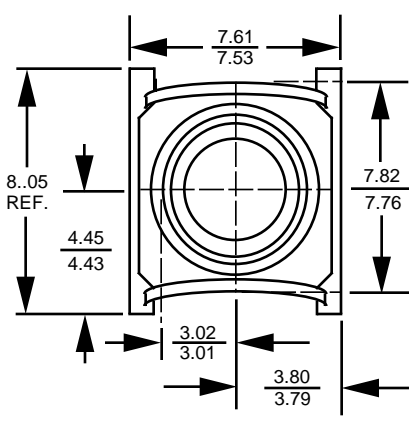
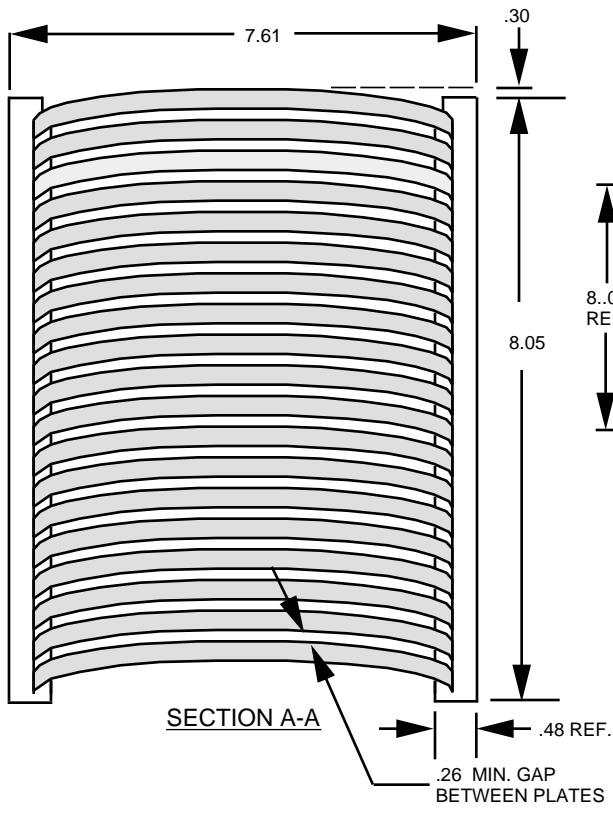
**Spent Fuel Storage Division
Westinghouse Savannah River Company**

