COMMENT

When the peacock came to roost

CIRCA
BY CONNIE SWAIM

Reading the front page story on collecting televisions brought back a strong memory. It was Christmas morning sometime in the mid-1950s, although the exact year is now lost to me. I remember my dad, a big grin on his face, standing beside a blanket that covered an odd-looking lump. When the blanket was removed, the Swaim family got a look at its first color television set. The set was tiny, but we didn't care, we had finally moved into the land of color.

Most of the people in AntiqueWeek's offices are too young to remember a time before color television. Only two of us in the editorial department are old enough to remember that time. But, if you talk to someone over 40, chances are they will remember a life before color television and what an amazing thing it was when color arrived.

One of our proofreaders remembers her first color TV, which was delivered in 1969. The delivery people had to tune the color and she watched in amazement as people turned from black to purple to shades of other colors before her eyes.

All of the people in our office who are between 40 and 50 seem to have the same color television memories. Watching the *Wonderful World of Disney* and the amazing color of the NBC peacock.

Ah, the *Wonderful World of Disney*. What a show. Every Sunday night, my brothers and I sat on the couch and watched. Even when we could only watch it on a black-and-white set, we were still captivated by the programming. The show also played an important role in our weekly life. We had to go to bed after Disney was over. Whether or not we got to stay up and watch the previews for next week depended on how good we had been and if we had brushed our teeth during the commercials like we were supposed to. Between 1961 and 1973, Disney was on from 7:30 to 8:30 p.m. each Sunday night. I never did think it was fair that my brother, Andy, who was two years younger than I was, got to stay up just as late on Sunday night.

When the color television came, I remember watching in awe as flowers came alive and fireworks burst above Tinkerbell's head with the Disney castle in the background.

Our first color television sat on the counter in our kitchen. A larger console black-and-white TV stayed in the living room. I can't really remember much about that big black-and-white TV, but I have many memories of Mom and I sitting in the kitchen watching that little color television. While I am not sure exactly what year we got it, I do know it was before 1977 as Mom and I were glued to that TV during the broadcast of *Roots*. That show is the memory I most associate with color television.

In doing research for this column, I discovered that the NBC peacock is celebrating its 50th anniversary this year. The website www.bgl.Unet has a wonderful article on the peacock written by Mike Clark. The peacock was the brainchild of John Graham, who joined NBC as an art director in 1953.

"NBC, owned at the time by electronics giant RCA, was charged with spurring public interest in buying the first generation of pricey (around $1,000) color television receivers. As NBC added more color programming to their schedule, it became clear that viewers watching in black and white could no longer be reminded these shows would best be appreciated on a color TV," Clark wrote.

After considering various colorful birds, Graham settled on the peacock as the chance to get the color message to viewers. The original peacock had 11 individual feathers in primary and secondary colors. Six colors were used. The feathers were tapped to resemble a real peacock's feathers. The bird appeared on air for the first time in 1956. An animated version of the peacock followed with announcer Ben Grauer saying, "The following program is brought to you in living color on NBC."

"When NBC became the first full-color network in 1966, the peacock literally signed on the network with *The Today Show* and concluded 16 hours later with *The Tonight Show*," Clark wrote. The peacock fell but disappeared in the 1970s, but it came back in the 1980s. For those who can't afford to collect early television sets, a huge collection of items sporting the peacock symbol may be more affordable. Even a board game with the bird was introduced in the 1960s.

Here are some color firsts, as reported by Kathleen McGinn (Spring is a Nov. 14, 2001, article for *U.S. 1 Newspaper*).

- The first commercial television program on color film was an episode of *Dragnet*, which aired in 1953.
- The Tournament of Roses parade was broadcast in color in 1954.
- President Dwight Eisenhower was the first president to be broadcast in color in 1955.
- The first colorcast cartoons were the *Flintstones* and the *Jetsons* in 1962.

You can hear some interesting stories if you go around asking people their early memories of television. Mom and you used to be able to buy a film to put over your

CONTINUED ON PAGE 4

IMAGES

Name "Keefer" lights of White Pigeon, Mich., refer. The picture was taken around 1908 in Sturgis, Ind. The lady on the left is my grandmother, Mary A. Keefer, and the lady beside her is my mother, Dora Pollock Keefer. She is holding my brother, Donald F. Keefer, born in 1907. On my grandmother's lap is my sister, Marion E. Keefer, born in 1905. My mother was born in 1897. The man holding the cart is my grandfather, Elmer Keefer. The child on the sidewalk I don't know. The buggy look was popular before the Keefer's Kenwood store in Sturgis, Ind. – ready to go shopping.

If you have a vintage photograph you'd like to share with readers of AntiqueWeek, please send it to us – together with a full description of the subject matter – to the address printed in the Contacts box on the facing page. We promise to take care of them and every effort will be made to return photographs after publication.

LETTERS

Bearden record price

To the Editor:

I regularly receive a large number of antique trade publications in my business, but yours is certainly one of the best ones. You frequently have articles and information that I don't find in many or most of the other publications, so I always make sure to peruse your paper when it comes across my desk.

In a recent issue, there was coverage of a Ron Rhodes auction in Pennsylvania. I unfortunately have never attended one of the famous Rhodes auctions, but I know they have some outstanding sales and was also particularly interested to note they had a Romare Bearden painting. Bearden was one of the country's foremost black artists and his works are extremely popular. I noted they attained a very strong price for it. I believe it was in the high $90,000 dollar range. I also noticed the author termed this as a "record price" for a Bearden work, this however is not so. While it is a very strong price, it is not a record price. In 1999 my firm handled a magnificent Romare Bearden piece that we sold for $145,500. At the time, that was a world record for a Romare Bearden and unless someone has corrected that amount since then, it is still the world record.

Keep up the good work with your newspaper, I always enjoy reading it.

Jim Julio
James D. Julia Auctioneers Inc.
Fairfield, Maine

Do the math

To the Editor:

A follow up to my letter re: the good and the bad (and the ugly). About one year ago there were at any given time about 8,000 Fenton items on eBay. There are, as of March 23, 22,000 Fenton items on.

A year ago, I looked at 10 random pages with 50 items per page. The average number of items per page listed as Fenton that were not was three. I did the same thing the other day and found about the same number.

The number 22,000 items works out to about 440 pages. Multiply that by three and you get roughly 1,300 items listed as Fenton that are not. That is 1,300 people throwing their money away due to lack of education. You should just send it directly to eBay or put a match to it and burn it. I, for one, cannot afford to do that.

Thomas K. Smith
Carmel, Ind.

CONTINUED ON PAGE 4

AntiqueWeek

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1 column inch	27.44	22.26	34.94
2 column inches	52.11	39.76	66.18
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6 column inches	144.95	102.43	181.60
1/8 page	188.79	131.25	236.64
1/6 page	236.43	160.50	298.73
1/5 page	270.00	186.13	337.87
1/4 page	351.31	240.10	438.00
3/8 page	512.79	350.51	641.66
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TWO SECTIONS

CENTRAL EDITION

Vol. 39, Issue No. 1919 WWW.ANTIQUEWEEK.COM April 3, 2006

AW: Steve McVey Early Television Museum 5396 Franklin St Hilliard OH 43026

Prewar TVs send strong signal

BY KATHY MCKIMMIE

Q uiz: Why do we call television "the tube"? Because it's short for cathode ray tube, the technology that first gave viewers a realistic picture. That technology came into commercial use in the late 1930s when television became all electronic with no moving parts.

Prior to this, televisions were mechanical and simpler, consisting of a motor turning a spinning disk and a neon lamp. Scotsman John Logie Baird and American Charles Jenkins perfected the mechanical system in the mid-1920s. The projected image was only business-card size, but it was made larger for the viewer with a magnifier. The first commercial mechanical TV in the United States was the Visionette, produced by Western Television Corp., Chicago. It had a six-round magnifier so the screen, although the image was rectangular. The televisions were made from kits and between 250 and 300 were sold, reportedly more than any other mechanical TV. Picture quality for mechanical TVs, however, would never be acceptable.

Electronic television was being developed as mechanical TV was launching, but a workable camera tube was needed in addition to the cathode ray tube. Both Philo Farnsworth, working in his lab in San Francisco, and engineer Vladimir Zworykin, a Russian immigrant working for RCA, claimed the invention, but ultimately the U.S. Patent Office gave the nod to Farnsworth in 1934.

Several "firsts" are debated by TV buffs, so it often comes down to the first "commercial" or the first "mass-produced" model. Realizing that some may disagree, it's generally accepted that the 1939 DuMont Model 180 with a 14in picture tube was the first commercially available electronic TV set in the United States. The 1939 RCA Victor TRK-12, the 12 standing for 12in, followed in short order. RCA's brochure for the set, launched at the 1939 New York World's Fair, said the "receiver will enable an average family to see a program simultaneously," at a cost for electricity of about one cent per hour. Regular programming by RCA's NBC subsidiary began at this time.

There are at least three collector types for vintage TVs: the history buffs who like the earliest examples to preserve for posterity; the nostalgia buffs who collect and restore the kinds they remember as kids; and those who just love the whole genre and want a little of everything.

Qualifying in all three categories is Steve McVey. When he sold his cable TV business and retired in 1999, he wanted something to do with his time. He created a not-for-profit organization, the Early Television Foundation and Museum in Hilliard, Ohio, outside Columbus, which houses his own collection and some dozen more. More than 150 televisions from mechanicals through 1950s color sets are on display, many in working order. The foundation will host its annual convention at the museum and the nearby Mokey Center on April 28-30.

"Any prewar set is extremely rare," said McVey. His website includes a

CONTINUED ON PAGE 48

Above: Known by collectors as the "podhate" or "roundie," the 1941-1951 Zenith model H24M in mahogany console is a popular design for mid-century decorated homes and sells for about $300. Square-shaped sets from the period go begging. Photo courtesy Tom Gorevan.

This Week...

NATIONAL

Life sentence in murder trial

ELIZABETHTOWN, Tenn. – A criminal case that stunned not only railroad memorabilia collectors but also the antiques community as a whole has finally come to a close with the March 13 conviction of Charles E. Shifflett Jr., of North Anville, Pa. National p 1

Bottle mania in February sale

GREENVILLE, Pa. – Color is still king, but condition isn't too far off the throne in today's bottle market. "Condition has become more and more important in recent years," said Jim Hagenbuch, owner of Glass Works Auctions. National p 7

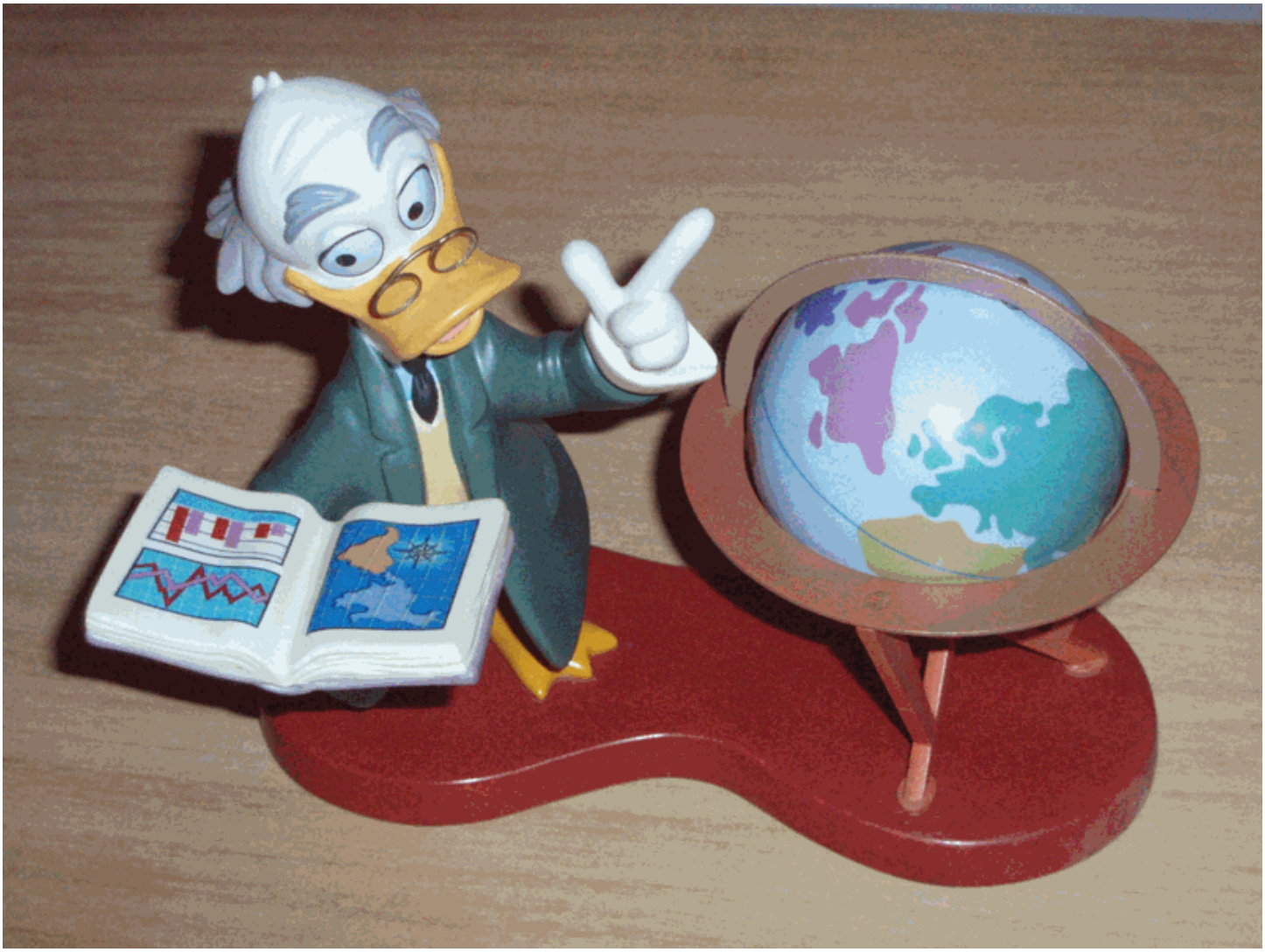
REGIONAL

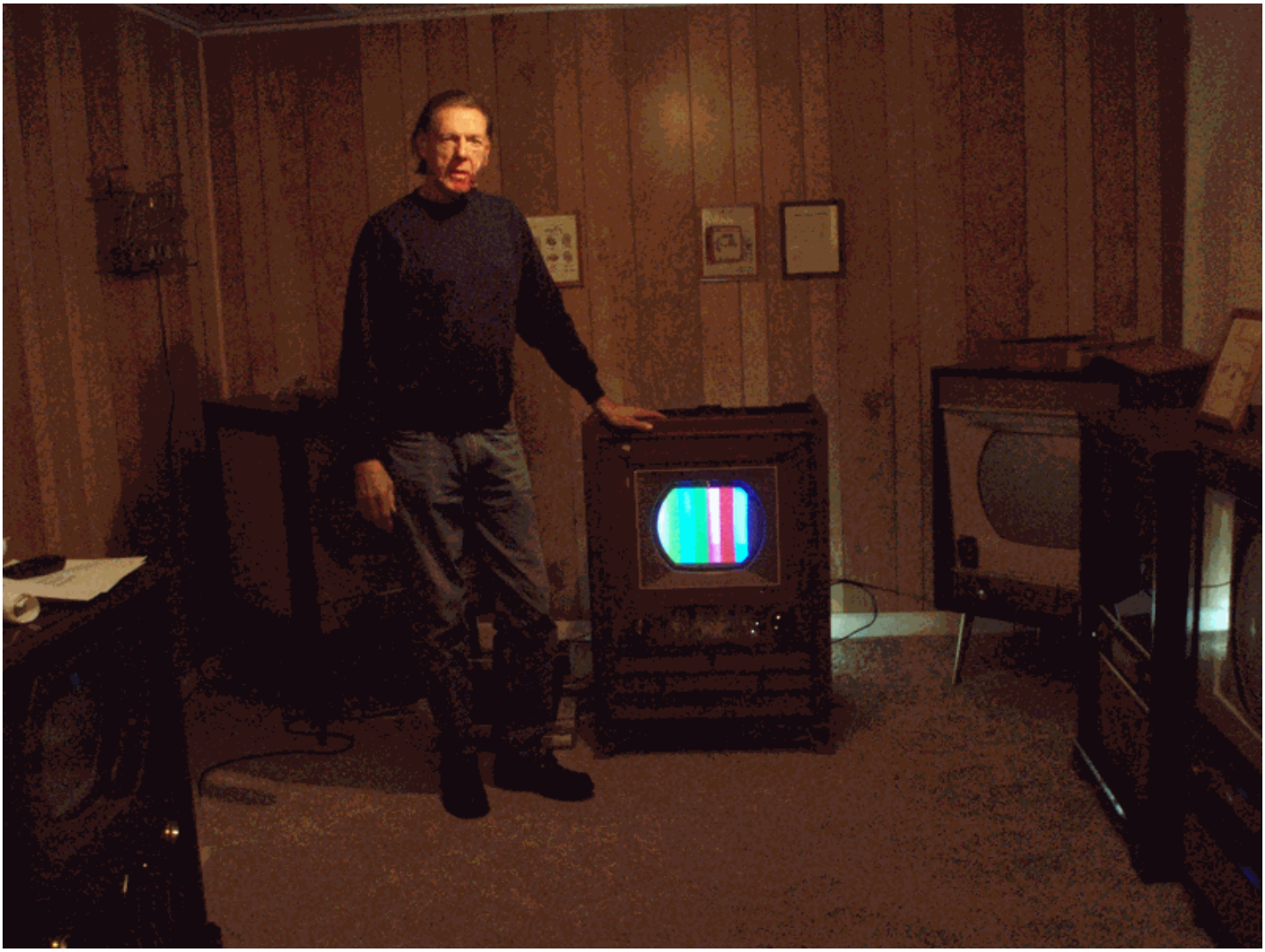
Pictures from the Past

In 1901, *Good Housekeeping* offered $25 to the reader who found the "Model Kitchen." The winning effort was much improved over the pioneer housewife's fireplace – partly because the fireplace had been exchanged for a stove. p 4

Auction Roundup

Auction results from various locations throughout the central states. p 7






THIS IS THE LOOK OF
Compatible Colors to wear by ARROW
COMPATIBLE COLOR
Compatible Colors to see by RCA VICTOR

Thermoplastic Recording

New laboratory technique transforms TV picture signals into wrinkle patterns on charged transparent movie-like film — produces electrical signals and optical images.

MINUTE wrinkle patterns applied electrostatically on transparent movie-like film form the basis of a new laboratory technique called "thermoplastic recording." This unique process combines special electronic recording methods to create an image that can be projected with a slightly modified movie-film projector. The system, demonstrated recently for the press by General Electric laboratories, was able to record video signals from a TV set on special movie-like film. The film was played back on a small motion-picture projector modified with a special optical system. The quality of the reproduced images was fairly good although they were marred by surface imperfections and scratches on the film. Information on signal-to-noise capabilities was not available.

It was emphasized that this is a laboratory development and commercial products using the technique are still in the future. Experimental recorders designed for military applications are expected by year's end.

Dr. William E. Glenn, the inventor of the system, said that recording bandwidths of about 50 mc. are possible with his system at film speeds of only 5 ips. This is about 10 times the bandwidth available with present video tape. No chemical processing is required, and the film can be erased and reused many times. The inventor said further that the new system should be inherently far simpler and less costly than other methods used to record TV pictures. Colored images may also be produced by means of the technique.

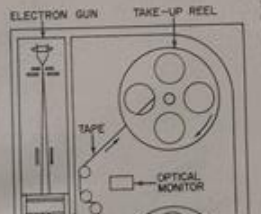
The recording process uses a special thermoplastic tape or film that has a base similar to standard motion-picture film. The surface of the thermoplastic is charged by a scanning electron beam in a pattern corresponding to the picture to be recorded. As the film moves through the recorder, a current induced in the transparent conducting coating by an r.f. heater heats the film and melts the plastic. The charges are attracted to the conducting coating and depress the surface of the film. After the surface has been deformed by the charges, the film is allowed to cool; this freezes the ripple pattern in place. Erasing is accomplished simply by reheating the film. —30—

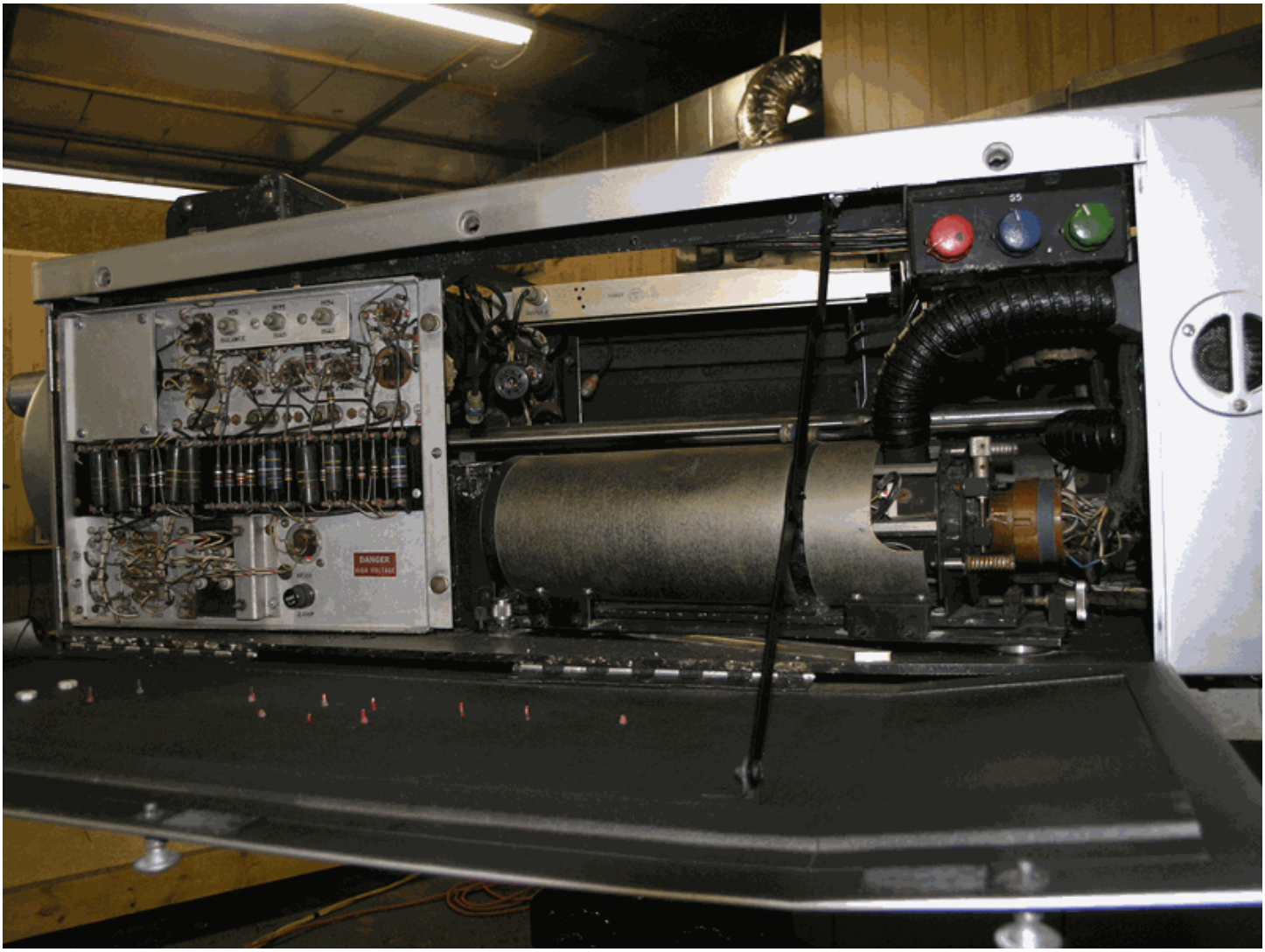
Top photo shows system inventor, Dr. Wm. E. Glenn, recording signal from TV set by means of a series of minute wrinkle patterns on plastic-coated transparent film. In the bottom photo, the film is projected through an adapted movie-film projector.

Each frame of thermoplastic record is less than a quarter-inch wide and fits easily within an ordinary paper clip.

(Right) Front-panel drawing of the new recorder. This assembly operates in a vacuum behind transparent front cover.

(Below) The tape or film moves past a scanning beam that lays down a charge pattern. Wrinkles following this pattern are produced when the plastic layer is melted, then allowed to solidify.

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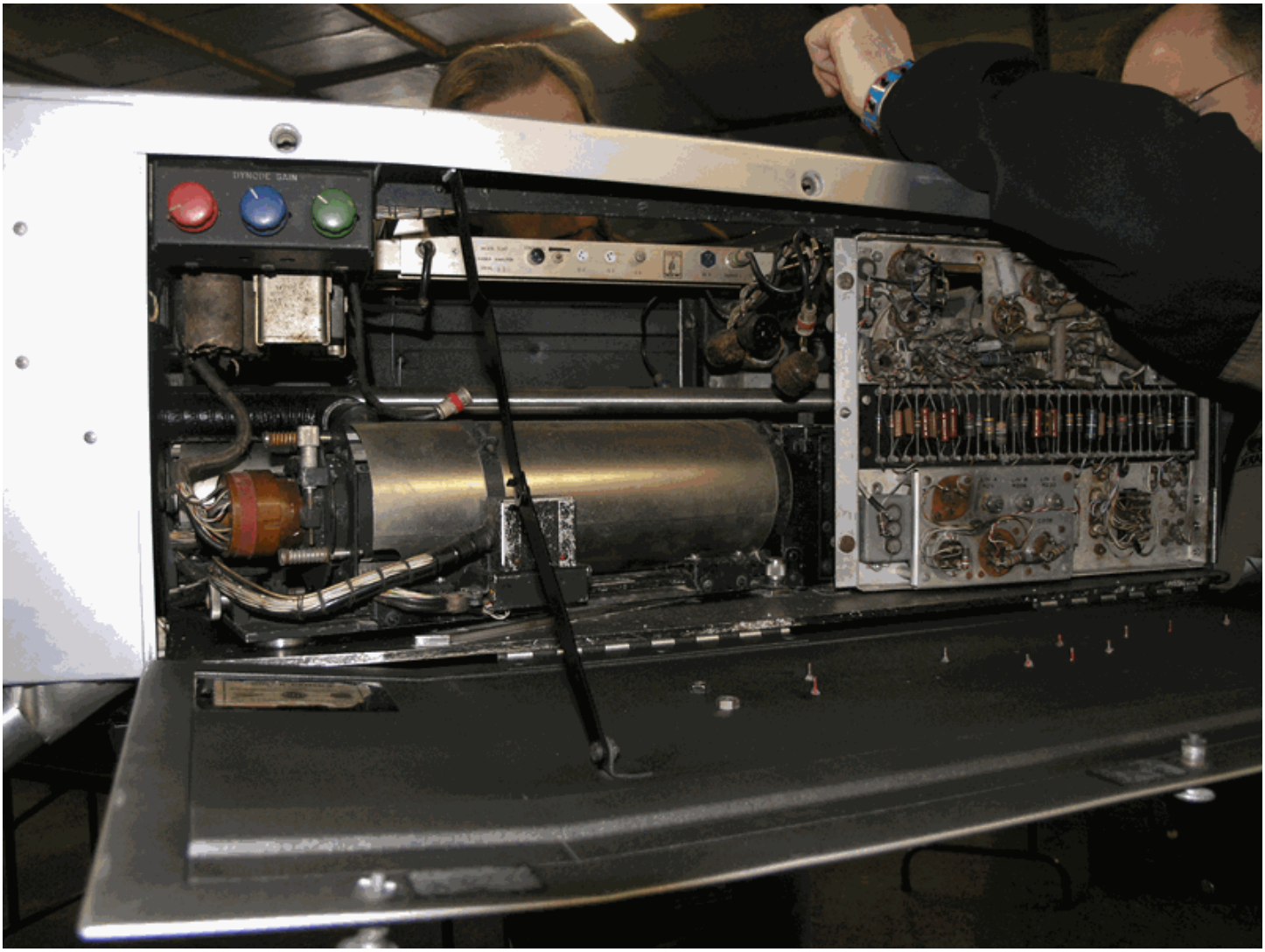
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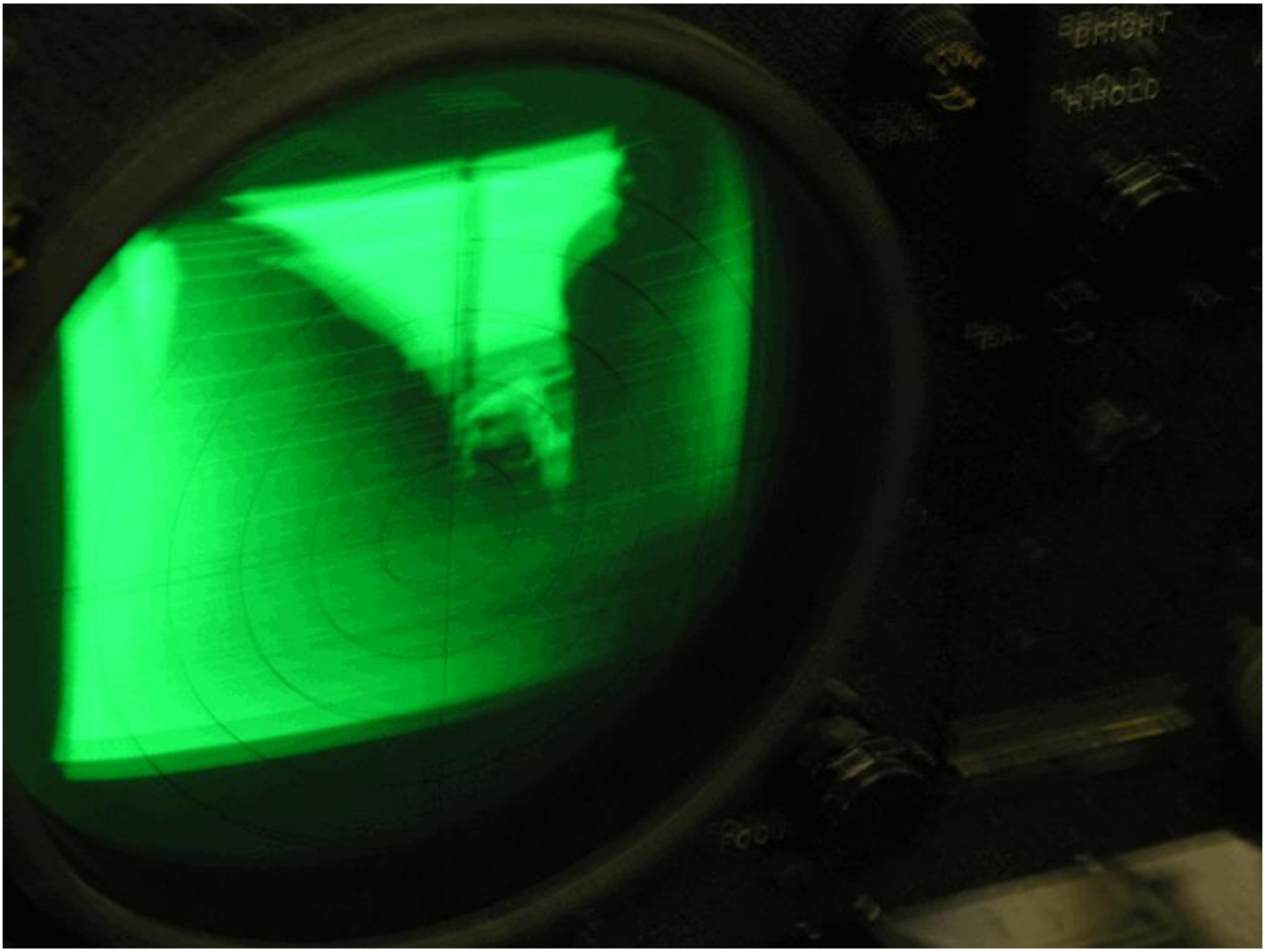
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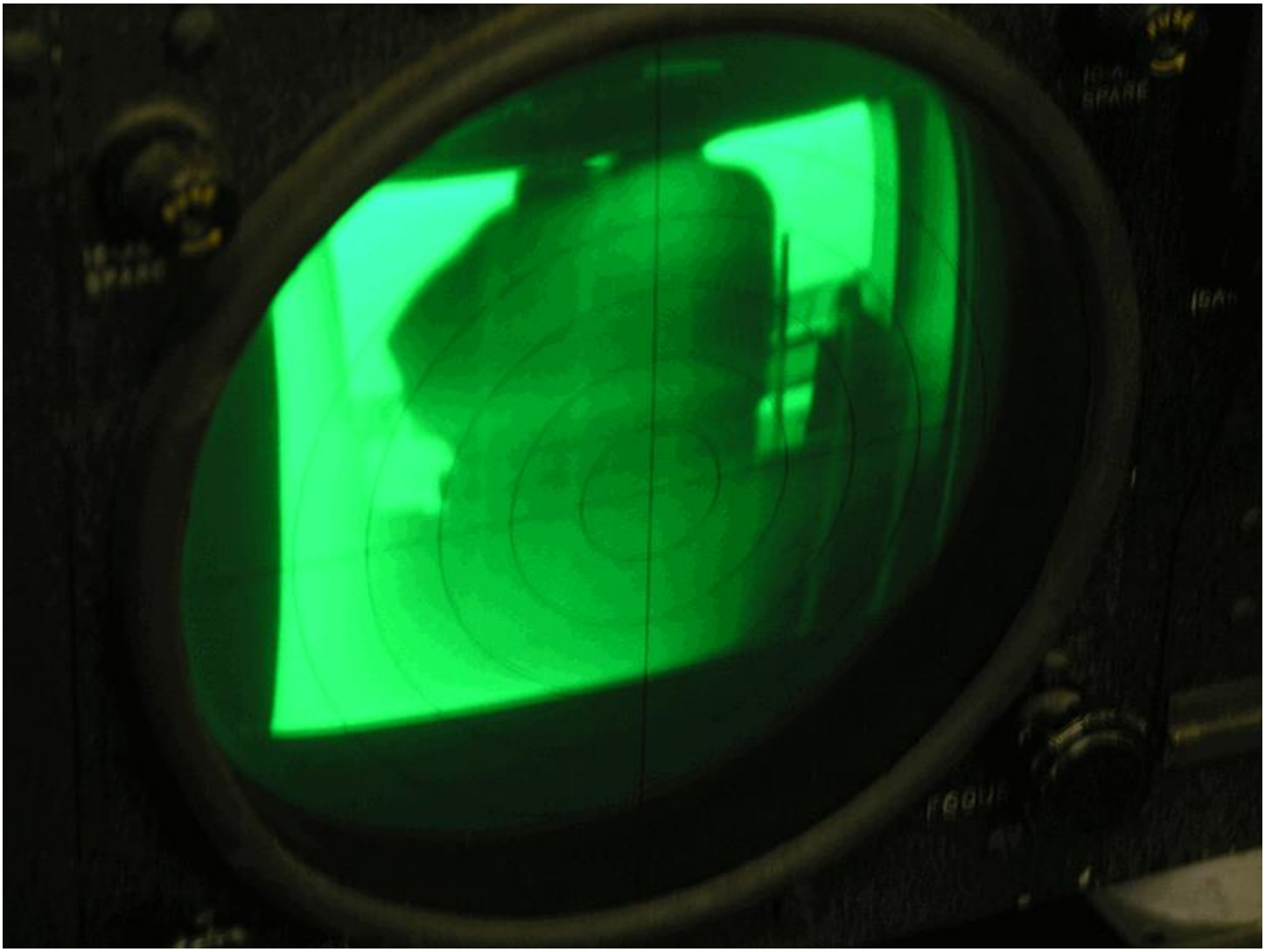
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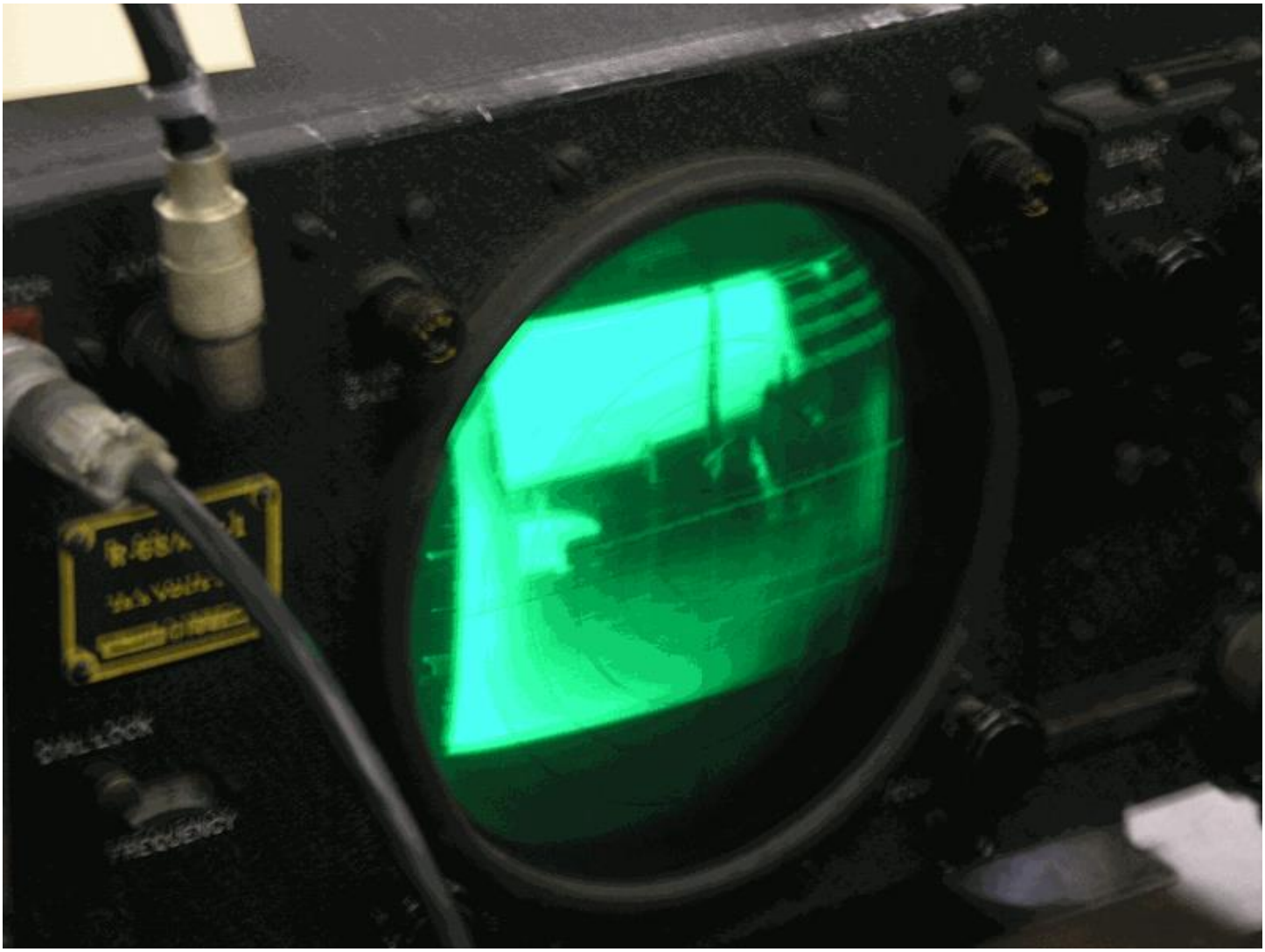
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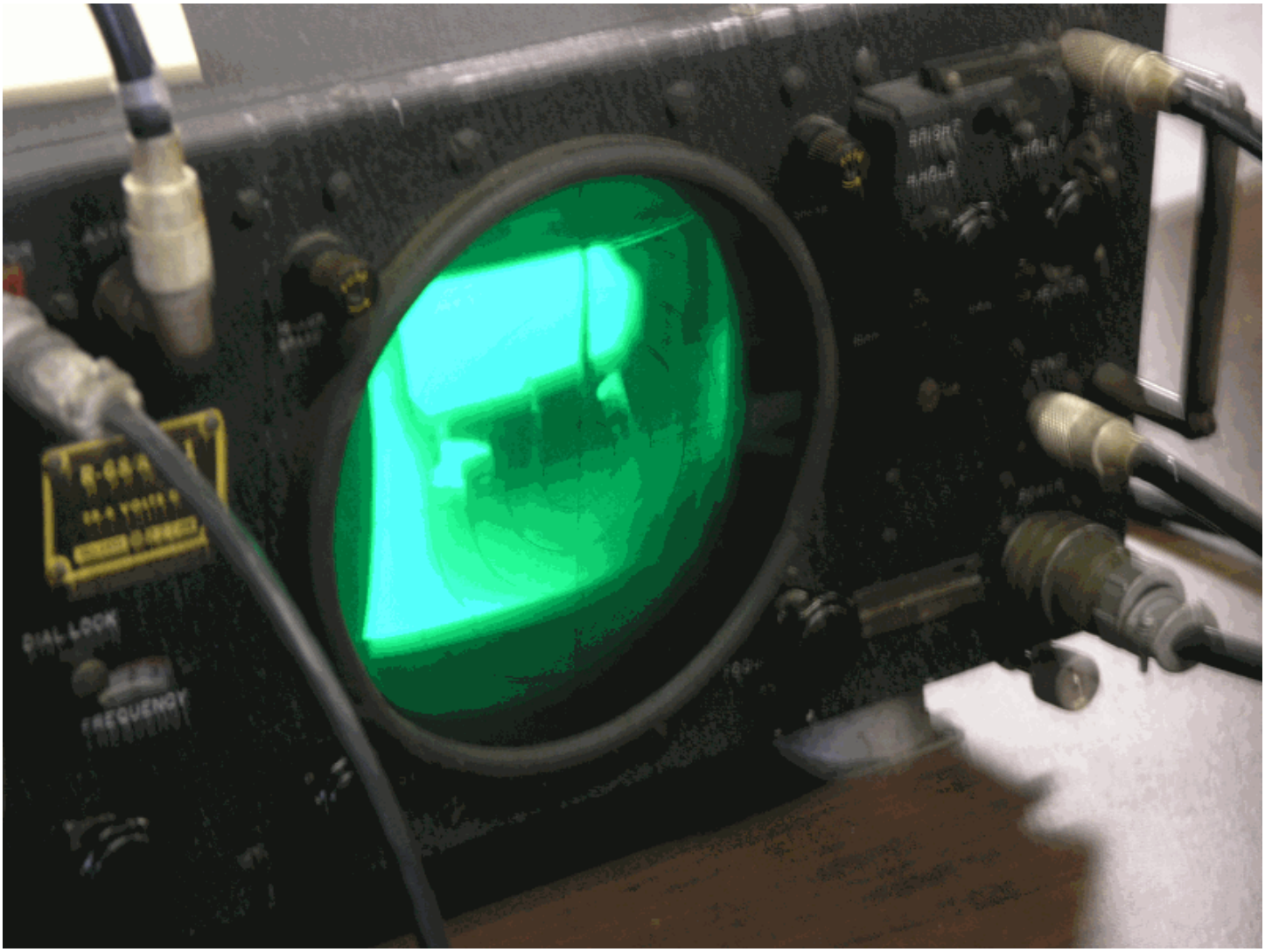
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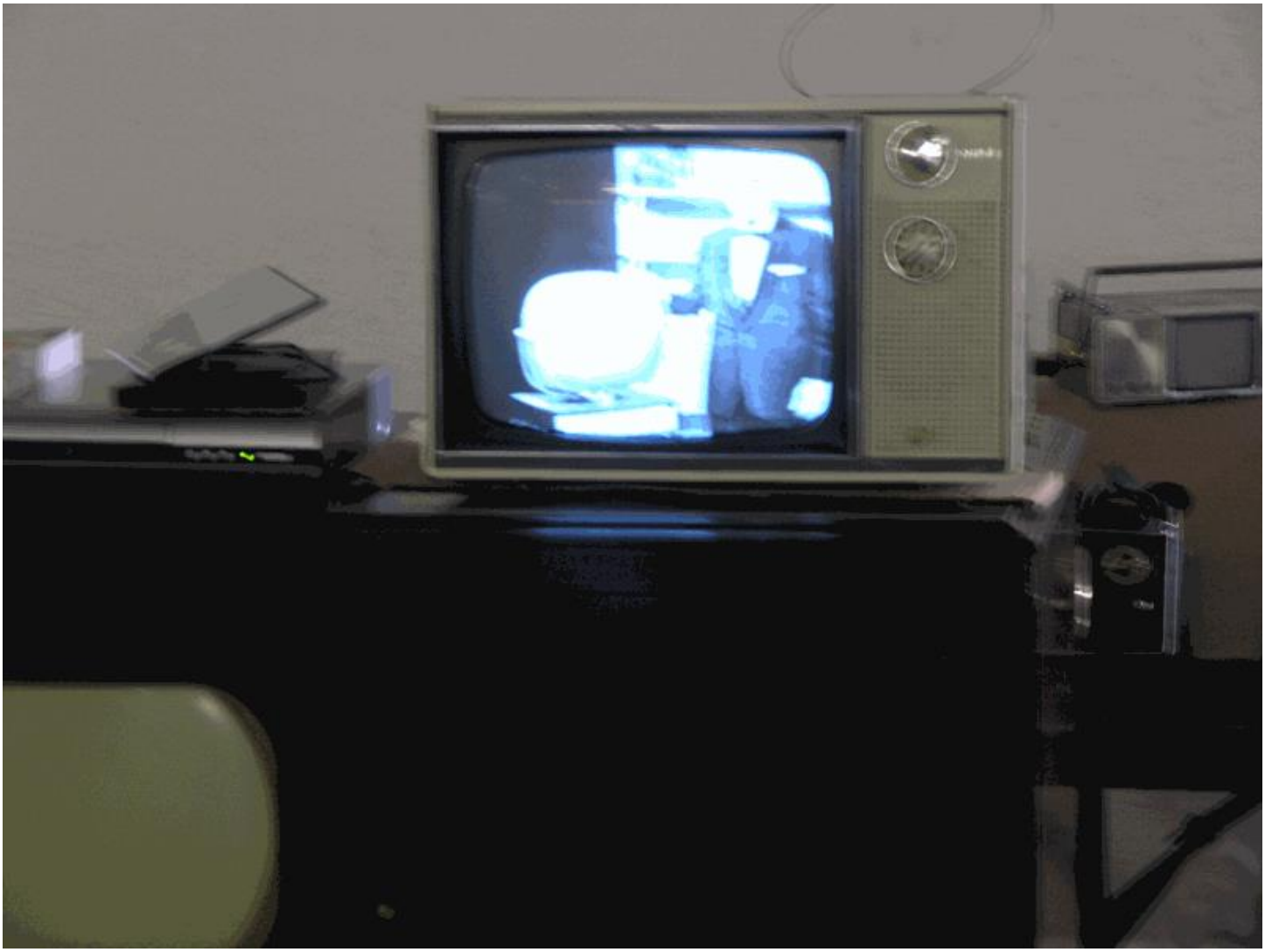


