

WARTIME TUBE REVISIONS

WPB Stops Production on 349 Obsolete and Little Used Types, While Navy Issues Important Instructions

A MUCH-NEEDED housecleaning of vacuum tube types, already long overdue, has been brought about by the War Production Board's Radio Tube Unit, of which John F. Wilson is chief.

Figures made up from manufacturers' 1942 production records show that only 780,000 tubes of 289 obsolete and little-used types were sold. They comprised only .6% of the 135,000,000 tubes manufactured last year. The others eliminated by the WPB are duplicated types.

Following is the text of the WPB order:

WPB Limitation Order L-76 ★ The fulfillment of requirements for the defense of the United States has created a shortage in the supply of iron or steel and other critical materials for defense, for private account and for export; and the following Order is deemed necessary and appropriate in the public interest and to promote the national defense:

Section 1151.1 — GENERAL LIMITATION ORDER L-76.

(a) *Definitions.* For the purposes of this Order:

(1) "Tube" means any device consisting of an evacuated enclosure containing a number of electrodes between two or more of which conduction of electricity through the vacuum or contained gas may take place.

(2) "Manufacture" means the sealing in and the exhausting of the mounted tube assemblies.

(3) "Producer" means any individual, partnership, association, business trust, corporation, governmental corporation or agency, or any organized group of persons, whether incorporated or not, engaged in the production of tubes.

(4) "Tube Type Number" means either those designations given in the commercial and technical literature of producers of tubes, or those designations given by the Tube Division of the Radio Manufacturers Association of America, for each specific type of tube.

(5) "Preferred Order" means tubes produced under a specific order, contract or sub-contract for the Army or Navy of the United States, the United States Maritime Commission, the Panama Canal, the Coast and Geodetic Survey, the Coast Guard, the Civil Aeronautics Authority, the National Advisory

Commission for Aeronautics, the Office of Scientific Research and Development, any foreign country pursuant to the Act of March 11, 1941, entitled "An Act to Promote the Defense of the United States" (Lend-Lease Act), or produced with the assistance of a Preference Rating of A-1-j or higher.

(b) *General Restrictions:*

(1) From the effective date of this Order, no Producer shall manufacture any Tubes of the type listed in List "A", as amended from time to time.

(2) The restrictions contained in subparagraph (b) (1) shall not apply to Preferred Orders.

(c) *Records.* All persons affected by this Order shall keep and preserve for not less than two years accurate and complete records concerning inventories, production, and sales.

(d) *Audit and Inspection.* All records required to be kept by this Order shall, upon request, be submitted to audit and inspection by duly authorized representatives of the War Production Board.

(e) *Violations.* Any person who willfully violates any provision of this Order, or who, in connection with this Order, willfully conceals a material fact or furnishes false information to any department or agency of the United States, is guilty of a crime, and upon conviction may be punished by fine or imprisonment. In addition, any such person may be prohibited from making or obtaining further deliveries of or from processing or using material under priority control and may be deprived of priorities assistance.

(f) *Reports.* All persons affected by this Order shall execute and file with the War Production Board such reports and questionnaires as said Board shall from time to time request.

(g) *Communications to War Production Board.* All reports required to be filed hereunder and all communications concerning this Order shall, unless otherwise directed, be addressed to: "War Production Board, Washington, D. C. Ref: L-76."

(h) *Applicability of Priorities Regulation No. 1.* This Order and all transactions affected thereby are subject to the provisions of Priorities Regulation No. 1 (Part 944), as amended from time to time, except to the extent that any provisions hereof may be inconsistent therewith, in which case the provisions of this Order shall govern.

(i) *Effective Date.* This Order shall take effect seven days after the date of its issuance. Issued this 17th day of April, 1942.

J. S. KNOWLSON,
Director of Industry Operations

Tubes Discontinued ★ Pursuant to the restrictions contained in subparagraph (b) (1) of Limitation Order L-76, no producer shall manufacture any tubes of the types enumerated in Tube List "A".