International Atomic Energy Agency
Vienna, Austria

Argonne National Laboratory
Illinois, USA



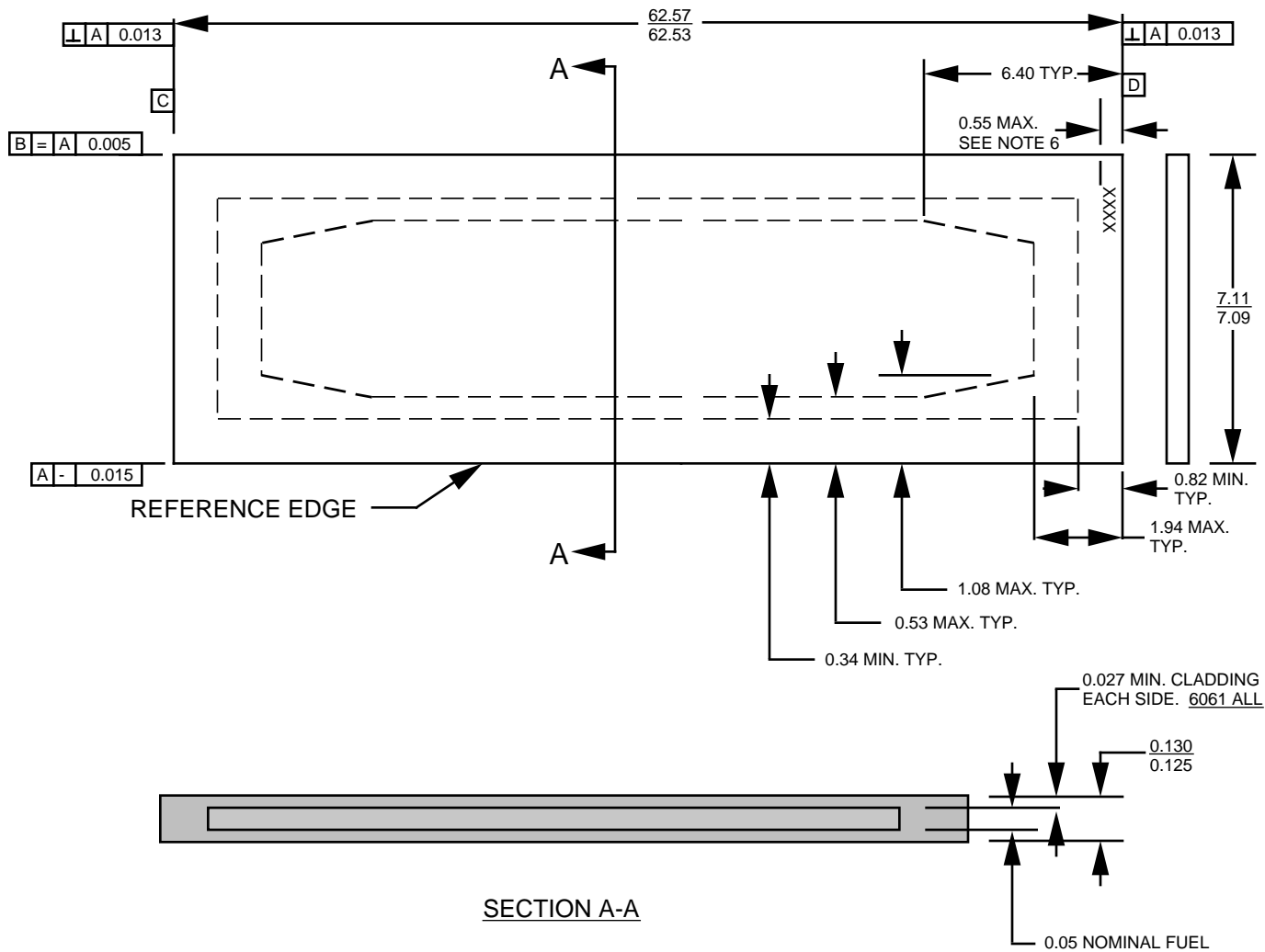
IDENTIFICATION DETAIL



END VIEW TYP. EACH END

- NOTES
- VIBRO-ETCH 5.08 CM. GOTHIC CHARACTER SERIAL NO. L-XXX BOTH SIDE PLATES. TOP OF CHARACTERS TO BE ADJACENT TO CONCAVE PLATES.
 - ALL DIMENSIONS SHOWN IN CENTIMETERS.
 - 6 MM X 8MM SCREW TYP 4 PLACES MAT'L ALMGS1 1

REF. DWGS.	DESCRIPTION	REV	A	DWG. NO.	5001
5002	FUEL PLATE TYPE 8 FLAT			19 PLATE FUEL ASSEMBLY MTR	
5003	FUEL PLATE TYPE 8 FORMED				
5004	FUEL PLATE TYPE 9 FLAT				
5005	FUEL PLATE TYPE 9 FORMED				
5006	FUEL COMPACT TYPE 8 & 9				
5007	SIDE PLATE				
5008	END BOX				
SCALE NTS BY J. RUSSELL					1-06-97

