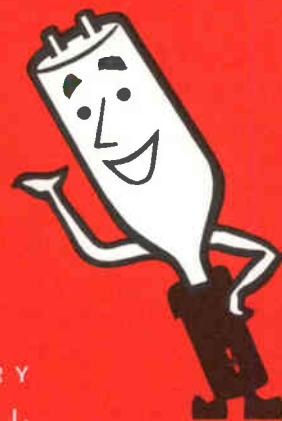




Tube Tips



A NEWSLETTER TO THE BROADCASTING INDUSTRY
RCA ELECTRONIC COMPONENTS AND DEVICES, HARRISON, N. J.

**New Broadcaster Confidence in Plug-in Solid-State Silicon Rectifiers Generated
By Market Entry of RCA's Stringently Tested and Field-Proven Replacement Types**

RCA-CR275/866A/3B28, -CR274/872A, and -CR273/8008 Are First of New Product Line

Announcement of three high-voltage, diffused-junction, silicon rectifiers during the recent NAB Convention in Washington, D. C., signalled RCA's formal entry into the field of solid-state "plug-in" devices for broadcast applications.

Entering the limelight at a time when station engineers and top management held some rather dim views on such devices as the result of earlier experiences, the three rectifier types were nonetheless introduced by RCA with the assurance born of long, careful preparation in research, engineering, and life testing. The entire program was conducted with one objective: Before RCA's new solid-state silicon rectifiers became commercially available as direct replacements for mercury-vapor and gas rectifiers, they had to "prove out" in every category. And in striving for this objective, RCA laid its unexcelled reputation with broadcasters "right on the line" — confident that end results would justify the gamble.

Before RCA types CR275/866A/3B28, CR274/872A, and CR273/8008 were announced to the industry, their high-reliability performance in broadcast equipment was assured by over one-million hours of cumulative "in-house" life tests on prototypes and same-socket plug-ins.

Now — after numerous additional field trials and periods of demanding usage under all types of broadcast conditions — RCA's three solid-state silicon rectifiers are gaining tremendous acceptance among station engineers in all parts of the country.

Direct replacements for their respective corresponding tube types, these devices are extremely stable and compact and possess every characteristic required for rugged operation and long life.

Because these devices possess no filaments, instantaneous "on-off" operation results in elimination of warm-up and cool-down periods. Filament transformers are no longer required.

In every instance, RCA plug-in rectifiers meet the published ratings of the tubes they replace. This means that costly delays for analysis of specific circuit requirements are not necessary in the instances when RCA rectifiers are used as replacements. If a particular circuit, for example, has an 866A tube in it, an RCA-



Time-consuming investigations of circuit considerations are not necessary in the use of RCA plug-in solid-state rectifiers, and replacement of specific tube types is clear-cut and simple. The RCA-CR274/872A (left) is intended specifically as a direct replacement for the half-wave mercury-vapor rectifier types 872 and 872A. The CR273/8008 (center) is a direct replacement for the half-wave mercury-vapor rectifier type 8008. Shown at right is the RCA-CR275/866A/3B28 — a direct replacement for the half-wave mercury-vapor types 866 and 866A, and the half-wave gas rectifier type 3B28.

CR275/866A/3B28 rectifier unit can immediately be plugged in as a substitute — providing the filament circuit of any tube employed in the unit is not affected.

With certain competitive types, however, more than one or two replacement units frequently have to be considered for one tube — depending on the circuit voltage requirements.

Inherent ruggedness of solid-state design leaves no critical parts subject to destructive vibration or deterioration. Untroubled by arc-back or rectifier "hash," the new RCA devices are virtually interference-free. Operating temperatures (at full ratings) can range anywhere from -50°C to $+60^{\circ}\text{C}$. All three units are high-voltage rectifier types consisting of series-connected, hermetically sealed RCA diffused-junction cells.

