A BRIEF INTRODUCTION TO TRANSISTOR RADIO COLLECTING

HOW I CAME TO APPRECIATE THE TRANSISTOR RADIO AS A COLLECTIBLE ITEM

A BRIEF INTRODUCTION TO TRANSISTOR RADIO COLLECTING

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TRANSISTOR RADIO COLLECTING

First a little history. How did we get to the first transistor radio?

Solid state devices such as Galena and Carborundum were used in early wireless as diode detectors, and lots of things were tried by early experimenters to get the best detector. This clip from the Sept. 1976 *Radio Age*, shows a short letter that was in the *Electrical Experimenter* in 1918. Was this a transistor?

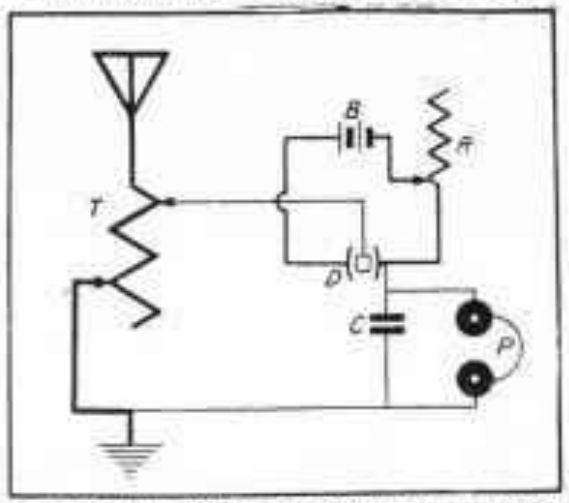
When was the transistor invented-- 1918?

Floyd W. Cook of Washington, Illinois, reports that just a while back the transistor was "discovered". Yet back in 1918, this man "had it". See the illustration and copy below from June 1918 ELECTRICAL EXPERIMENTER.

A DETECTOR HINT.

I have a detector which has *two* cups placed opposite each other and made adjustable by turning a knob. I use galena, with a light phosphor bronze wire contact. I found that by attaching a battery and rheostat in series with the cups, that the signals were greatly increased in intensity and the range of my set was greater by far; I picked up stations impossible to hear without the battery attached. Too much current will fuse the crystal. The best voltage will be determined by experiment.

Contributed by P. B. KINGSLEY.



An Effective Way of Connecting Battery Current to a Detector Crystal So as to Intensify the Signal Strength.

TRANSISTOR RADIO COLLECTING

From "The Electrical Experimenter" June, 1918

A DETECTOR HINT.