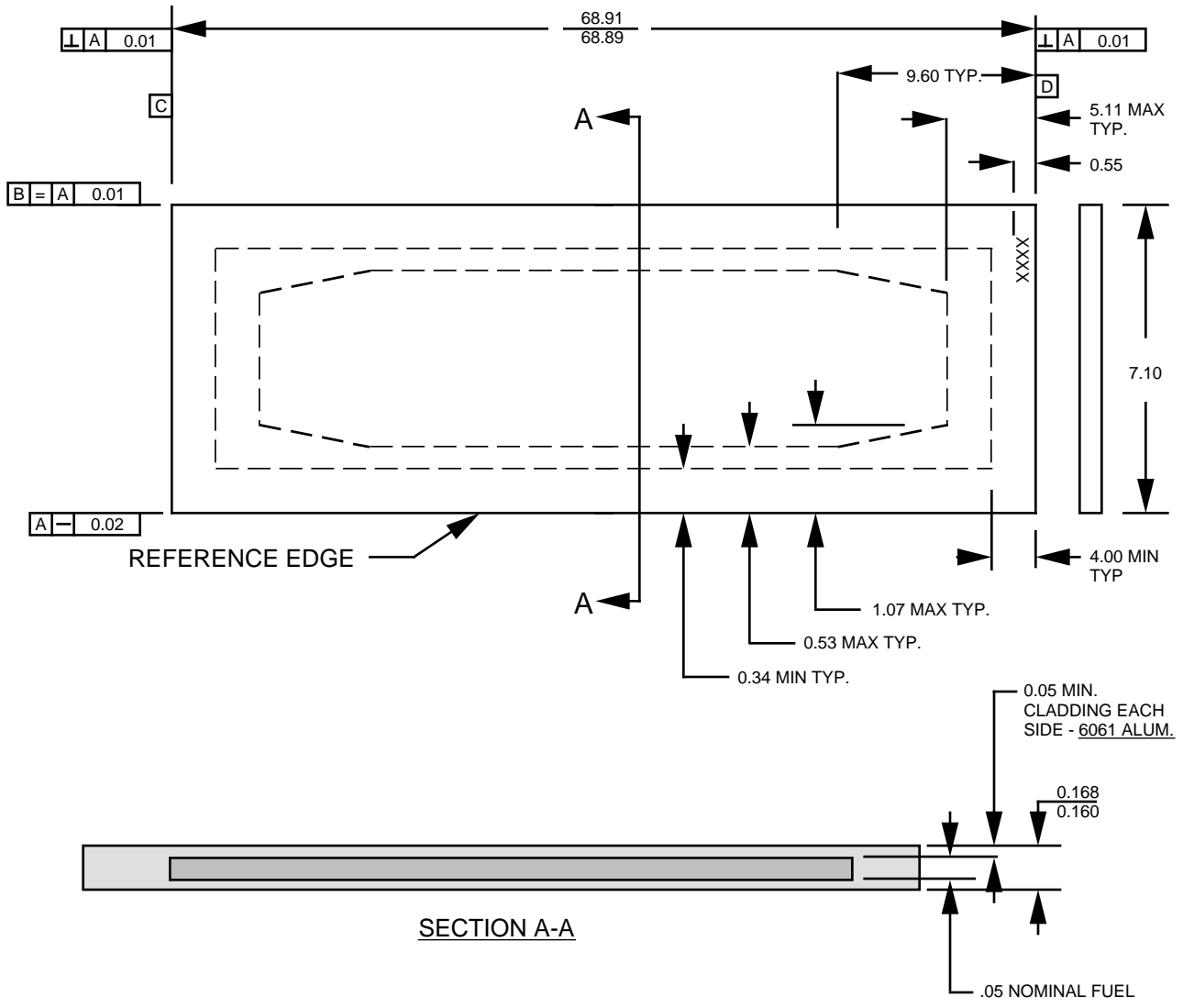


SECTION A-A

NOTES

1. PITS OR SCRATCHES 0.013 MAX. DEPTH.
2. DENTS 0.64 MAX. DIA.
3. VISUAL EVIDENCE OF BLISTERS , NONE.
4. URANIUM SHALL NOT EXTEND BEYOND THE MAXIMUM CORE OUTLINE.
5. EMBEDDED FOREIGN MATERIAL, NONE.
6. VIBRATOOL IDENTIFICATION NO. 0.32 HIGH BY 0.013 MAX. DEEP.
7. THE FUEL CORE LOCATION IS BASED ON THE FOLLOWING RADIOGRAPH BIASES:
 PLATE EDGE TO EDGE OF FUEL + 0.018
 END OF PLATE TO END OF FUEL + 0.030
8. TOP OF DIGITS IN PLATE NUMBER TO BE TOWARD TOP OF PLATE.