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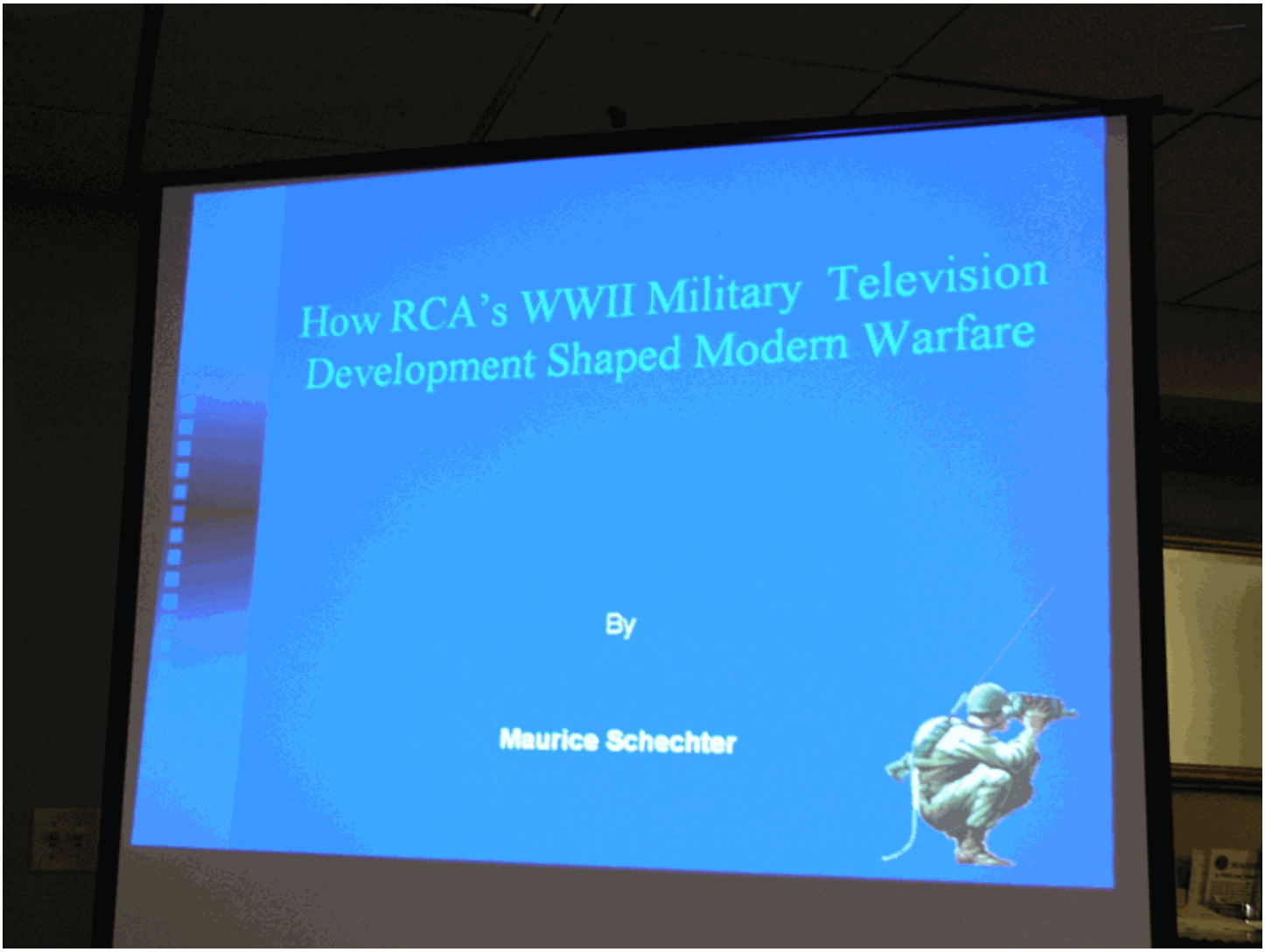
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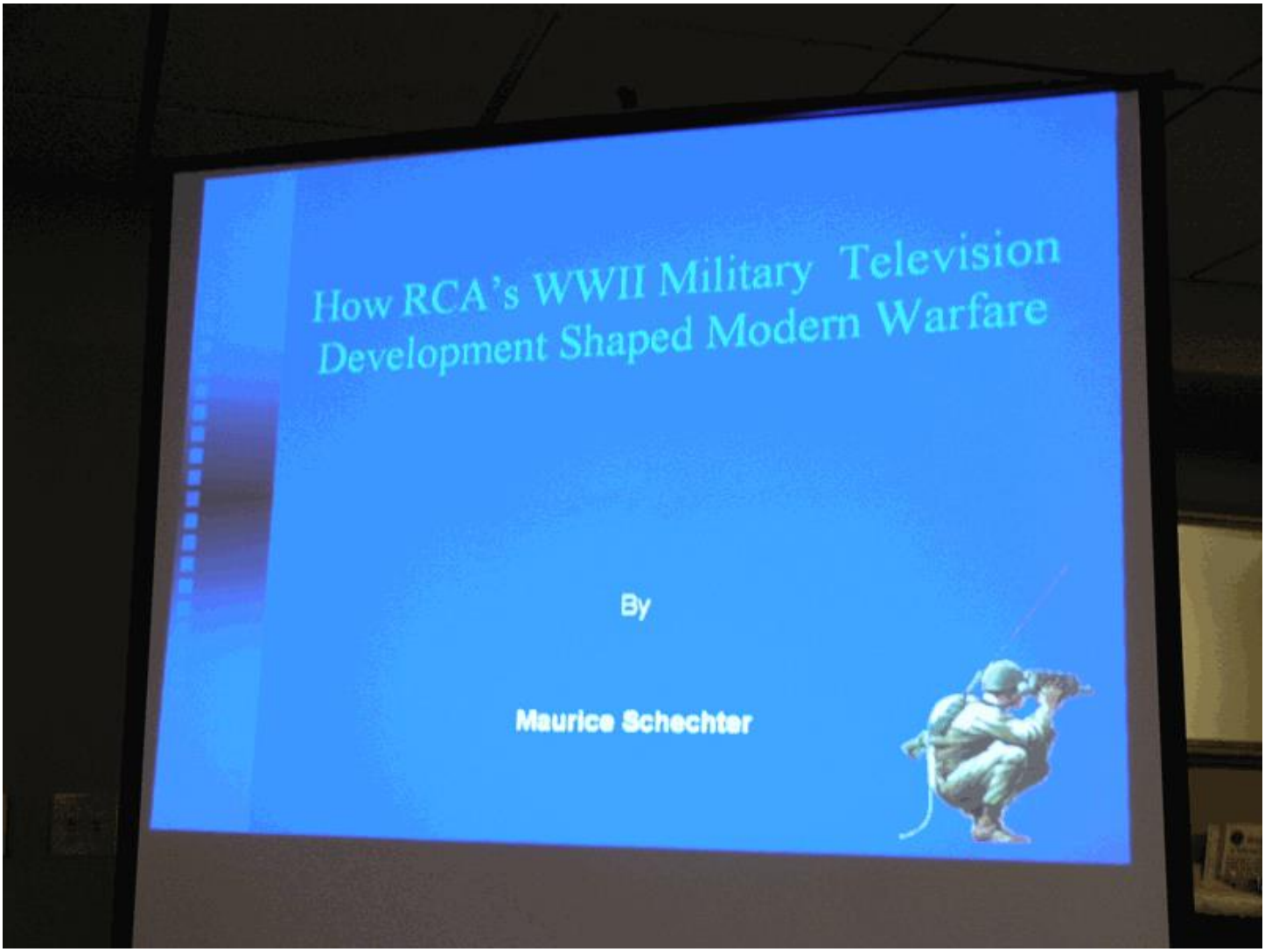
By
Maurice Schechter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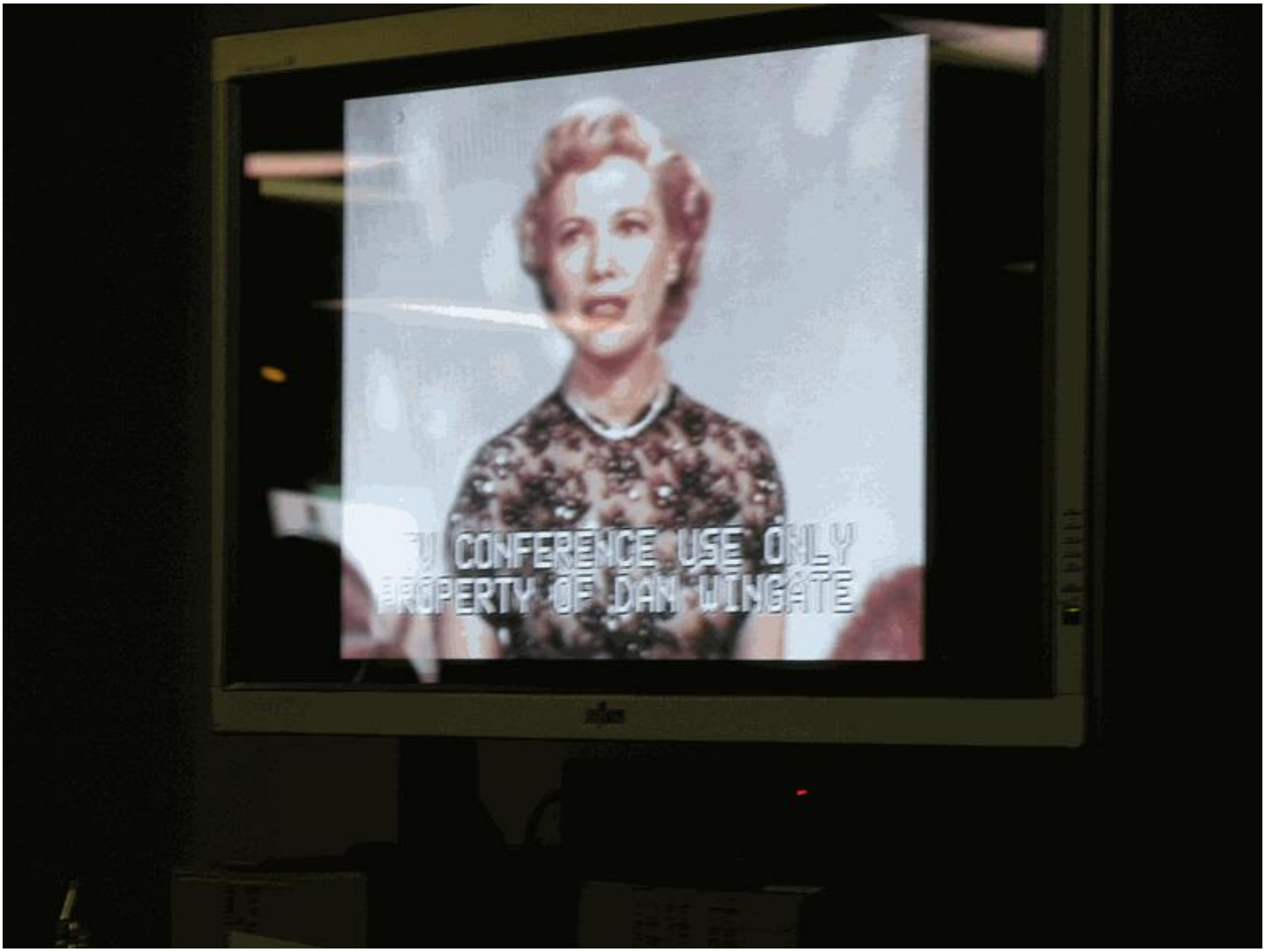
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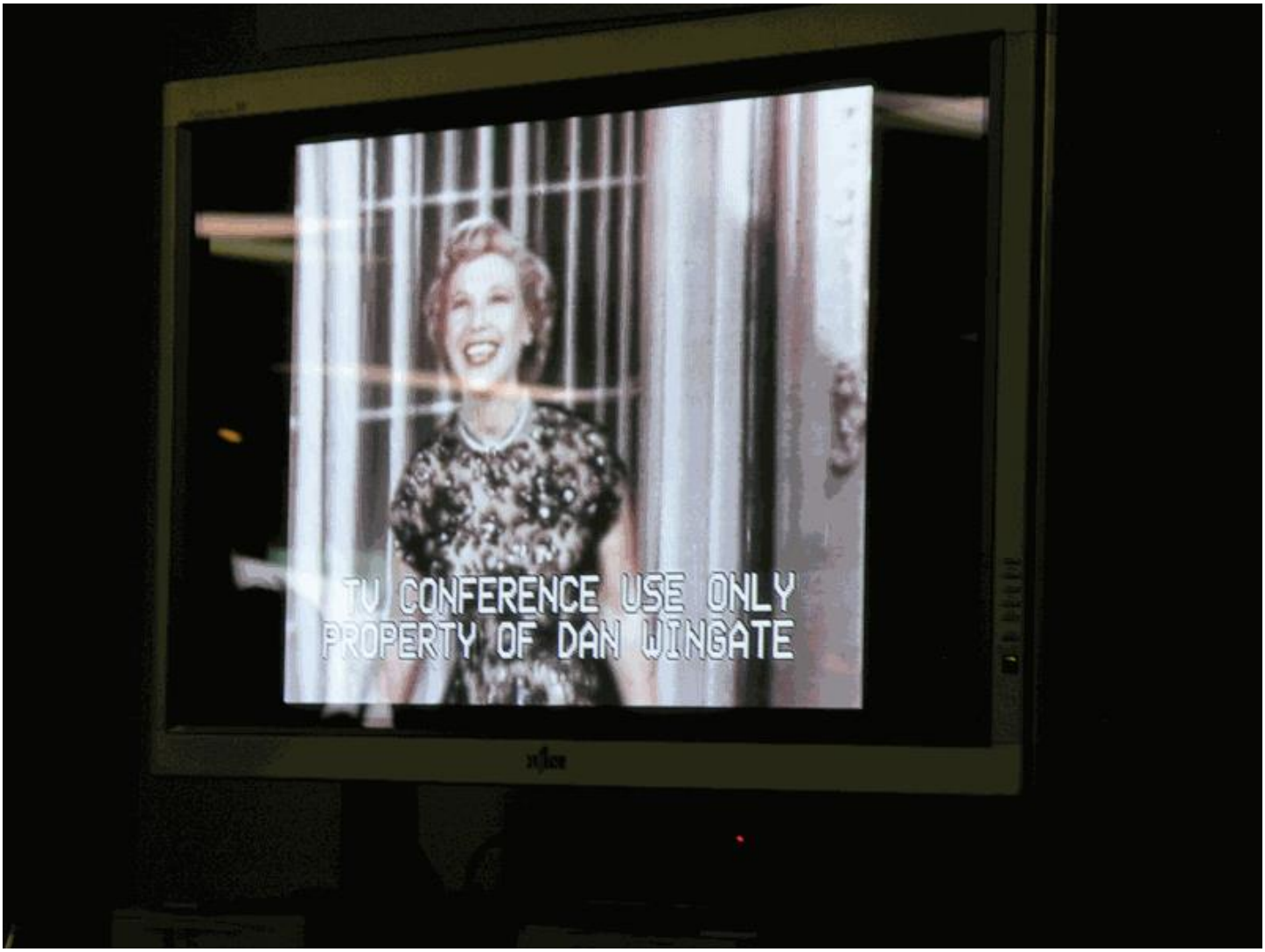
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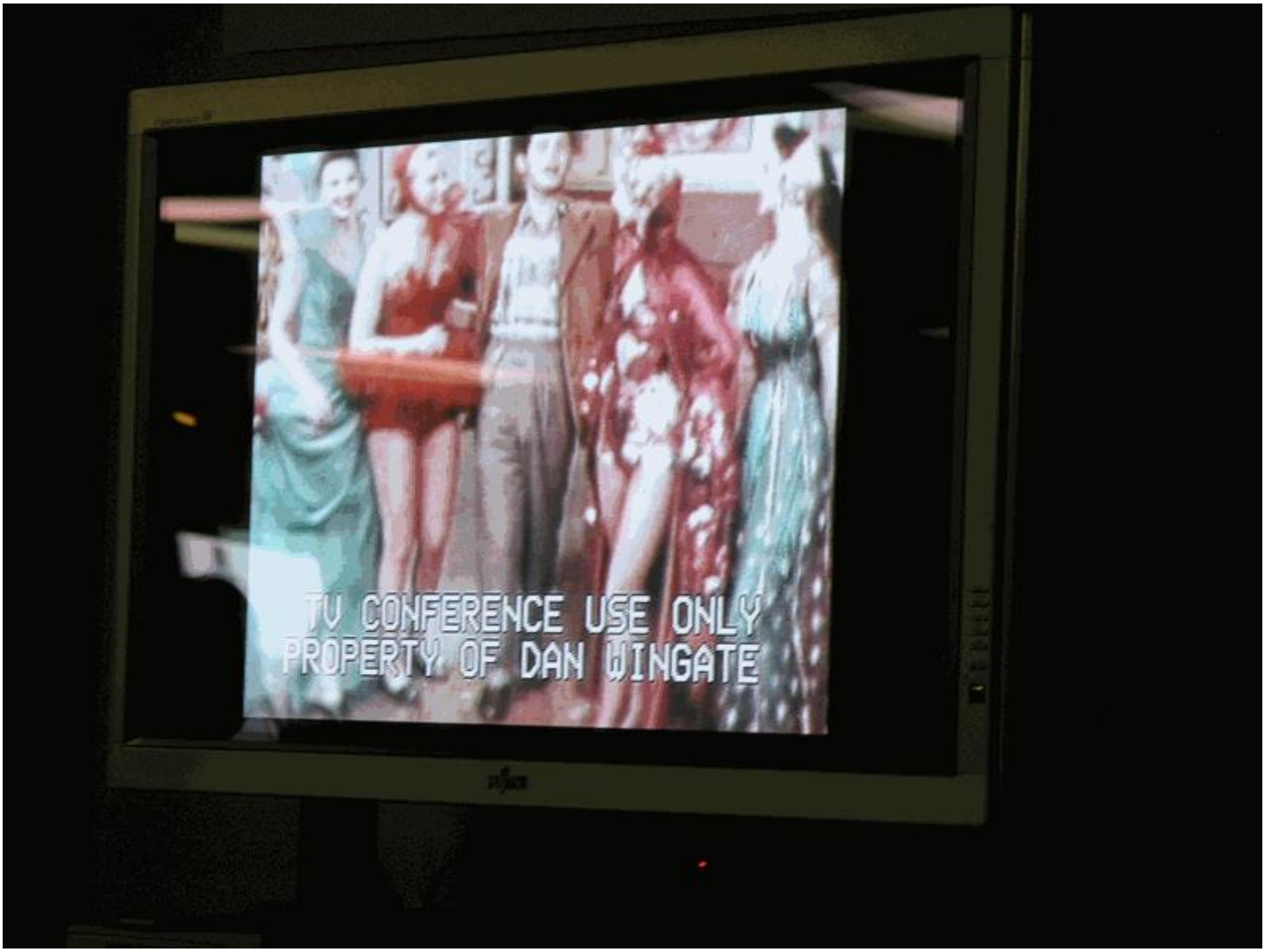
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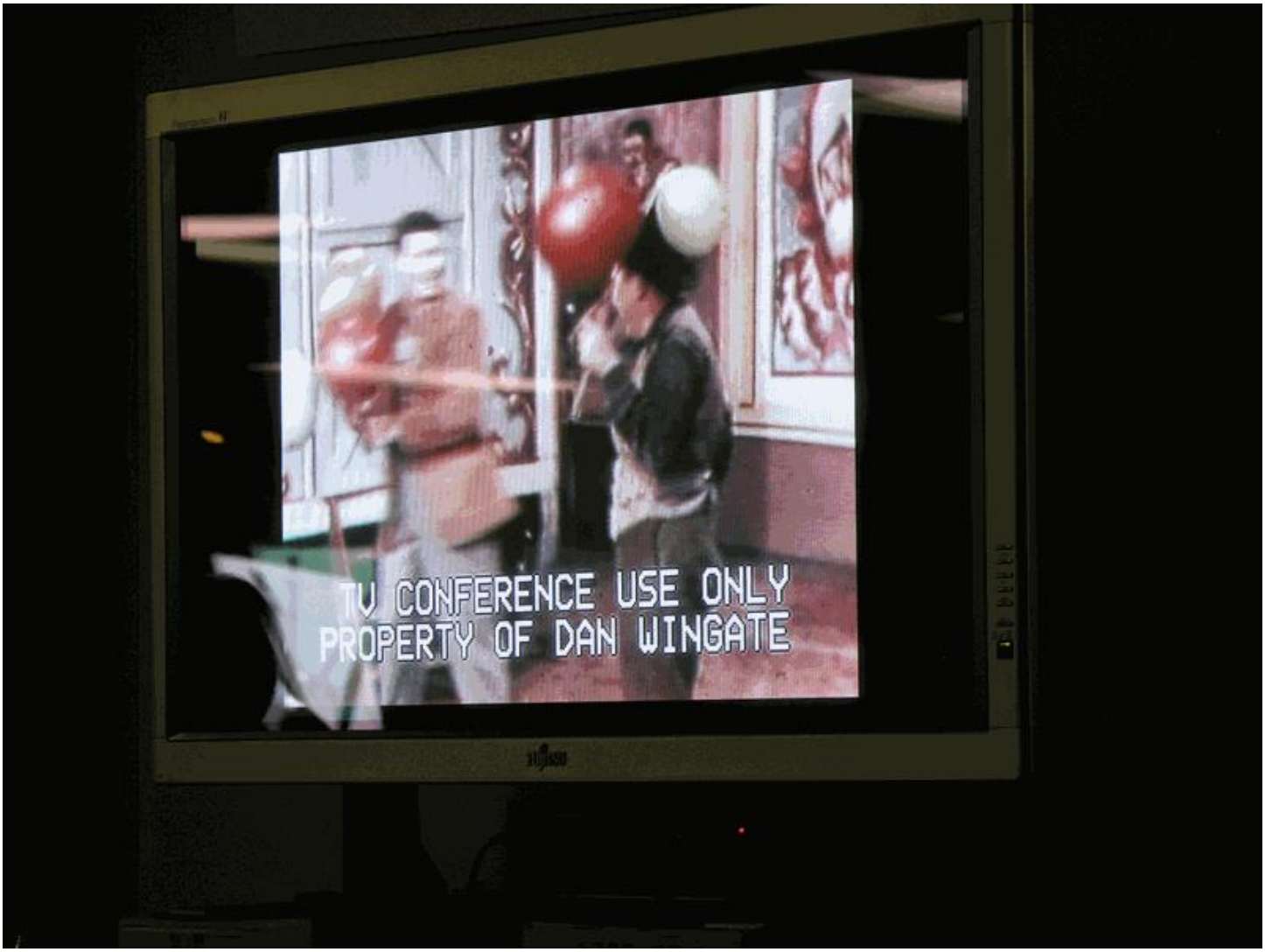
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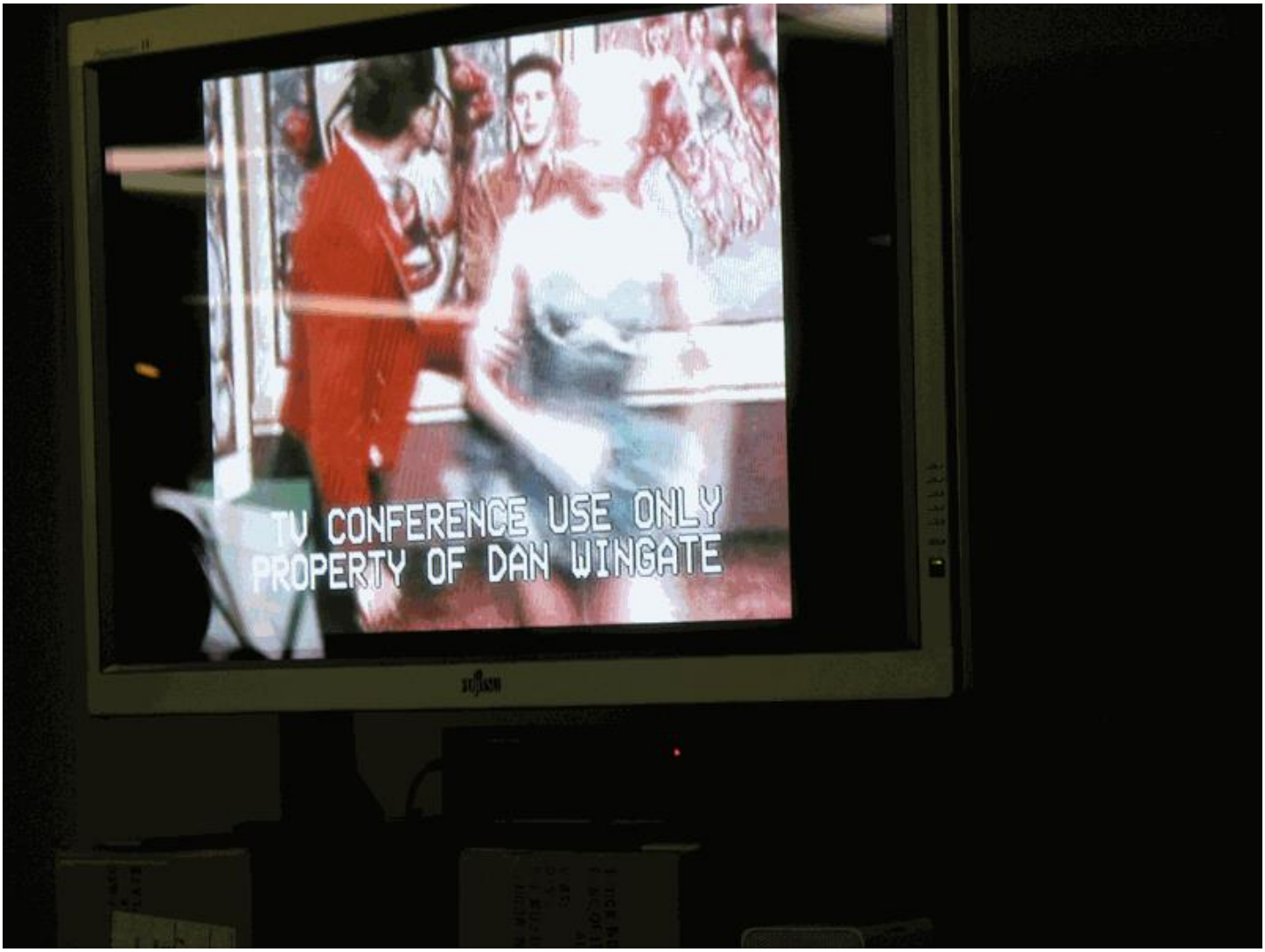
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Walt himself hosts the premiere of "The Wonderful World of Color"—animated cartoons, animal stories, fiction classics, adventure, variety shows —beginning with the zany adventures of Donald Duck's uncle, Professor Ludwig Von Drake, in "Mathmagic Land." Don't miss it!

