

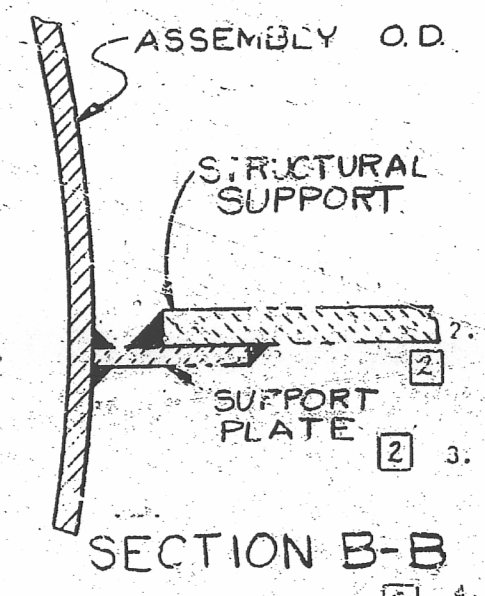
UNLESS OTHERWISE SPECIFIED USE THE FOLLOWING:			
APPLIED PRACTICES	SURFACES	TOLERANCES UNLESS OTHERWISE SPECIFIED	FINISHES
✓	✓	✓	✓

PL. NO.	VENDOR	VENDOR IDENT. NO.	V.P.F. NO.
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GENERAL ELECTRIC		TITLE	
920D714		REFUELING BELLOWS	
FIRST MADE FOR NUCLEAR BOILER		PURCHASED PART	
FCF		238X100B 2-1-94, L11-0395	

JAMES A. FITZPATRICK NUCLEAR POWER PLANT
 POWER AUTHORITY OF THE STATE OF NEW YORK
 FILE NO. 11825-510-58
 TITLE: Refueling Bellows
 P.O. NO. 60
 DATE: APR 02 1970
 APPROVED FOR: [Signature]
 DATE: 4/11/70 BY: [Signature]