Harold C. Vance, Veteran Sales Engineer in Broadcast Industry, Retires From RCA; Vacancy to be Filled by Riley O. Etheridge



H. C. Vance



R. O. Etheridge

After more than forty-two years of valuable and dedicated service to broadcasters and the broadcast industry, Harold C. Vance marks the close of his career with RCA on August 1st.

In an industry widely reputed for its relatively young "old-timers," Mr. Vance early achieved veteran status. While an undergraduate at Washington State College in 1922, he organized and headed the student committee that founded KWSC — one of the nation's first educational broadcasting stations. This station subsequently became a training ground for several famous radio and TV personalities, including the late Edward R. Murrow.

Following his graduation in 1923 with a Bachelor of Science degree in electrical engineering, the young "wireless" enthusiast from Pullman, Wash., joined General Electric as a test-engineering trainee in the newly established Radio Department. In the mid-20's, while still at GE, he conducted original research and development work resulting in the first single-frequency duplex-carrier telephone system for communicating over high-voltage power-transmission lines. This system is extensively used today by utility companies both here and abroad.

Shortly afterward, he aided in development of the first line of RCA broadcast-transmitter equipment.

Transferred to RCA in July, 1930, Mr. Vance was placed in charge of broadcast-transmitter and power-tube sales in the Central District of RCA's Engineering Products Division. The latter Division was the predecessor of what is now the RCA Broadcast & Communications Products Division. While headquartered in Chicago, he was instrumental in culminating the sale to station WLW of a super-power 500,000-watt transmitter which — in 1932 and for several years afterward — put WLW in the foreground of the world's most powerful stations.

In 1937, he returned to the Camden headquarters of the Engineering Products Division after successfully introducing RCA shortwave transmission to several local and state police organizations in the midwest. At RCA's Camden, N. J., location, he managed, in succession, Radio Facsimile Sales, Police Communications Equipment Sales, and FM Broadcast Transmitter Sales.

In 1941, Mr. Vance was given a leave of absence by RCA in order to act as consultant to the Philadelphia Evening Bulletin regarding the latter's plans to engage

in facsimile, AM, FM, and TV broadcasting. High point of this period was the newspaper's eventual purchases of stations WPEN and WCAU.

With the outbreak of World War II, he returned to Camden where he handled government contracts and engineering liaison pertaining to Navy purchases. In 1942 he was transferred to the Tube Department to fulfill the important role of reconciling wartime restrictions to the needs of commercial broadcast stations and seeing that stations kept on the air.

After the war, he was transferred to Harrison as manager in charge of tube product sales to broadcast stations, industrial plants, airlines, laboratories, and universities. In 1947, he was named manager, industrial tube renewal sales. It was in the late 40's that Mr. Vance collaborated in the invention of the ultra-high-speed overload protective system now used in most of the world's super-powered radio transmitters. In 1953, he was appointed promotion manager for RCA power tubes. Since 1957, he was Manager, Sales Engineering, in the Distributor Sales organization — the post he held until his retirement.

Widely known throughout the broadcast industry and other areas of electronics, Mr. Vance has held important posts in various trade and professional associations since the early 30's, when he served as chairman for the Chicago Section of the IRE. He later was chairman of a joint committee established by the National Electronic Manufacturers Association and the Radio Manufacturers Association for the purpose of obtaining and circulating to the industry all pertinent statistical data on industrial-type electron tubes. He also was chairman of the Radio Transmitting Tubes Section of the RMA.

A member of the National Admissions Committee of the IRE, he now holds the membership title of "Senior Life Member" in the IEEE. As a consulting engineer and under the category, "Expert Radio Engineer" bestowed by the Federal Communications Commission, he has on several occasions practiced before that government body.

An active radio ham and builder-experimenter, Mr. Vance is a frequent speaker at regional and national conventions of the ARRL, an activity he hopes to devote even more time to in his retirement.

From all his friends and acquaintances at RCA and throughout the electronics industry come best wishes for that period which Mr. Vance likes to define as "my interlude of previously postponed aspirations."