9. ALL COMPONENTS MUST BE BONDED WITH AT LEAST 40% GRAIN GROWTH ACROSS INTERFACE
10. ACCEPTANCE LIMITS FOR URANIUM LOADING ARE AS FOLLOWS:
 • AVERAGE LOADING LESS THAN +12%
 • LOCAL LOADING LESS THAN +27%
11. ALL DIMENSIONS SHOWN IN CENTIMETERS .

REF. DWGS.	DESCRIPTION	REV	A	5002
5001	19 PLATE FUEL ASSEMBLY			FUEL PLATE TYPE 8 FLAT
5003	FUEL PLATE TYPE 8 FORMED			
5007	SIDE PLATE			
		SCALE	INTS	BY J. RUSSELL 1-06-97

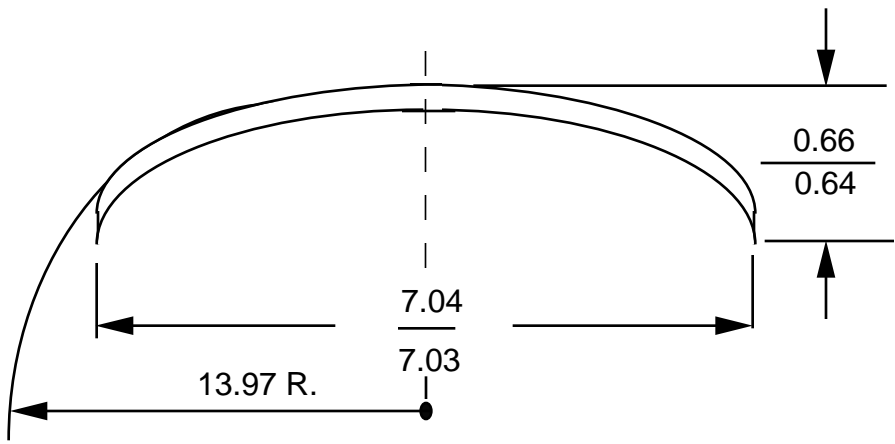
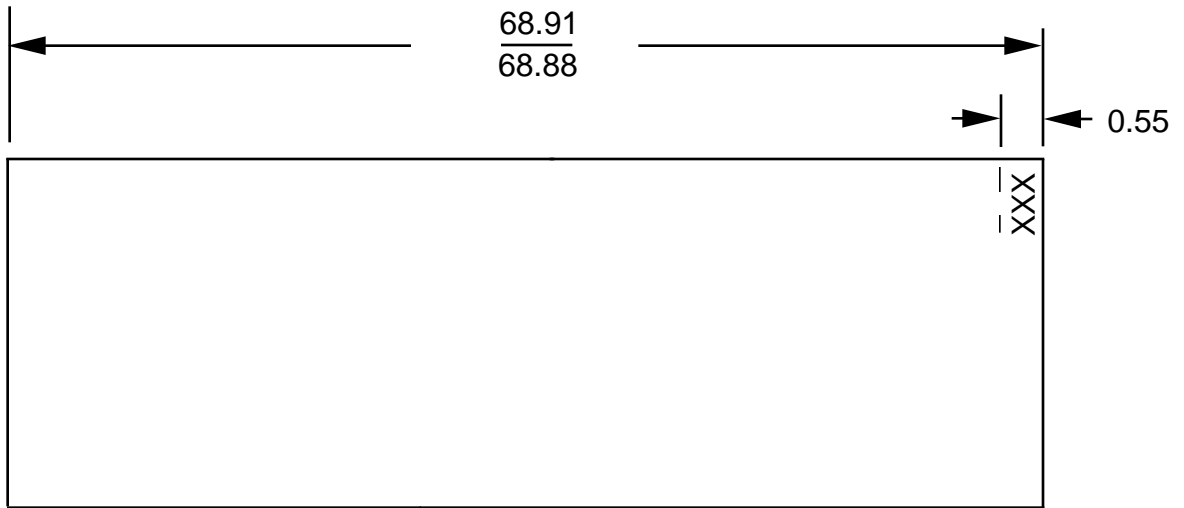