- NOTES:
- BELLOWS DESIGN CONDITIONS**
 THERE WILL BE A TOTAL OF 17 MAIN START-UP SHUTDOWN CYCLES DURING WHICH THE BELLOWS COMPRESSION WILL GO FROM 0 INCHES TO 1.1. DURING EACH OF THESE MAIN CYCLES, THE BELLOWS COMPRESSION WILL OSCILLATE THREE TIMES BETWEEN 0 AND 1.1. DURING THE SHUTDOWN PORTION OF THE MAIN START-UP SHUTDOWN CYCLE, THE BELLOWS COMPRESSION WILL BE APPLIED TO THE I.D. OF THE BELLOWS WHEN THE BELLOWS COMPRESSION IS INCREASED TO 1.1. WATER PRESSURE WILL BE MAINTAINED THROUGHOUT THE CYCLE. RADIAL EXPANSION: 0.25 (BOTTOM RELATIVE TO TOP) VERTICAL LATERAL DEFLECTION: 0.1 INCH. CENTERLINE OF BOTTOM SIDE RELATIVE TO CENTERLINE OF TOP SIDE: 0.1 INCH. MAXIMUM LATERAL DEFLECTION: 0.1 INCH. OCCURS ONCE DURING BELLOW LIFE (APPLY MOVEMENT POSSIBLE AT ANY TIME DURING LIFE).
 - MATERIALS**
 BELLOWS SHALL BE TYPE 304 STAINLESS STEEL PER ASTM A304. ALL OTHER MATERIALS SPECIFIED PER ASTM STANDARD. CARBON STEEL SHALL BE PER ASTM A234 OR EQUIVALENT, UNLESS APPROVED BY THE BUYER.
 - FINISH**
 STAINLESS STEEL SHALL BE CLEANED PER ASTM A380. ALL SURFACES SHALL BE PAINTED, AFTER WELDING, WITH REFLUX COATING. THE COATING SHALL BE AT LEAST 2 MILS THICK AND SHALL WITHSTAND 175°F. THE COATING SHALL BE AT LEAST 3 MILS THICK, OR ENGINEERING APPROVED EQUIVALENT, IN ACCESSIBLE AREAS TO BE PAINTED.
 - WELDING**
 ALL WELDER PERFORMANCE QUALIFICATIONS ARE TO BE IN ACCORDANCE WITH ASME SECTION IX. ALL WELDS IN THE CONVOLUTED SECTION AND ATTACHMENT WELDS TO THE CONVOLUTED SECTION SHALL BE INSPECTED BY DYE PENETRANT METHODS AND PROVED LEAK TIGHT BY HELIUM LEAK DETECTOR TEST OR BY HYDROSTATIC TEST AT 11 PSI PRESSURE OR BY SOAP BUBBLE TEST WITH SOAP SOLUTION ON ONE SIDE AND SHOP AIR JET OPPOSITE SIDE. WHERE FULL PENETRATION WELDS ARE USED, BOTH SIDES OF THE WELD SHALL BE INSPECTED TO FACILITATE DECONTAMINATION. ALL WELDS ON THE WATER SIDE OF THE BELLOWS SHALL BE FREE OF ANY CRACKS OR PITS. ALL WELDS WITHIN CONVOLUTED SECTION SHALL BE FULL PENETRATION BUTT WELDS.
 - SECONDARY SEAL**
 SPRING SEAL SHALL BE DESIGNED TO LIMIT WATER LOSS IN THE EVENT OF A BELLOWS RUPTURE BY YIELDING TO MAKE A TIGHT FIT TO THE BACKING PLATE WHEN SUBJECTED TO FULL HYDROSTATIC PRESSURE. ADEQUATE CONSIDERATION WILL BE GIVEN TO WEAR BETWEEN MEMBERS.
 - FABRICATION**
 PRIOR TO FABRICATION ALL DRAWINGS, FABRICATIONS AND TEST PROCEDURES SHALL BE SUBMITTED TO GENERAL ELECTRIC FOR REVIEW AND APPROVAL.
 - CONSTRUCTION**
 PRIOR TO FORMING, STAINLESS STEEL SHALL BE IN THE SOLUTION HEAT TREATED CONDITION. THE BELLOWS VENDOR SHALL TAKE ADEQUATE ACCOUNT OF THE FIELD WELDING REQUIREMENTS INDICATED TO ASSURE NO DETRIMENTAL DISTORTION OF THE BELLOWS DURING INSTALLATION. BUYER SHALL BE INFORMED OF ANY SPECIAL FIELD INSTALLATION REQUIREMENTS.
 - MAXIMUM FORCE REQUIRED FOR MAXIMUM COMPRESSION OF BELLOWS SHALL BE LIMITED TO APPROXIMATELY 60 POUNDS PER LINEAR INCH OF CIRCUMFERENCE.**
 - PARTS SHOWN IN PHANTOM SUPPLIED BY OTHERS.**
 - TOOLS AND SPECIAL HANDLING EQUIPMENT TO BE SUPPLIED BY VENDOR**
 SHIPPING RIG SHALL BE ADEQUATE TO PERMIT HANDLING OF THE ASSEMBLY DURING INITIAL FIELD INSTALLATION WITH STUDS IN PLACE AS SHOWN. SUITABLE PROVISIONS SHALL BE MADE ON THE GUARD RING AND SHIPPING RIG TO PERMIT USE OF THE SHIPPING RIG FOR PERIODIC REMOVAL OF THE GUARD RING AS REQUIRED FOR INSPECTION OF THE BELLOWS. CABLE AND FITTINGS TO LIFT GUARD RING AS SHOWN SHALL BE SUPPLIED BY VENDOR. SEE DETAIL "A" (C-7).
 - ONLY THE PTS LISTED AND IDENTIFIED BY VENDOR'S NAME AND IDENT. NOS. HAVE BEEN APPROVED. A SUBSTITUTE SHALL NOT BE USED WITHOUT PRIOR APPROVAL BY APED ENGINEERING.**
- * TO BE DEPENDENT ON LOCAL STATE REQUIREMENTS.



ALL EXPOSED SHARP CORNERS SHALL HAVE 1/8 CHAMFER OR RADIUS TO PREVENT DAMAGE TO THE BELLOWS DURING INSERTION OR REMOVAL OF THE GUARD RING.

UNIT SHALL BE DESIGNED FOR AN ANGULAR ROTATION AT LOWER END OF THE BELLOWS OF 0.3° (±0.3°) WITH MAX. COMPRESSION AND NORMAL LATERAL DEFLECTION (0.040)

SUGGESTED FABRICATION ARRANGEMENT (DETAIL DESIGN BY VENDOR WITH PRIOR GE APPROVAL)

11825-510-58

REVISIONS	PRINTS TO
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