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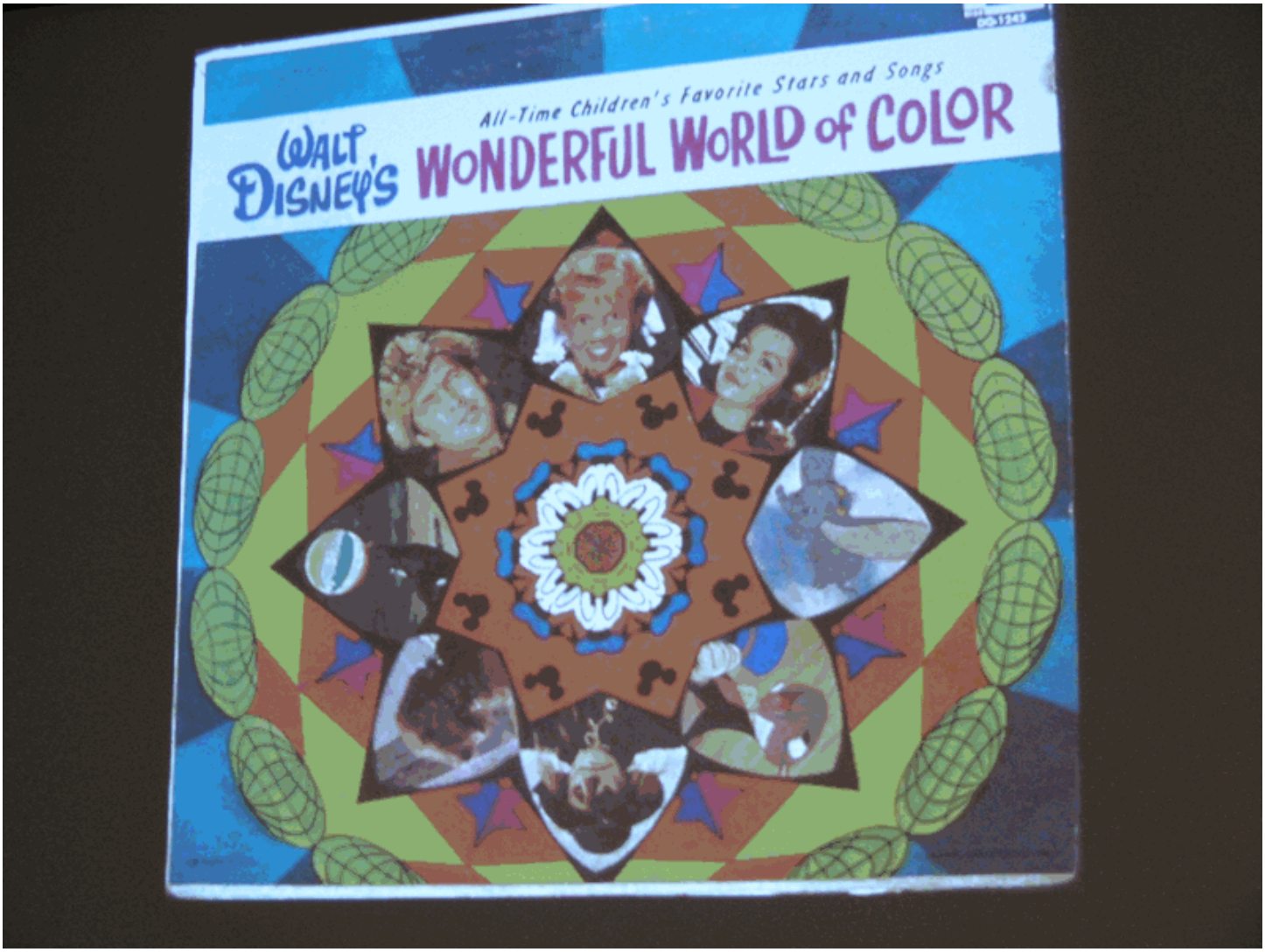
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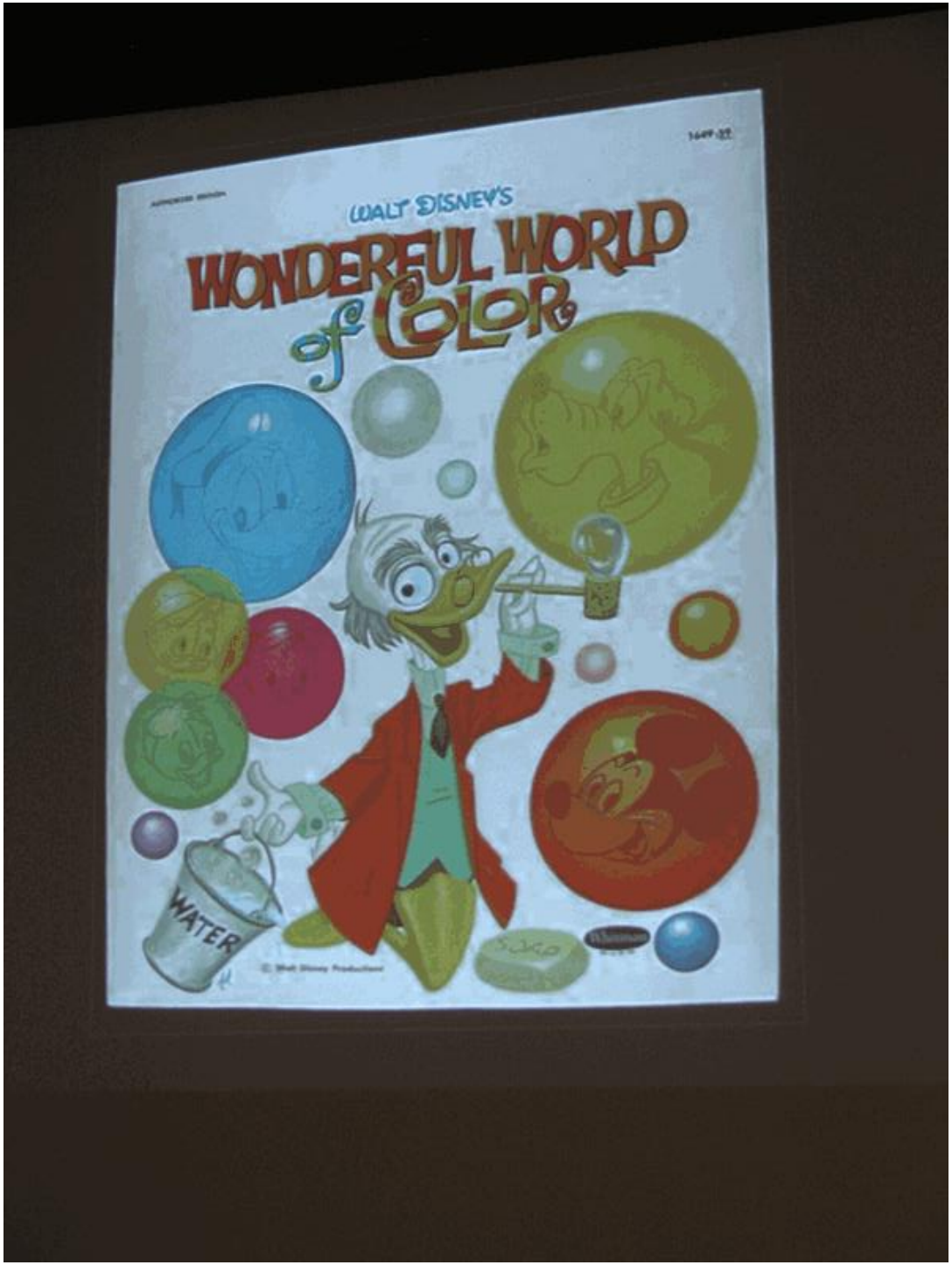
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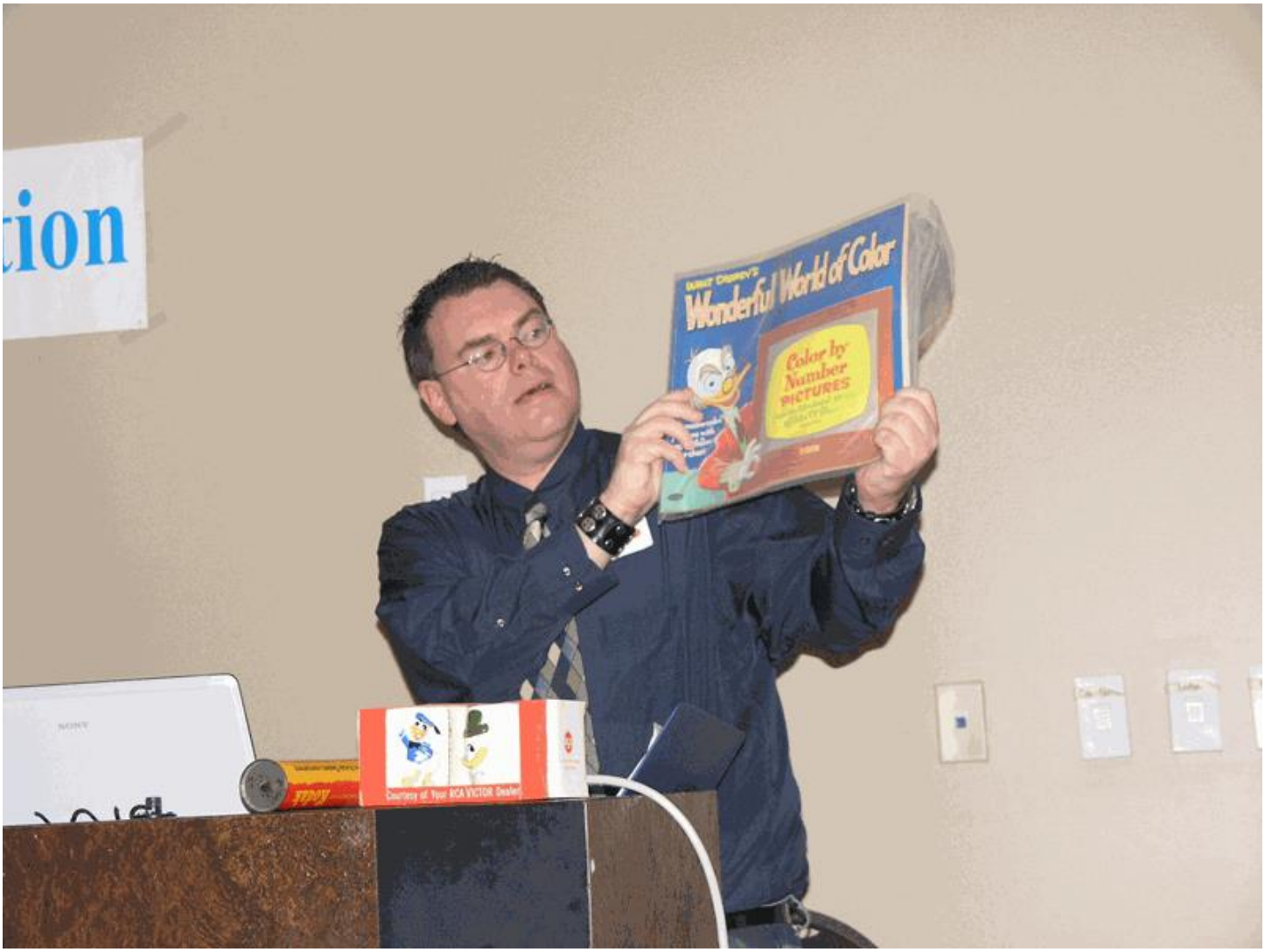
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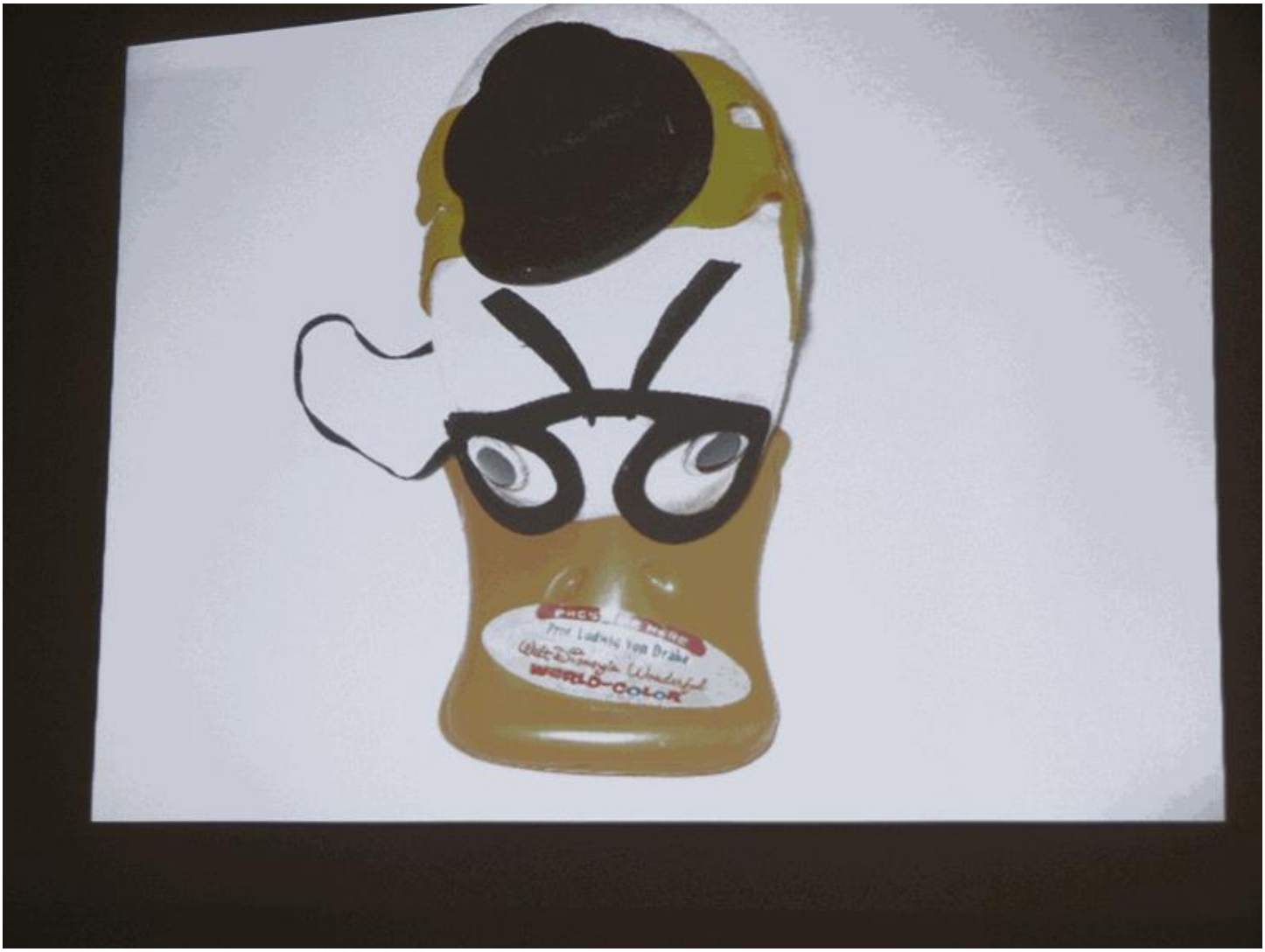
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98¢
PROFESSOR LUDWIG VON DRAKE
SAILS
HOPS
AND RETURNS!

Walt Disney's

THE HUSTLEGRAM

NEW! WALT DISNEY'S LUDWIG VON DRAKE TOY MACHINE

CASH IN ON ONE OF THE BIGGEST PROMOTIONS IN HISTORY OF TELEVISION

- Introducing Professor LUDWIG VON DRAKE
- First cartoon character on $12,000,000 TV series
- First cartoon character in color on full hour show
- Mickey, Donald, & other Disney characters seen for first time on TV in color

WALT DISNEY'S "WONDERFUL WORLD OF COLOR"

starts nation-wide September 24

- One hour shows weekly
- Promoted NOW through 1962
- $1,000,000 network and local Spot TV campaign
- Sponsored by RCA Victor & Eastman Kodak
- $5,000,000 advertising campaign by RCA Victor will use "Wonderful World Of Color" as keystone in campaign—using network and local TV, radio, national magazines, billboards, newspapers and store displays.

EXCITING – CREATIVE – FUN (DL 200) Terrific new toy—complete with Toy Machine, 4 pairs of molds, and 3 different colors of Dough in poly sacks. Dough can be used over and over if replaced in sack. Toys can be painted and displayed. Packed 1 dozen Weight 29 lbs. Retail $2.00

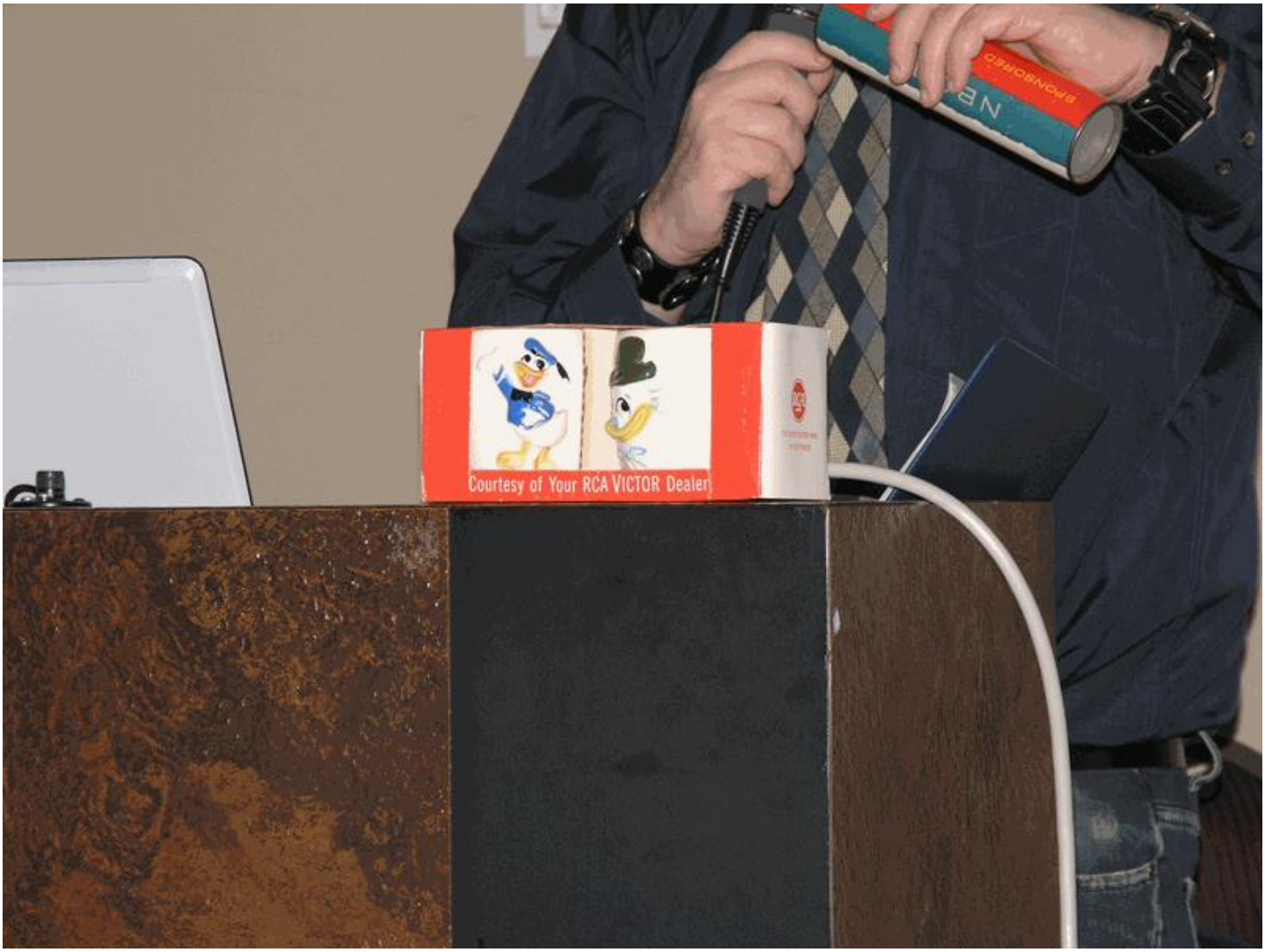
WALT DISNEY'S WONDERFUL WORLD OF COLOR-DOUGH

COLOR DOUGH (DC 100) 5 packages of colorful modeling Dough in poly bags—toy molds—rolling pin. Packed 1 dozen Weight 25 lbs. Retail 98c

COLOR DOUGH (DC 60) 3 packages of colorful modeling Dough in poly bags—toy molds—rolling pin. Packed 2 dozen. Weight 25 lbs. Retail 59c

THE ABBORENE MANUFACTURING COMPANY • 1609 NORTH 14th ST. • ST. LOUIS 6, MISSOURI


Sherwin-Williams
Moore
PAINTS
.. A WONDERFUL
WORLD OF COLOR

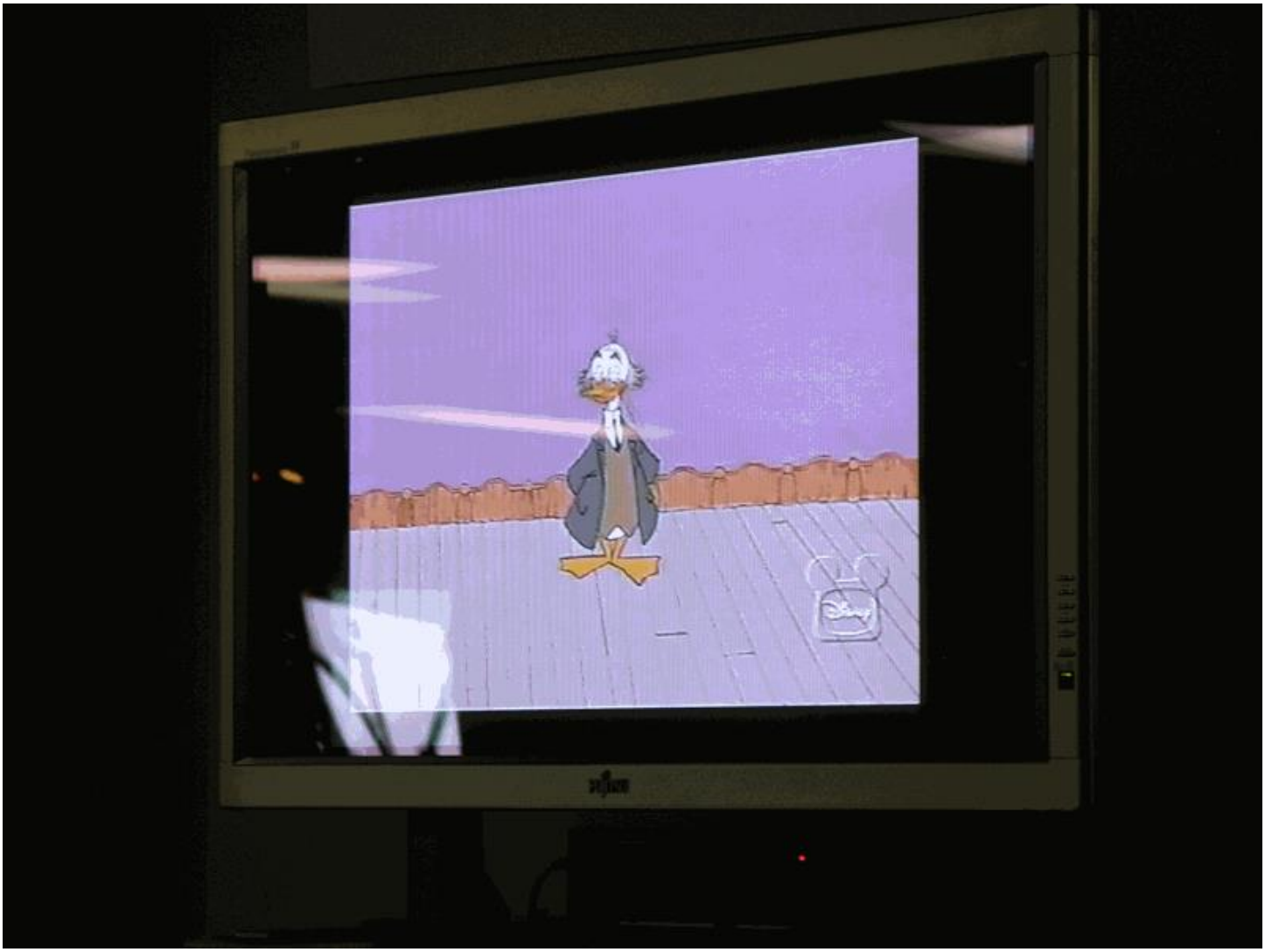

Courtesy of Your RCA VICTOR Dealer


Jim Fanning
Burbank, CA
Courtesy of Your RCA VICTOR Dealer


Walt Disney's
WONDERFUL
Jim Fan
Burbank,


Jim Fanning
Courtesy of Your RCA VICTOR Dealer


nvention




Walt Disney's
WONDERFUL
WORLD
OF
COLOR


Jim Fanning
Burbank, CA


Jim Fanning
Burbank, CA

Ludwig Von Drake Meets the NBC Peacock:

Walt Disney and the COLOR Television Revolution

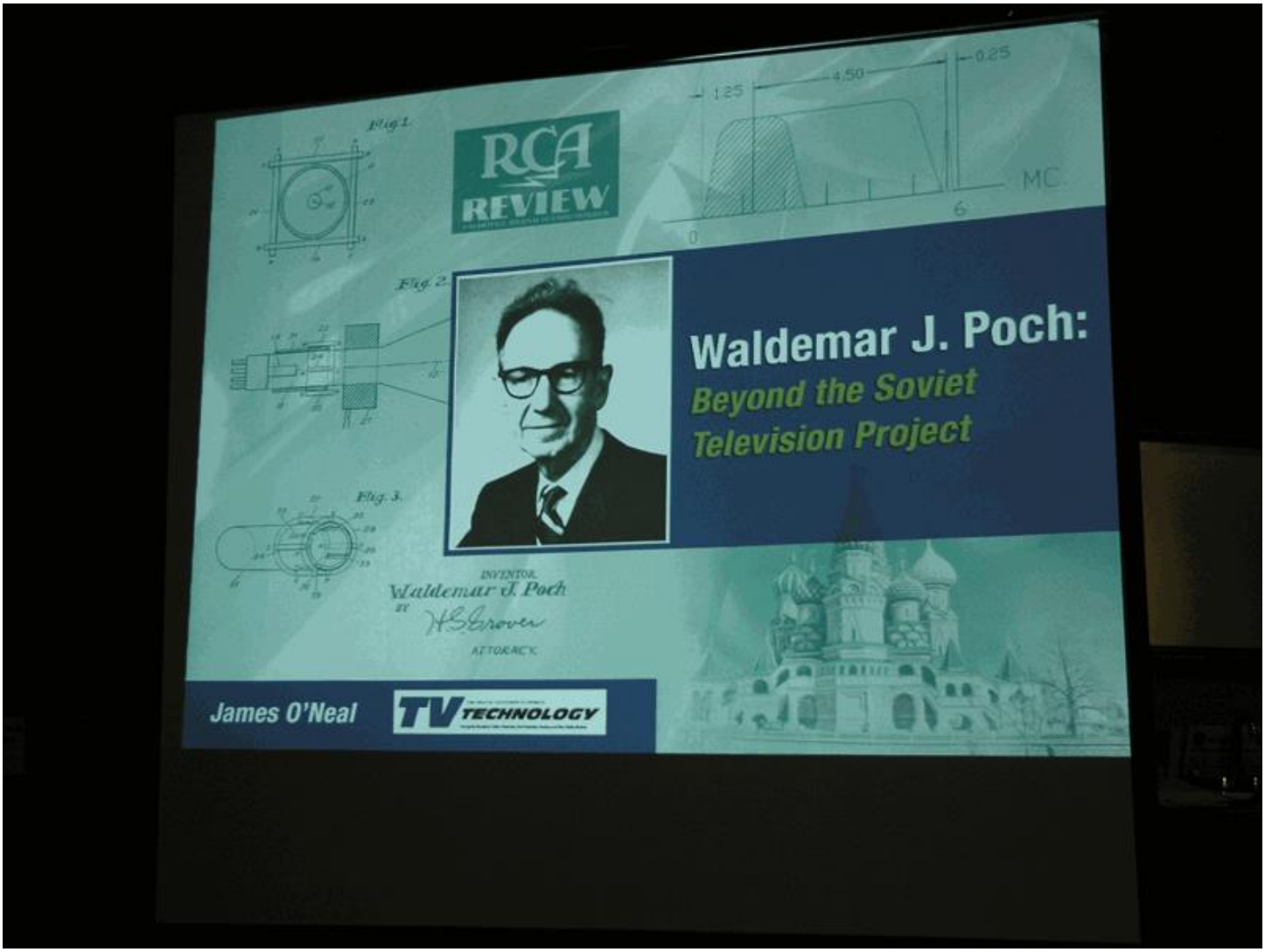
Presented by
Jim Fanning


SONY


SONY


Convention


vention


RCA REVIEW
Waldemar J. Poch:
Beyond the Soviet Television Project
James O'Neal
TV TECHNOLOGY
INVENTOR
Waldemar J. Poch
ATTORNEY
1.25
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onvention