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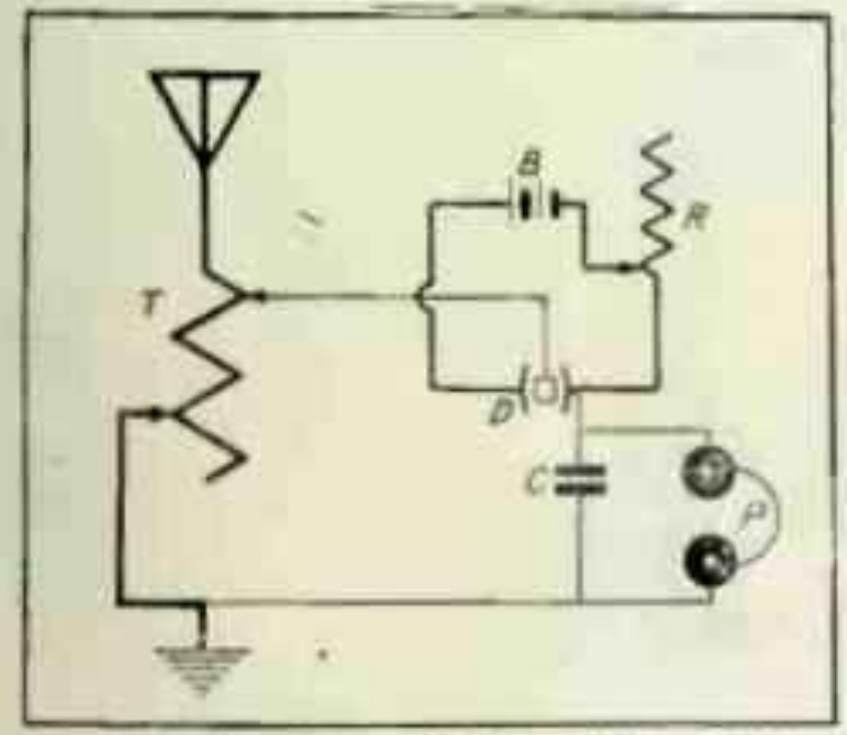
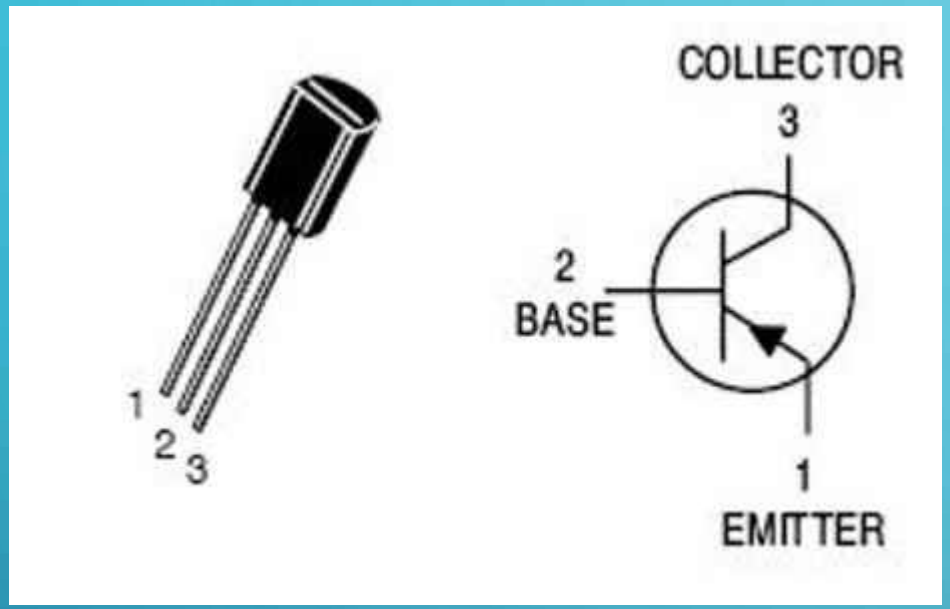


An Effective Way of Connecting Battery Current to a Detector Crystal So as to Intensify the Signal Strength.

WHAT EXACTLY IS A TRANSISTOR

- A transistor is a solid device which can be used to direct and/or modulate (adjust) electron flow in an electronic circuit. It is often referred to as a Semiconductor. A diode, such as a germanium crystal, allows electron flow in only one direction. The vacuum tube equivalent is a rectifier or tube detector. A transistor is a Triode, which contains a third element which modulates or even stops electron flow in a circuit. The vacuum tube equivalent is a triode (3 element) tube. The transistor is much smaller than the smallest vacuum tube, and yet can perform the same functions using much less power.

