

## **DOWD-RCA HARRISON ARCHIVE**

### **DESCRIPTION**

These files are from the RCA receiving-tube plant, offered through the late Bro. Patrick Dowd to the AWA museum when the place closed in 1976. The tubes in question are comprise the entire RCA product line before 1942; when power, CRT, photo, and camera tubes were transferred to the new Lancaster plant; and receiving types thereafter. For never-introduced, outside-purchased, or unsuccessful tubes, the records are brief - for example, the popular audio types 6DJ8, 5881, and 6550 were bought-in for the "renewal" market and are undocumented except for marketing information. The same holds for power tubes of the '30s that were made by GE, and for loktal types. By contrast, for a long-lived RCA-made type like the 6K7 there are exhaustive records in all five parts of the archive - each vintage of every assembly drawing, parts list, test spec, Sealex schedule, etc. There is some duplication of records between parts of the archive, for example, between Parts 2 and 3. Total weight of the collection is about 3900 pounds. It comprises five divisions:

#### **1. Product-Management Binders**

37 green vinyl binders, seven shelf-feet

Vol. 1: Miscellaneous

Vol. 2: Developmental Types

Vol. 3: CRTs

Vols. 4-5: Specials: Non-EIA-Numbered (4-1000 to 4616)

Vol. 6: Specials: "1A21" EIA-Numbered (1B25 to 9C27)

Vols. 7-13: Specials: "5500" EIA-Numbered (5524-9006)

Vols. 14-37: Receiving (01A to 117Z6)

The name of this part is descriptive; it has no official title. The time span is mainly post-'40s, although there are a few items from as early as 1938. Vols. 14-37 necessarily deal with a huge volume of later-vintage color-TV tubes. The level of detail varies: from only a single sheet for some "purchased" types, to thick life histories of many RCA-designed tubes and their variants. For later "Lancaster" products, there is a smattering of information, mainly announcement letters. This material has been scanned and is a component of the TCA Data Cache DVD-ROM set.

#### **2. Standardizing Notices: 1931-35 File**

60 red bound books, 14 shelf-feet

These are "record set" volumes. They include large fold-out blueprints of tube parts and assemblies.

#### **3. Standardizing Notices: 1927-45 File**

267 blue Accopress bristol-board folders, 42 shelf-feet. They are numbered 1 to 285. Vols. 26, 136, 146, 147, 172-183, 186, 242, and 251 are missing (a couple of these turned up years later, as rescued from the former RCA Laboratories site at Princeton).

These include 1927-30 standardizing notices under GE's "VT" index system, predating transfer of the Harrison Works to RCA.

#### **4. Standardizing Notices: 1945-51 Receiving Tube Permanent File**

49 gray cloth binders, 4" capacity each, 20 shelf-feet

As the name suggests, this is a "record set" of early postwar notices.

#### **5. Standardizing Notices: 1951-74 Receiving-Tube File**

239 gray cloth binders, mainly 4" capacity each, 79 shelf-feet

The time span is approximate, and the name has been assigned arbitrarily. This file may not have been maintained fully in the later years of Harrison; it is most complete as to pre-1965 material.

Besides the five sections listed above, there is a drawer of folders from the RCA military marketing group at Harrison, type by type, on dealing with the Armed Forces standardization organizations. Included are matters of Joint Army-Navy (JAN) quality certification and other correspondence. There is also substantial material from the files of the late A. Danforth Cope, RCA tube developer.

### **INDEX**

No. Topics

1 Standardizing Procedures, etc.

3-0 "Form SL-10" product-line lists (3-0-1, civilian; 3-0-5, military)

Lists the whole line. For each type, shows made-vs.-bought status, dev. no., S. N. no., sales classification, bulb, base, and brief description. Updated about quarterly.

3-1 Construction Data - Commercial Types

3-1-(type no.): All types incl. transmitting ('30s); later subdivided as follows:  
3-1A-(type no.): Acorns  
3-1D-(type no.): Miniatures  
3-1E-(type no.): Novars and Duodecars (RCA term for Compactrons [12-pin]).\  
3-1F-(type no.): Transponders (Chiefly the FD-2200 nuvistor "functional device" amplifier for IFF transponders.)

3-1G-(type no.): Glass Receiving  
3-1H-(type no.): Nuvistors  
3-1J-(type no.): Magnetrons  
3-1K-(type no.): CRTs and cameras (pre-1942)  
3-1L-(type no.): Phototubes, vacuum gauges (pre-1942)  
3-1M-(type no.): Metal  
3-1P-(type no.): Power (pre-1942)  
3-1R-(type no.): Numitrons  
3-1S-(type no.): Subminiatures

Typical coverage on a tube in these sections includes an outline drawing, assembly drawing for the cage (mount), a parts list, a "schedule of fires" for sealing the bulb and evacuating on the Seallex machine, and an aging schedule with the voltages to be applied and their time intervals.

Notices on tubes of pre-1935 vintage give GE/RCA's unique pin-numbering schemes, in which the "big" pins with filament leads on them were always numbered 3 and 4, no matter the number of total pins; likewise, early octals had the pins next to the locating key numbered 7 and 8.

3-2 Construction Data - Developmentals - all styles (by dev. no.)