Early Television Convention


vention
orge LeMaster
Church, V
SONY


vention
George LeMaster
Church, VA


EXIT
Television at Kansas State University
Manhattan, Kansas
1931-1952

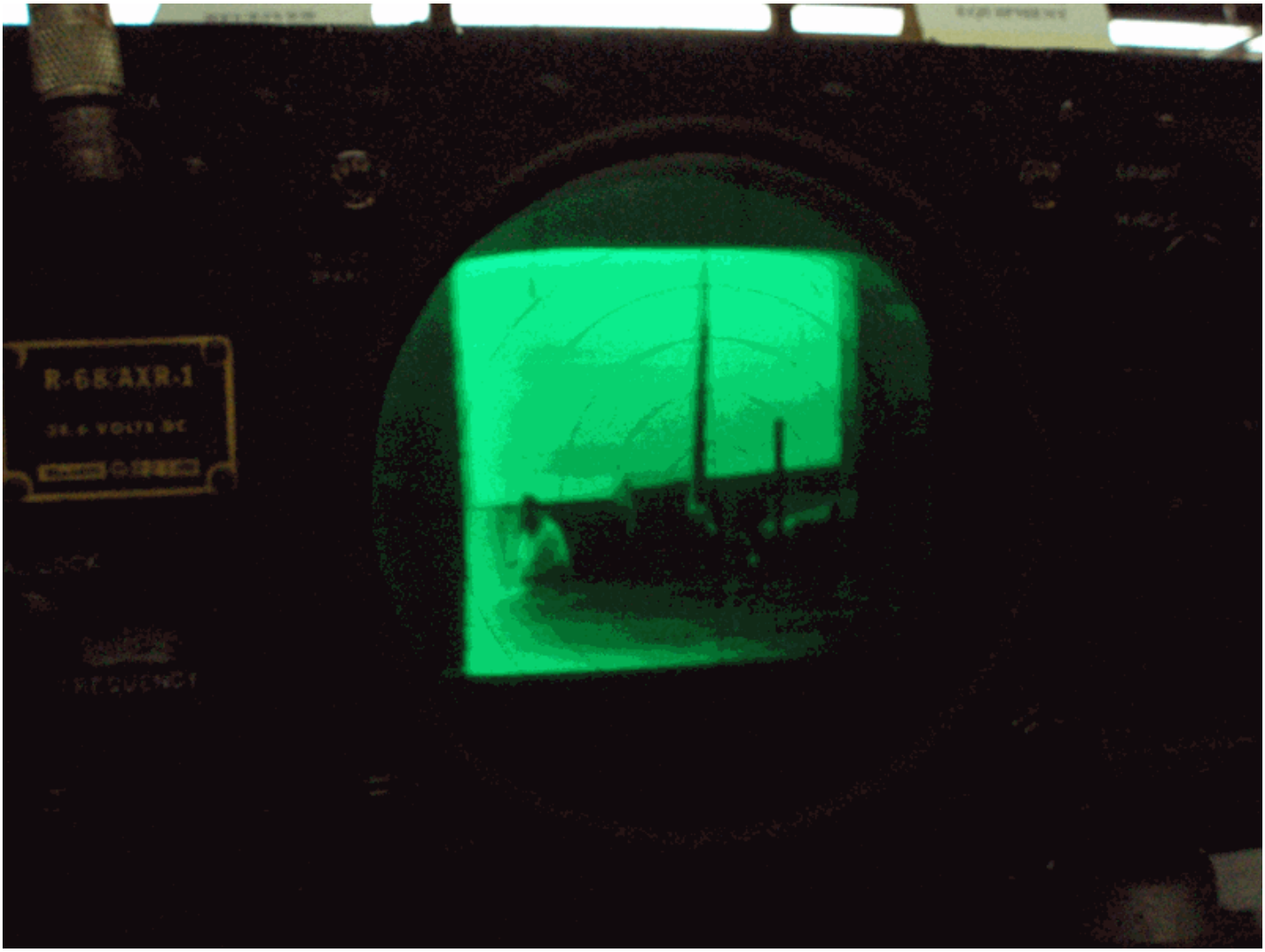

EXIT

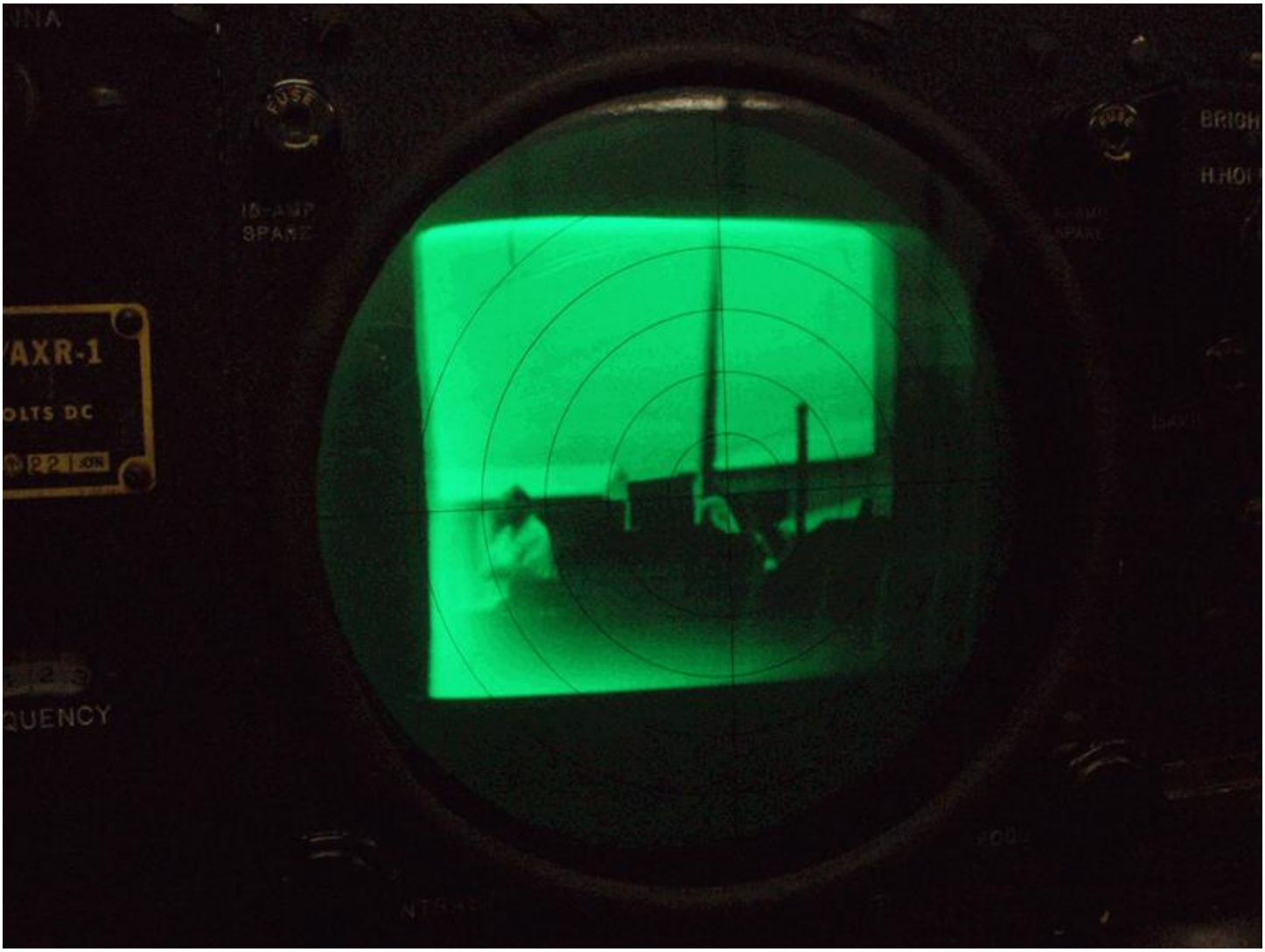

Mezzanine
Emerald
ROOM

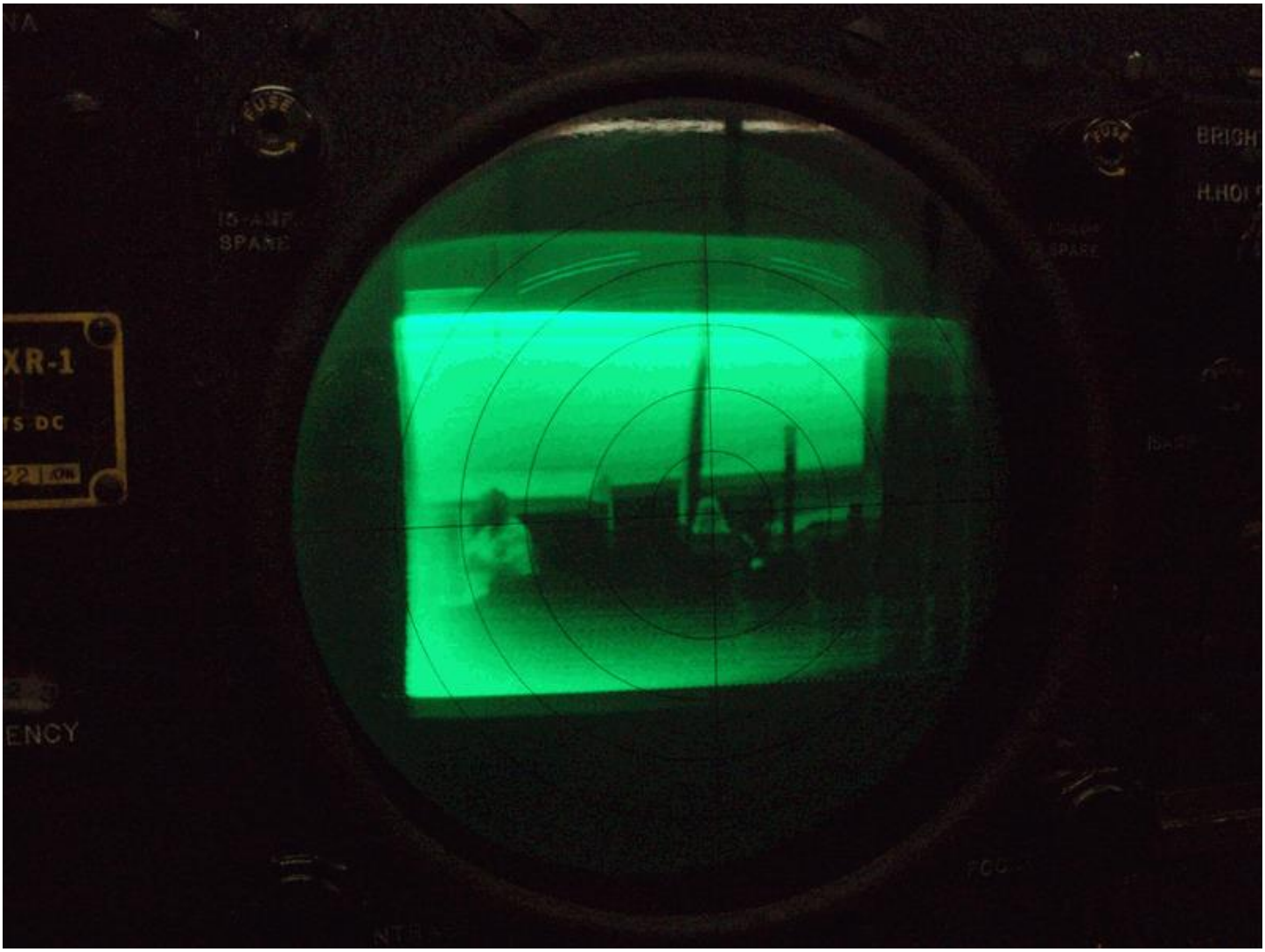

MAKO
DROP OFF
Burgundy
Schneider/
Antry
Emerald
OFFICE
Mezzanin
Offices
Early TV

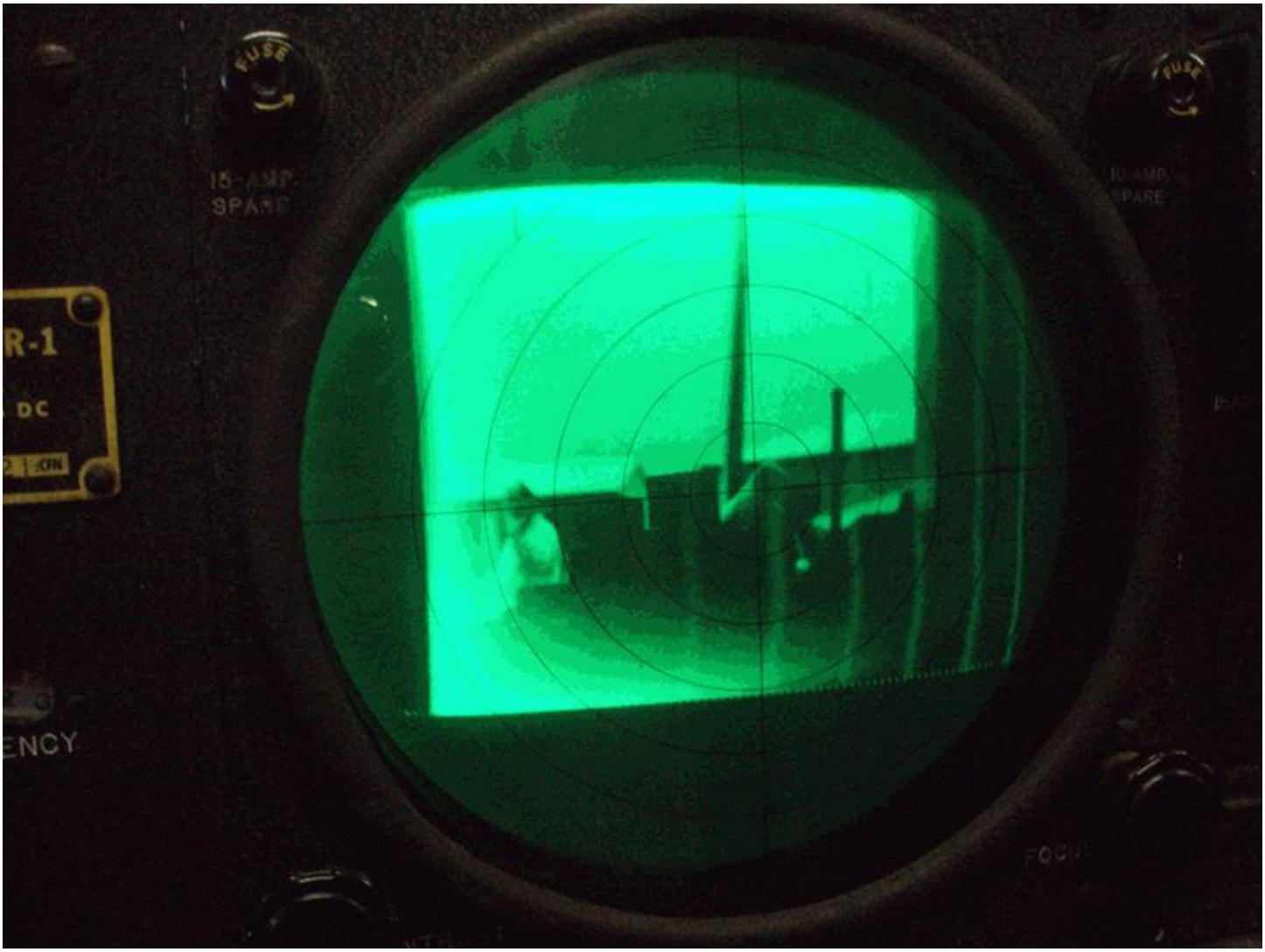

Makoy
CENTER
MAKOY
DROP OFFS
Burgundy
Emerald
OFFICE
Mezzanine
Offices


Makoy
CENTER


R-65/AXR-1
28.6 VOLTS DC

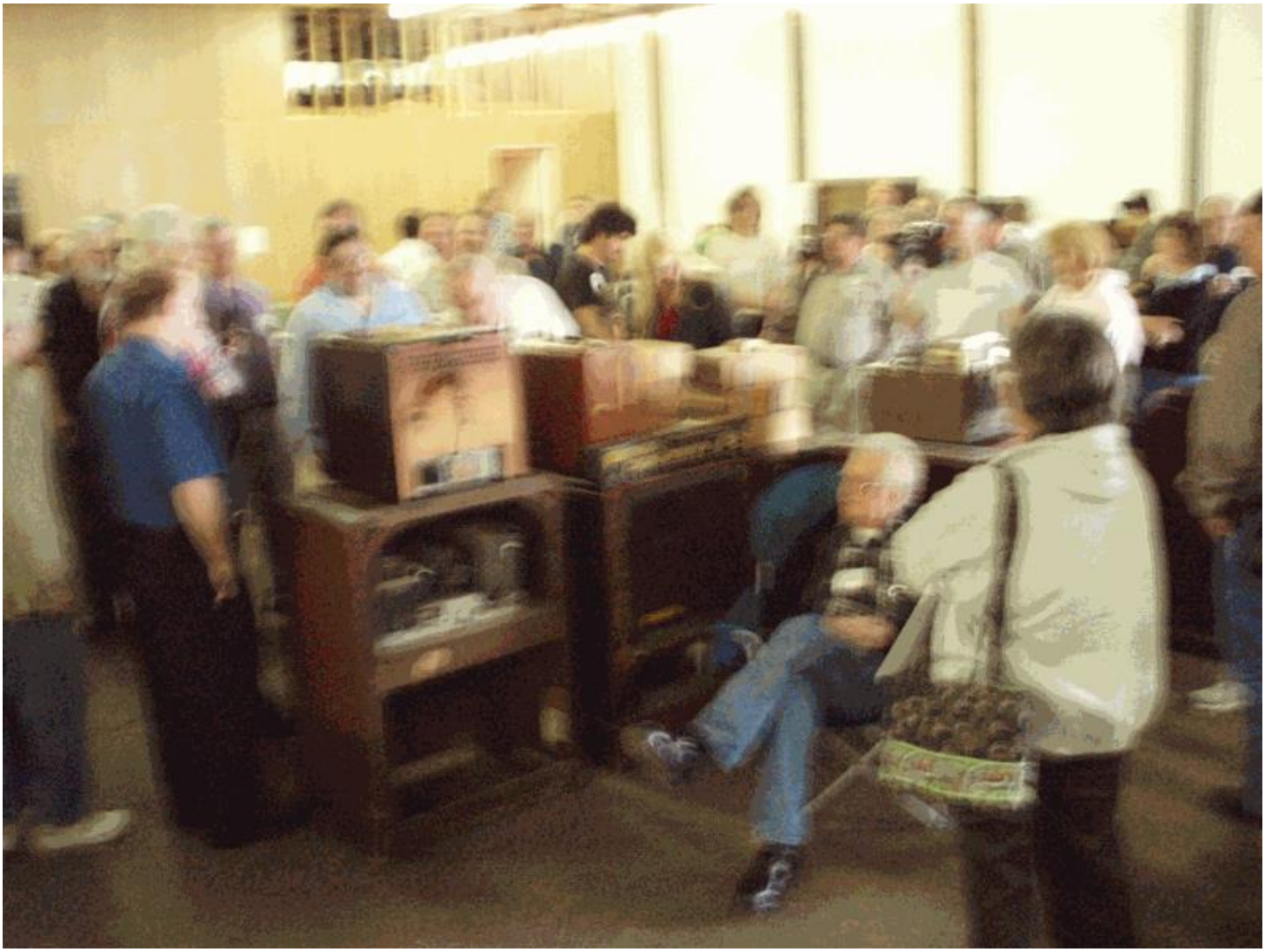

FUSE
15-AMP
SPARE
FUSE
BRIGH
H.HOL
AXR-1
OLTS DC
QUENCY


FUSE
15 AMP.
SPARE
XR-1
TS DC
ON
ENCY
FUSE
BRIGH
H.HOL


FUSE
15-AMP.
SPARE
FUSE
10-AMP.
SPARE
R-1
DC
ON
ENCY
FOCU

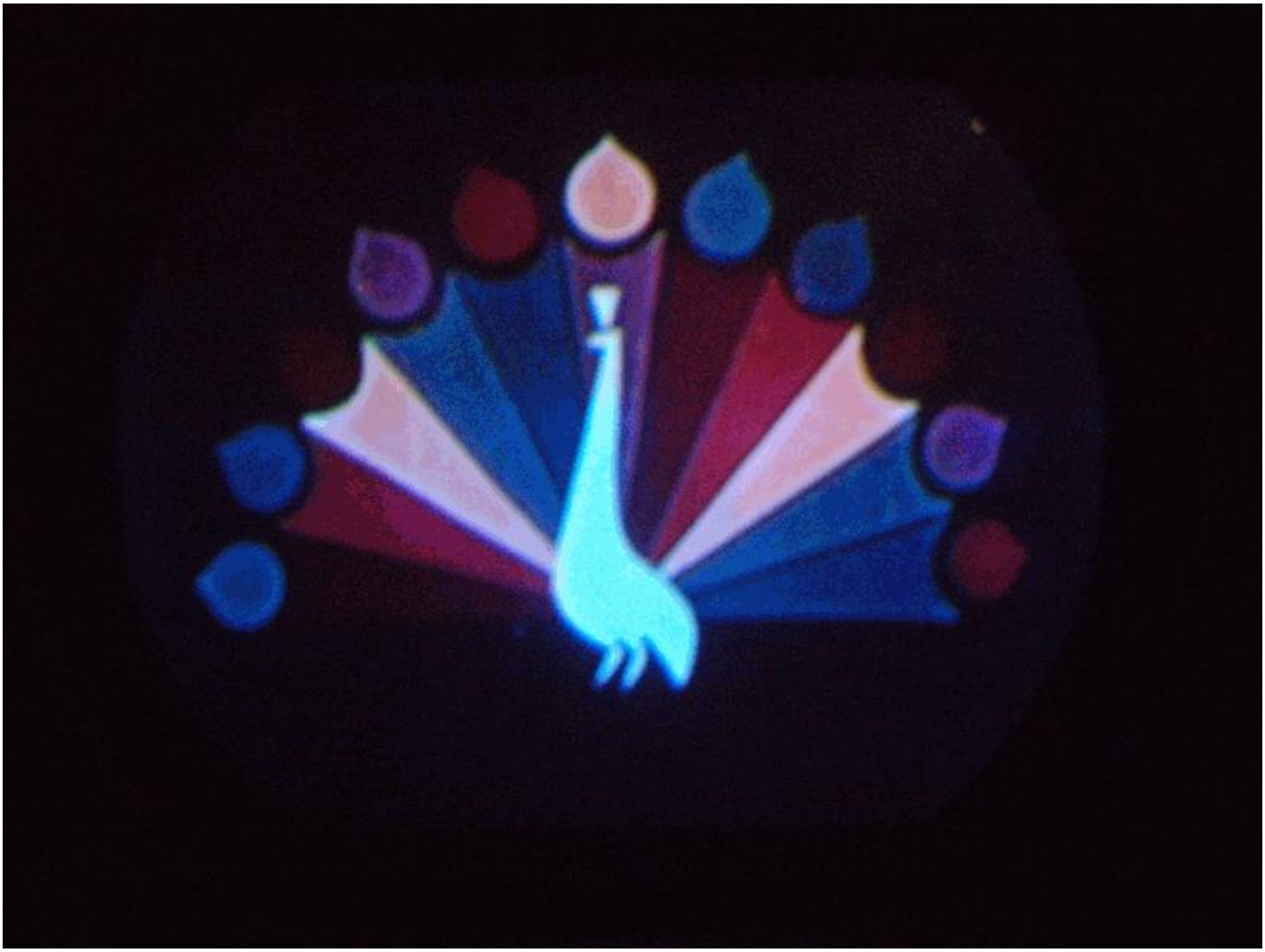

carpet antenna

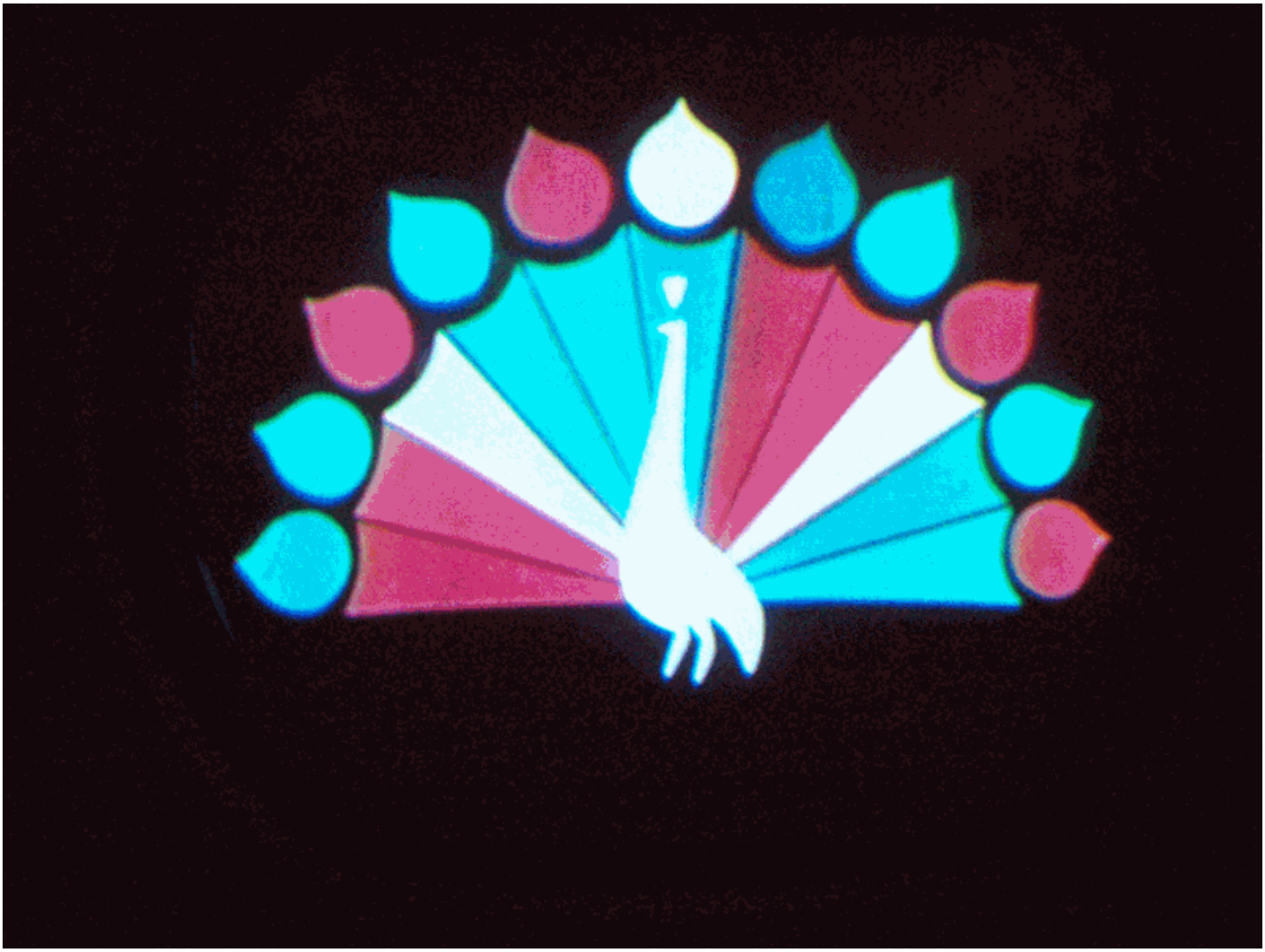

magic
carpet antenna

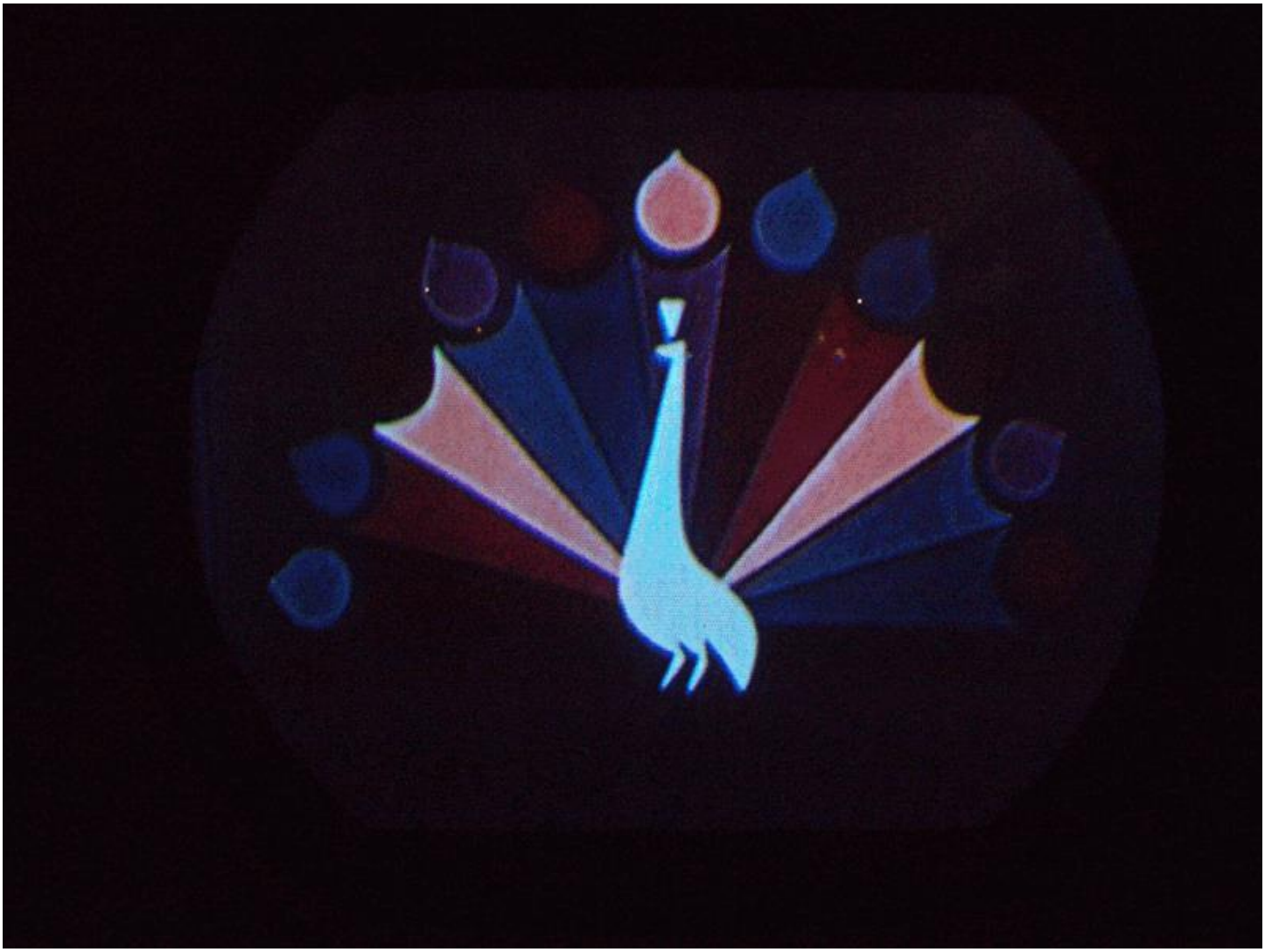


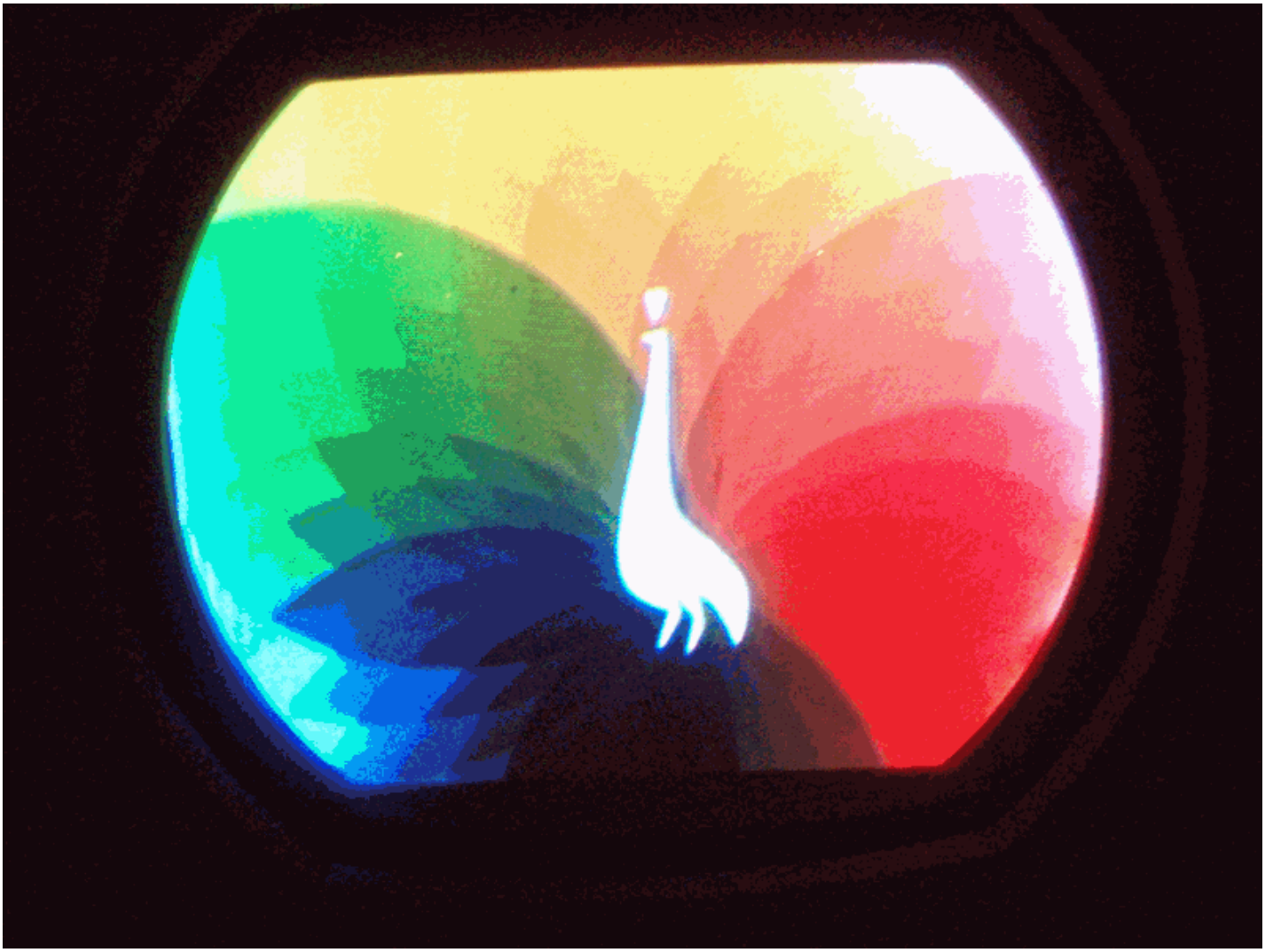

EARLY
Television
MUSEUM

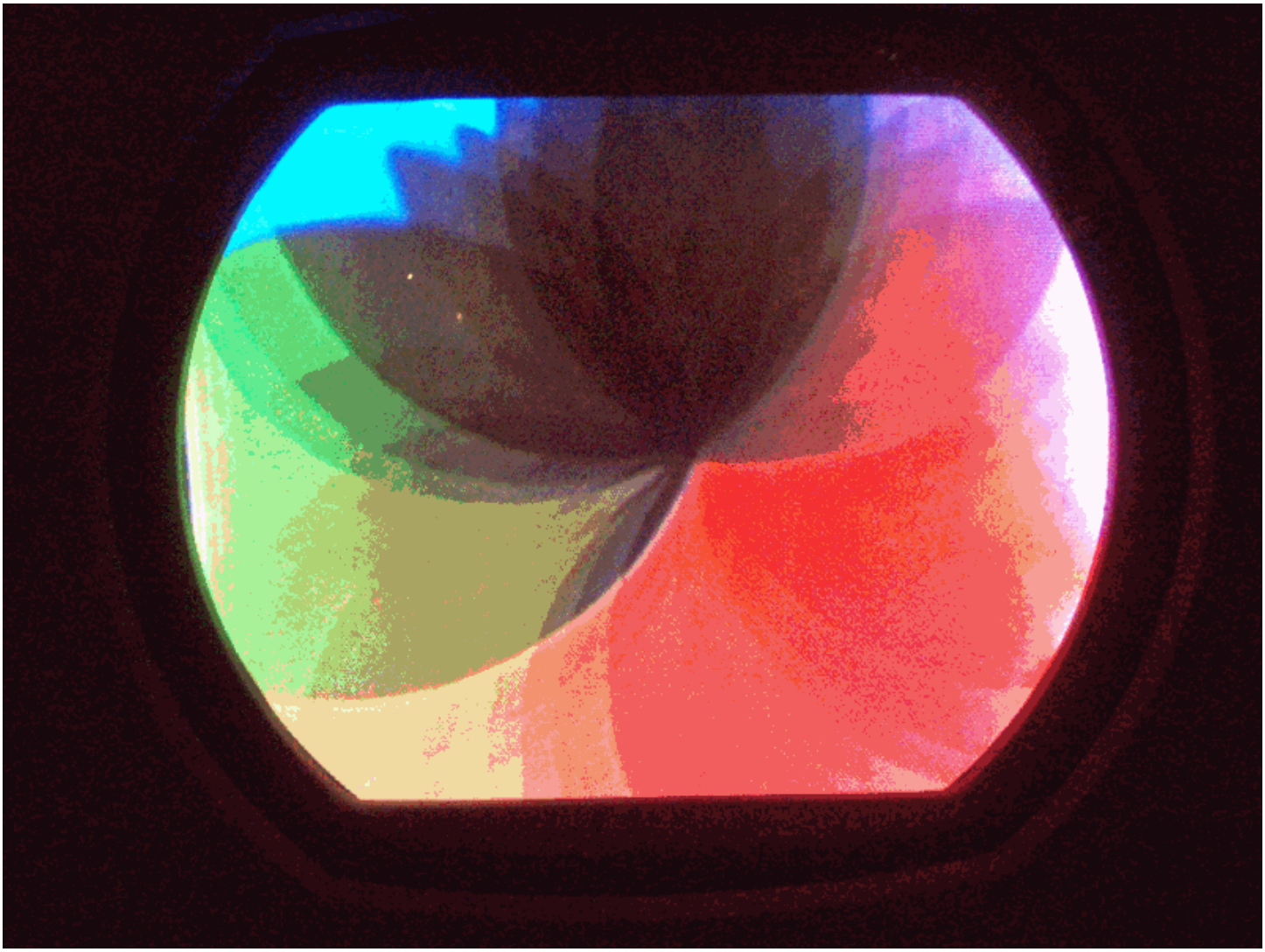

EARLY
Television
MUSEUM





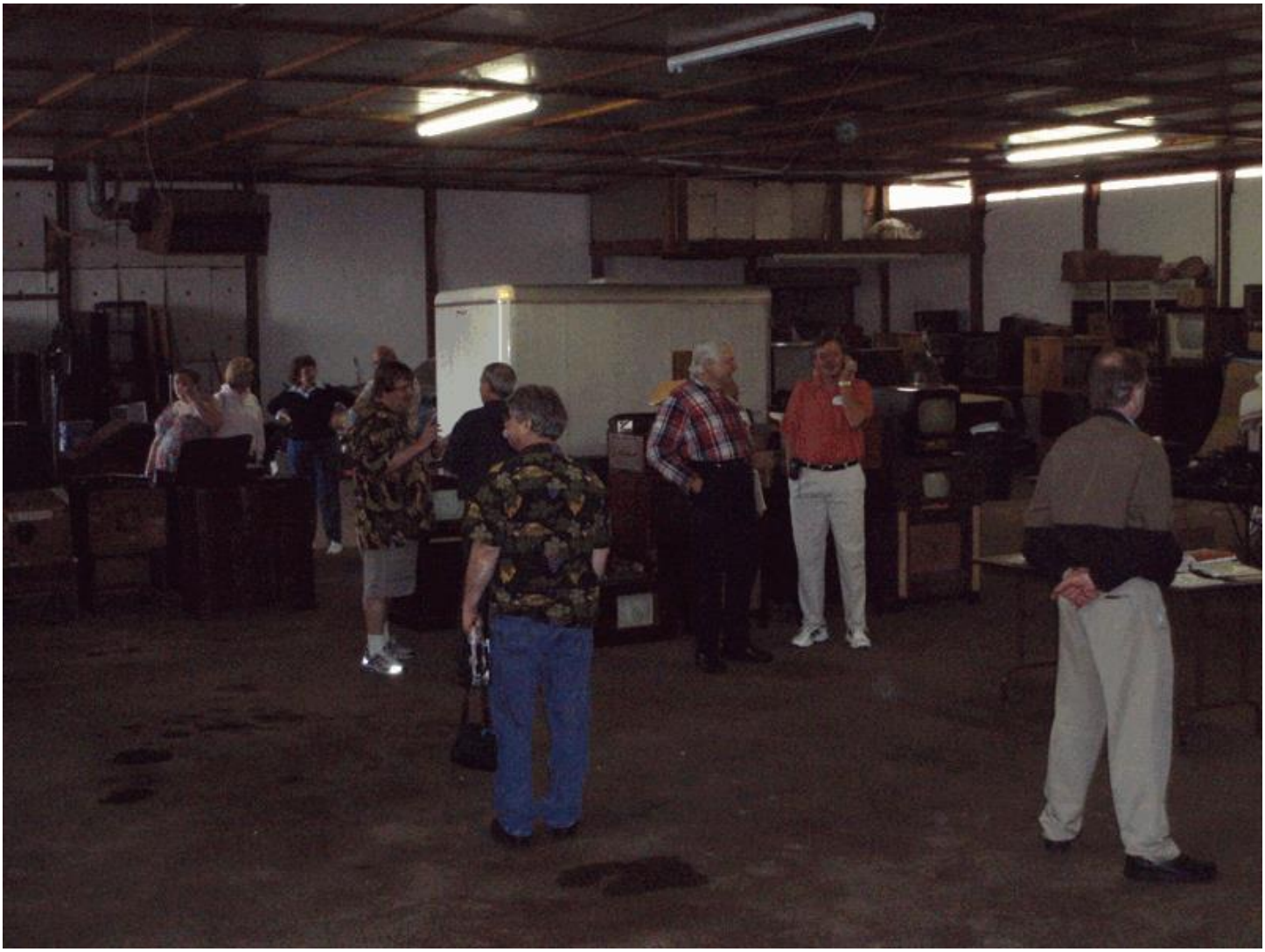


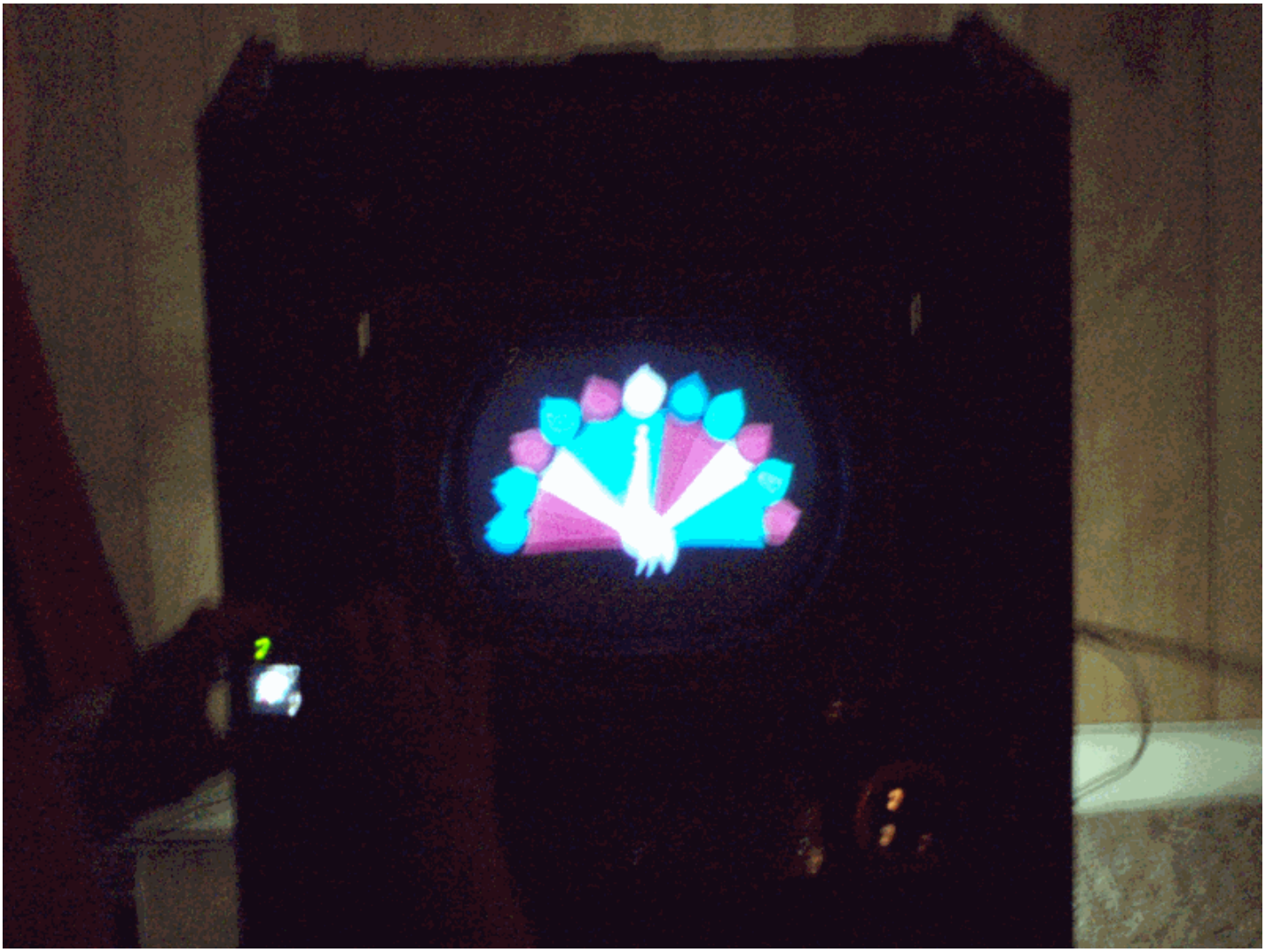




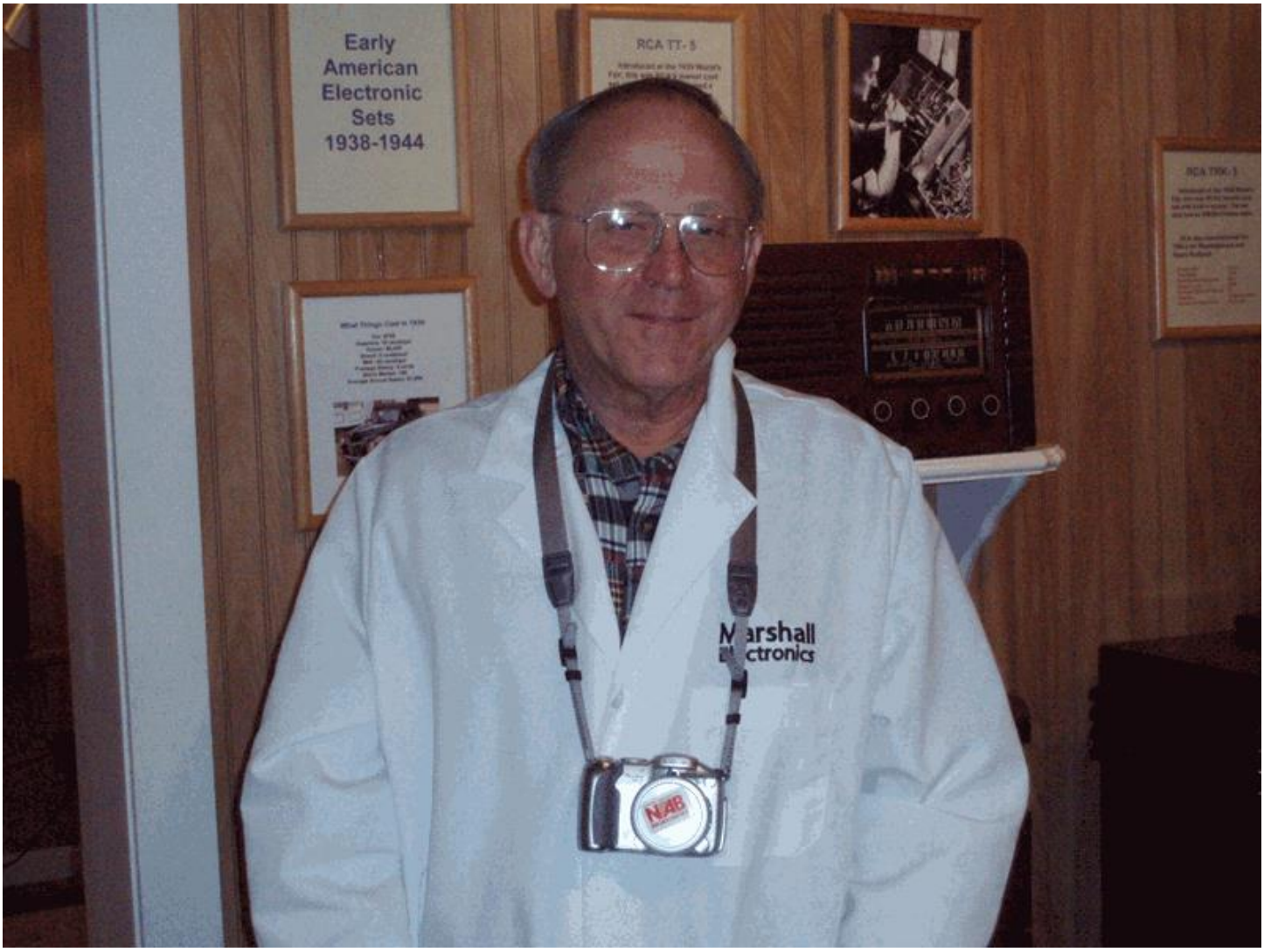

JERROLD
magic
carpet* antenna
The Magic Carpet to Fine TV and FM Reception
THE FLAT, FLEXIBLE PRINTED CIRCUIT ANTENNA