WHAT EXACTLY IS A TRANSISTOR



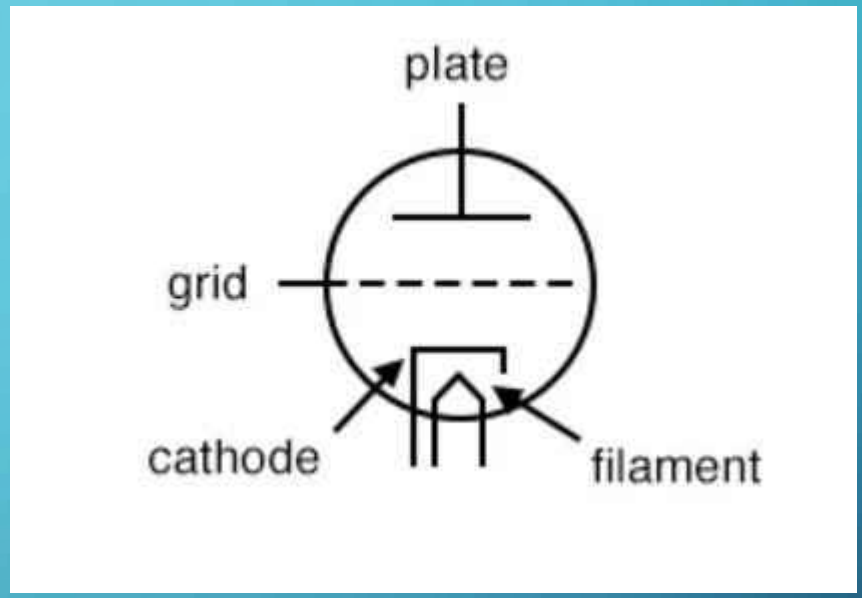
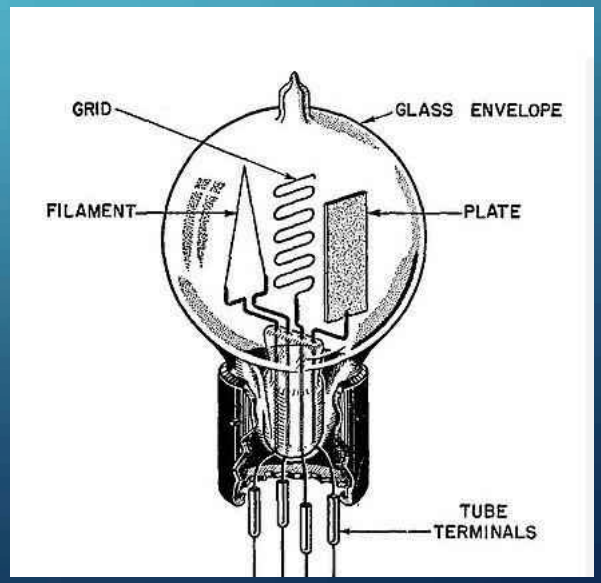


Plate = Collector

Grid = Emitter

Cathode = Base



DISCOVERY OF THE TRANSISTOR

- 1947: THE TRANSISTOR ERA BEGINS

- Researchers John Bardeen and Walter Brattain invented the transistor on December 23, 1947 at the Bell Telephone Laboratories in New Jersey. One month later their supervisor William Shockley created an improved, easier to manufacture version of the transistor. They demonstrated the first transistor on June 30, 1948. The 3 scientists were awarded the 1956 Nobel Prize in Physics for their innovation. Their invention led to everything from pocket transistor radios to modern computers, cell phones, and satellite communication.

DISCOVERY OF THE TRANSISTOR

The First Transistor

THE TRANSISTOR ERA

- 1947-1953: TRANSISTORIZED DEVICES ARE DEVELOPED AND IMPLEMENTED

- Western Electric (the manufacturing arm of Bell Telephone Laboratories) began producing transistors in their Allentown, PA plant in October, 1951. The phone company quickly used them in multiple ways to improve their communications network. By 1953 more than 40 manufacturers had purchased a license from Western Electric to produce transistors. The military was an early customer for transistors and transistorized electronic devices. The first use of transistors for a consumer product was for hearing aids, by companies such as Acousticon, Beltone, Sonotone, and Zenith. The first Raytheon transistors were sold only to hearing aid manufacturers. Raytheon produced their one millionth transistor on June 23, 1954.

THE TRANSISTOR ERA

- 1954: THE FIRST CONSUMER TRANSISTOR RADIO COMES TO MARKET

- The first transistor radio sold to consumers was the Regency TR-1, which was put on sale in November, 1954 for $49.95 ($553 in 2023 dollars). Texas instruments provided the electronics under a WE license, and the IDEA corporation provided the cabinet and assembly. It was a 4 transistor set and had mediocre performance, but 100,000 units were sold within the first year. Raytheon introduced their first portable transistor radio, the 8TP-1, in Feb. 1955. It was a larger set with leatherette covered wooden cabinet priced at $80. By 1956 multiple other U.S. manufacturers introduced their own transistor sets including Admiral, Automatic, Dewald, Emerson, GE, Magnavox, Motorola, Philco, RCA, and Zenith. Sales of transistor sets in the U.S. reached 5,000,000 in 1957, and increased steadily through the 1950s, as better transistors were developed and prices came down. By the end of the 1950s the radio had transitioned from being a piece of furniture to a personal accessory.

