

24-2261-3  
McDONNELL Aircraft Corporation  
Lambert Saint Louis MUNICIPAL AIRPORT • BOX 518, ST. LOUIS 66, MO.

Reb  
2567

25 March 1959  
Ref: AEC-551-901

Mr. James R. Mason  
Chief, Isotopes Branch  
Division of Licensing and Regulations  
Atomic Energy Commission  
Washington 25, D. C.

Dear Mr. Mason:

In accordance with the suggestion made during our recent telephone conversation, McDonnell Aircraft Corporation requests a relaxation of the accountability requirements set forth in its present Byproduct Material License.

In order to facilitate the detection of bucking bars that may have been left inside structural members of an airplane during assembly, cesium-137 is used to tag these tools. The great number of bucking bars used at any one time makes an accurate inventory exceedingly difficult to maintain. During use, bucking bars are often broken and fragments sometimes become mixed with other scrap material generated during the assembly process. Finding a steel bar which contains a few microcuries of cesium-137 and which may have become mixed with several hundred pounds of scrap presents a time consuming and expensive task. Should a detailed search of the scrap be necessary in order to recover each fragment containing cesium, the expense of the operation would make it impractical to continue to use these tagged tools. There is already in effect at McDonnell an effective accounting system designed to minimize loss of expensive tools. It is felt that the precautions provided by this system should also provide adequate accounting of the cesium. The quantity of radioactive material that might be lost under the present system is too small to constitute a health hazard.

Bucking bars used in the manufacture of aircraft exist in many shapes and sizes varying from simple steel blocks to intricately shaped bars capable of reaching into relatively inaccessible work spaces. These tools are tagged by the addition of sealed steel slugs containing one to four microcuries of cesium-137 to the bar. The sealed sources are located in positions that will not affect the working surface of a bar yet which will give a usable level of radiation. The large size of some tools requires that more than one source be added at various positions on the bar. This procedure eliminates dead spots which might otherwise result from shielding by large masses and great lengths of metal. On the larger tools, holes are drilled into the bar, a sealed source is inserted and the installation

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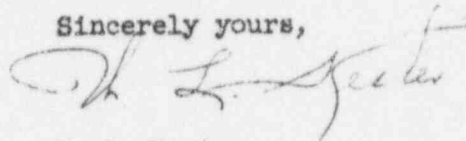
completed by welding a cover onto the hole. On smaller tools, an out-board arrangement is used. Here a steel container, Enclosure (1), for the source is welded onto a nonworking surface of the tool in a location that will give adequate radiation yet which will not interfere with normal use of the device. As in the above case, the source is sealed inside this secondary container by welding it closed.

The radiation level from these sources is too low (2 mr/hr) to create a hazard to a person who might find one and inspect it out of curiosity. It is felt that they certainly would not constitute a hazard to health or property should one be lost or be mixed in with scrap.

In consideration of the foregoing it is requested that provision be made for easing the requirements of maintaining an overly strict accountability of cesium-137 used to tag tools used in the manufacturing department at McDonnell.

Copies of McDonnell procedures for tagging bucking bars are enclosed. Should you wish any further information, please contact me.

Sincerely yours,



W. L. Kester  
Associate Scientist,  
Nuclear Applications

enclosures - 3



Enclosure (1)  
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(A)	(A)	(A)	(A)	(A)	(C)
106	105	104	103	102	101
100	99	98	97	96	95
94	93	92	91	90	89
88	87	86	85	84	83
82	81	80	79	78	77
76	75	74	73	72	71
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64	63	62	61	60	59
58	57	56	55	54	53
52	51	50	49	48	47
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34	33	32	31	30	29
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22	21	20	19	18	17
16	15	14	13	12	11
10	9	8	7	6	5
4	3	2	1		

DETAIL ABOVE USED TO HOLD  
 RADIOACTIVE PLUG ON BUCKING  
 BARS REFER TO ITEM 30.151  
 FOR APPLICATION

GENERAL NOTES

ITEM	QTY	1" DIA. x (A+Y8)	CRS	MATERIAL	REMARKS
1	1				

RADIOACTIVE PLUG HOLDER

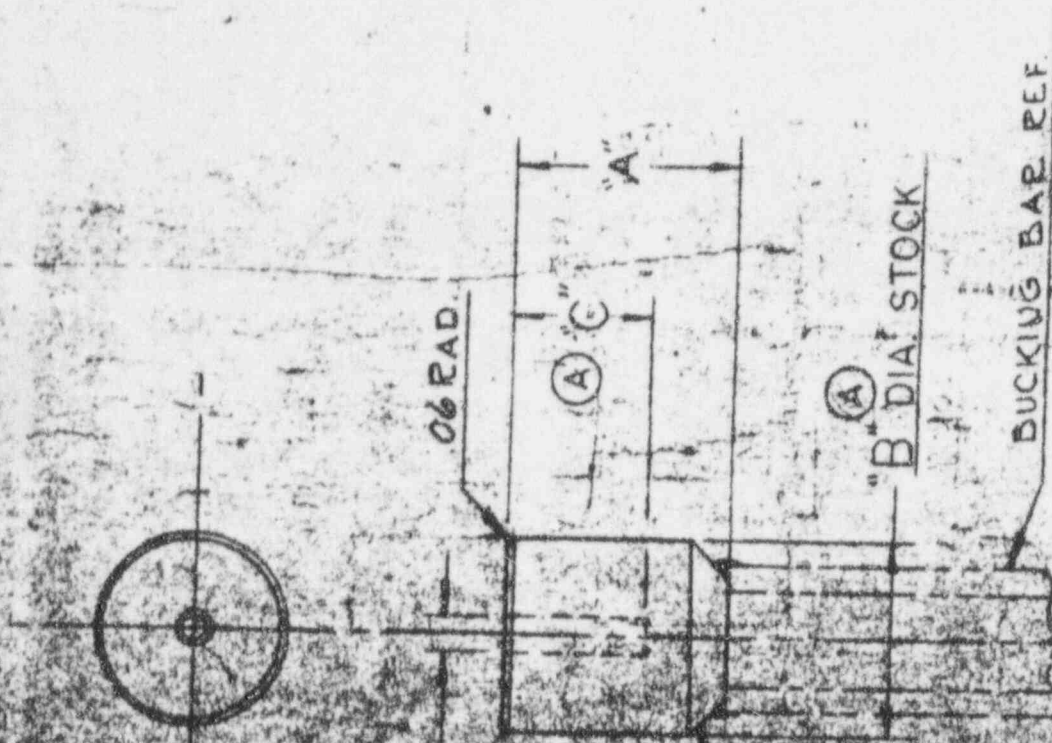
TOOL DRAWING NUMBER

STD 146A

*Wentworth*  
 WENTWORTH ENGINEERING CO.  
 ST. LOUIS 18, MO

SHEET 1 OF 1 SHEETS





③				①		②		④	
USED WITH				"D"		G OR (261)		#4	
PLUG NO.				±0.15		J/7			
				B		1000			