SECTION A-A

NOTES

1. PITS OR SCRATCHES 0.01 MAX. DEPTH.
2. DENTS .64 MAX. DIA.
3. VISUAL EVIDENCE OF BLISTERS , NONE.
4. URANIUM SHALL NOT EXTEND BEYOND THE MAXIMUM CORE OUTLINE.
5. EMBEDDED FOREIGN MATERIAL, NONE.
6. VIBRATOOL IDENTIFICATION NO. .32 HIGH BY 0.01 MAX. DEEP.
7. THE FUEL CORE LOCATION IS BASED ON THE FOLLOWING RADIOGRAPH BIASES:
 PLATE EDGE TO EDGE OF FUEL + 0.02.
 END OF PLATE TO END OF FUEL + 0.03.
8. TOP OF DIGITS IN PLATE NUMBER TO BE TOWARD TOP OF PLATE.
9. ALL COMPONENTS MUST BE BONDED WITH AT LEAST 40% GRAIN GROWTH ACROSS INTERFACE
10. ACCEPTANCE LIMITS FOR URANIUM LOADING ARE AS FOLLOWS:
 • AVERAGE LOADING LESS THAN +12%
 • LOCAL LOADING LESS THAN +27%
11. ALL DIMENSIONS SHOWN IN CENTIMETERS .

REF. DWGS.	DESCRIPTION	REV	A	5004
5001	19 PLATE FUEL ASSEMBLY			FUEL PLATE TYPE 9 FLAT
5005	FUEL PLATE TYPE 9 FORMED			
5006	FUEL COMPACT TYPE 8 & 9			
5007	SIDE PLATE			
		SCALE	NTS	BY J. RUSSELL 1-06-97