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THE TRANSISTOR ERA

Regency TR-1

(Photos Courtesy of Joe Haupt)

THE TRANSISTOR ERA

Joe Haupt

FLICKR.com

THE TRANSISTOR ERA

• 1957: THE JAPANESE RADIO INVASION BEGINS

• Tokyo Tsushin Koryo Ltd. (Sony) purchased a Western Electric license to manufacture transistors, and marketed their first transistor radio, the TR-55, in Japan in 1955. Sony exported 100,000 of its TR-63 transistor radios to the United States in 1957. By 1959 the number of exported Sony sets had reached 6,000,000. The Japanese sets were generally cheaper, better performers, and more stylish than the U.S. made sets. Domestic manufacturers had difficulty competing with the Japanese in the 1960s, and many began to have their sets manufactured in Japan, but branded with their own name. By the 1970s even cheaper sets made in Hong Kong, Taiwan, Singapore, and the Philippines began to flood the market and almost all U.S. manufacturing of transistor radios had ceased.

Sony TR-63

THE TRANSISTOR ERA

- 1957: THE JAPANESE RADIO INVASION BEGINS

Sony TR-55, 1955

Sold in Japan only

WHY COLLECT TRANSISTOR RADIOS?

- Well, They are radios, right?
- Price
- Availability
- Style/Eye Appeal
- Size
- Nostalgia
- Function

WHY COLLECT TRANSISTOR RADIOS?

- **Price**
  - High end sets can sell for hundreds to thousands of dollars, but many sets are readily available for much less.
  - In general, early sets command a higher price than later ones
  - Sets made in the U.S. are desirable, but eye appeal, rarity, and condition are the things that contribute most to the price point.
  - Small chips in the case, dents in the grill, and significant scuffing or other minor case damage reduce the value at least 50 % compared to an undamaged set.
  - Working condition is a minor consideration to most collectors.
  - Even with the Ebay effect, antique dealers and the public tend to undervalue transistor radios.

WHY COLLECT TRANSISTOR RADIOS?

- **Price**

Some examples of $5-$10 radios in my collection

Fleetwood 1962 (J)

Hitachi 1959 (J)

Arvin 1961 (US)

Universal 1963 (J)

Realistic 1960 (J)

WHY COLLECT TRANSISTOR RADIOS?

- **Availability**
  - Transistor radios still turn up at yard sales, flea markets, and antique stores more frequently than tube sets. The tube sets that do turn up in the wild are generally in much poorer condition than the transistor sets
  - Tube radios still predominate at radio meets. Transistor radios seem to be more of an afterthought. The transistor sets that do turn up are generally very reasonably priced except for the very high-end sets.
  - There were over 500 separate brand names of transistor radios produced worldwide. A broad selection from which to choose.

WHY COLLECT TRANSISTOR RADIOS?

- **Style/Eye Appeal**
  - Manufacturers had better and more varied materials from which to choose than during the heyday of tube sets.
  - Style and tastes changed with the post war generation. Chrome, colored plastics, and free form design were "in".
  - Sets like the TR-1 had an innovative design but some manufacturers were still inclined to incorporate features that were reminiscent of the tube era.
  - Transistor collectors value the sets that are most appealing in appearance.

WHY COLLECT TRANSISTOR RADIOS?

- Style/Eye Appeal

These US made sets all have some features reminiscent of tube era sets, And look rather plain

GE 1957 (US)

RCA 1960 (US)

Emerson 555, 1959 (US)

WHY COLLECT TRANSISTOR RADIOS?

- Style/Eye Appeal

Some stylish sets made in Japan

Four Star Deluxe, 1963, (J)

Spica, 1965, (J)

Truetone, 1962, (J)

WHY COLLECT TRANSISTOR RADIOS?

- Style/Eye Appeal

Some stylish sets made in Japan

Zephyr, 1958 (J)

Hi-Delity, 1963 (J)

Sanyo, 1967 (J)

Four Star, 1965 (J)

WHY COLLECT TRANSISTOR RADIOS?