SPECTRA
Black & White
SPECTRA
White TV

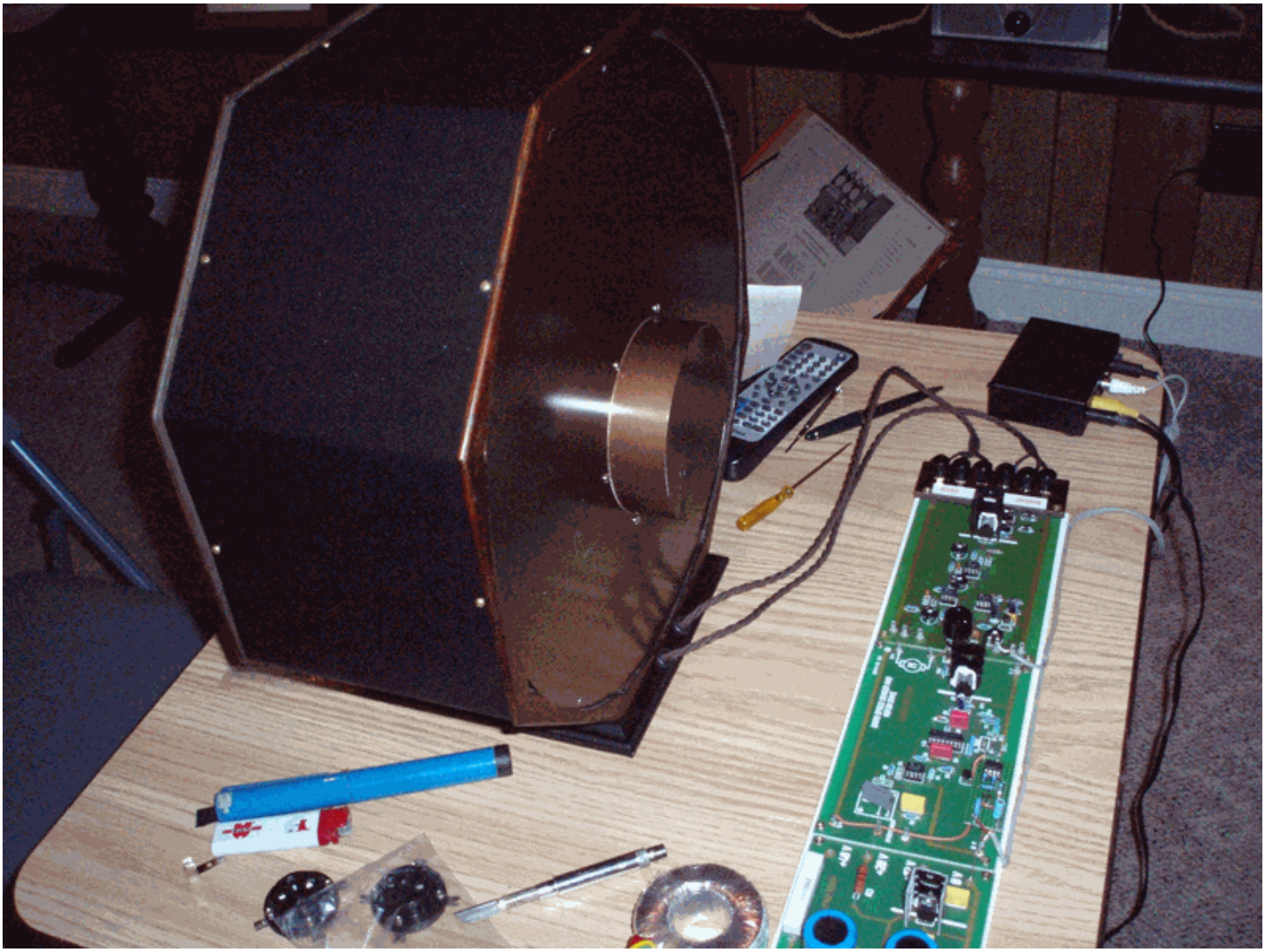


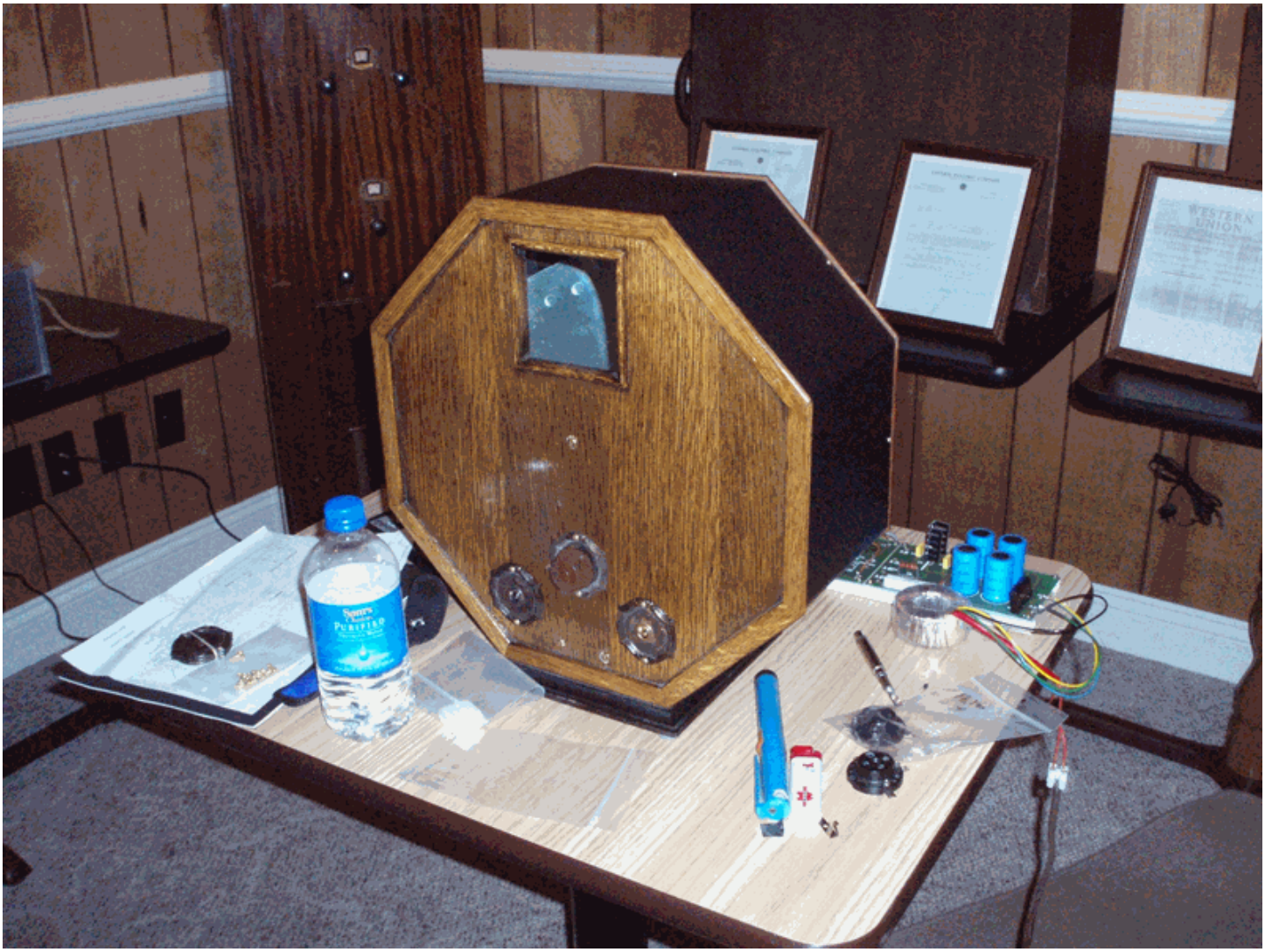


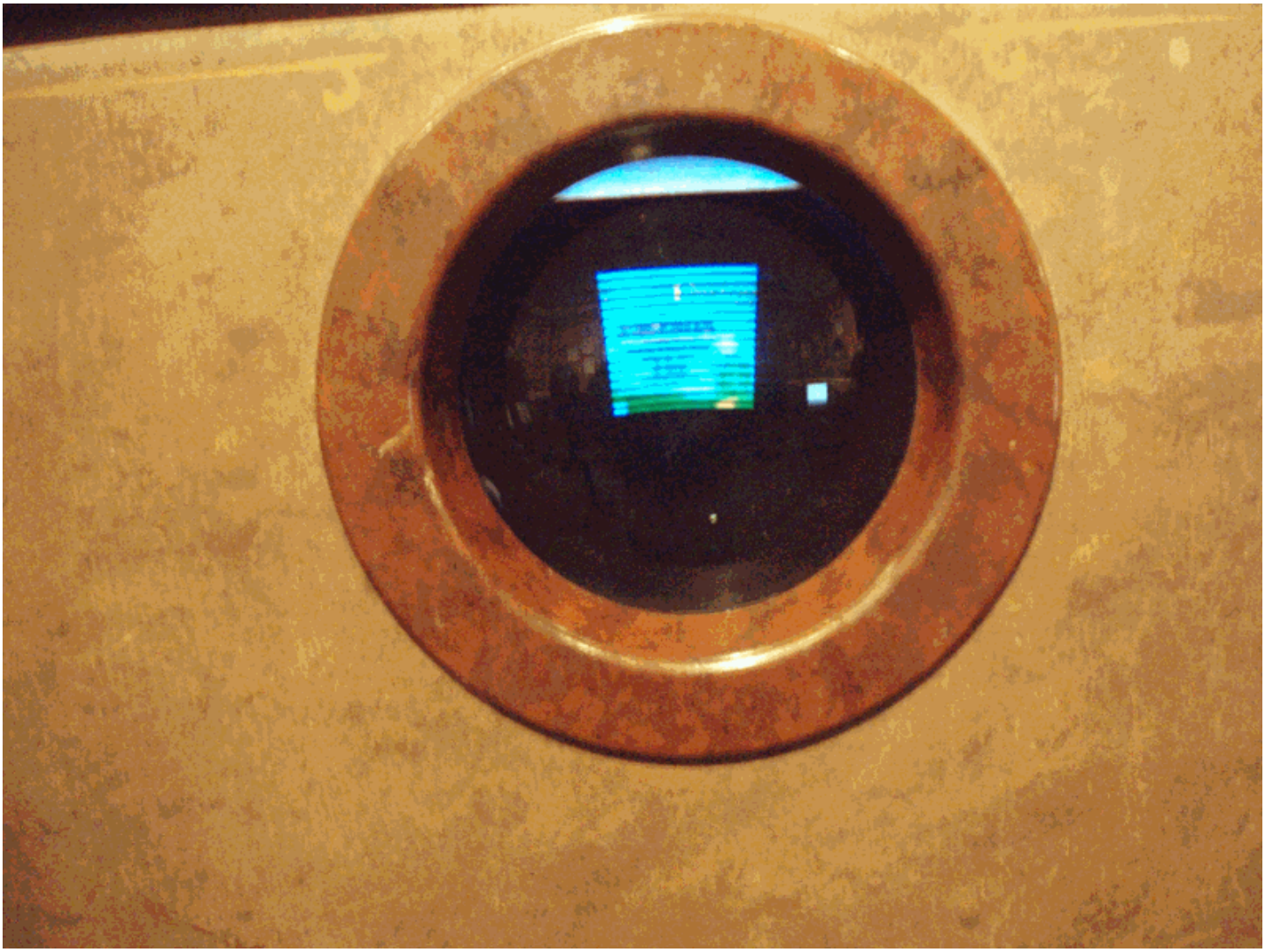

Marshall Electronics
www.LCDracks.com


Early
American
Electronic
Sets
1938-1944
RCA TT-5
Marshall
NAB


MERCIER
CO.
Mercier Sets




Sam's
Purified
WESTERN
UNION




SKEW
POLARITY
AMP
OVERALL HEIGHT
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SKEW
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ON
BLOWER
ON
SKEW
AMP
POLARITY
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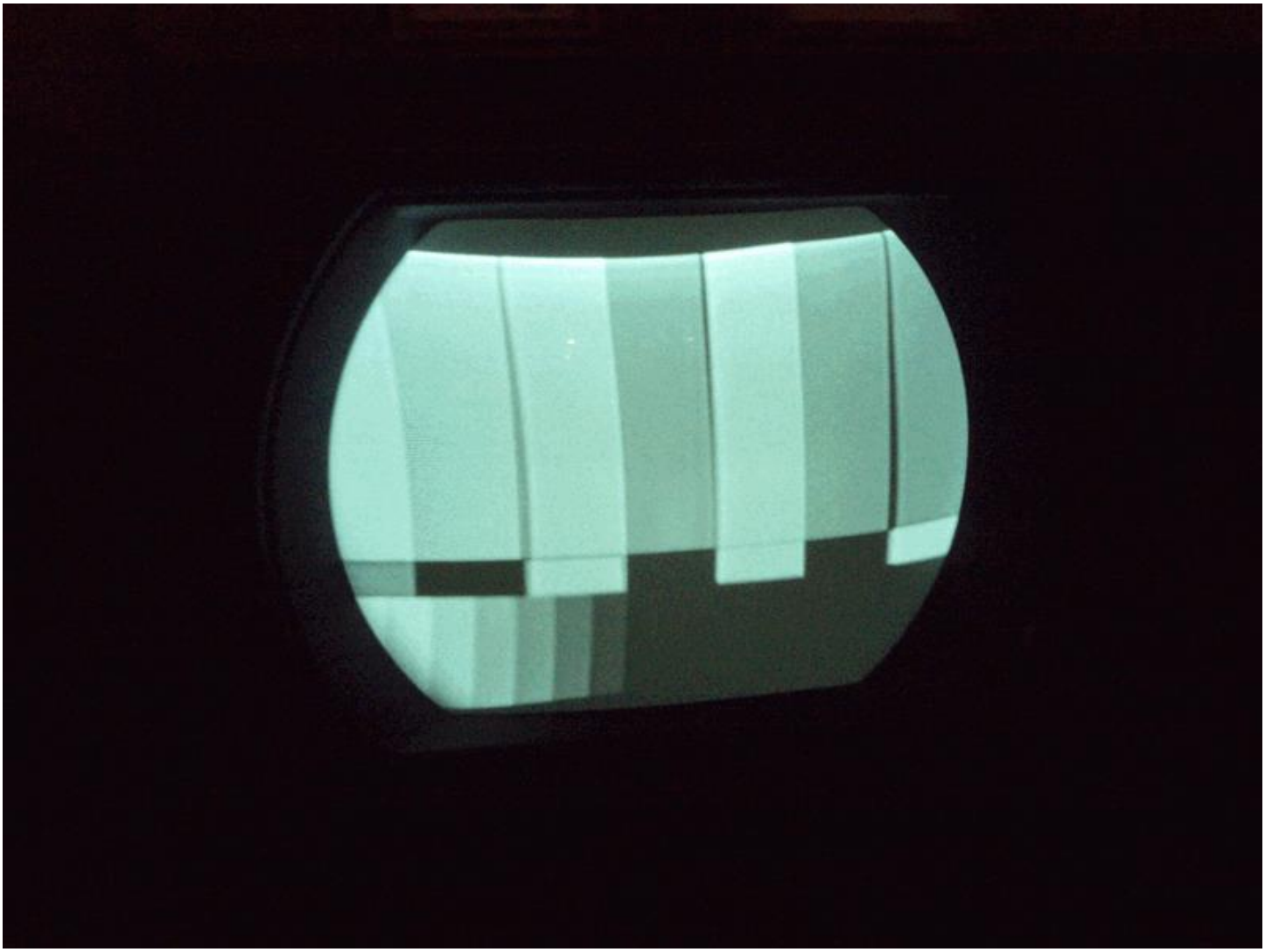
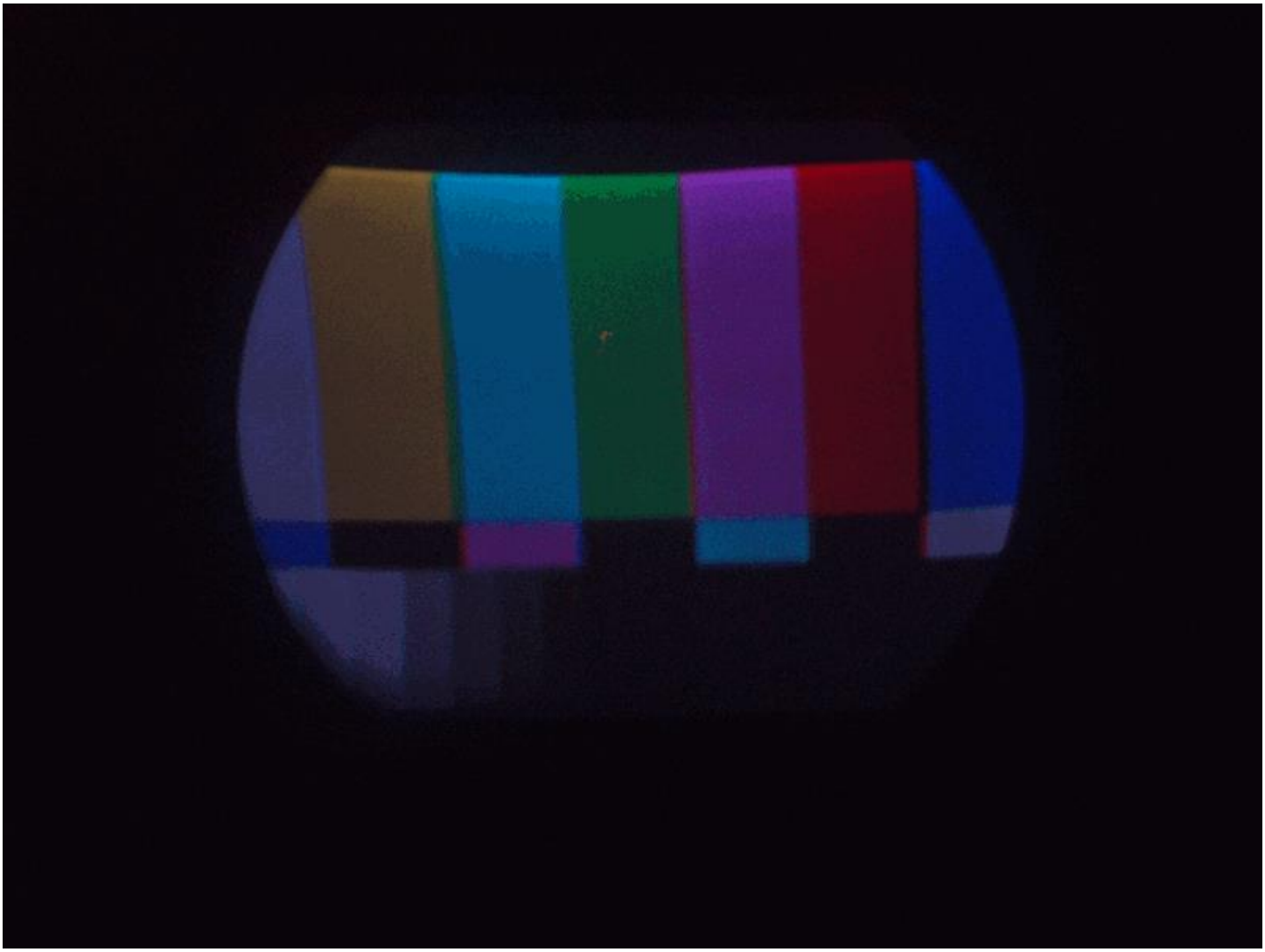
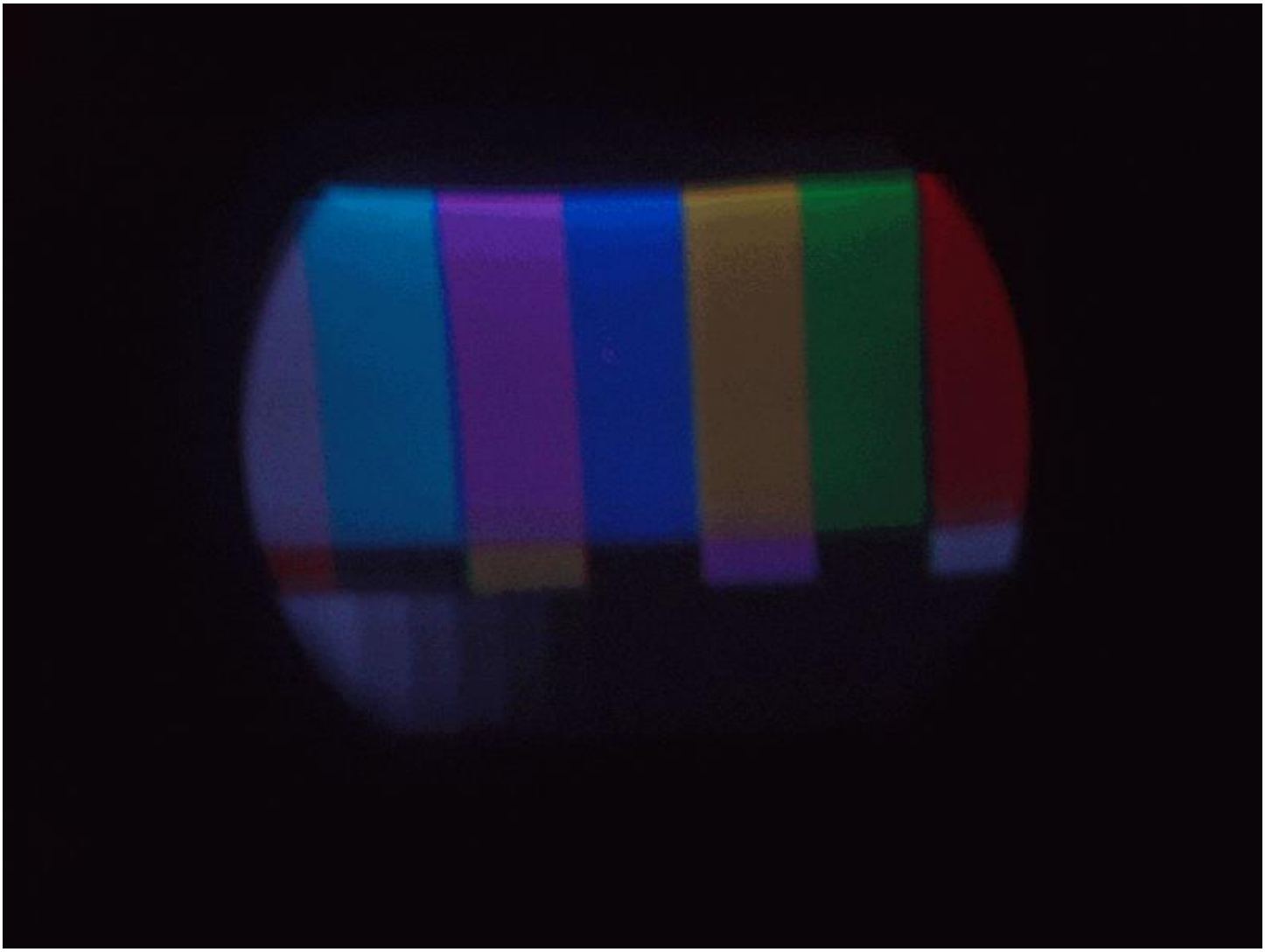
Color Television