Tubes For Navy Equipment ★ The following letter, accompanied by Tube Table RE 38A 134E, was issued by the Navy Department, Bureau of Ships, on April 13th:

The history of vacuum tubes used in Navy equipment has been an unhappy one for some years past, particularly with respect to the insidiousness and persistency with which new types have been continually injected into use. Too little consideration has been given to the fact that every new type of tube employed in a piece of equipment must be stocked and made available to the various users of radio equipment throughout the world. It is believed that in many cases the confused idea has persisted that because quantity of a new type of tube was small, its introduction was relatively innocuous whereas the reverse is, in fact, true.

This situation is becoming increasingly serious with the country at war, both because of the world-wide distribution of naval forces and activities and a possible difficulty of obtaining certain of the older and less common types of tubes from the tube manufacturers operating under wartime production restrictions.

Reference to Table RE 38A 134E will show that there are over 200 different types of tubes listed whereas the functional service performed by these tubes can be met by 77 types as listed under "Vacuum Tubes for Use in New Equipment." These figures and lists do not include Cathode Ray Tubes or certain tubes used in equipment classified as "secret" or very special tubes for employment at ultra-high frequencies (250 megacycles and upward). The status of such tubes is now being made the basis of separate consideration by the Bureau.

In order to correct the situation with which the Navy is faced at the present time of having to maintain a stock in excess of 200 types of tubes, two separate and distinct actions would appear necessary. One is to modify already existing equipments to effect a reduction in the number of types of tubes. This action is now being undertaken by the Bureau. A second and more immediately important action is to exercise every precaution to preclude the introduction of any type into the service, via new equipments, that are not on the approved list "Vacuum Tubes for Use in New Equipment,"

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TUBE LIST "A"				
00A	1T1G	6AF6GT	6V6GX	24
023	1T4GT	6AF7G	6V7G	24S
0LA	1T5G	6AG5GT	6W5	25A6
0LAA	1T1	6AG6G	6W6GT	25A6G
1A1	1W1	6A15G	6X5	25A7G
1A1/5E1	1Y1	6AL6G	6X5G	25AC5G
1A5G	1Z1	6B6	6X6G	25B5
1A7G	2	6B7S	6Y3G	25B6G
1B1	2A3G	6B8GT	6Y5	25B37T
1B4	2A7S	6C5G	6Y5G	25D8GT
1B4P	2B6	6C5MG	6Y5GT	25L6
1B4P/9S1	2B7	6C7	6Y5S	25L6G
1B7G	2B7S	6C8GT	6Y5V	25N6G
1B8GT	2C5	6D5G	6Y6	25RE
1C1	2G5	6D5MG	6Y67T	25S
1C4	2S/4S	6D6G	6Y7G	25X6GT
1C5G	2W5	6D7	6Z3	25Y4GT
1D1	2W3GT	6D8	6Z4	25Y5
1D2	2X3G	6E4GT	6Z5	25Z3
1D4	2Y2	6E6	6Z5/12Z5	25Z4
1D7G	2Y3	6E7	6Z6M	25Z4GT
1E1	2Y4	6E8G	6Z7G	25Z5MG
1E2	2Z2	6F5MG	7	25Z6G
1E4J	2Z2/G34	6F7S	7A7LM	27S
1E5G	3	6G5	7B5LT	29
1E5GP	3B8GT	6G7	7B6LM	31
1E5GT	3C5GT	6G7S	7B8LM	35A5LT
1E7G	3LE4	6H4	7C5LT	35L6G
1F1	3Q5G	6H5	7D7	35RE
1F7GH	3S5	6H6G	7G7	35S/51S
1F7GV	4	6HG6G	7I5	35Z3LT
1G1	4A1	6H7S	7R7	35Z5G
1G4J	4A6G	6I8G	8	35Z6GT
1G5GT/G	5	6J5G	9	40
1G6G	5T4	6J5GX	WD11	45A
1G6GT	5V3G	6J6GT	WD12	46A1
1G7GT/G	5W4	6J7MG	WX12	46B1
1H5G	5W4G	6K6G	12A	48
1J1	1B2B/4B2B	6K6MG	12A5	49
1J5G	1B3/4B3	6K7MG	12A8	50C6G
1K1	401	6L6GT	12B6	50L6G
1K4	4B5	6L6GX	12B7	50Y6G
1K5G	950	6MG	12C8GT	50Z6T
1K6	1232	6A7G	12D57T	50Z6GT
1K7G	1852	6B8GT	12J5G	50Z7G
1L1	1853	6N5	12J7G	51
1L5G	5X3	6N5G	12K7G	52
1L5GT	5Y3G	6N6	12K8GT	55
1L86	5Z4G	6N6GT	12Q7G	55S
1LC5	5Z4MG	6N6MG	12S7GT	56A5
95	6	6H7G	12SA7G	56S
V99	6A4	6H7GT	12SC7GT	57A5
X99	6A4/LA	6P5G	12SK7G	57S
117Z4GT	6A5G	6P6	12Z5	58A5
117L7GT	6A6X	6P7G	14	58S
117M7GT	6A7S	6P8G	14A4	64
117Z6G	6A8MG	6Q6	14A7	65
117Z6GC	6A8S	6Q6G	14B6	68
1N5G	6AB6G	6Q7MG	14B8	69
1N1	6AC5G	6R6G	14C5	70
1N5G	3AC6G	6S5	14E6	70A7GT
1N6G	6AC6GT	6S6GT	14E7	70L6GT
1N6GT	6AD5G	6SE7GT	14F7	75S
1P1	6AD5GT	6T5	14H7	79
1P5G	6AD6G	6T6	14Y4	82V
1Q1	6A85G	6T7G/6Q6G	15	85A5
1Q5G	6A85GT	6U5	17	87S
1R1G	6A86G	6V4G	18	88S
1R4	6A87GT	6V5G	20	89
1S1G	6AF5G	6V6G	22	