- Style/Eye Appeal

Some stylish sets made in Japan

Raleigh 12 Transistor, 1965, (J)

Crown, 1960, (J)

Crestline, 1960, (J)

Toshiba, 1963, (J)

WHY COLLECT TRANSISTOR RADIOS?

- **Size**
  - Because of their generally smaller size,
  - transistor radios can be displayed more
  - easily in smaller spaces.

Zenith 500 Series

Emerson 888 Series

WHY COLLECT TRANSISTOR RADIOS?

- Size

Having the original box is a plus

WHY COLLECT TRANSISTOR RADIOS?

- **Nostalgia**
- Most of us grew up in the transistor era, and likely have fond memories of listening to the "Top 40" on our transistor radios.
- Even people older than the Baby Boomers have lived longer in the transistor era than the tube era.

WHY COLLECT TRANSISTOR RADIOS?

- **Function**
  - Surprisingly, most vintage transistor radios not only play, but play well.
  - The basic circuit components are the same as tube sets, but use smaller parts and solid-state components.
  - They can be repaired with a little patience (and maybe a magnifier).
  - Ed Lyon did an excellent 3-part article on this subject in Radio Age in 2020
  - Restoration of Transistor Electronics – Part 1, Jan20:1, Part 2, Mar20:7, Part 3, May20:13

WHAT SHOULD YOU LOOK FOR WHEN CHOOSING THE TRANSISTOR SETS FOR YOUR COLLECTION?

Does the set look appealing? Would it look good on your shelf?

Desirability of Brand

Dating the set. Are CD marks present? Where was it made?

Do you want to have a broad collection, or one more narrow such as novelty sets, certain colors, or multiband sets?

Do you intend to use it or is it just “eye candy”.

Is there visible damage to the radio? How bad?

WHAT SHOULD YOU LOOK FOR WHEN CHOOSING THE TRANSISTOR SETS FOR YOUR COLLECTION?

Desirability of Brand and Manufacturing Location

All else being equal, a set made in the U.S. is most desirable. Most made between 1954 and 1961

Japanese made sets are second by a small margin. Most Japanese sets made between1956 and 1966

Sets made in Hong Kong generally date from 1964 to the 1970s

Taiwan, Philippines, China, Singapore, and Thailand 1970s and later

WHAT SHOULD YOU LOOK FOR WHEN CHOOSING THE TRANSISTOR SETS FOR YOUR COLLECTION?

Desirability of Brand

Among US made sets Regency, Emerson, Zenith seem to be the most desirable, but many nice sets were made by Admiral, Arvin, Channel Master, GE, Magnavox, Motorola, Philco, RCA,Sylvania, Westinghouse and others. The most collectible Japanese made sets are Sony, Toshiba, Hitachi, and Panasonic

Emerson 856 Hybrid, 1956

Toshiba and Trancel Look-a-likes, 1959

Emerson 888, 1958

WHAT SHOULD YOU LOOK FOR WHEN CHOOSING THE TRANSISTOR SETS FOR YOUR COLLECTION?

Presence or Absence of CD (Civil Defense) marks on the dial

CONELRAD (CoNtrolof ELectromagnetic RADiations) was a 195I scheme that shut down all broadcast transmitters in a metropolitan area and then substituted for them a set of transmitters on 640 kHz or 1240 kHz that time-shared the broadcast of special emergency information. This was a method of coping with a possible attack by the enemy (USSR). All radios made after 1951 had to have the two Conelrad frequencies identified with Civil Defense markers. But the scheme had its roots in 1942, in an idea published by RCA's Arthur Van Dyck. Closed on August 5, 1963. It was replaced by the Emergency Broadcast System.

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Presence or Absence of CD (Civil Defense) marks on the dial

WHAT SHOULD YOU LOOK FOR WHEN CHOOSING THE TRANSISTOR SETS FOR YOUR COLLECTION?

Presence or Absence of CD (Civil Defense) marks on the dial

GE Sets, 1960-1964

GE P-806 has CD

GE P-807, No CD marks

GE P-809 has CD

WHAT SHOULD YOU LOOK FOR WHEN CHOOSING THE TRANSISTOR SETS FOR YOUR COLLECTION?