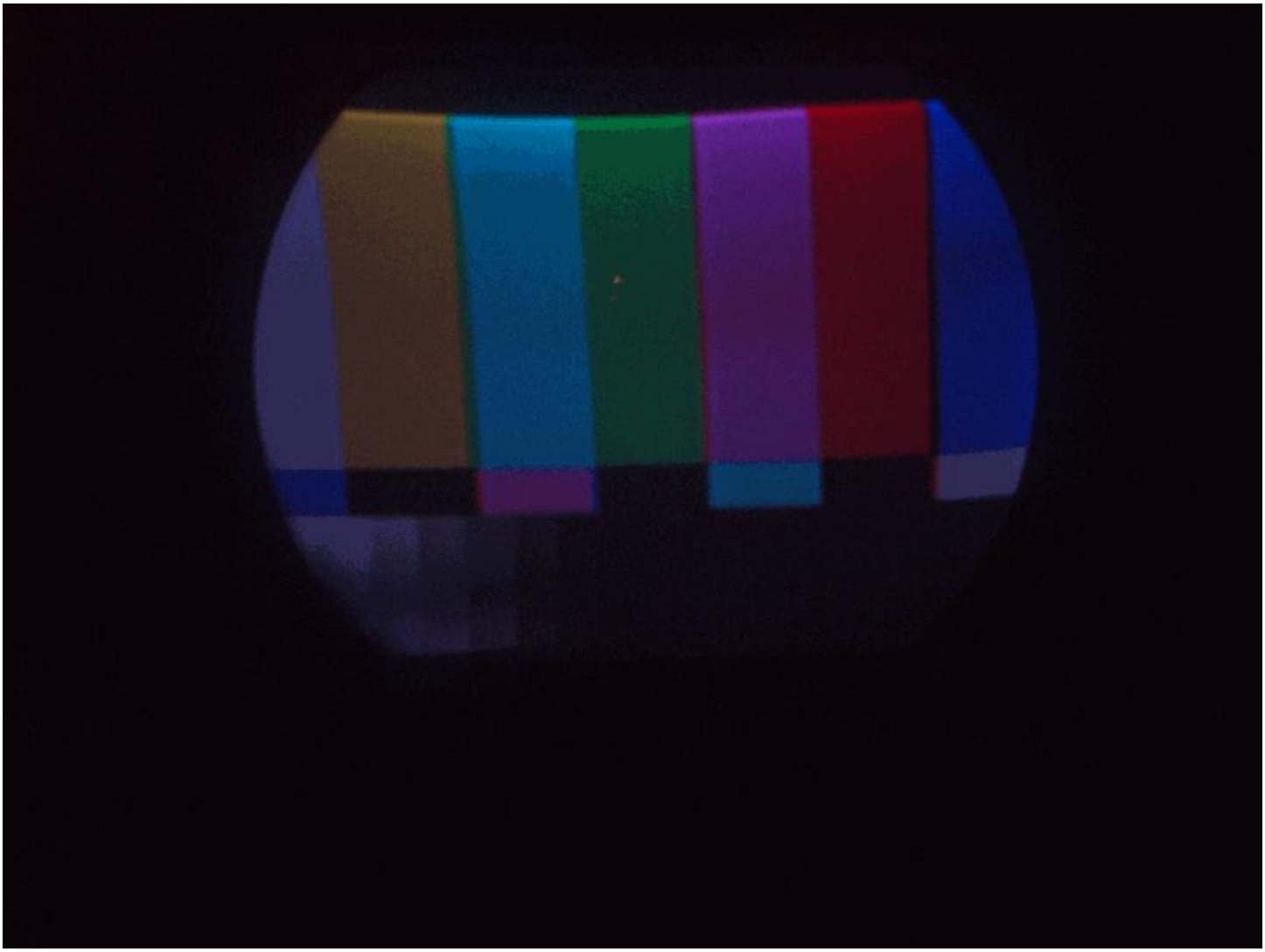

Wanted

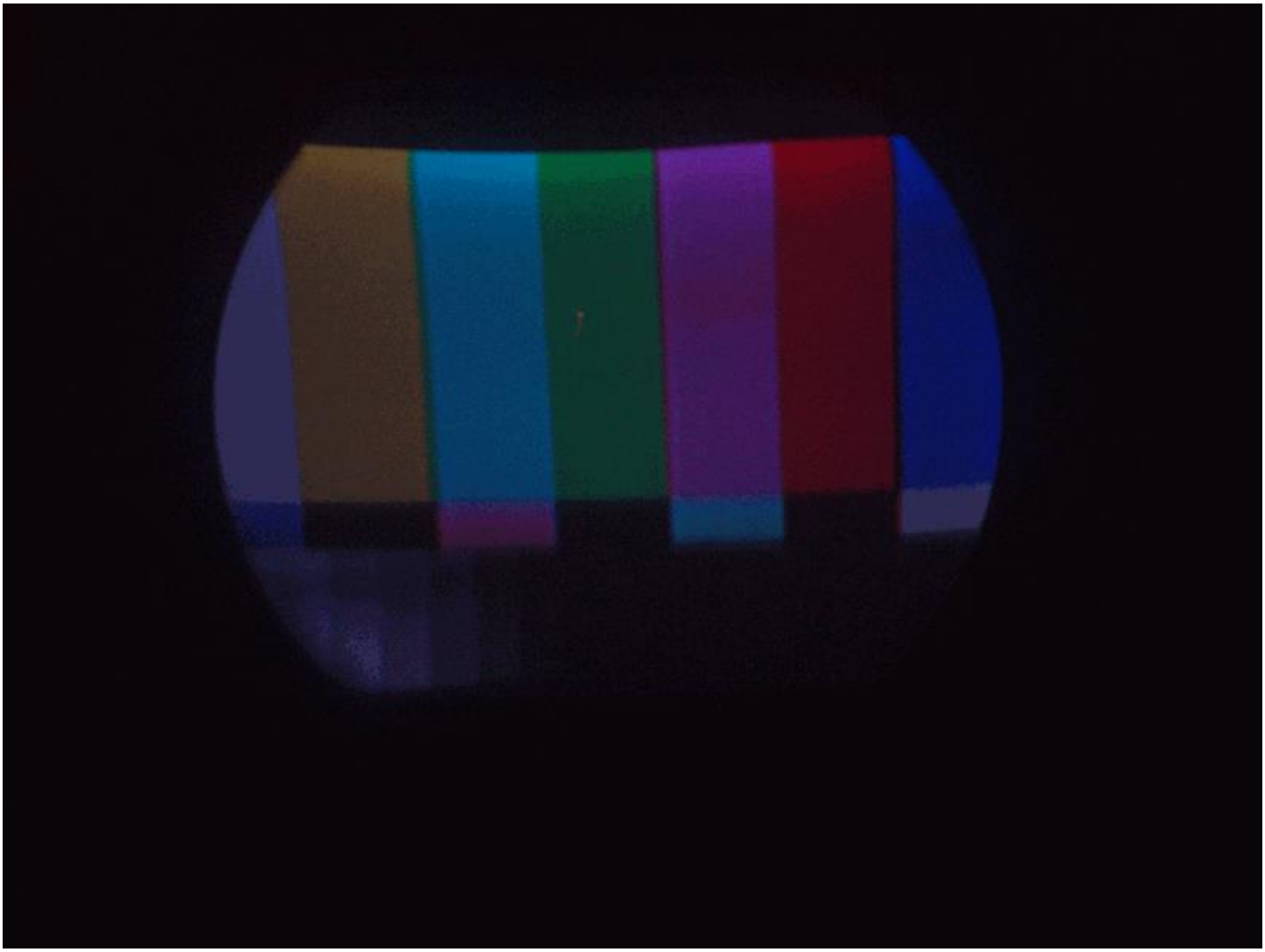

I'D LOVE
TO-VISION YOU
FOR MY VALENTINE
STATION O SELECTOR

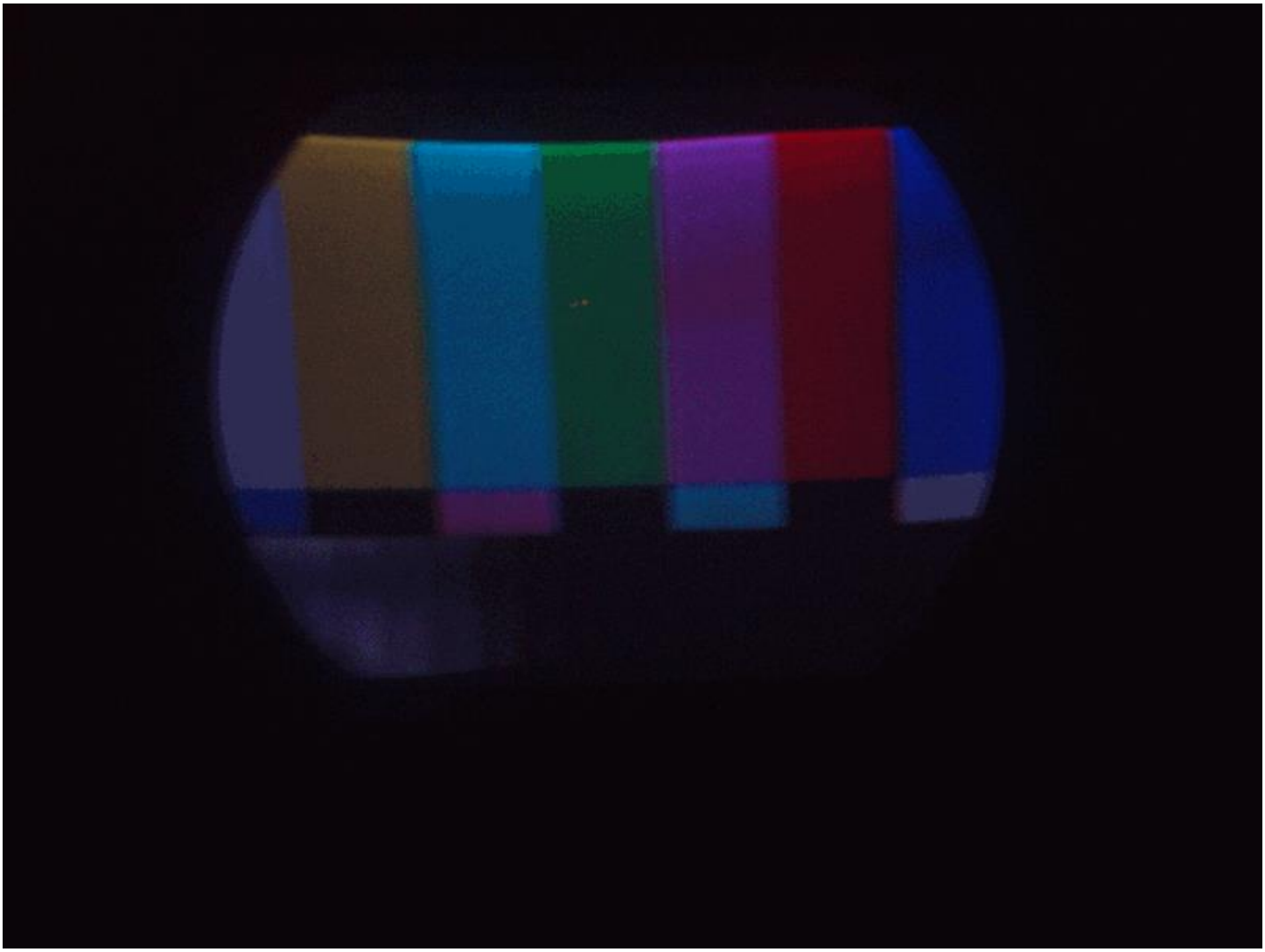


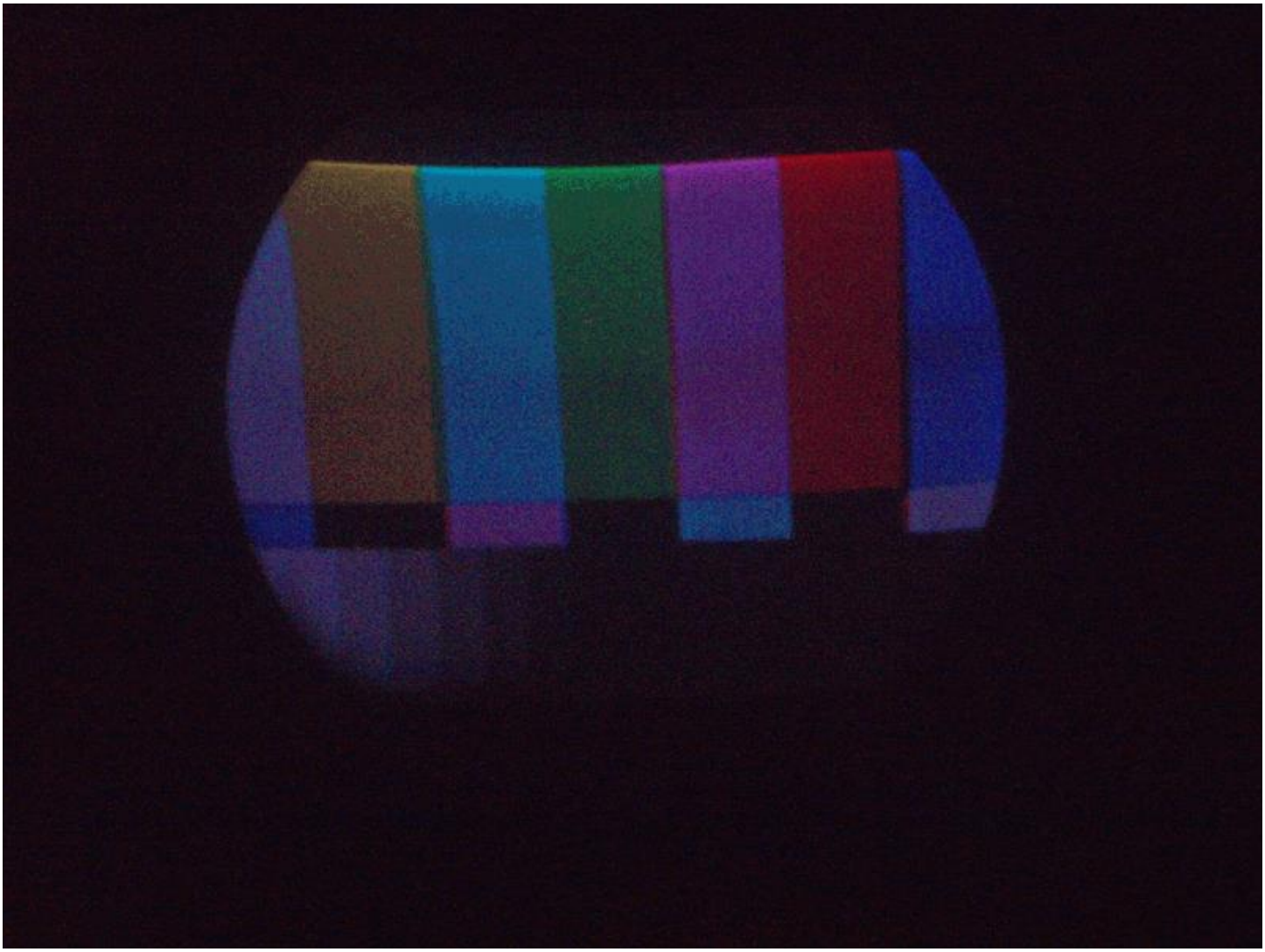


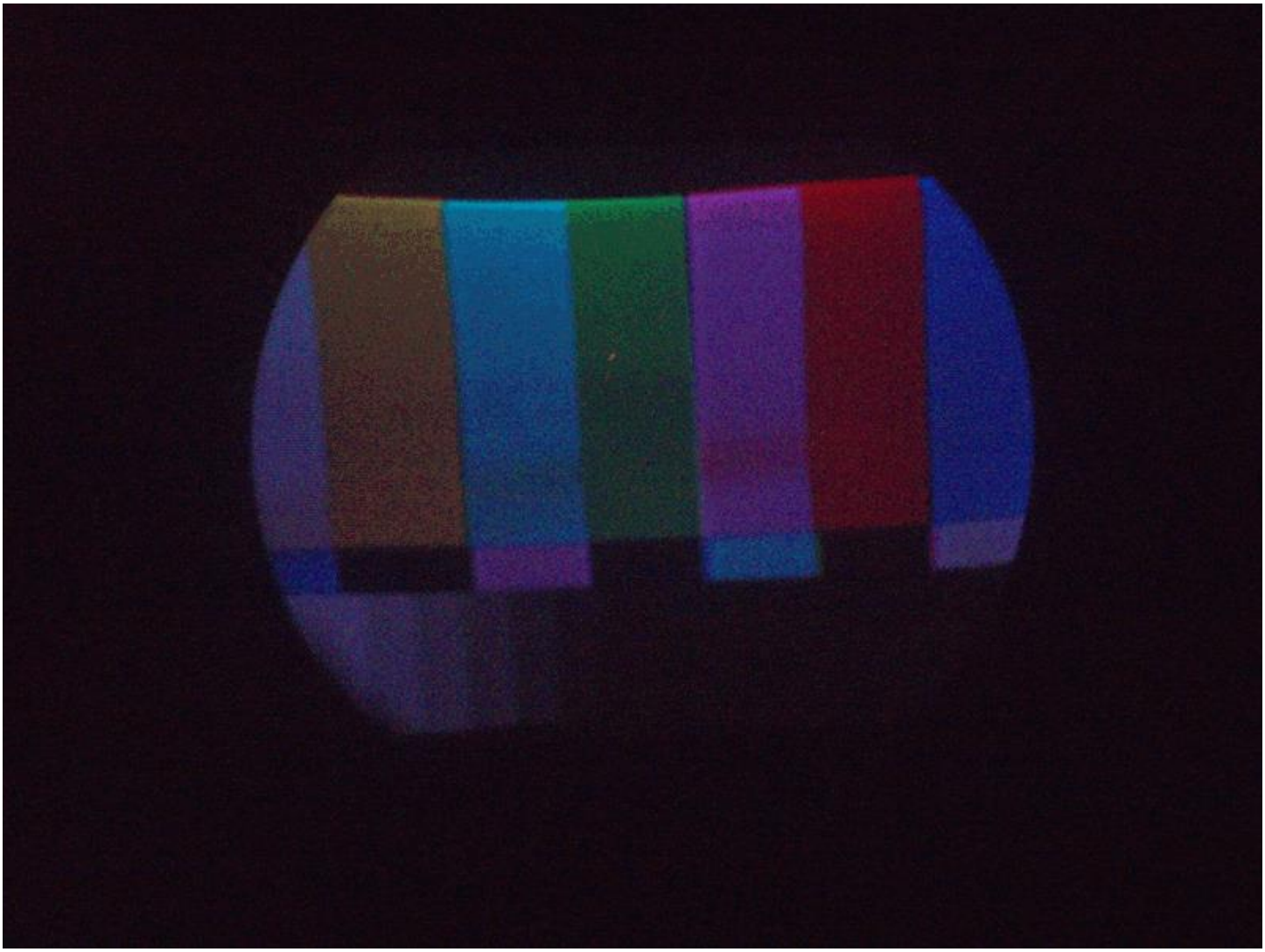


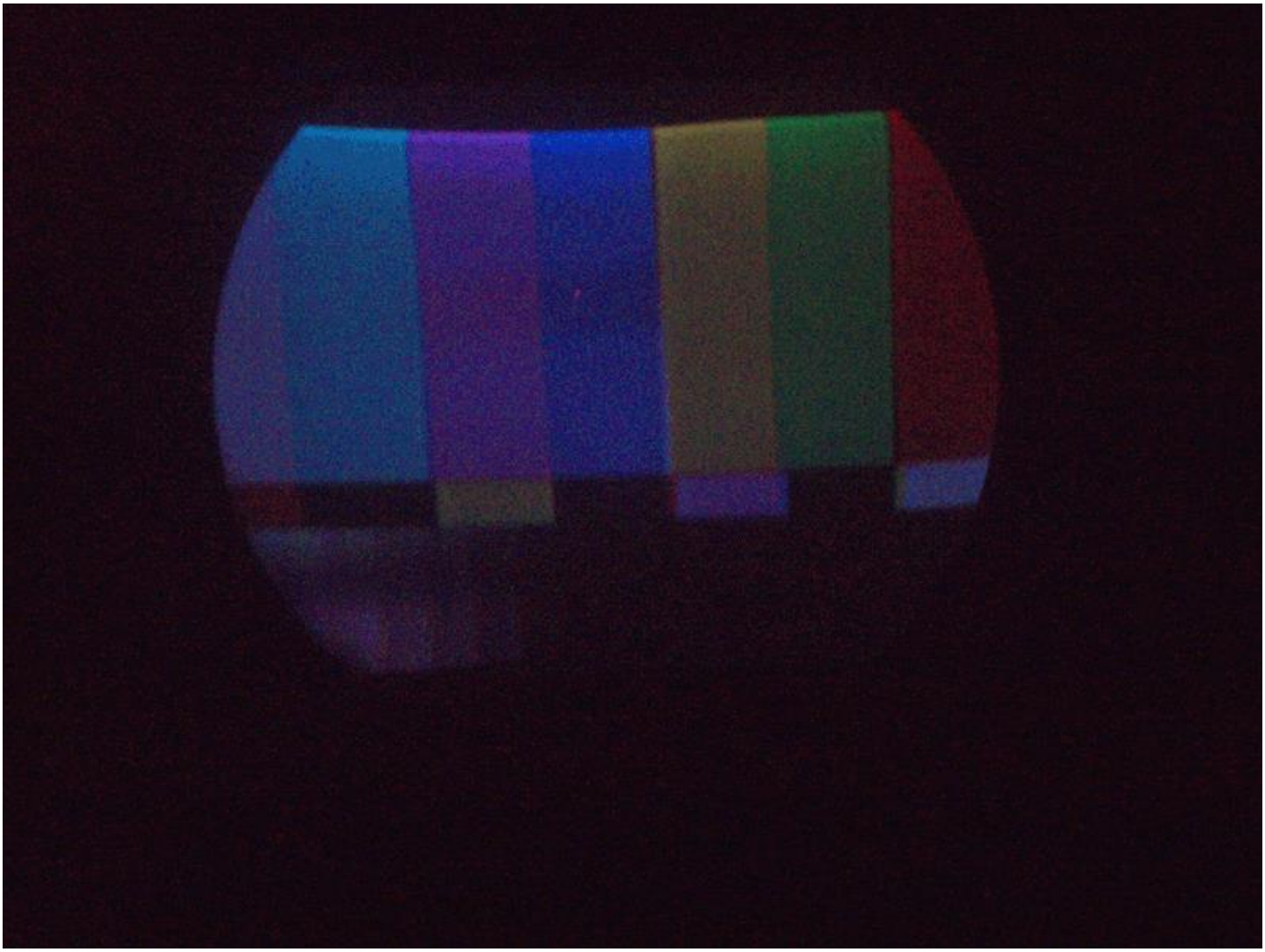


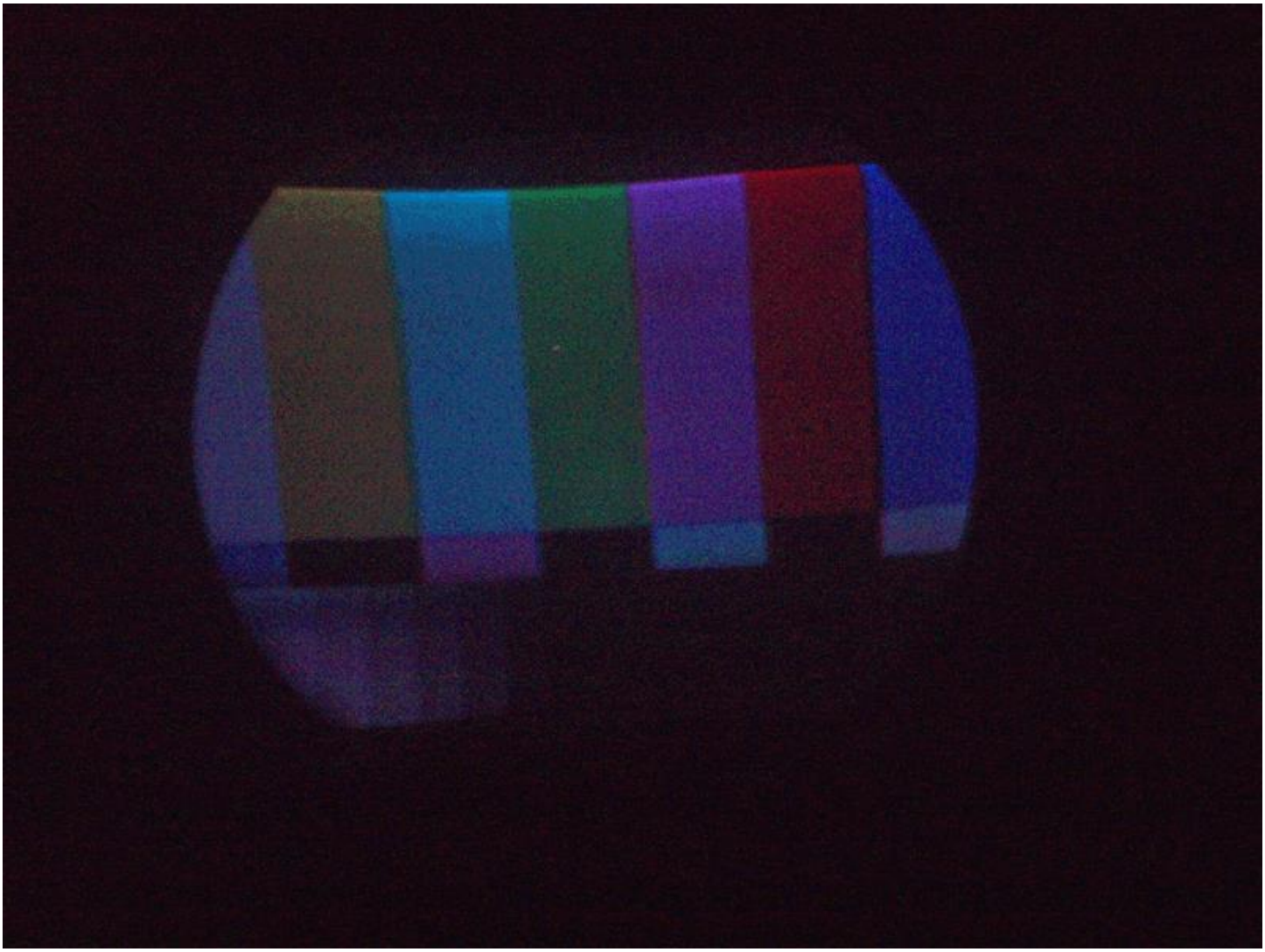


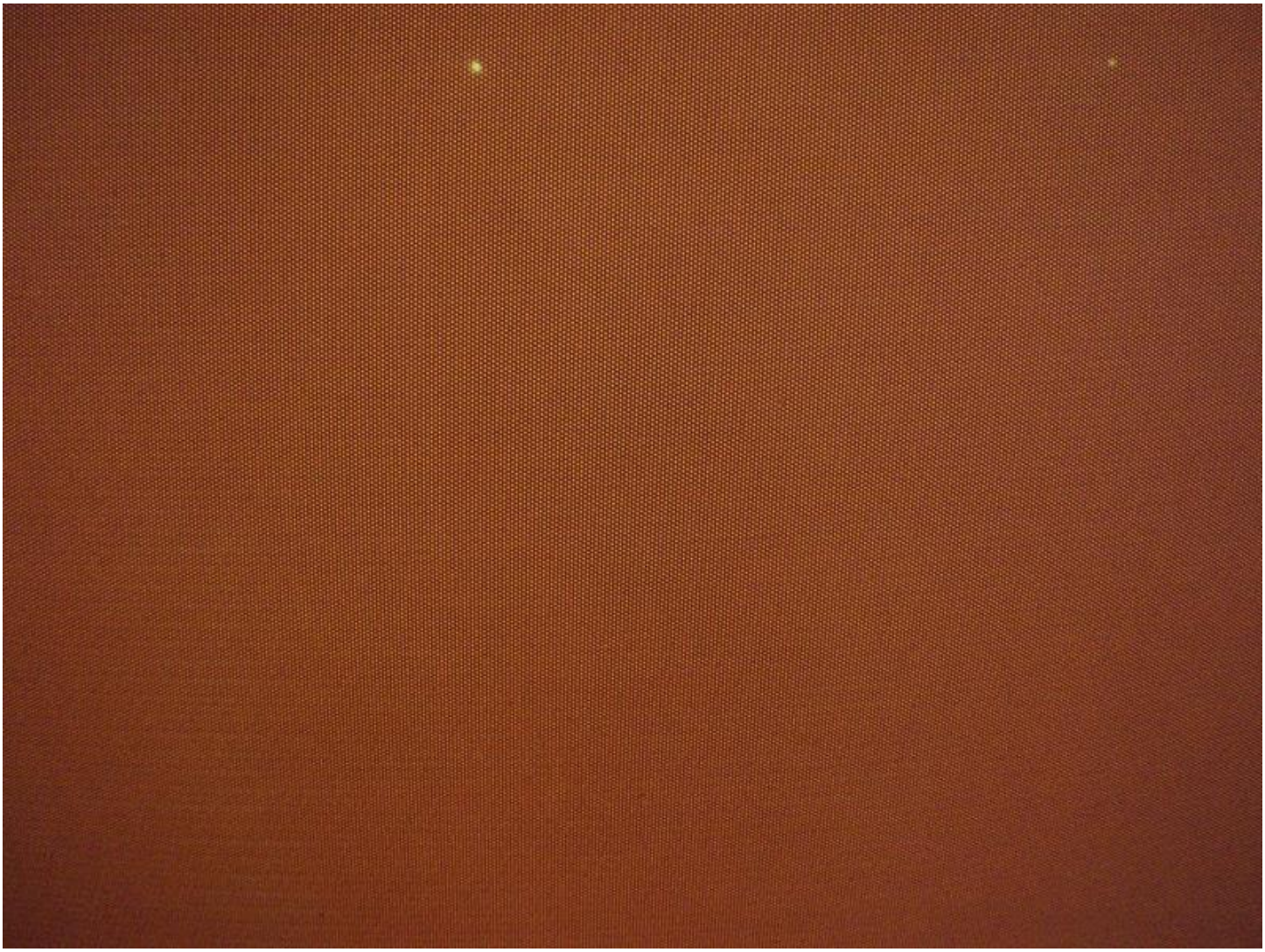


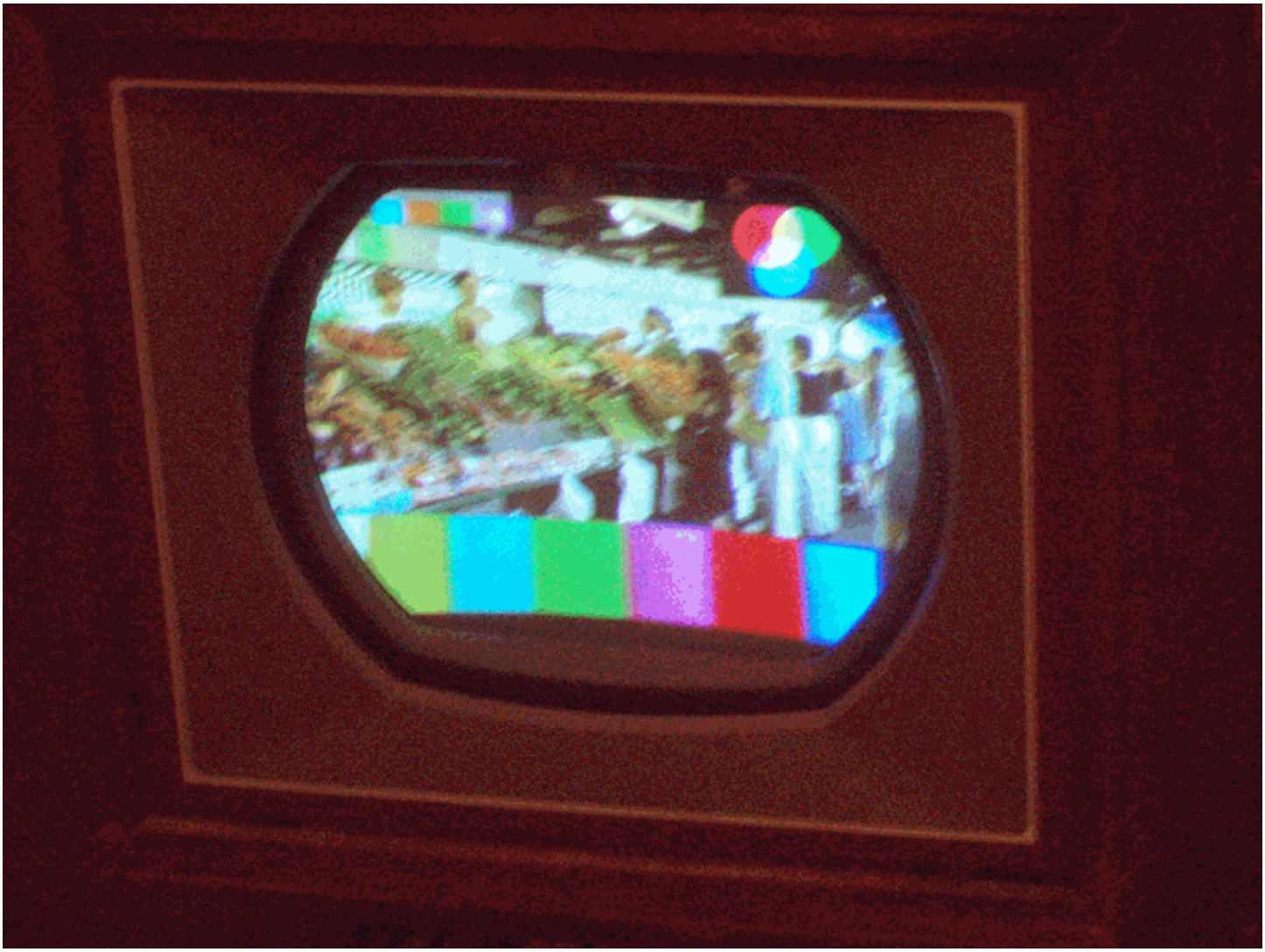




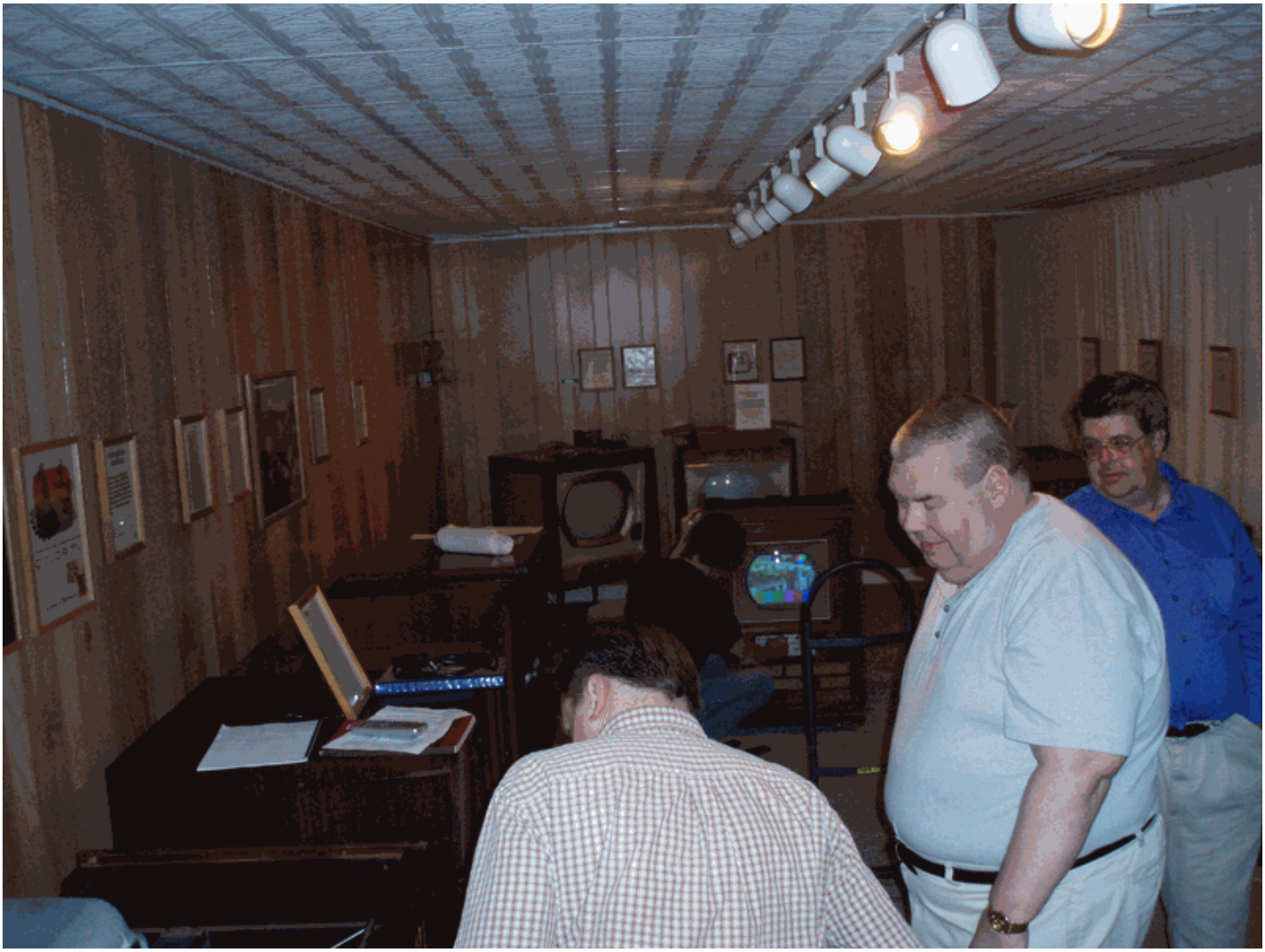


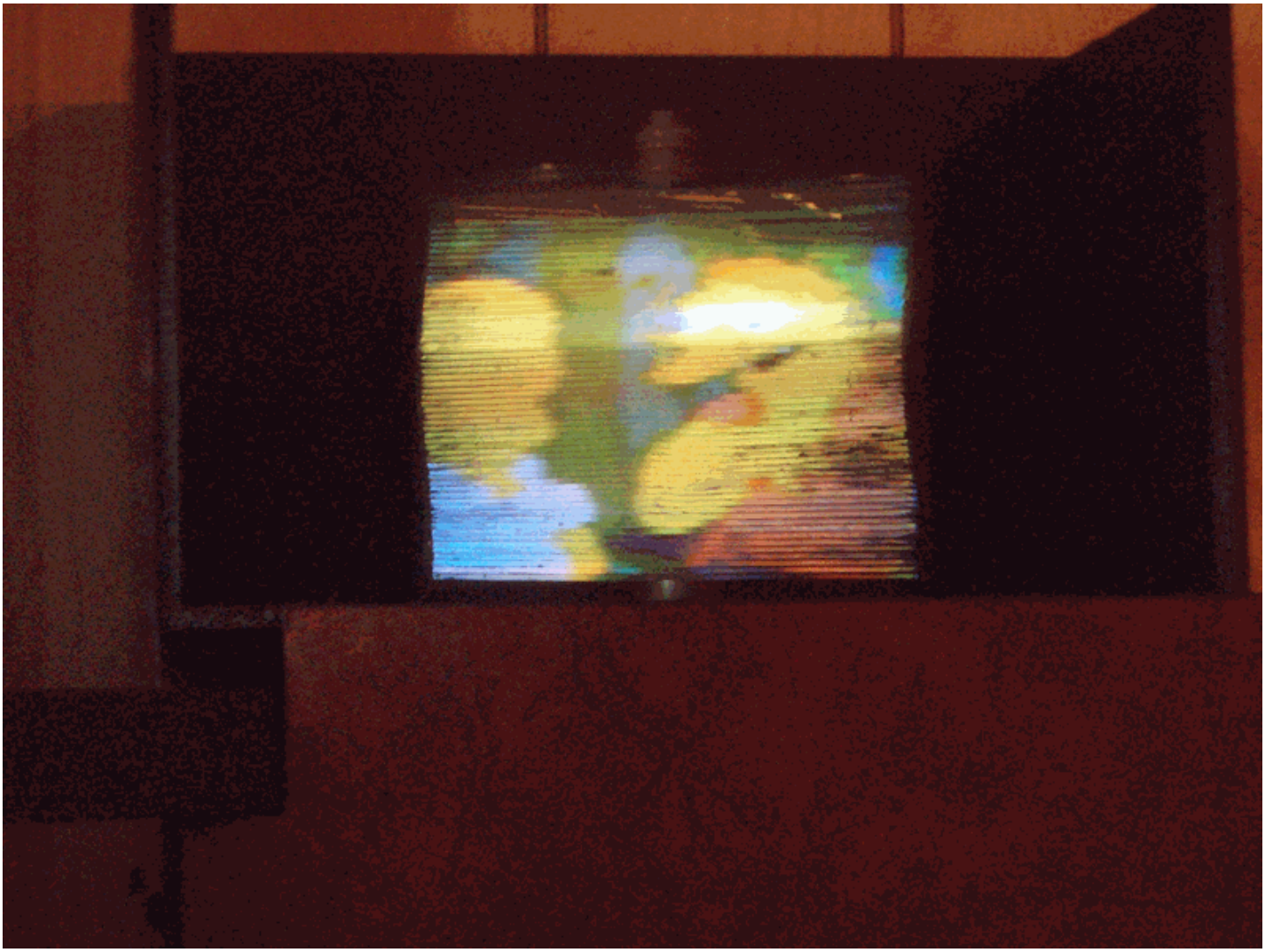


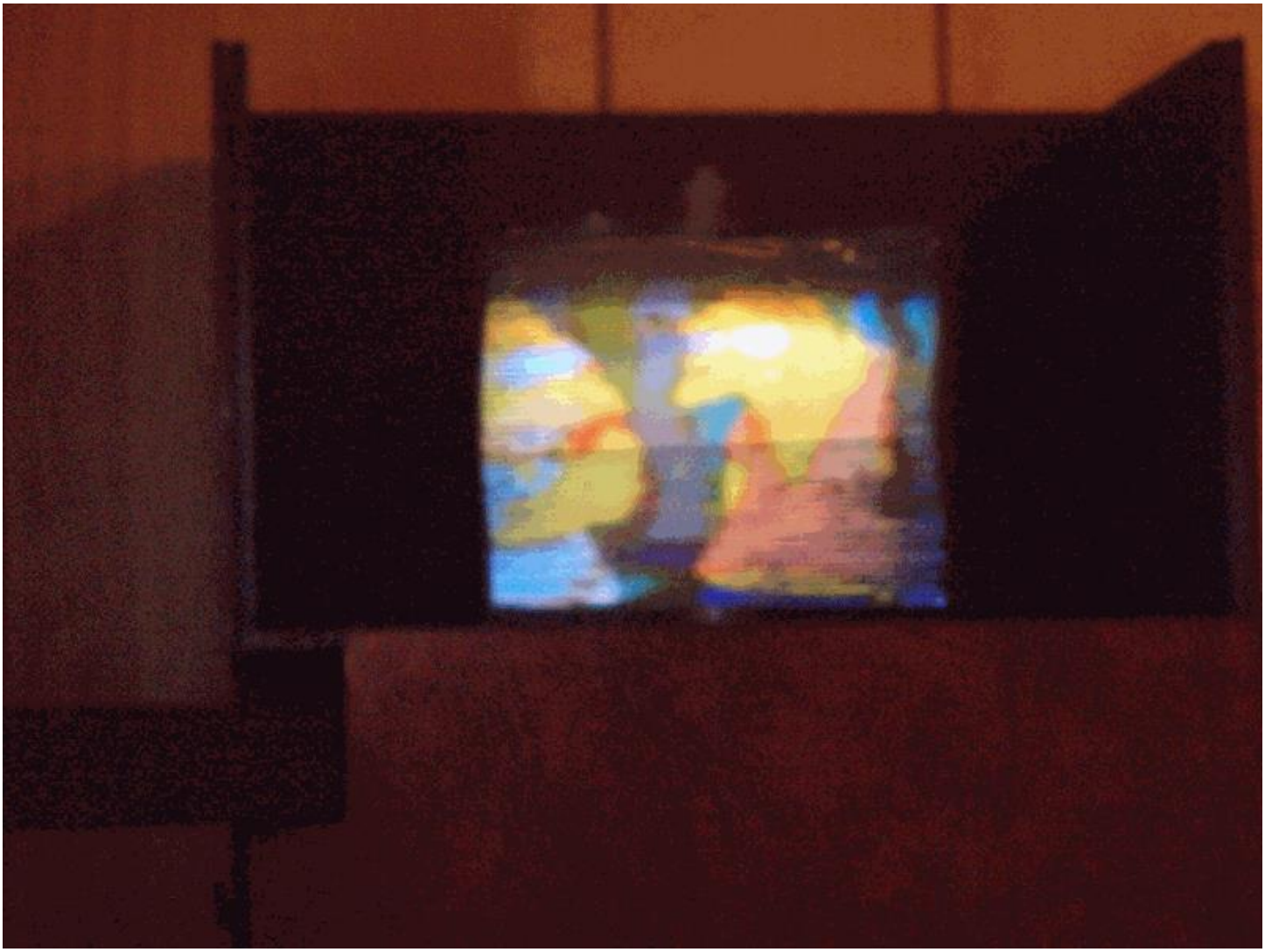


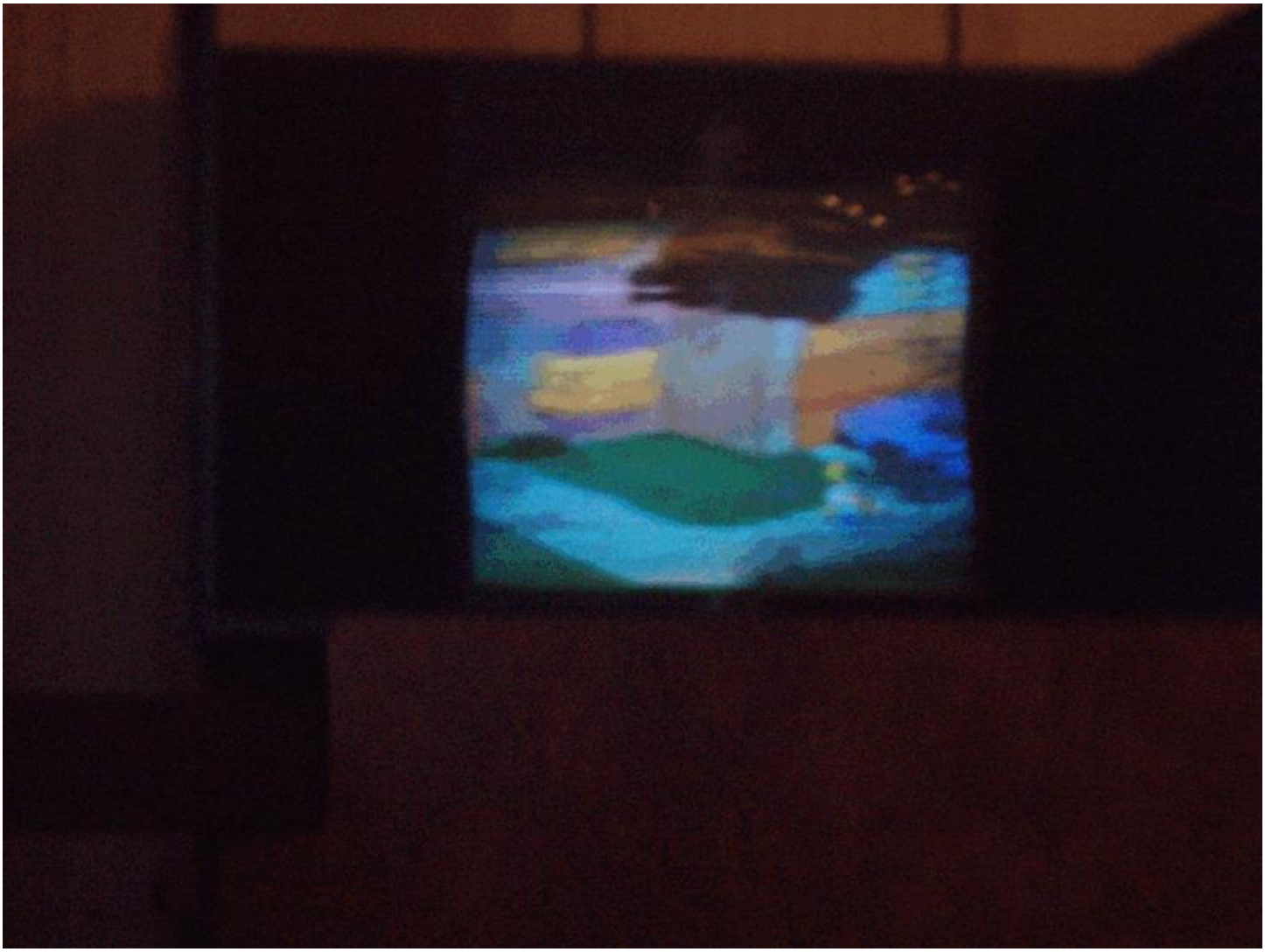


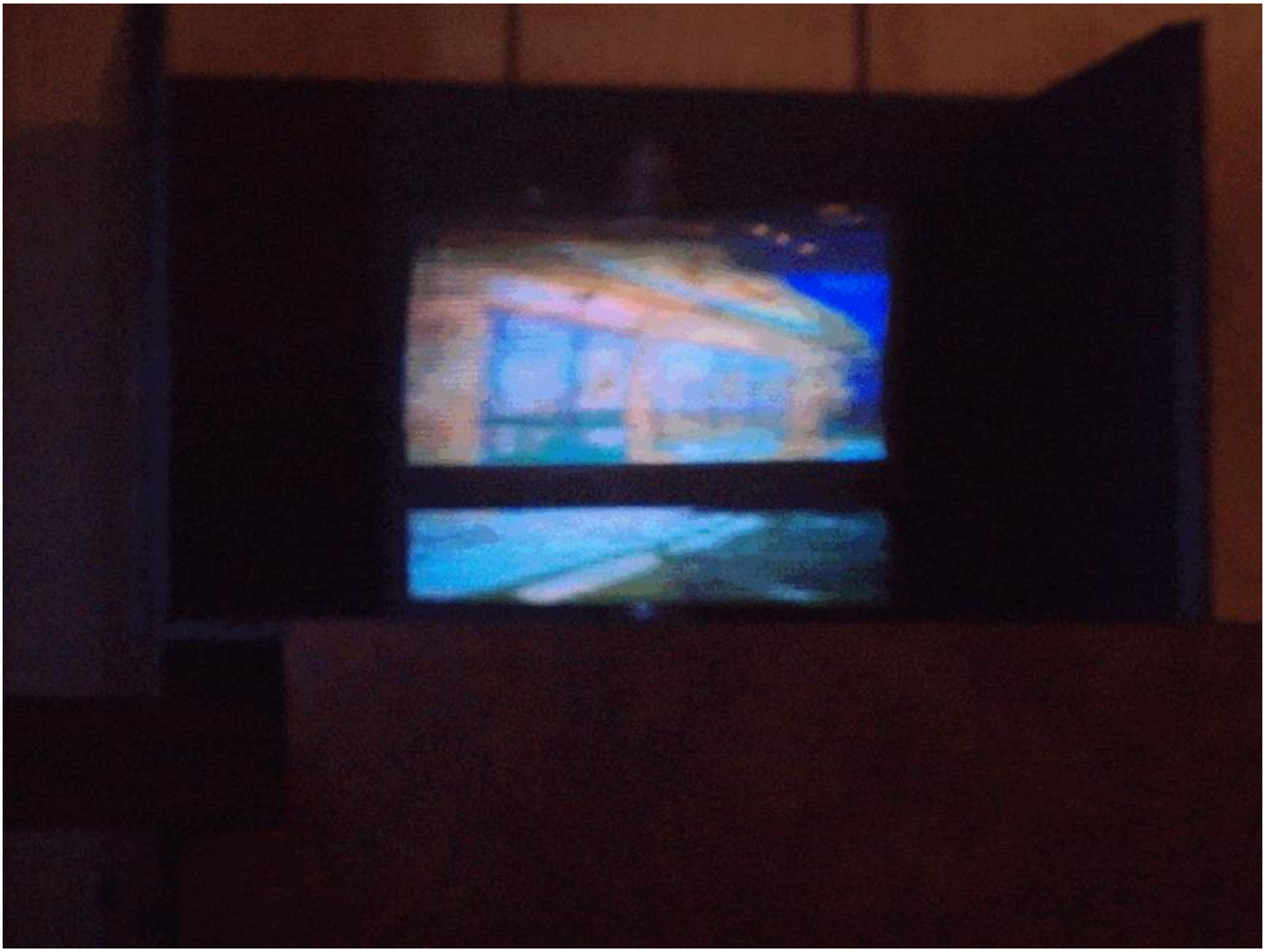

Colortone
ADAPTER

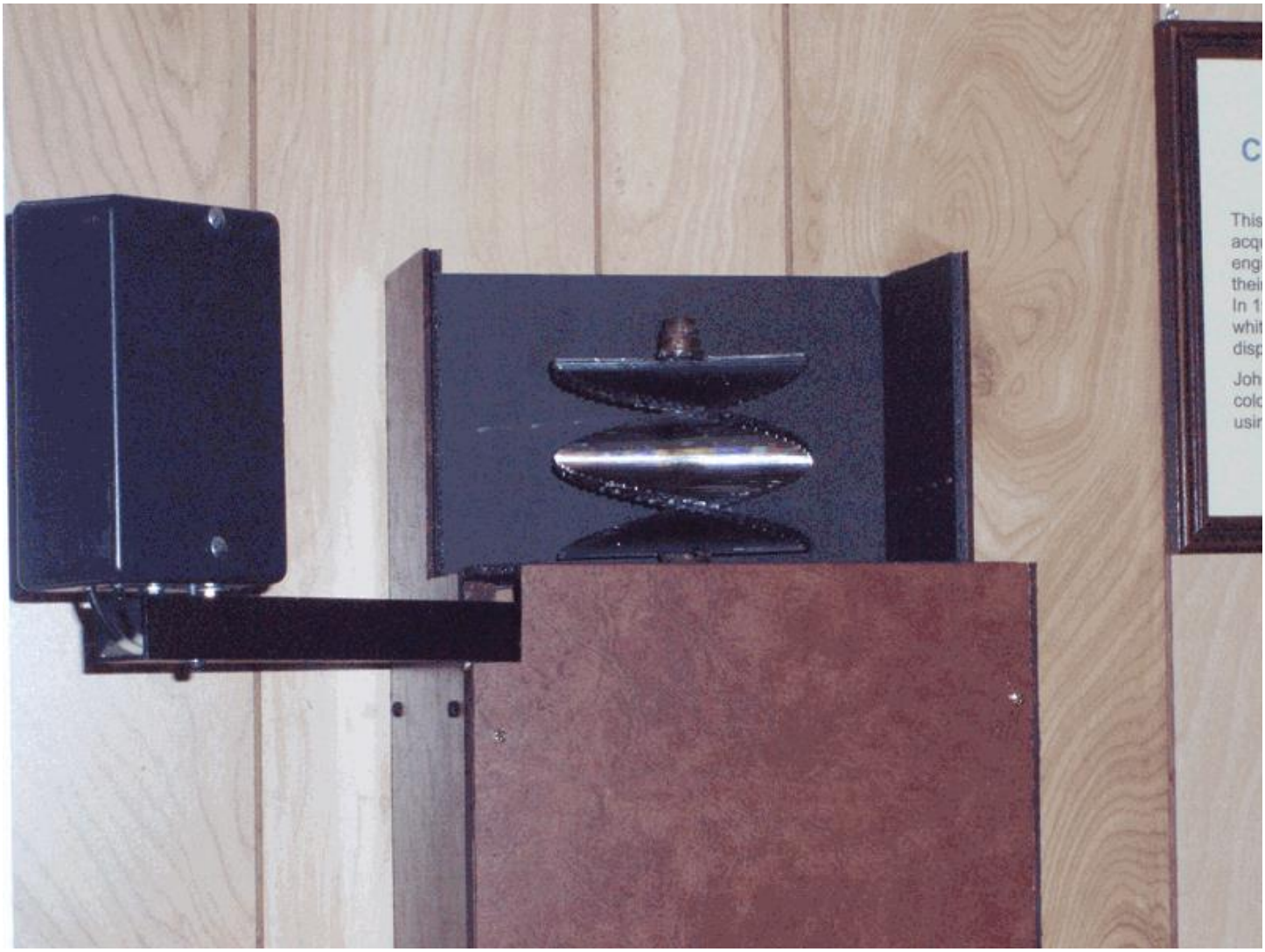








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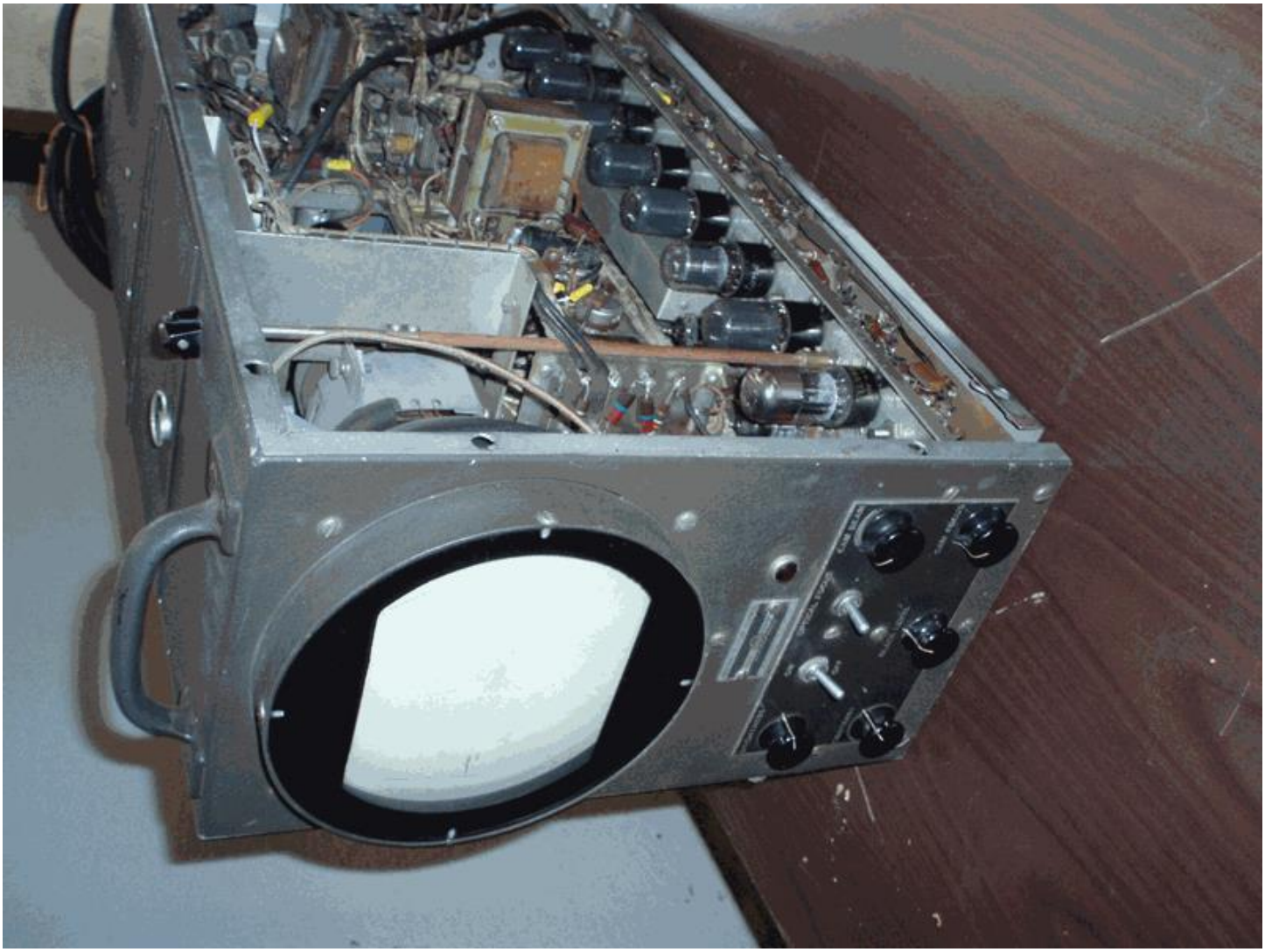
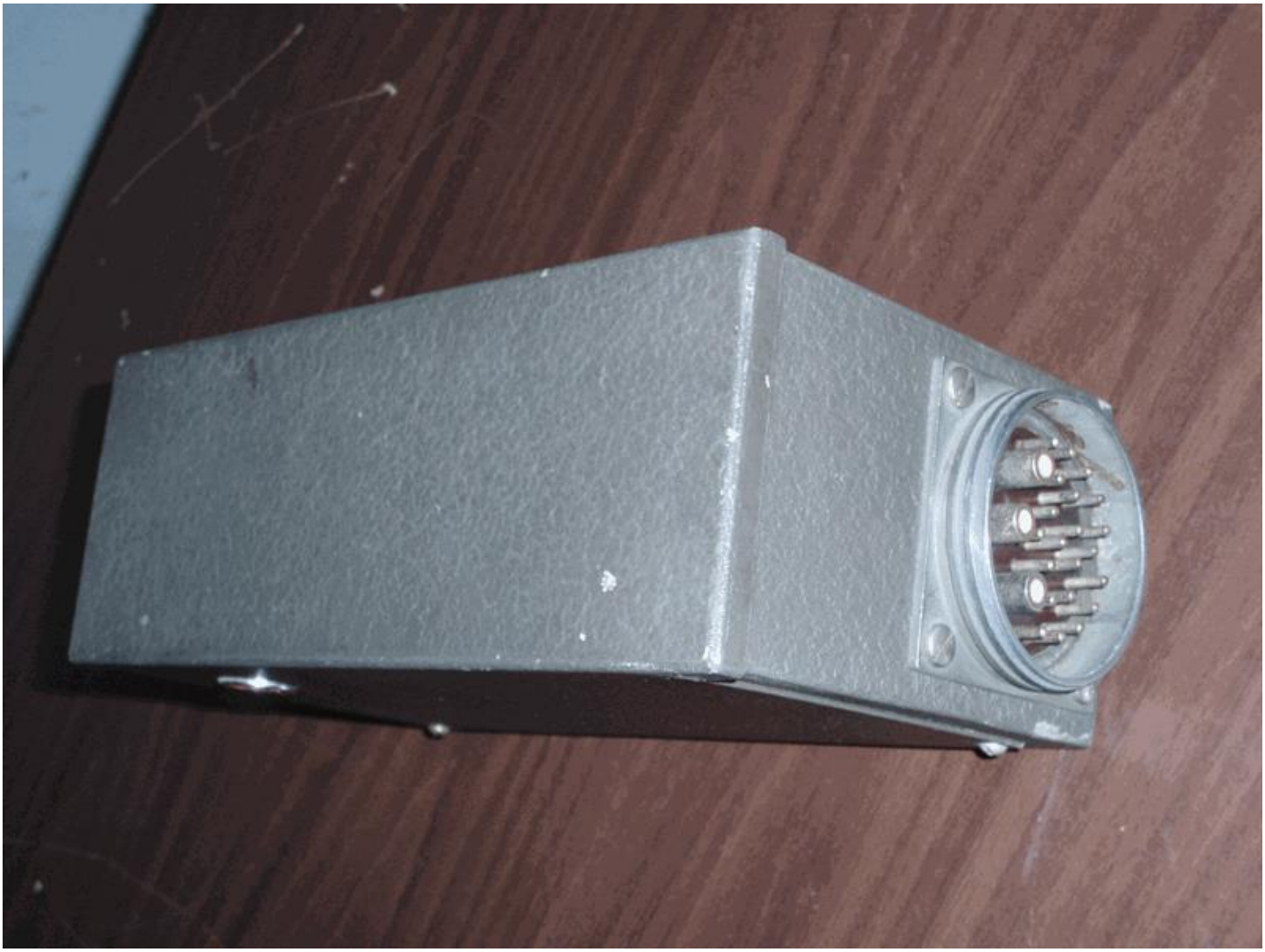
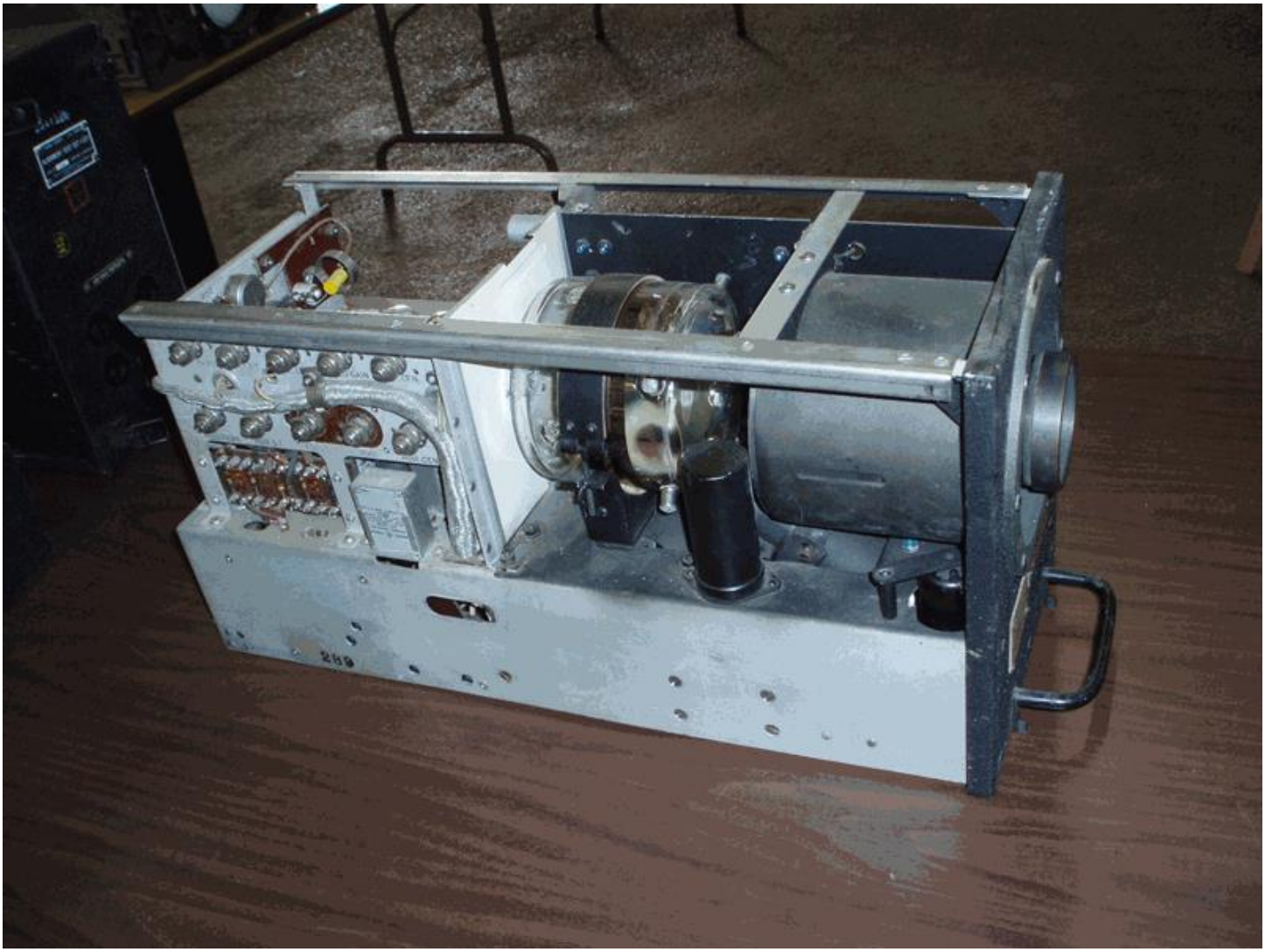