WARTIME TUBE REVISIONS

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as shown on the bottom of the enclosure. This second point is of the utmost importance, and the basic agenda of this letter.

The addressees are requested to carefully scrutinize the design of any equipments offered or which may be offered for use of the Naval Service, either on specification or catalog purchases, and ascertain that the vacuum tube complement will consist of tubes on the list of those acceptable for use in new equipments.

In the case of new equipments and particularly those purchased on specifications, there undoubtedly arises a question of engineering judgment in which design engineers will feel that in order to meet all the items of specification performance, special, or at least unapproved types of tubes will be necessary. In such cases it is recommended that the claims be carefully considered, and that the relative importance as well as the quantitative values of the performance compromises, be determined and the Bureau contacted in the premises before a design is crystallized around the employment of a non-standard tube. Where the performance compromise is relatively unimportant, the use of non-standard tubes will probably not be permitted. It is believed that in most cases the opposition to the use of Navy preferred types will be subjective rather than objective.

It is not the intention of this letter to attempt to restrict progress of the art where such progress definitely and unequivocally requires new, special, or unapproved types of tubes. In all cases careful analysis and scrutiny of design should be made to assure that a too often employed practice of requiring special tubes to meet the deficiencies or derelictions in circuit design is not being proposed or practiced rather than utilizing every effort to make circuit design satisfactory for use with standard tubes. Conservative circuit design around standard tubes in the long run probably produces the best Naval radio equipment.

In order to effect the desired utilization of preferred type tubes, no type of tube not included under "Vacuum Tubes for Use in New Equipment" will be permitted in the design of equipment which has an electrical equivalent on the preferred list. Where departures from this directive are absolutely essential the Bureau is to be contacted on the matter.

The agenda of this letter shall not be construed as affecting the terms or conditions of any contracts because of conflict between such terms or conditions and this letter.

Very respectfully,

J. B. Dow,
By direction

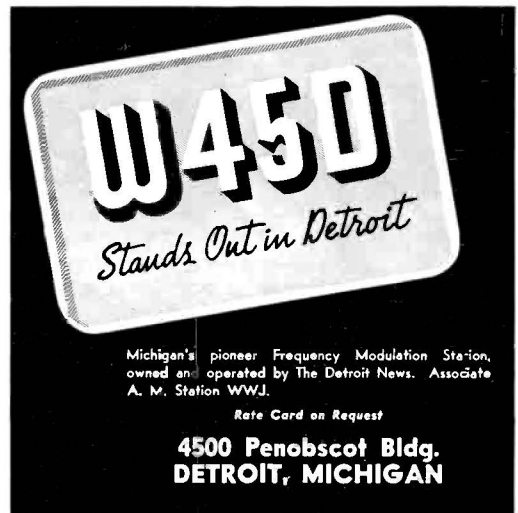


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