* * *

Riley O. Etheridge, who fills the vacancy created by the retirement of H. C. Vance, is superbly equipped by temperament, training, and experience to take on the assignment of Manager, Sales Engineering, in the Distributor Sales organization of RCA Electronic Components and Devices.

A native of Atlanta, Riley was graduated from Georgia Tech with a Bachelor of Science degree in electrical engineering. Joining RCA in 1951, he held various engineering posts at the Lancaster, Pa., tube plant. From 1955 to 1960, he was sales engineer for the Central Distributor Sales District of RCA Electronic Components and Devices. In the winter of 1960, he was appointed Manager, Southeastern Distributor Sales District, the assignment he held until his most recent promotion.

'Lightest and Tiniest' of New RCA Broadcast Microphones Labeled 'Giant in Performance'

A new subminiature lavalier dynamic microphone announced to RCA distributors in March excited considerable interest among broadcasters attending the recent NAB Convention in Washington, D. C.

Offering remarkable performance capability in a tiny package, the RCA BK-12A microphone weighs less than $\frac{3}{4}$ ounce and measures only $1\frac{1}{2}$ inches in length and $\frac{3}{4}$ inch in diameter. Designed as a diminutive, practical instrument for convenient tie-clip or neck-pendant use, the BK-12A has a frequency response of 60 to 18,000 cps — a range equivalent to that provided by the finest standard-size studio microphone.

The new microphone has non-directional pickup characteristics. Intended for all applications where a very small and lightweight unit is desired for speech pickup, this handsomely finished bronze-epoxy-and-matte-gold instrument comes equipped with lavalier and tie-clip holders for suspending the BK-12A about the neck or fastening it to shirt or lapel.

Other notable features include a line impedance voice coil that permits its use with any system in the range of 30 to 600 ohms. Nominal impedance of the microphone is 150 ohms.

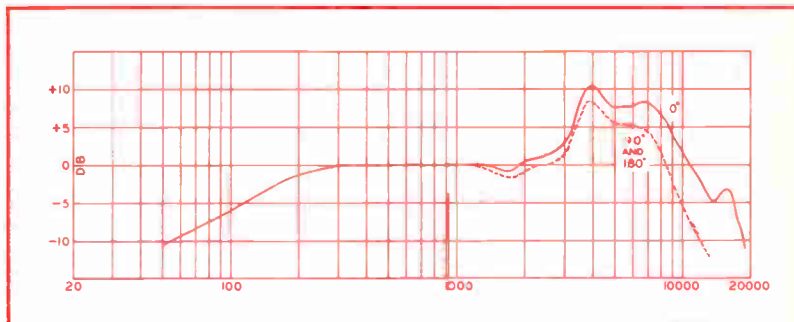
This wide range impedance match is achieved by elimination of the usual voice coil to line matching transformer. Elimination of the line matching transformer also reduces hum pickup.

Additional features include gold plating on accessories and a color-coordinated cable. The micron-size mesh of the stainless-steel acoustic screen effectively filters out dirt and moisture.

On-the-spot repairs, if necessary, are now practicable by the use of a complete replacement cartridge readily available from your RCA Microphone Distributor. This replacement cartridge can handily be installed in about five minutes. The cable also is easily replaced. As the microphone is designed to withstand rough handling and the cable is made of high-flexibility, long-life cadmium copper, long service can be expected with normal use. For additional data on RCA's "new look" in very small, extra-lightweight microphones, contact your Authorized RCA Microphone Distributor.



RCA's BK-12A subminiature lavalier dynamic microphone weighs less than $\frac{3}{4}$ ounce and measures only $1\frac{1}{2}$ inches in length and $\frac{3}{4}$ inch in diameter. Frequency response of this instrument covers the range from 60 to 18,000 cps. Special voice coil permits use with 30-to-250-ohm inputs without changing the microphone's impedance.



Frequency response curve of BK-12A microphone in cycles per second.