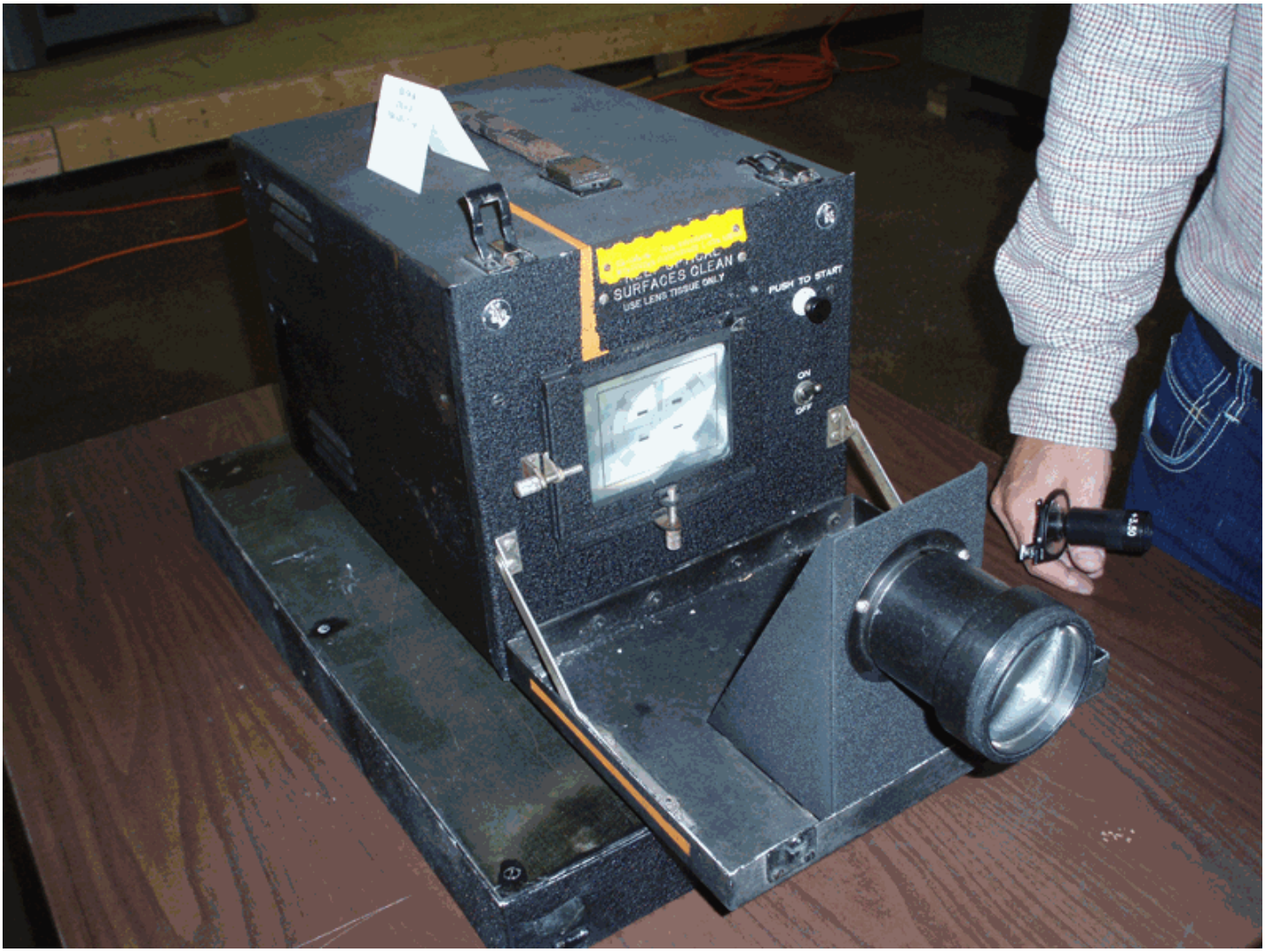


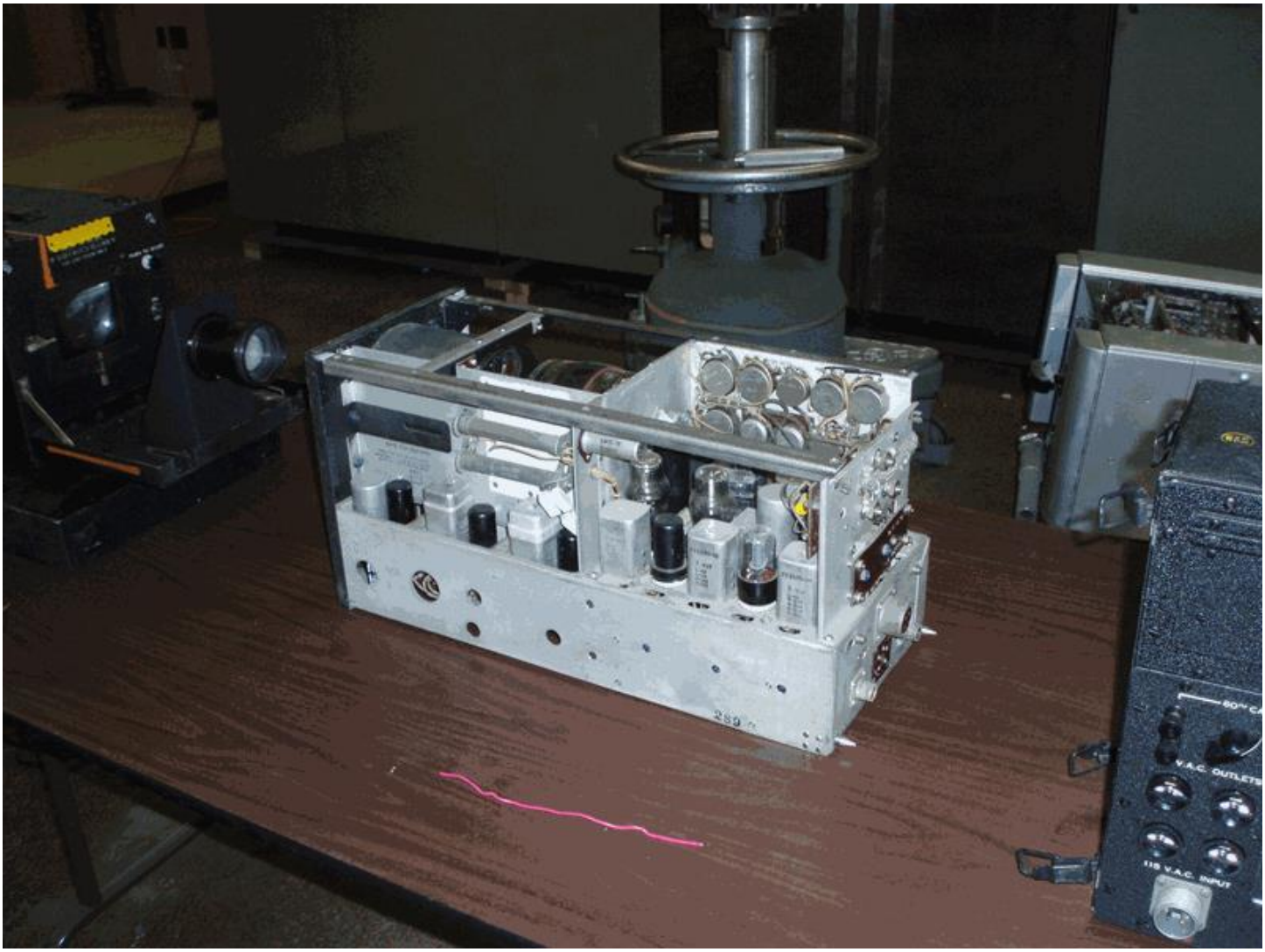

BORDEN
FRAGILE
PACK


RCA VICTOR RADIOS




SURFACES CLEAN
USE LENS TISSUE ONLY
PUSH TO START
ON

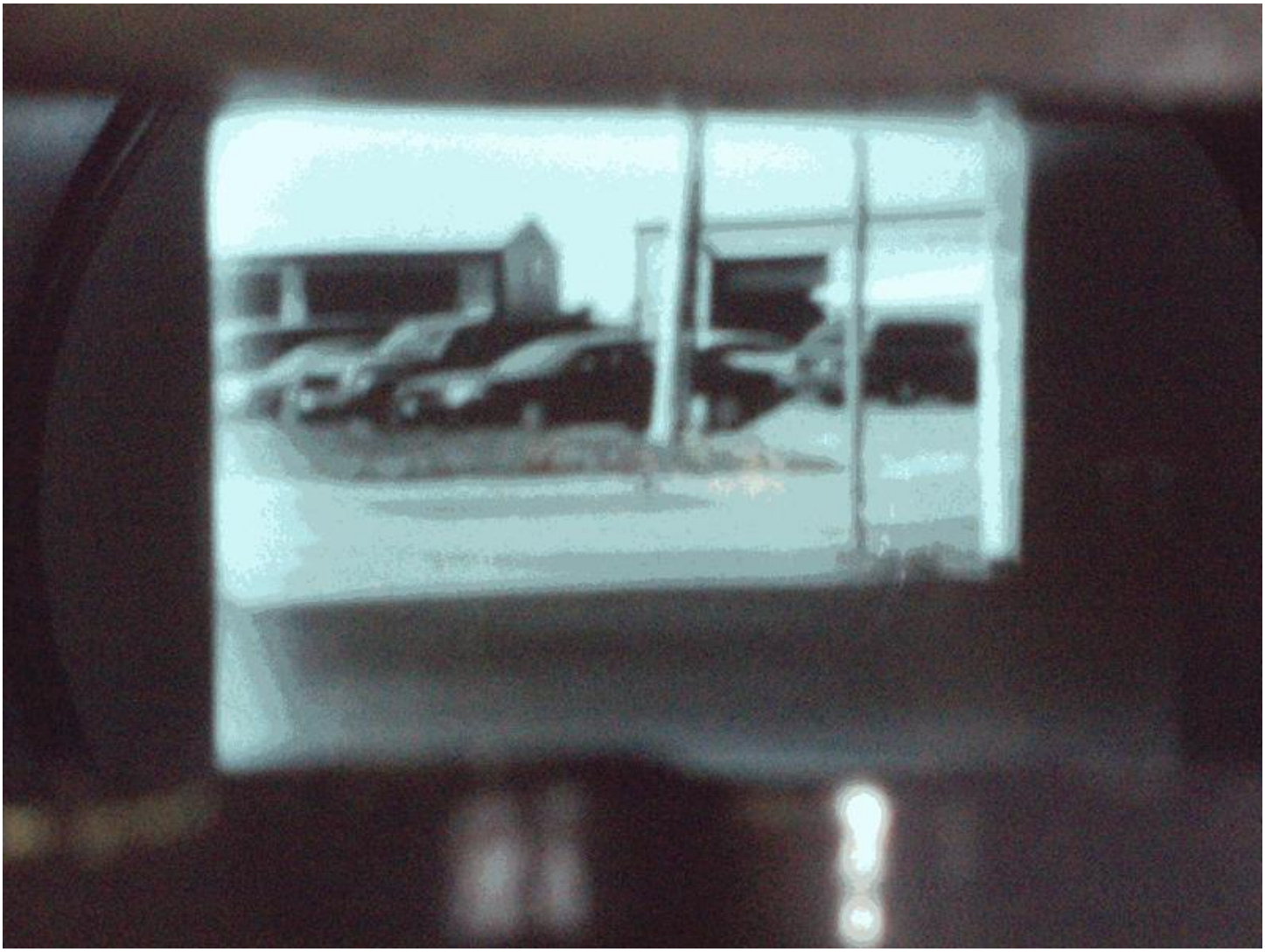

SURFACES CLEAN
USE LENS TISSUE ONLY
PUSH TO START
ON
OFF

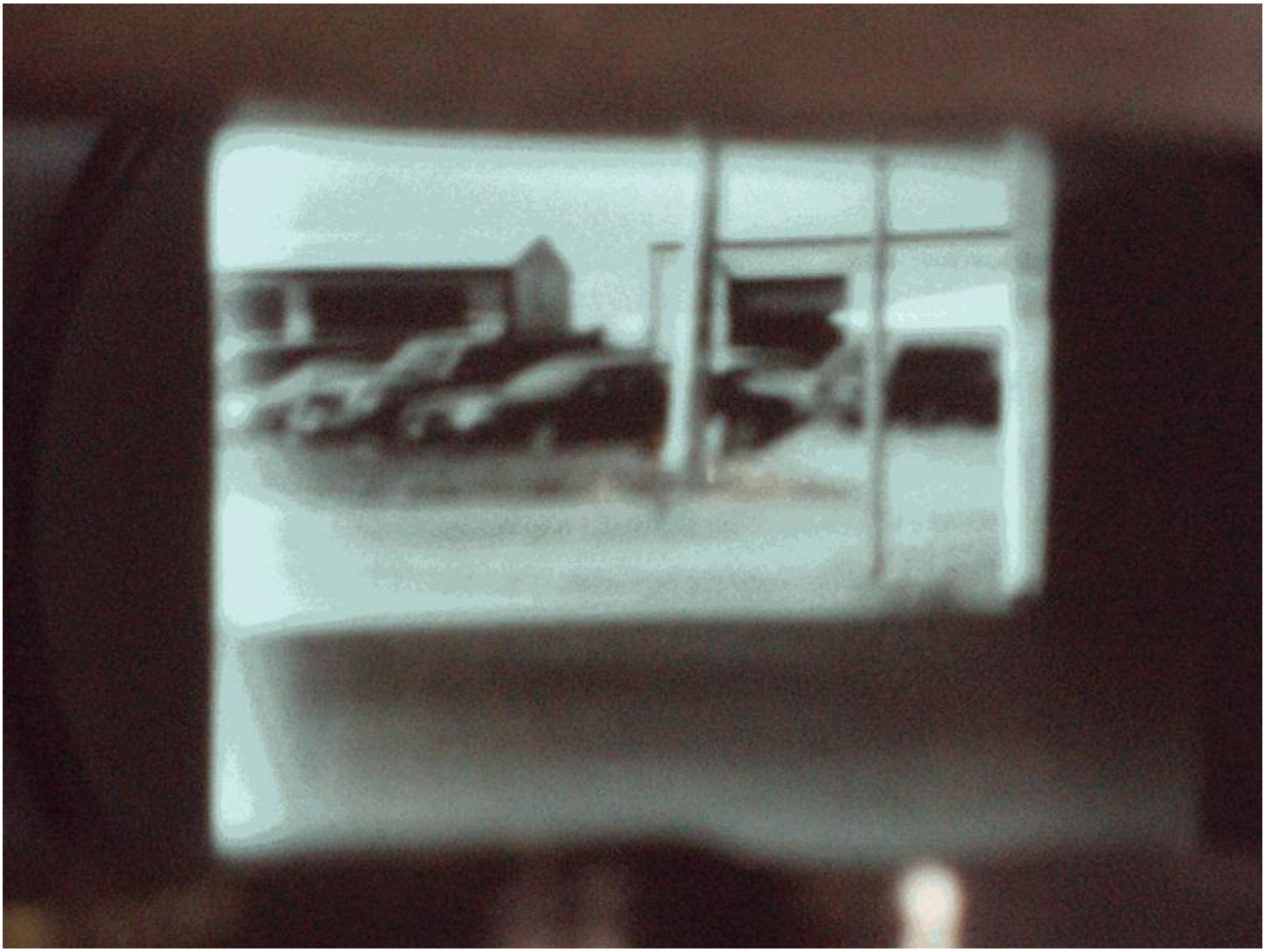

V.A.C. OUTLETS
115 V.A.C. INPUT

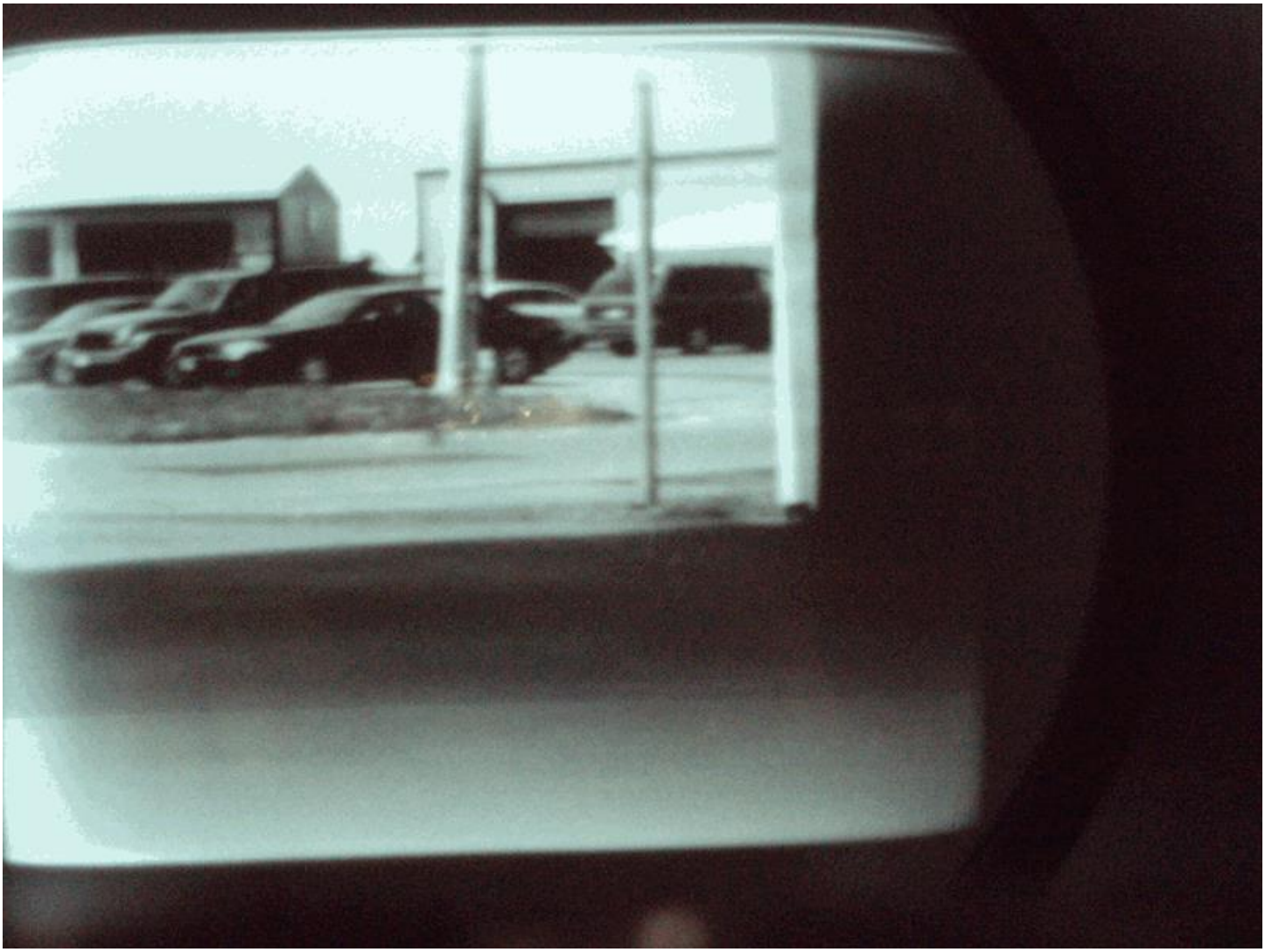

DIODE CURRENT
HI
SCOPE
KEYER
OFF
ON
DUMMY LOAD
ATTENUATOR
50 OHMS
R.F. MOD
VIDEO
AUDIO
60~ CAL VOLTS
HI
A.C.
D.C.
C-T UNIT
D.C. POWER
REC. AND MON.
D.C. VOLTS
C-T AND AUX
D.C. VOLTS
4 V.A.C. OUTLETS
115 V.A.C.
POWER
VOLTMETER
REC.
MON.
C-T
AUX.
C-T UNIT
REMOTE S.W.
OFF
ON
115 V.A.C. INPUT
AUX. OUT.
C-T UNIT OUT
MON. OUT.
REC. OUT
D.C. INPUT


RCA 21-CT-55
hilco TV-123
G12
cramer


Zenith
COLOR TV

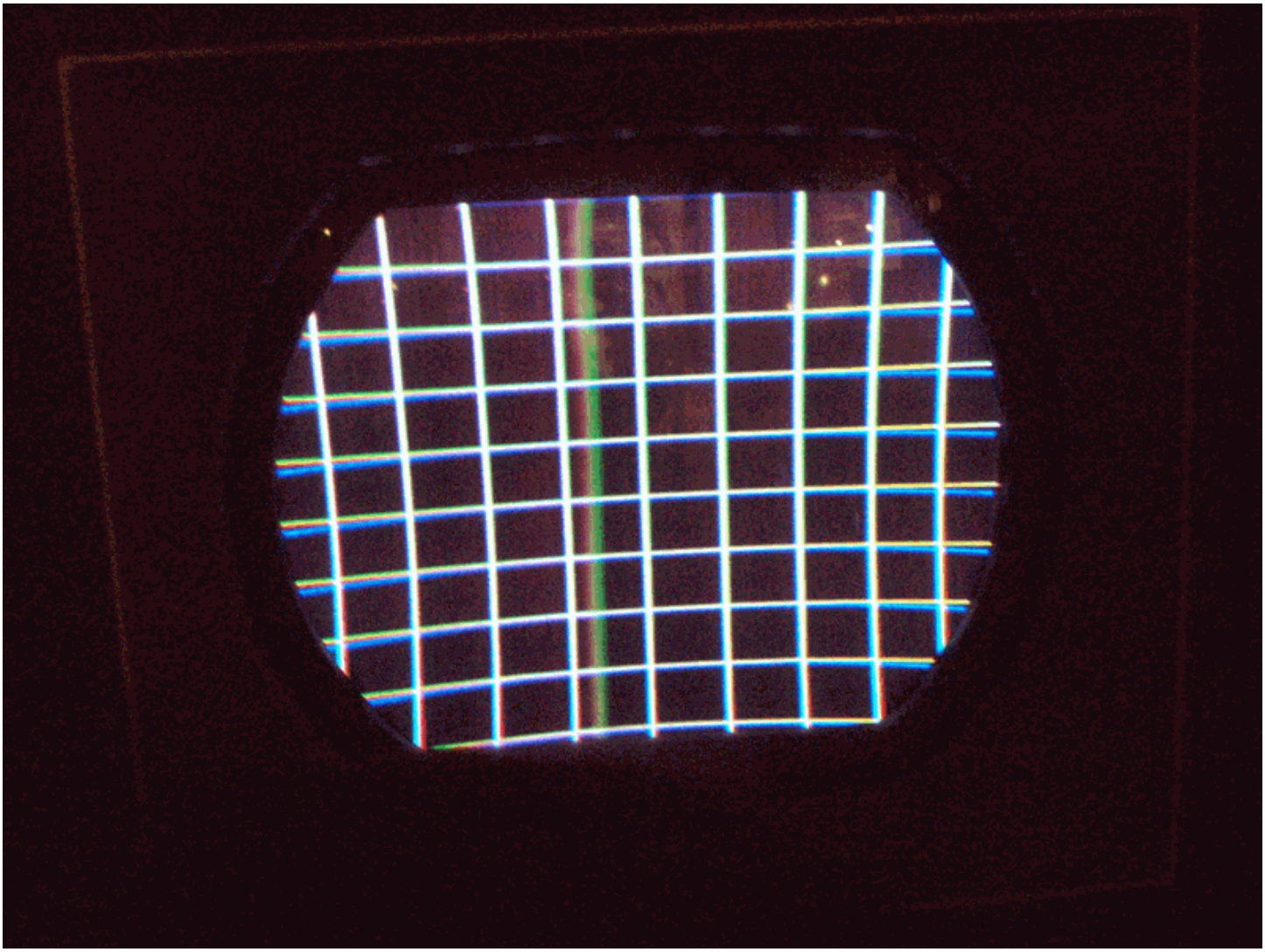


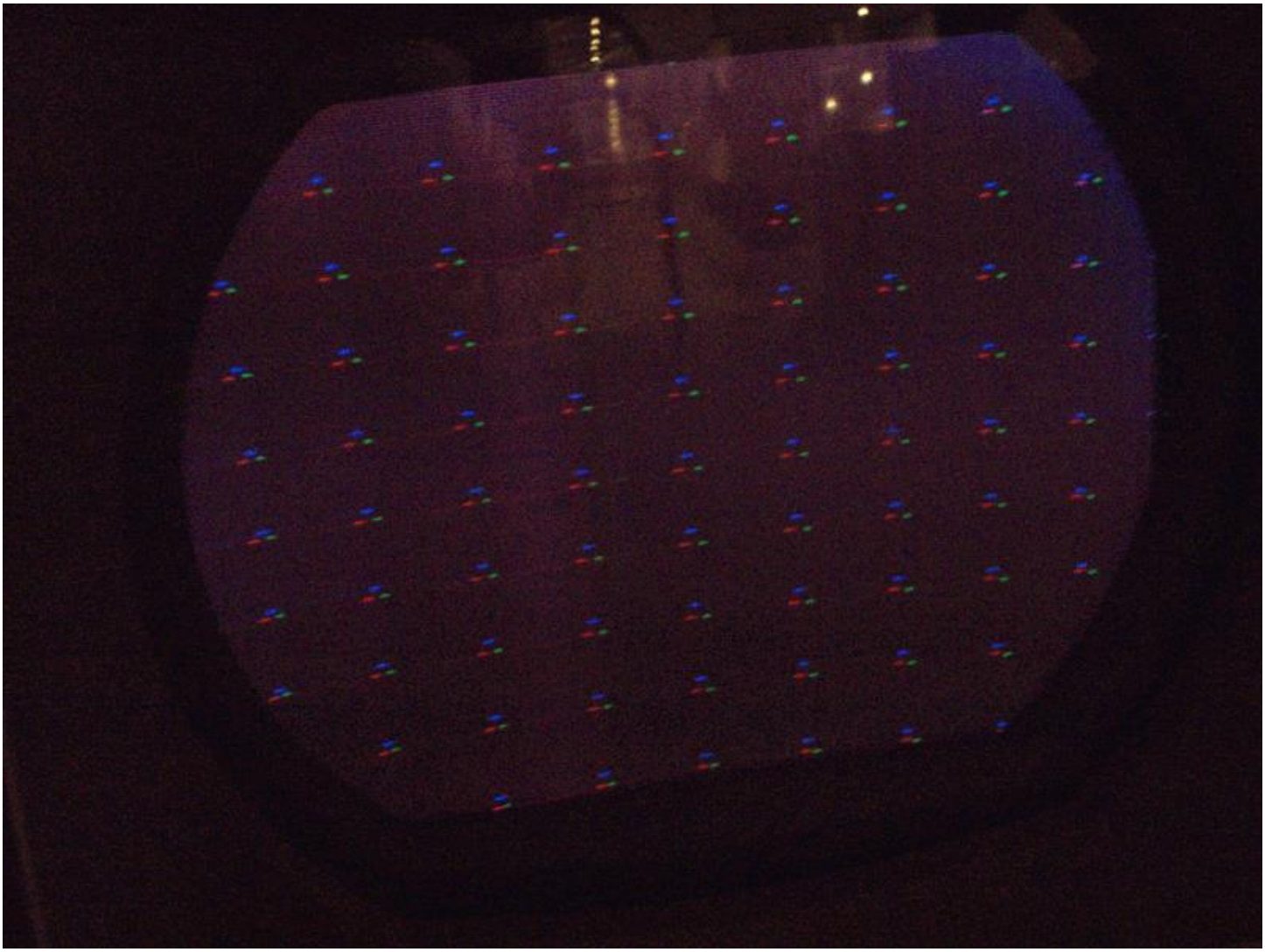


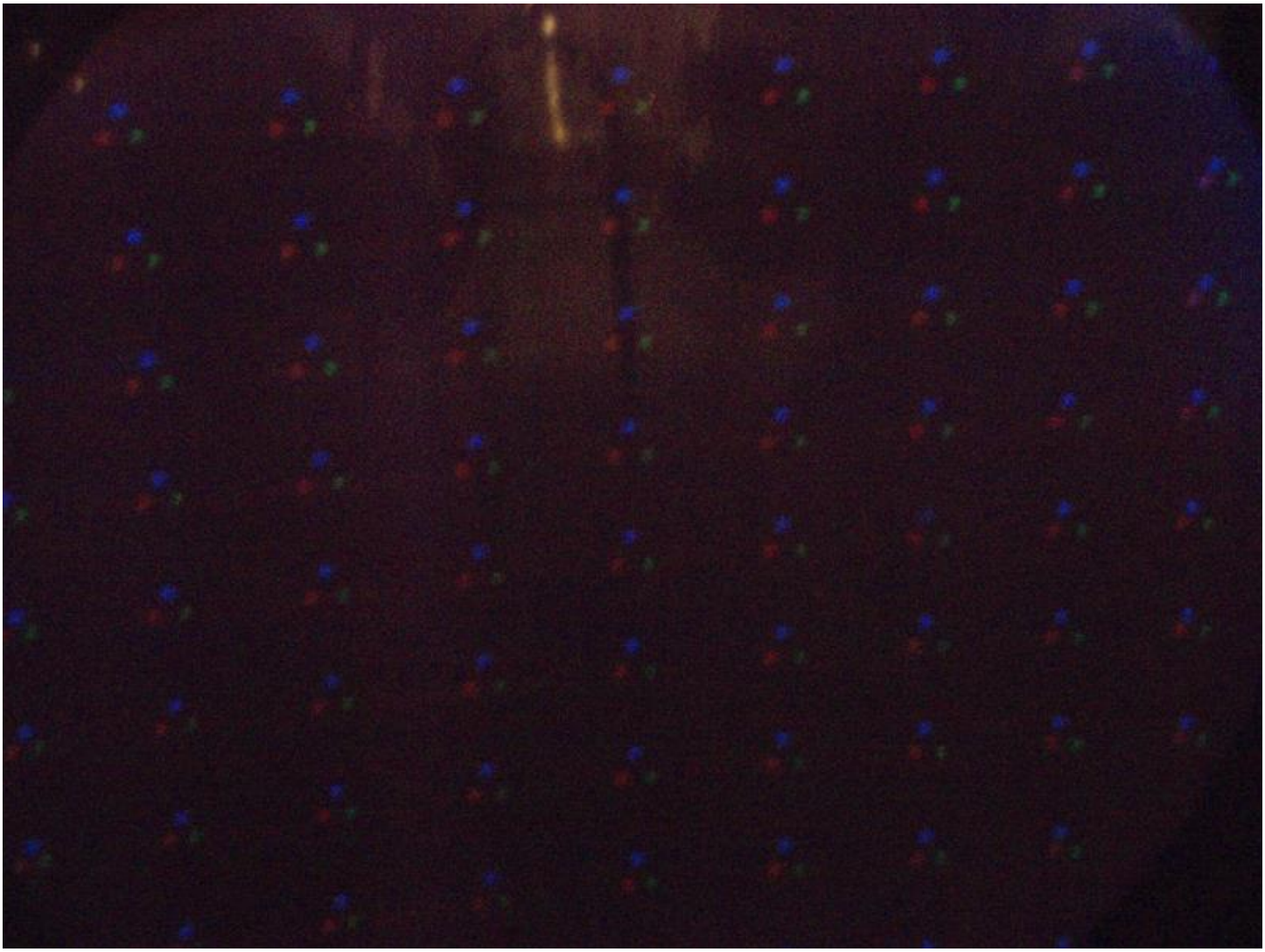


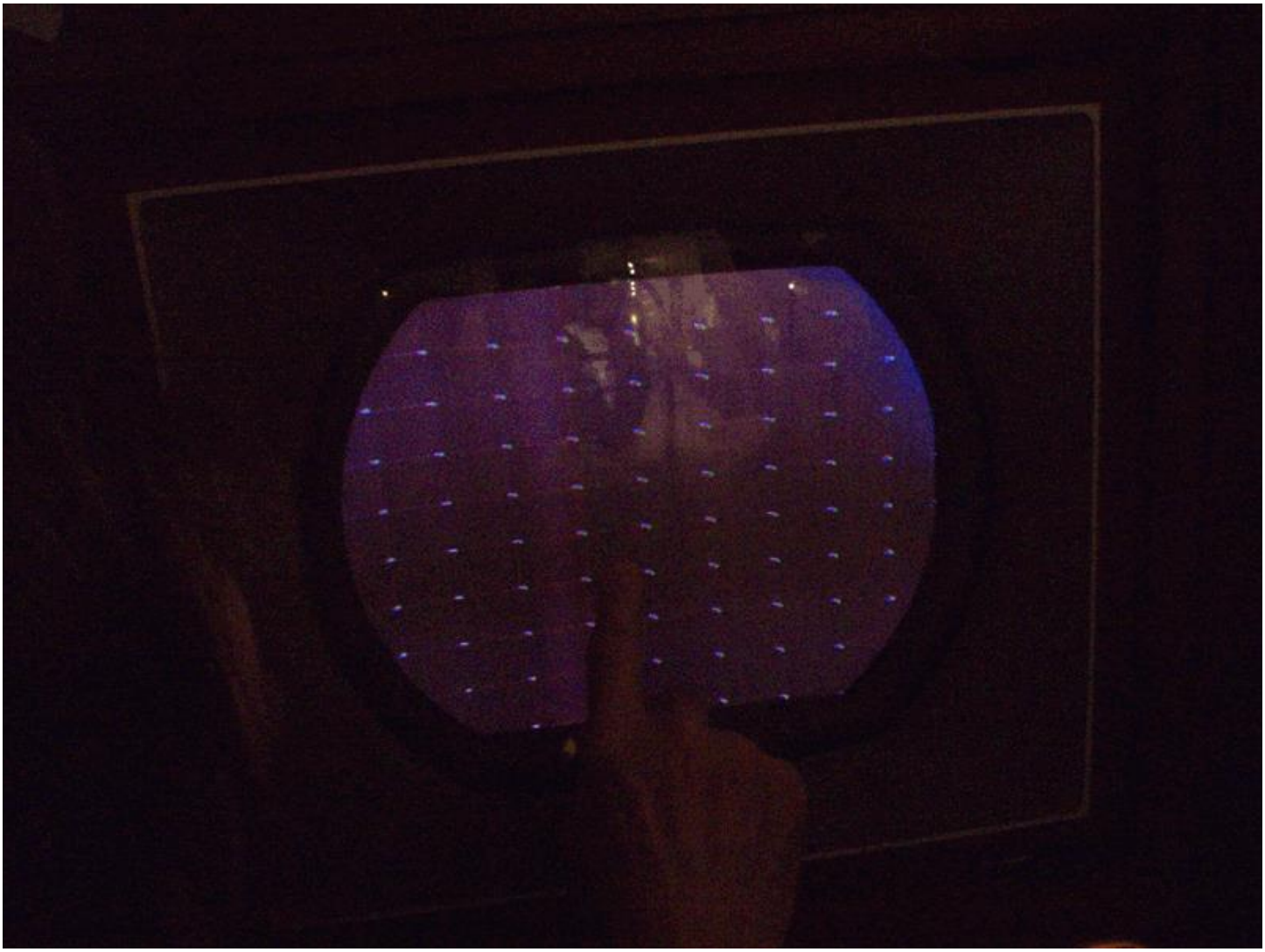

www.usps.com


SPARE
5-AMP.
SPARE
5-AMP.
VIDEO
POWER
SYNC.
5-AMP.
POWER
DYN.