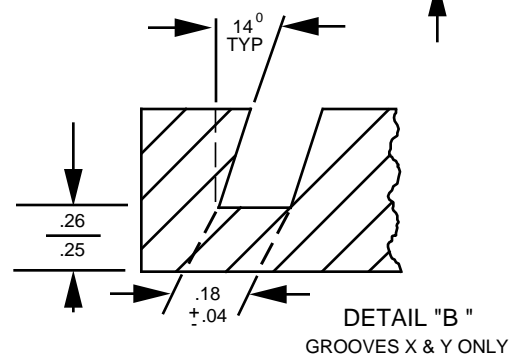
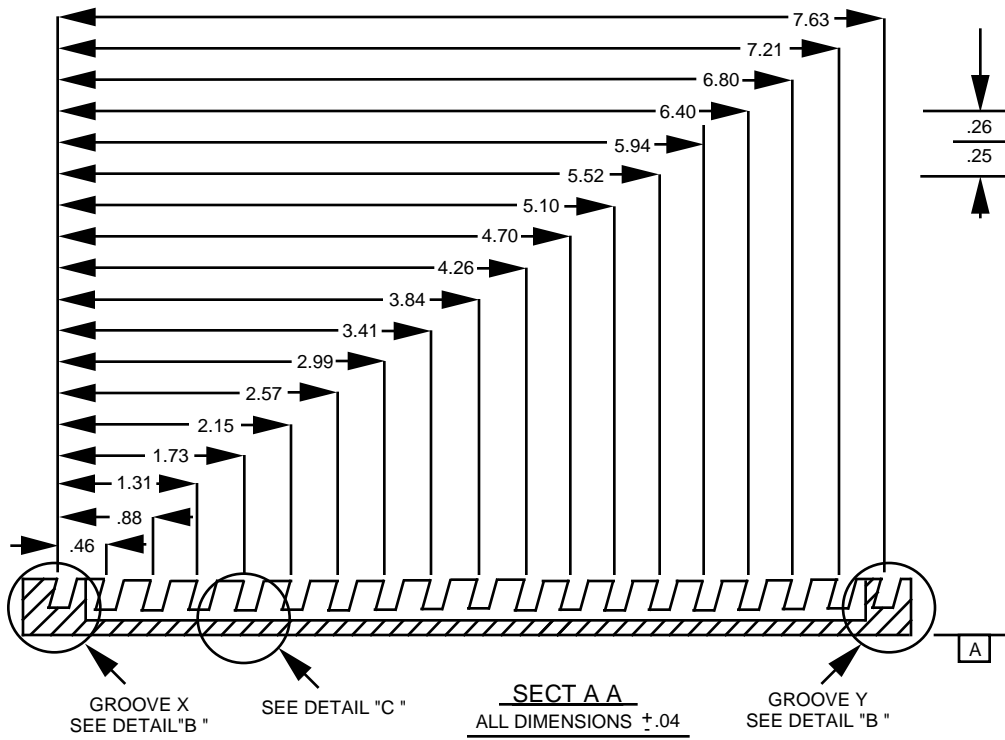
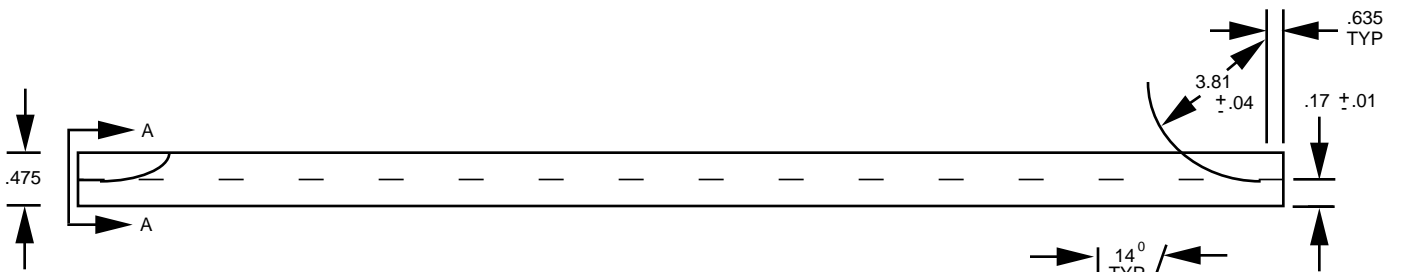
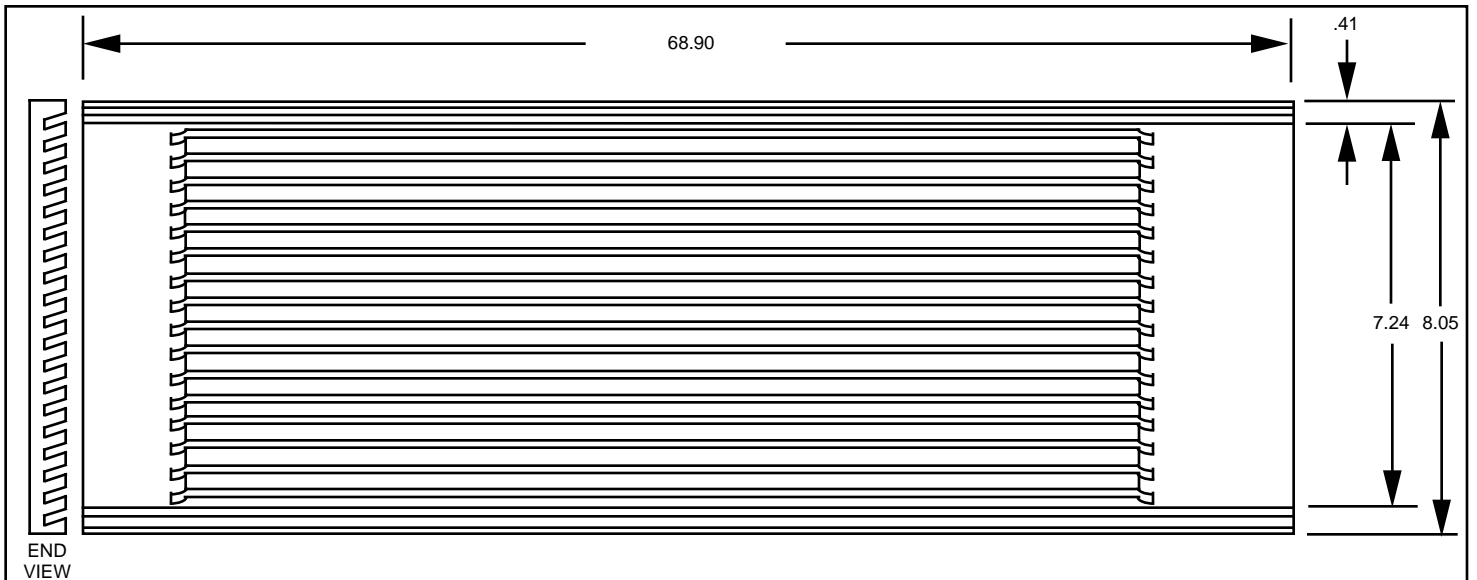