New WR-52A Stereo FM Signal Simulator Advances RCA Leadership In 'Established' Instruments for Accurate Multiplex Stereo Servicing

Advances in RCA test instruments for precise multiplex stereo servicing have resulted in a redesigned and improved unit — the WR-52A Stereo FM Signal Simulator.



Featuring several outstanding innovations over the predecessor-model WR-51A, the new WR-52A incorporates an RF Deviation Meter to indicate the modulation level of both stereo and monaural FM signals. This meter permits also accurate adjustment of the 19-Kc subcarrier level.

A switch has been added to disable the 19-Kc oscillator circuit, thus providing a low-distortion monaural FM output.

Provisions are included for modulating left or right stereo signals with an external monaural source.

Trap-alignment requirements for some sets are facilitated by the addition of a 72-Kc frequency to the existing 67-Kc frequency.

These four features, along with numerous internal circuit-design changes, make the WR-52A an ideal, compact and lightweight instrument for your broadcast

COLOR

BLACK & WHITE

COLOR AT BLACK & WHITE LIGHT LEVELS

FIELD MESH

PRECISION CONSTRUCTION

4 1/2" DIAMETER TUBES

SPECIAL STUDIO TAPING TYPES

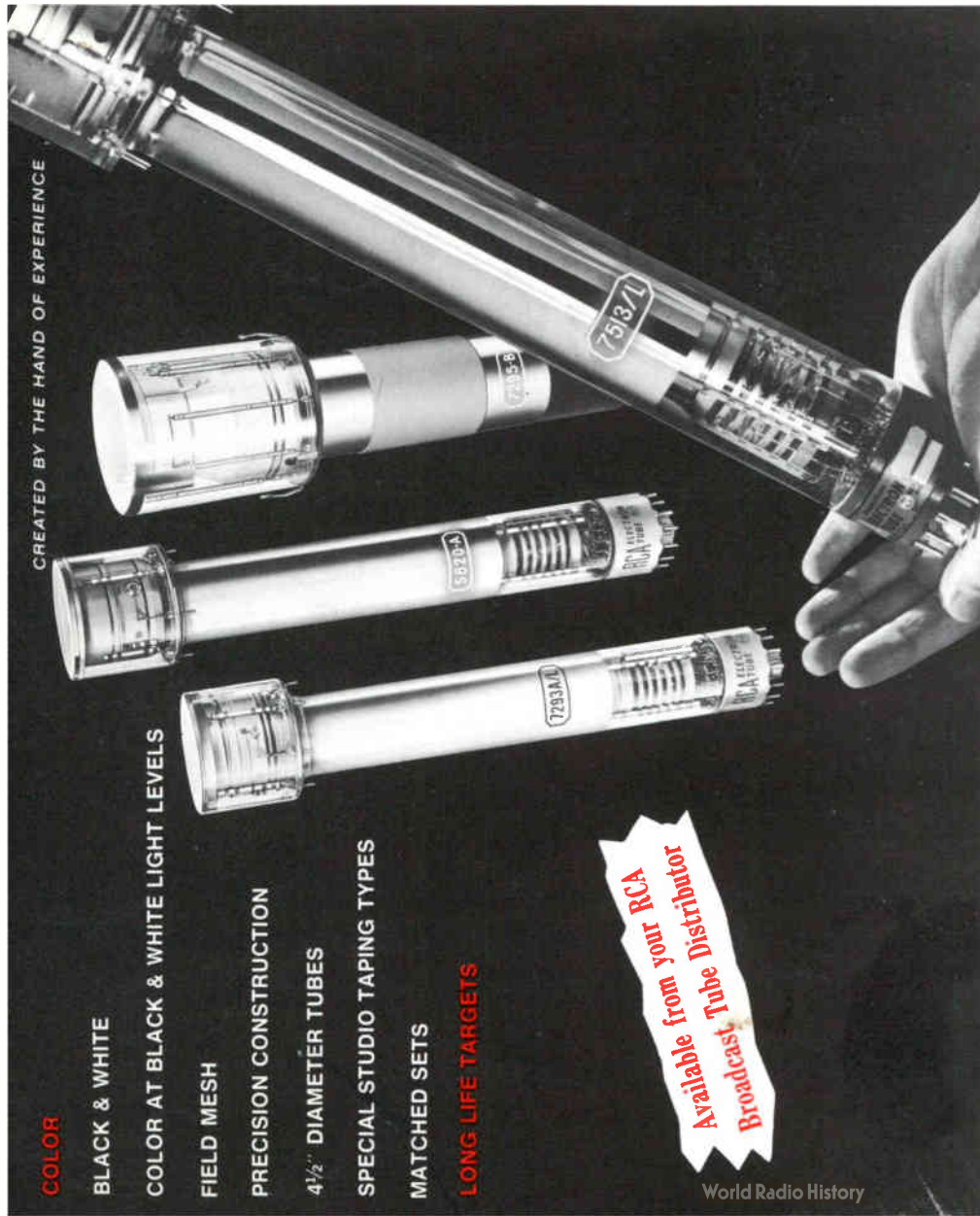
MATCHED SETS

LONG LIFE TARGETS

Available from your RCA
Broadcast Tube Distributor

World Radio History

CREATED BY THE HAND OF EXPERIENCE



ONLY RCA'S BROAD LINE OF IMAGE ORTHICONS OFFERS A CHOICE OF ALL THESE FEATURES

Now you can bring out the best in your TV pick-up equipment—even in the most critical applications—because you can select the proper RCA image orthicon specifically designed to cope with the practical problems of everyday broadcasting. Ask your RCA Broadcast Tube Distributor to explain this in terms of a specific, practical, everyday problem you face or might be faced with shortly. Or, write for current information: Camera Tube Booklet CAM-600.

Type	Color	Color at B/W Light Levels	IMAGE ORTHICON SELECTOR		Precision construction	4 1/2" diameter	Studio taping sets	Matched sets	Long Life Targets