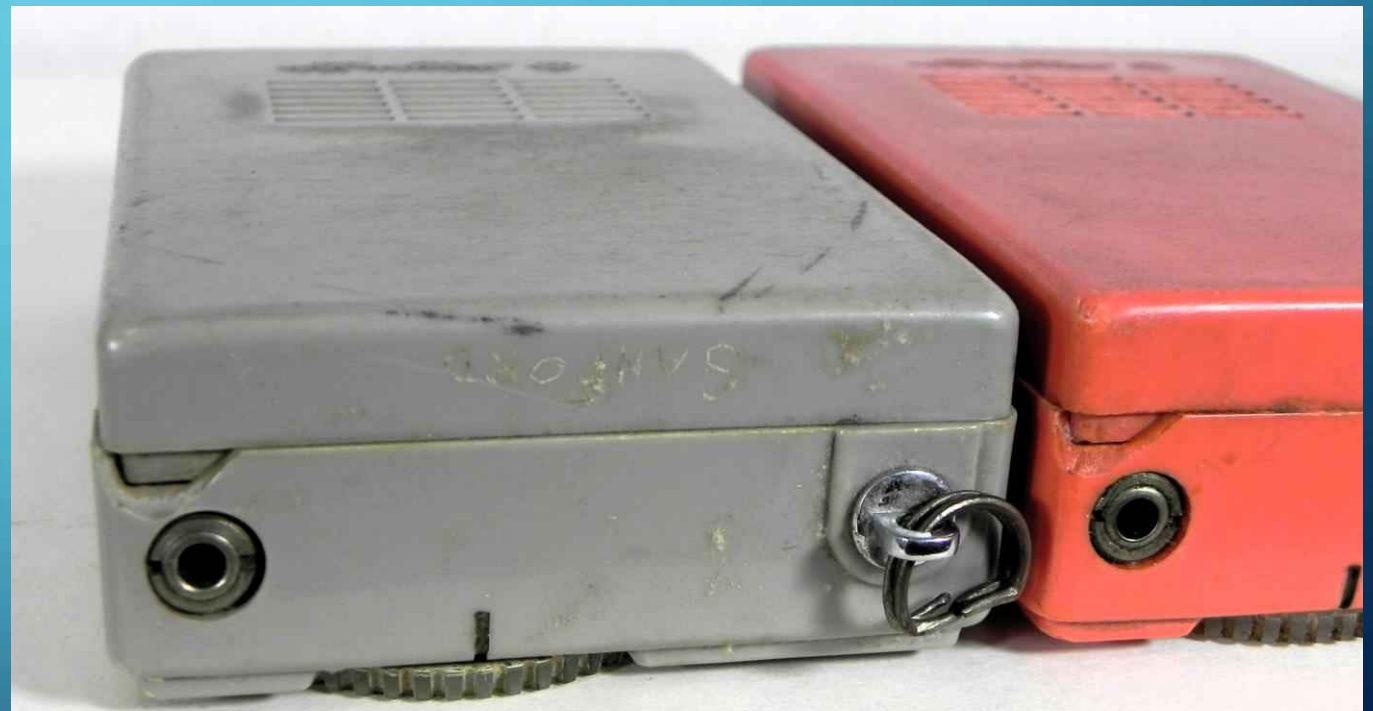
Presence or Absence of CD (Civil Defense) marks on the dial

Zenith Transoceanic Y600Y, 1956, US

WHAT SHOULD YOU LOOK FOR WHEN CHOOSING THE TRANSISTOR SETS FOR YOUR COLLECTION?

Condition

Hitachi TH-621, 1959 (J)



Chips, scuffs, name scratched into finish

WHAT SHOULD YOU LOOK FOR WHEN CHOOSING THE TRANSISTOR SETS FOR YOUR COLLECTION?

Coin slot

WHAT SHOULD YOU LOOK FOR WHEN CHOOSING THE TRANSISTOR SETS FOR YOUR COLLECTION?

Novelty Sets

Toshiba Baseball

WHAT SHOULD YOU LOOK FOR WHEN CHOOSING THE TRANSISTOR SETS FOR YOUR COLLECTION?

Multiband Radios

Lafayette, (J), 1965, AM-VHF

Sony Earth Orbiter, 1973, (J), model CRF-5090

WHY COLLECT TRANSISTOR RADIOS?

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