This section includes a remarkable variety of types that were developed for manufacture but abandoned - special wire-leaded Nuvistors, an acorn phototube, a diode-triode in a 6H6 package, a button-stem version of the 6E5 eye tube, an ST-based sweep tube on a Novar glass base, etc. A useful "finding aid" on these tubes is TCA Special Publication No. 19, "Index of RCA Developmental and Commercial Type Numbers," which cross-references developmental numbers to commercial identifiers.

3-7 Government types ('30s)

3-7 includes Department of Commerce - Lighthouse Service numbers for standard RCA types.

7 Cage/Mount Assemblies - Assembly Machines

8 Grids: Wound, Wound-and-Formed, Autowound, Autoweld, and Frame

9 Plates and Beam-Confining Electrodes

10 Glass Tubing and Cane; Physical Properties of Glass

12 Stems

13 Parts, Supports, Assemblies, Insulators, Micas, Ribbons, etc.

14 Filaments, Heaters, Cathodes, Cathode Sleeves

15 Getters, Activators

17 Bulbs, Molded Flares, Bulb Assemblies, Shells

18 Fabricated Parts Listed under Customers' Designations: Leads, Flanges, Headers (Solid-state parts made by Harrison for other RCA divisions; only a few files.)

19 Exhaust "Appurtenances" (Only a few files; this topic is found mainly in Section 34.)

20 Salvage Procedures (Few files in this area; this topic is found mainly under 23-6.)

23 Electrical Ratings and Test Specs for Finished Tubes

23-1: Master Specification Sheets (A sort of HB-3 manual extract without graphics. Contains internal parameter limits as well as "published" values.)

23-2: Developmental Specification Sheets (Equals 23-1, but for developmentals.)

23-4: Test Instructions and Equipment Specs

23-5: Quality Sampling and Inspection Procedures

23-6: Tube Salvage Schedules (For rehabilitating production rejects.)

This section gives methods for reclaiming specific tubes that fail tests: hit them with a felt-tipped hammer, or strike them on a padded surface, and retest.

23-7: Selection Standards (from later years). 23-7-Dxx gives test criteria for tubes selected to special limits on noise, grid potential, Gm, balance, etc.

24 Bases, Caps, Contact Pins

24-4-1 specifies the material to solder tube connections: pure tin on early-vintage base pins, 60-40 solder for grid caps, 40/60 cadmium-zinc solder for hot plate caps.

25 Inspection; Defect Symbols for Rejects

26 Life-Test Data

27 Tube Marking

27-1 gives the date code for "modern" tubes ("KC" indicates Sept. 1956; "FY" indicates Dec. 1976). Other date codes are listed for RCA-made private-branded tubes.

27-1 also gives the "ship-to" addresses for private-branded tubes. For example, some "Hallicrafters" tubes were sent to the Esquire Radio Corp., 6201 15th Ave., Brooklyn - confirming stories that Esquire made some Hallicrafters receivers. Some "RME" (Radio Manufacturing Engineers) were to be sent to Minitron, Inc., Escondido, CA; others to Electrolab, Encinitas, CA.

27-1-1D identifies about 275 private brands supplied by RCA at one time or another (Admiral to Zenith), export brands (ADA to Triotron), and large end-user buyers (A. D. T. to Western Union). Included are the China National Aviation Corporation ("Flying Tigers") and the Government of Iran.

27-3-3, pp. 1 and 2 of various vintages, gives the proprietary number codes stamped onto bases of metal codes until 1944 ("67" designates a 12H6), lists numerous metal tubes that were planned but never made ("22" designates a metal 1F5!). For postwar tubes, they give considerable further identification (A tube stamped "P 6SK7 N3/" is a 6SK7 of military grade, made 6-47 at the Harborview [Jersey City] works).

This section also contains a factory scheme for identifying particular acorn tubes whose type-number "etch" is missing, using details of construction.

#### 29 Packaging

29-3-2 and 29-80-11 give perhaps 100 crate markings from the '30s giving nitty-gritty details on the contents ("SS" indicates 35s made with a Scrolled Shield, i. e., with the suppressor rolled into the top shield. There are date and plant codes too: "C52C12" means the tubes were made at Cleveland Ivanhoe Works No. 3 in the 52nd week of 1933.)

This section includes "record copy" samples of box labels, instruction sheets, shipping labels, developmental-sample labels, service-record forms, patent-notice slips, and cut-but-unassembled tube cartons. One patent-notice slip, for example, pertains to tubes that were licensed only for use in power-line carrier-current systems by power companies.

#### 33 Material Specs - Procurement and In-House Preparation

33C: Confidential Purchasing Specs

#### 34 Manufacturing Processes

34C: Confidential Processes

34C-C-6, 12-29-48, gives the proprietary formula for mixing 200-lb batches of base cement.

#### 35 Equipment Maintenance and Use

#### 40 Wire Spools

#### 44 Measuring Instruments and Gauges

#### 45 Conversion Factors, Abbreviations, Etc.

#### 46 Connector (PC) Boards

#### 47 Coated Coiled Heater Inspection; Microwave Components. (A few resonators and similar parts.)

#### 60 Components (Capacitors, Resistors, Hardware, etc.)

#### 64 Factory Methods (early only)

VT64C, 10-5-29, gives GE's confidential '20s methods for handling mercury in the plant.

#### 101 Fittings (Water Jackets, Gaskets, etc.)

#### 200-310 Standardizing Procedures for "New" Products (reed relays, thermal modules, etc.)