			Black & White	Field Mesh					
4401V1			X(1)		X			X	
4415-4416	X	X		X	X				
5820A			X	X	X				X
5820A/L			X	X	X				X
7933A			X	X	X				X
7933A/L			X	X	X	X			X
7959B			X	X	X				X(2)
7513	X			X	X	X			X
7513/L	X			X	X				X(2)
7629A		X(3)		X	X				X
8092A	X	X(3)		X	X				X
8093A			X	X	X				X
8093A/L			X	X	X				X

(1) For exceptionally low studio light levels. (2) 7513/V1 or 7513/L/V1.
(3) Thin film semiconducting target.

RCA ELECTRONIC COMPONENTS AND DEVICES, HARRISON, N. J.



The Most Trusted Name in Electronics

needs, particularly in studio-FM applications. This unit has the capability to generate all the signals necessary for service, alignment, and maintenance of mono and stereo FM receivers and multiplex adaptors. Its value as a service and test instrument is enhanced by the three low-distortion sine-wave frequencies (400 cps, 1 Kc, and 5 Kc); two crystal-controlled frequencies (19 Kc and 38 Kc); and the two previously mentioned 67- and 72-Kc frequencies for trap alignment.

RF output — for connection to receiver antenna terminals — provides a 100-Mc carrier (tuneable); choice of FM signals (left stereo, right stereo, monaural FM and internal test); FM stereo deviation adjustable from 0 to 75 Kc; 100-Mc sweep signal adjustable from 0 to more than 750 Kc at a 60 cps rate; and an RF output attenuator.

Input terminals — for connection to external audio-frequency signal source — permit modulating either the stereo left or stereo right channel with external audio signal.

Readily portable, the WR-52A measures 13 1/2-by-10-by-8 inches and weighs only 12 3/4 pounds. Complete with wired-in connecting cables, this new FM Stereo Signal Simulator is being made available at an Optional Distributor Resale Price of \$250 — only fifty cents more than the price for the predecessor-model WR-51A.

For further details on the RCA WR-52A, contact your authorized RCA test instrument distributor.

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