END VIEW
ENLARGED - 2:1

NOTE

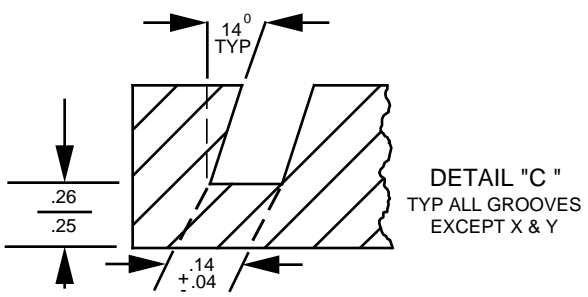
1. PITS AND SCRATCHES 0.01 MAX. DEPTH.
2. DENTS 0.64 MAX DIA.
3. VISUAL EVIDENCE OF BLISTERS - NONE.
4. EMBEDDED FOREIGN MATERIAL - NONE.
5. RADIUS, SMOOTH AND CONTINUOUS.
6. SURFACE CONTAMINATION, LESS THAN THE EQUIVALENT OF 5 MICROGRAMS OF ^{235}U PER SQUARE FOOT OF SURFACE.
7. SURFACE REMOVAL 0.00001 MAX.
8. CLAD THICKNESS, EACH SIDE 0.05 MINIMUM.
9. ALL DIMENSIONS SHOWN IN CENTIMETERS.

REF. DWG.	DESCRIPTION	REV	A	DWG. NO.	5005	
5001	19 FUEL PLATE ASSEMBLY	FUEL PLATE TYPE 9 FORMED				
5004	FUEL PLATE TYPE 9 FLAT					
5006	FUEL COMPACT TYPE 8 & 9					
5007	SIDE PLATE					
		SCALE	NTS	BY	J. RUSSELL	1-06-97



NOTES

1. ALL DIMENSIONS SHOWN IN CENTIMETERS.
2. MATERIAL: ALUMINUM, ASTM B-209-74 ALLOY 6061-T6



REF. DWGS.	DESCRIPTION	REV	A	DWG. NO.	5007
5001	19 PLATE FUEL ASSEMBLY				SIDE PLATE
5003	FUEL PLATE TYPE 8 FORMED				
5005	FUEL PLATE TYPE 9 FORMED				
5006	FUEL COMPACT TYPE 8 & 9				
5008	END BOX				
SCALE NTS BY J. RUSSELL				1-06-97	