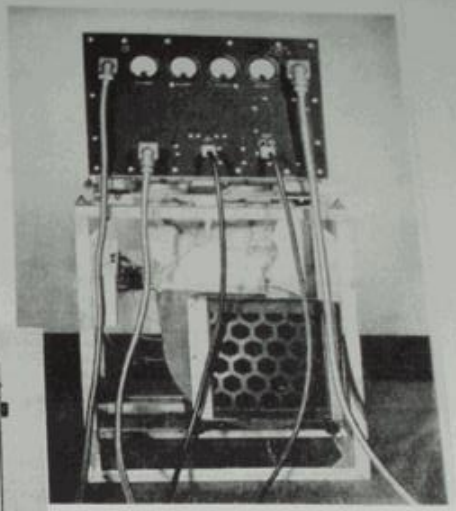




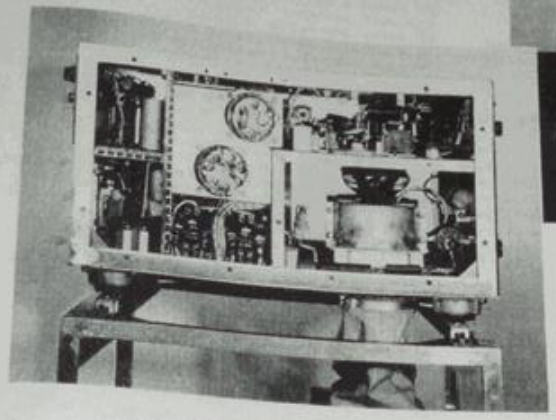

TELEVISION
DUMONT
TELEVISION

Airborne Television Recon- a range of 200 Miles

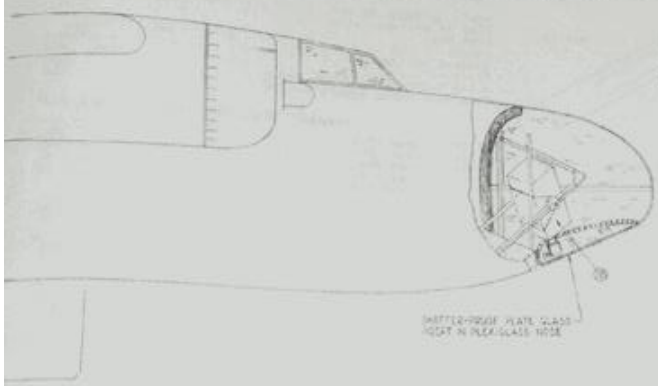
the contractor and the NBC engineering department the sub-contractor. The arrangement of this equipment in a Navy JM-1 Marauder is indicated in the diagram below and the photos on these pages. Two cameras are provided, one in the nose and one in the fuselage near the tail. Associated equipment is generally similar to BLOCK, but somewhat more elaborate. The most important difference is the transmitter (see photo below) which puts out approximately 1000 watts at frequencies of the order of 100 megacycles. This power, radiated from a non-directive antenna mounted on the under side of the fuselage, provides good reception up to 200 miles away (from an altitude of 22,500 feet).



The 1 KW, 100 mc transmitter, and [illegible] air blower used with the RING [illegible]



Interior (side view) of the transmitter is shown here. Two RCA-827-B's in the output stage provide a power of one kilowatt at 100 mc. Power supplies and modulators are separate units.



(Left.) Installation of RING equipment in a Navy JM-1 Marauder. Components are indicated by numbers on diagram, as follows:

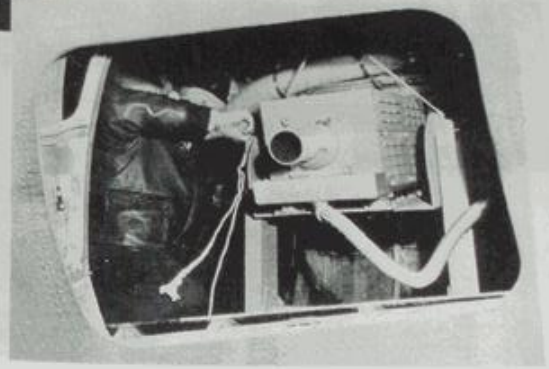
1. Conversion Unit
2. Flight Monitor No. 1
3. Flight Monitor No. 2
4. Oscilloscope
5. Oscilloscope Calibrating Unit
6. Synchronizing Generator
7. Control Unit and Line Amplifier
8. Power Panel for Video Equipment
9. A.C. Junction Box
10. D.C. Junction Box
11. Radio Relay Transmitter
12. Blower
13. Plate and Bias Supply for (13)
14. Plate and Bias Supply for (2)
15. Plate and Bias Supply for (7)
16. Plate and Bias Supply for (3)
17. Transmitter Plate and Bias Supply
18. Transmitter Antenna
19. Conversion Unit

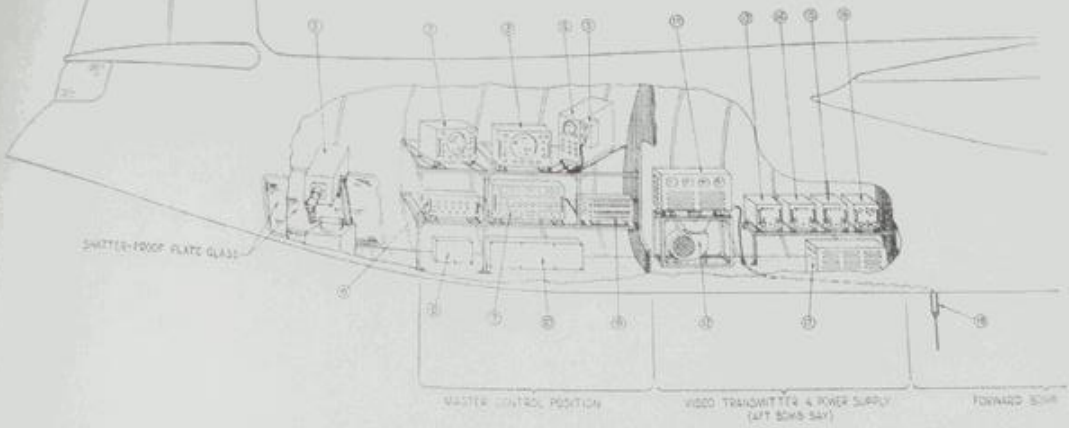
One of the RING television cameras is located in the nose of the plane as shown here. (Item 19 on diagram below.)

The second RING television camera mounted in the side porthole of the Navy JM-1 Marauder used for television reconnaissance demonstration. (Item 1 in diagram below.)

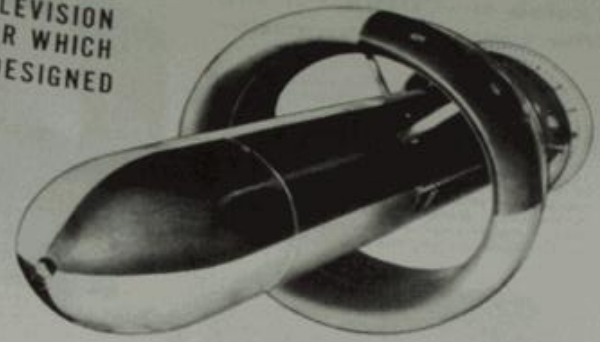
This is "RING" – a deluxe naissance Equipment with

The airborne television equipments (BLOCK and MIMO) described on the preceding pages were intended chiefly for use in guided missiles, therefore were made just as small and light as human ingenuity could make them. The 15 watts or so which they put out provided ranges up to 20 miles and this was sufficient for the purpose. However, when television equipment of this type was mounted in scout planes and used to transmit a picture back to headquarters (i.e., television reconnaissance) a greater range was obviously desirable. Since the weight and size requirements for this use were less critical, a transmitter of greater power was indicated. Such an equipment, given the name RING, was developed for a Navy project on which RCA was



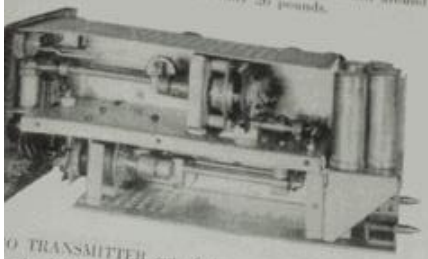


THIS IS THE "ROC" THE HIGH-ANGLE TELEVISION GUIDED BOMB FOR WHICH "MIMO" WAS DESIGNED

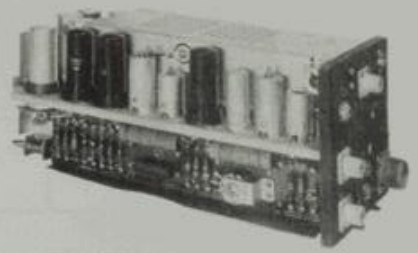


MIMO CAMERA from the side, with and without case, is shown in the above views. Only 8 inches in diameter and 14 inches long, this unit fits easily into the streamlined nose of the ROC (see illustration above). The Miniature Image Orthicon and its optical system are enclosed in a steel center tube. Components, which make up the deflecting circuits and video amplifiers, are mounted around this tube as shown above. The complete unit weighs only 26 pounds.

MIMO ANTENNA is a dipole mounted on the rear or tail end of the ROC, as shown in the illustration above. In this position it always "faces" in the general direction of the control plane.



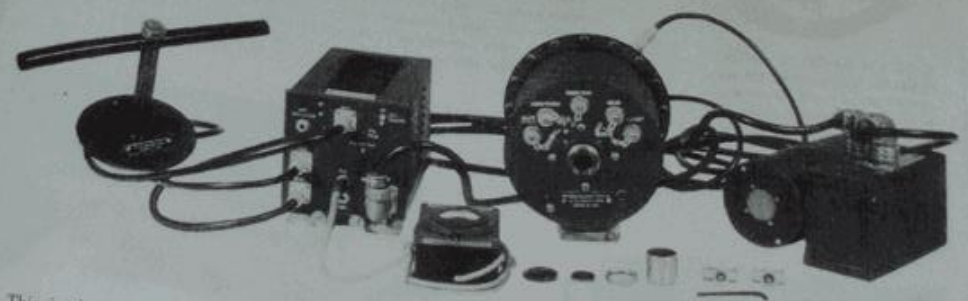
O TRANSMITTER out of the case is shown in illustrations above ght. MOPA circuits, which make up the r-f part of the transmitter, n in right side view (above) and audio and modulator components inside view (right). The whole transmitter is approximately 6 inches y 12 inches deep. It weighs only 7 pounds as compared to the s of the BLOCK Transmitter. Output is approximately 5 watts egacycles.



THIS IS "MIMO" THE NEW STILL SMALLER AIRBORNE TELEVISION EQUIPMENT

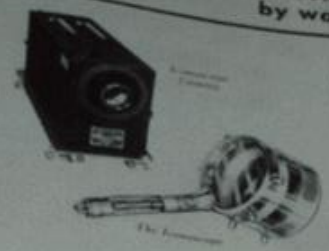
This equipment has just been declassified and is shown here for the first time

The equipment shown on the preceding pages was satisfactory for bombs such as the GB-4. However, for newer guided-missiles such as the ROC, which has a relatively long narrow fuselage, a smaller equipment was desirable, preferably with a camera that could be fitted directly into nose of the bomb. To meet this need RCA engineers developed the MIMO equipment, using as a start the Miniature Image Orthicon (BROADCAST NEWS No. 41, Page 43), to the Image Orthicon. This tube, which is similar in design above with one of the latter tubes for comparison. It is nine inches long, only two inches in diameter; i.e., about the size of an ordinary flashlight.



This is the complete MIMO equipment which goes in the ROC. The camera, transmitter and antenna are shown separately in the pictures on this page. The MIMO junction box (right) has the dynamotor mounted inside, and yet is little larger than the BLOCK junction box (which is required in addition to the dynamotor). The large weight savings in main units, together with some savings in weight of cables, result in a total weight of the MIMO equipment (in the bomb) of 50 pounds as compared to an equivalent weight of 100 pounds for the BLOCK equipment. In addition all of the MIMO units are smaller so that they may be more easily fitted into the slender fuselage of the ROC.

The development of smaller, more sensitive Television Cameras was greatly accelerated by war requirements—here are three stages

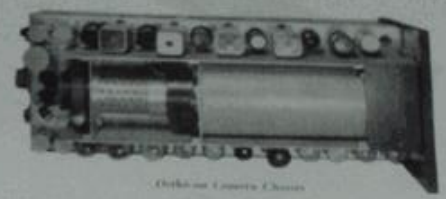


The Iconoscope

Iconoscope Camera Chassis

ICONOSCOPE CAMERA using an iconoscope-type pickup tube similar to previous studio type, but smaller in size, was the first camera used with BLOCK equipment. Illustrations above show, left to right, the camera case, the iconoscope and the camera chassis with cover removed. More than 1000 of these cameras were manufactured by RCA during the war.

Orthicon Camera



Orthicon Camera Chassis

The Orthicon

ORTHICON CAMERA was the second step in the evolution of BLOCK cameras. This camera used the relatively more sensitive ORTHICON, a pickup tube developed just before the war by RCA engineers. This camera was an intermediate type which was quickly superseded and hence only a few were made.

Image Orthicon Camera

Image Orthicon Camera Chassis

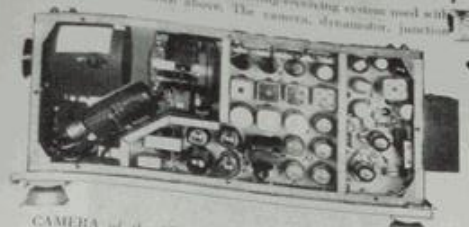
The Image Orthicon

IMAGE ORTHICON CAMERA represented the third step in camera development—and the final step as far as the BLOCK equipment was concerned. This camera, using the Image Orthicon, which is 100 times as sensitive as the Iconoscope, made it possible to use the BLOCK equipment under conditions of poor lighting, as on dark, cloudy days or at twilight.

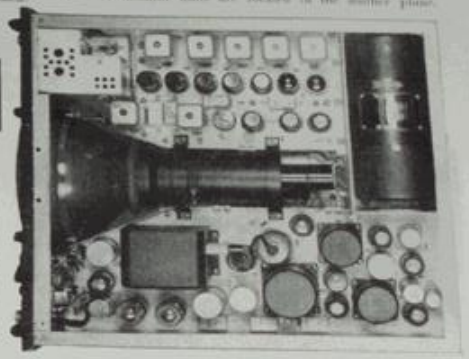
FOR DETAILS OF A NEW STILL SMALLER CAMERA SEE NEXT PAGE

Closeups of the Television Equipment used in the Bomb and the Control Plane

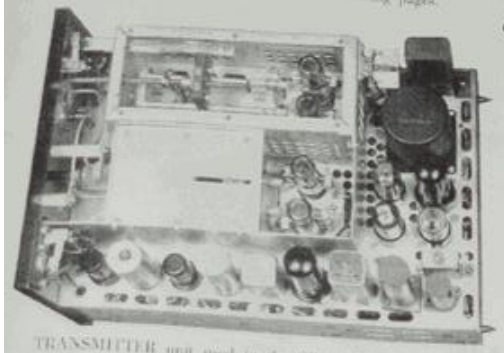
The complete television transmitting-receiving system used with the GB-4 Bomb is shown above. The camera, dynamotor, junction box and transmitter are mounted in the bomb. The receiver and one or more monitor units are located in the mother plane.



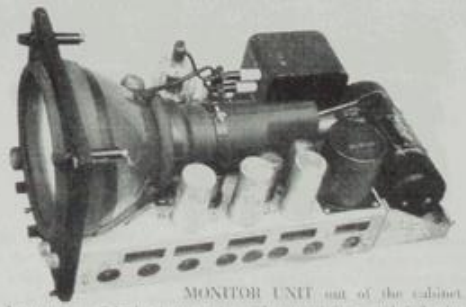
CAMERA of the "BLOCK" equipment with side shield removed to show the interior construction. The GB-4 equipment was the early type using the Iconoscope pickup tube. Later equipments, of generally similar design, used successively the Orthicon, the Image Orthicon, and the Miniature Image Orthicon. The later equipments are shown on the following pages.



RECEIVER is completely self-contained (note built-in dynamotor) and requires only r-f input and battery connections to be ready for installation. Total weight is 54 pounds.



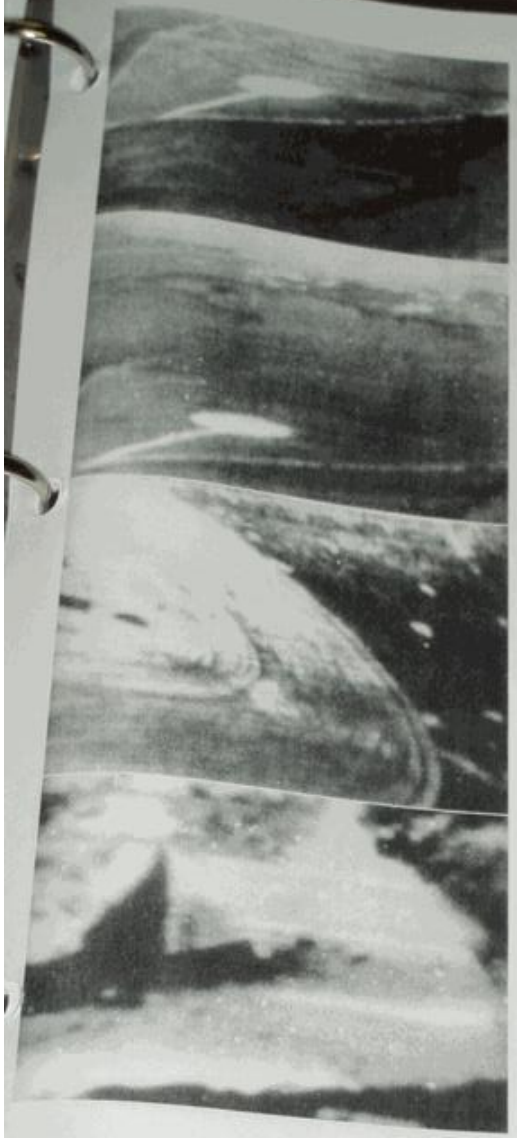
TRANSMITTER unit used in the GB-4. This view shows a top view of the chassis removed from the cabinet. Circuit is of the master oscillator power amplifier type using two RCA-9025's in each stage. Output is about 15 watts unmodulated at frequencies of the order of 300 megacycles. Weight, including shock mounts, is 26 pounds.



MONITOR UNIT out of the cabinet. It contains a 7-inch picture tube, video amplifiers, and deflecting circuits. Driven by video signals obtained from the receiver, it provides a picture duplicating that on the receiver picture tube.

This is a series of pictures taken from the screen as the Bomb approached a target in Germany

The series of pictures above (note sequence number in upper right corner) are single frames enlarged from a 16 mm movie showing a GB-4 Glide Bomb approaching a target in Germany. The rate of approach can be judged by noting the increase in size of the white splotch (apparently a plowed field) near the center of the scene. Here again the reproduction leaves much to be desired. However, the series is of interest as representative of an actual bombing run.



This is what the Bombadier sees-

The series of pictures on this and the opposite page provide some idea of the continually changing scene the bombardier sees on the screen in his receiver unit. It should be noted that these pictures are enlargements of single frames from a 16 mm movie made directly from the screen of the tube. Photographing a television screen is difficult at best. Enlargement of the single frames tends to bring out the grain in the film, and the screening process employed in making printing plates still further reduces the apparent resolution. Thus, while these pictures indicate the type of scene there do not do justice to the clarity of the image.

The scene at the left, as in the other pictures of this series, shows the target area at the Eglin Field, Florida, as picked up by the camera in a GB-4 Glide Bomb. The target is a small pyramid in the center of the white circle. The large triangle, within which the circle lies, is approximately 1000 feet on a side.

In this view the GB-4 Glide Bomb has approached much closer to the target and only a portion of the circle is visible on the screen. As this photograph was taken the direction of the bomb had deviated from the true course to the target and the control operator was bringing it back on the target. This accounts for the tilted effect of the picture with relation to the others of the series.

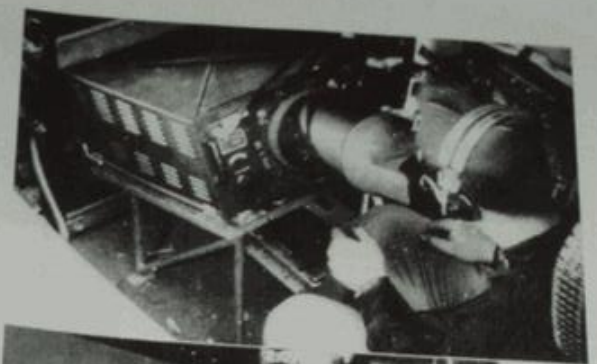
This is a frame of the same movie just before the bomb struck the target. A feature of the television bomb, which is of great advantage, is the fact that as it approaches the target the area portrayed on the screen becomes smaller and the target increases rapidly in size. This makes for great accuracy.

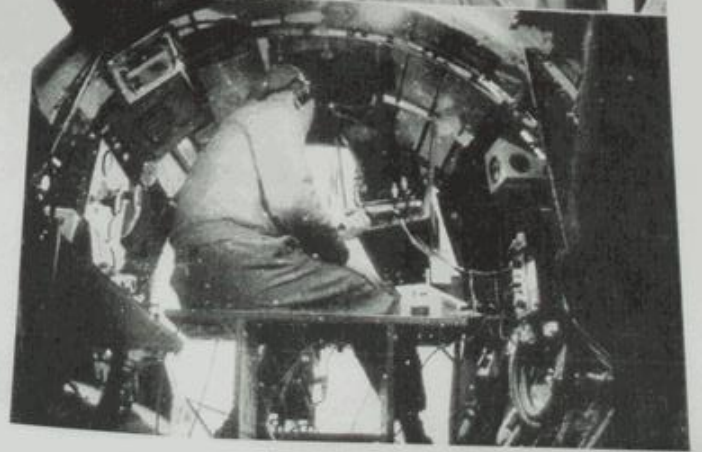
This is how its course is Controlled—

The television picture from the bomb is picked up by the receiver shown in this view. This receiver is installed in the radio compartment of another plane (in this case a B-17 bomber). The television operator sits in the position shown and observes the picture on the screen of a 7-inch kinescope (shown here with viewing hood over it). The operator's job is to monitor synchronizing, constant, and carrier frequency control so that the co-pilot or bombardier, who controls the bomb, will not have to touch these controls.

The actual control of the bomb—both launching and guiding—is exercised by the co-pilot in another plane, or the bombardier in larger planes. The picture at the right shows the co-pilot's installation on a B-24. The co-pilot watches the picture reproduced on the 7-inch kinescope in the monitor unit. This picture is a duplicate of that in the receiver kinescope. When the picture on the screen indicates that the bomb is turning away from a direct line to the target, the operator can bring it back by manipulating the miniature "control stick" on the box in front of him. Movement of this stick causes radio signal to be sent by a transmitter in the bomber to a receiver in the GB-4 bomb. These signals cause the position of the aerodynamic control surfaces of the bomb to be altered so as to bring the course of the bomb back on the target.

When the mother plane is a larger type, such as the B-17 shown in most of these pictures, the bomb-course control equipment is installed in the bombardier's compartment as shown here. The monitor unit and the control box (in this picture on the seat beside the bombardier) are the same as in the picture above. The bombardier in this view is holding in his left hand a control switch which is used to release the bomb. After release he follows the course of the bomb and guides it to the target as described above.



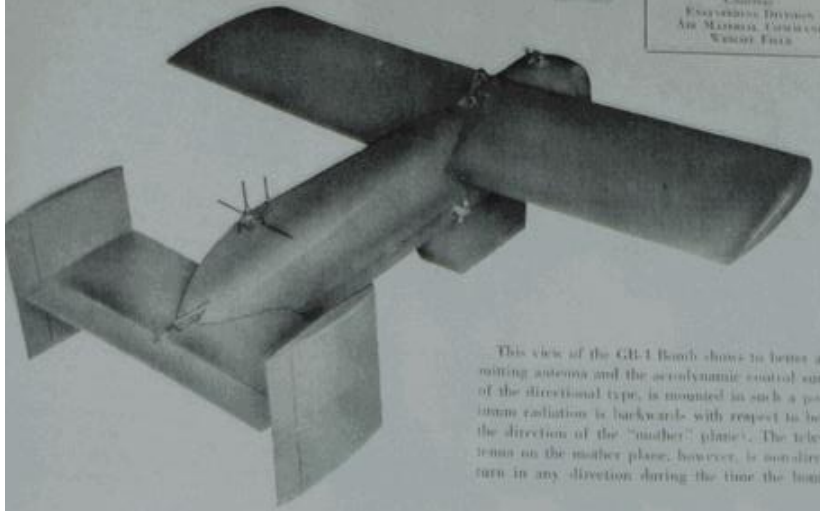


This is what a Television Bomb looks like-

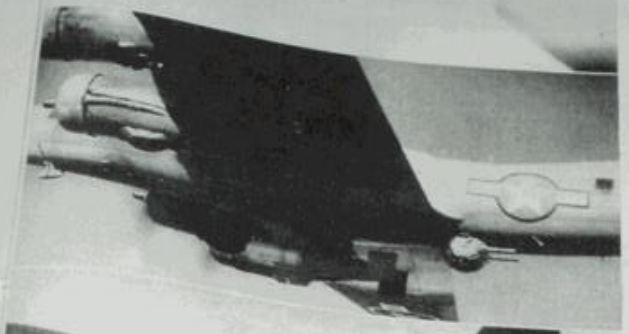
This is a side view of the Army's GB-4 television-equipped glide bomb. The television camera is in the nacelle suspended below the main section of the bomb. The front third of the cylindrical body (lightweight) is a standard 2000-lb demolition bomb. The rear part of the body contains (a) the television transmitter which sends the picture back to the mother plane, (b) the radio receiver, which picks up the control signals from the plane, and (c) the servo-control mechanism which employs the received signals to control the bomb's course.

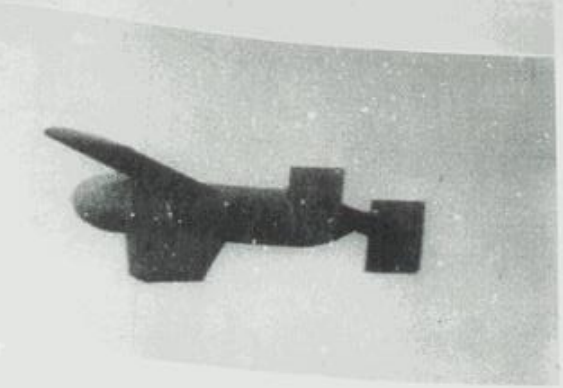
This is a front view of the GB-4 Bomb. The small wing surfaces give the bomb an (Rad) glide angle, thus allowing it to be "dropped" at some distance, laterally, from the target. The nacelle below the body of the bomb is considerably larger than the television camera proper because of the necessity of providing acoustic cushing around the camera.

Photographs on Pages 30 to 33 Courtesy Engineering Division Air Materiel Command Wright Field



This view of the GB-4 Bomb shows to better advantage the transmitting antenna and the aerodynamic control surfaces. The antenna, of the directional type, is mounted in such a position that the maximum radiation is backwards with respect to bomb's flight (i.e., in the direction of the "mother" plane). The television receiving antenna on the mother plane, however, is non-directive so that it may turn in any direction during the time the bomb is under control.





This is how the Bomb is Launched–

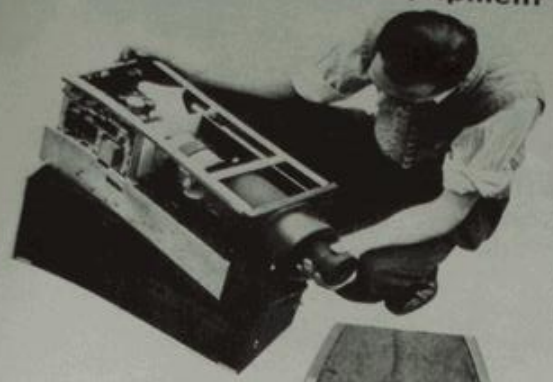
On combat missions two GB-4 Glide Bombs were carried by each B-17. The view at left shows a B-17 so equipped. This photograph was taken on a tactical mission over Europe. B-17's carrying GB-4 Glide Bombs were able to fly a thousand miles or more to a target area, drop their bombs in relative safety.

During the flight from the base to a point within 10 to 15 miles of the target the GB-4 Glide Bomb is suspended on an external bomb rack attached to a standard bomber. Some other types of television bombs were designed to be carried in the bomb bays. The view at left shows a single GB-4 attached to the bomb rack of a B-17 Flying Fortress.

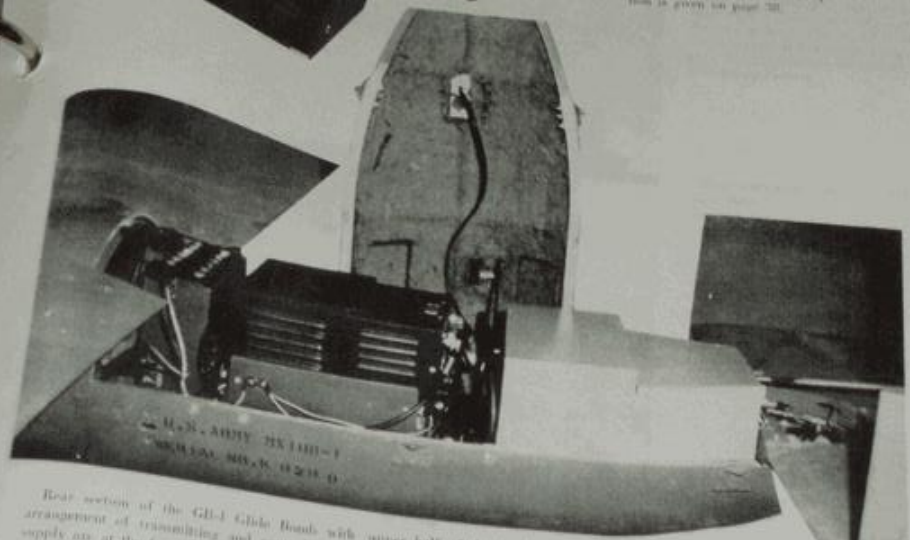
This photograph shows a GB-4 Glide Bomb just after drop away from the B-17 mother plane. After dropping the GB-4 the mother plane need not continue on a straight run, but may circle at a distance of 10 or 15 miles from the target while controlling the course of the bomb to the target.

GB-4 Glide Bomb in flight. The television camera in the nacelle is tilted slightly downward to compensate for the fact that the centerline of the fuselage is always tilted slightly upward with respect to the actual direction in which the bomb is traveling. (Spottiness in these pictures is due to the fact that they are enlargements of single frames of a 16 mm movie made under difficult conditions.)

This is the Television Equipment in the Bomb –



This is the television camera which is mounted in the underslung nacelle of the GB-4 Glide Bomb in such a position that it picks up the scene in the direction in which the bomb is headed. The camera unit shown here is an early type which used a small one kinescope as a pickup tube; it weighed 33 lbs. Later camera-unit designs used successively the Orthicon, the Image Orthicon and the Miniature Image Orthicon. The camera unit using the Latter (dubbed the "MIMO" equipment) weighed only 20 lbs. A description is given on page 32.



Rear section of the GB-4 Glide Bomb with upper half of the fuselage removed to show the arrangement of transmitting and control equipment. The storage battery and dynamotor power supply are at the front. The transmitter is in the louvered cabinet in the center. The flexible coaxial line to the antenna can be seen. The box in the tail of the fuselage contains the receiver for picking up control signals from the mother plane and the servo-mechanism which controls the positions of rudder and tail fin according to the received signals.

AT BIKINI, ON JULY 1946 [illegible]

Japan's third interest was in the GB-4 (glide bomb), capable of carrying a 2000 pound bomb, and in the use of "war-weary" B-17's and B-24's that had performed their missions as combat crews and which could be expanded in carrying up to 14 tons of explosives into the target.

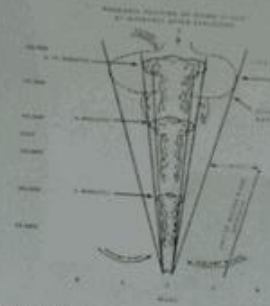
Aerodynamic and control difficulties were numerous. Visibility was sometimes a problem. The BLOCK III television camera worked good visibility conditions. It was this later difficulty that led to the accelerated development of the image orthicon—the high sensitivity pickup tube on which work had started in the RCA Laboratories several years earlier.

Had it not been for the untiring efforts of such men as Col. George Holbrook, AAF; C. I. Marshall, Signal Corps Civilian Section head; Lt. Commander Paul de Mars, Bureau; Commander E. B. Plass and Mr. C. Sire of BuShips; Commodore Oscar Smith of Bureau of Operations; Commander M. B. Taylor, NAF; and their many able assistants and fellow workers, it is doubtful that the airborne television project could have progressed so rapidly.

It was in August 1944, in the Northern Solomons near Bougainville, that the Navy first used a television-equipped guided missile, when TDR-1 drones were used against Japanese shipping. The Ophthalmic attack occurred about two months later when the mission resulted in the destruction of an important Jap radar station and anti-aircraft position—a target that had come unscathed through many conventional bombing attacks.

The Army's first use of the missile was in the ETO where "war-wearies" were sent against the sub pens of Heligoland and some GB-4's were directed against the rocket launching sites near Calais. Shortly after that, the project was being readied for a move to the Pacific, but fortunately by that time the tide had turned and the move was unnecessary. Later some of the equipment was installed in reconnaissance planes and used by MacArthur's forces to survey battle damage in remote areas and for patrol work.

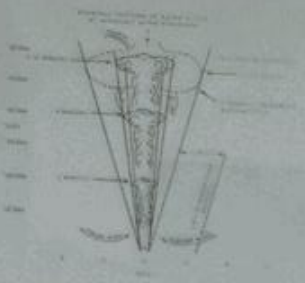
In the forthcoming atom bomb tests at Bikini, many observers will witness the explosion and its devastating effects from a safe distance of many miles, by means of BLOCK III equipment.



ATOMIC CLOUD *This sketch of the atomic cloud which will rise after the bombs are dropped in the Bikini experiments has been released by the Joint Army-Navy Task Force, Inc. Note the region of violent winds at the bottom of the mushroom and the extremely dangerous radioactivity at 50,000 feet. Mother planes will stay outside this area as indicated in the diagram above. Radiocontrolled, television-equipped planes will presumably be flown into it in order to provide viewers with a closer view.*

Cameras and transmitters will be located at strategic points over the target area while receivers and auxiliary monitors will bring the action to witnesses comfortably repairing in ships circling safely outside the danger zone.

For more details of the Television Bomb see the photo story on the following pages.



ATOMIC CLOUD This sketch of the atomic cloud which will rise after the bomb is dropped in the Bikini experiment has been released by the Joint Atomic Energy Task Force, Inc. Note the scale of cloud which is the lowest of the numbers and the cumulus formation indicated in sight but Mother planes will not enter the area as indicated in the diagram above. Radio-controlled television-equipped planes will presumably be flown into it to enter in special instances with a closer view.

Cameras and transmitters will be located in strategic points over the target area while mariners and military operations will have the action to witnesses considerable separation in order to be safely outside the danger zone.

For more details of the Television Bomb see the photo story on the following pages

In March 1946 the Navy gave recognition to RCA's nonlinear television contributions by staging at the Anacostia Naval RD Station a joint demonstration with RCA and NBC of the first military television experiment. The picture at left shows the equipment control room set up for the occasion. The receiver under the sign DO-I BLOCK was used to pick up the picture from a standard BLOCK transmitter mounted on an RCA plane (one of the four which made up RCA's Flying Laboratory). The receiver under the sign NAVY RING picked up the picture from a similar equipment in a Navy plane. The equipment labeled NAVY RING picked up the picture from a Navy Mercator flying near Robinson, L.I.N.Y. The RING equipment, developed by GE, uses a 1.8-9 . 100-Mc/sec transmitter capable of covering a radius of 200 miles.

directional so as not to interfere with maneuverability in the control plane.

Special shock mounts were used to reduce microphonics; oscilloscope and video amplifier tubes were modified and changed dozens of times to improve life and performance under the most exacting and trying conditions. Highly stable (flywheel) synchronizing circuits were developed to reduce the possibility of loss of synchronizing in the presence of radar signals or high noise levels. Fast, "keyed" AVC circuits were used in the receivers to smooth out rapid changes in signal level caused by multipath phenomena. Components were redesigned and wiring layouts were changed to permit satisfactory operation in a temperature range from −30° C. to +55° C. in humidities up to 95% and at altitudes up to 40,000 feet. Gray hairs on the engineers were rapidly cultivated.

Not least important in this development and test program was the fact that the one "must" specification was met—viz., circuits were so stable that, after installation, the entire transmitting and pickup system operated satisfactorily without further adjustment and unattended.

During this time the Army, the Navy, and the NDRC had become very active. Orders from the two services were of such magnitude that RCA was called upon to train and assist other manufacturers, notably Farnsworth and Remington Rand, in the program. The NDRC established Section 5.5 of Division 5, under the direction of Dr. O. E. Buckley; and later, Dr. Pierre Mertz to further the development of television for guided missile application. Extensive drop tests were made in the barrens of South Jersey; Eglin Field, Florida; Muroc Lake, California; and Tonopah, Nevada.

The Services were having their problems, too. The Navy was concentrating on the use of the TDR powered drone as a carrier, while doing some experimentation with a glider—"GLOMB", which in later tests proved very satisfactory. The Army Air

TELEVISION RECONNAISSANCE *which also has important military uses, is illustrated by the illustrations below. The picture at the left shows the television camera (BLOCK type) mounted in the nose of the reconnaissance plane. The picture picked up by this camera is sent, by a transmitter in the plane, to a receiver located at a headquarters point which may be as much as 200 miles away (see Page 40). The picture at the right (below) is a photograph made directly from the screen of the television receiver during the demonstration illustrated in the picture at the top of this page.*

ROC

A TELEVISION GUIDED, RADIO-CONTROLLED HIGH-ANGLE BOMB

In August 1944 *the Army moved ROC on television-guided, radio-controlled, high-angle bombs. The ROC—shorter of the right, by some of these bombs of this type are provided with wide wings, other bombs are not equipped to carry or transmit such wings and of the rest. Thus, instead of shifting over the wings (like the GLOMB) these high-angle bombs fall horizontally, so would an inverted bomb. The bombardier release them so he would a regular bomb and over the radio control feature simply to obtain greater accuracy. The plane move by most the target, so as regular bombing, but television allows the bomb to be dropped from great heights and still obtain a high degree of accuracy.*

equipment and this apparatus was completed and successfully demonstrated in 1937—the first television apparatus for aircraft use, but still not light enough for guided missile use. Two more years passed before the next significant step in airborne television development. This came in 1939, when RCA in cooperation with the United Air Lines (in order to determine the practical possibilities of airborne television) installed the newly designed RCA television field equipment in a Boeing 247 and successfully transmitted pictures of New York City from several thousand feet above and around Manhattan, to a battery of receivers installed in Radio City. This demonstration was witnessed by Army and Navy officials. At this point, the RCA management authorized a development program on lightweight airborne equipment using RCA's own funds. In the latter part of 1939 work was started by engineering groups headed by R. D. Kell of RCA Laboratories and M. A. Trainer and W. V. Poch of RCA Victor. Within six months a complete television system, including a 15-watt, 100-mc transmitter weighing about thirty pounds and about the size of a small suitcase, was under test in the laboratory.

In July 1941, this airborne television system—named "BLOCK" for secrecy reasons—was installed in an ancient model TG Navy plane at the Philadelphia Navy Yard and flight tested. And then the troubles began! All the difficulties Wally Poch and his fellow engineers had encountered on the drawing boards and work benches paled into insignificance. Plane power line voltages fluctuated widely, high humidity and temperatures changed circuit impedances and wrecked performance. Worst of all, multipath problems—always troublesome in high-frequency television transmission—were accentuated because of the continuously changing propagation path between the transmitting and the receiving planes.

One by one these problems were solved by the diligent efforts and stubborn persistence of the engineering groups which included Attorney Wright, Ed Clark, Dr. B. N. Kozanowski, John Roe, Howard Morrison, and their fellow workers. Over 500 BLOCK I transmitting equipments (the early design) were manufactured in the RCA Camden plant and delivered to the Army, Navy, and NDRC. This equipment (BLOCK I) was built to operate on any one of four 12-megacycle wide channels from 78 to 114 mc. By the latter part of 1943 the BLOCK III transmitting equipment—the third design, operating in the 300 mc band—was rolling through production. This equipment, of which 1000 were made, met specifications that were considered impossible two years earlier.

The video system, including the synchronizing generator, camera, and auxiliary circuits were divorced from the r-f transmitter which, in its own separate case, was designed to produce an output of approximately fifteen watts on any channel between 264 and 372 megacycles. The BLOCK III receiver made use of a 7-inch viewing tube and was tunable over the entire 264 to 372 mc band. The transmitter used a directional antenna, radiating towards the drone's tail, but the receiving antenna was omni-

GLOMB

A TELEVISION-GUIDED, RADIO-CONTROLLED GLIDER BOMB

In October 1945 *the Navy disclosed some of the details of the work it had been doing with RCA television-equipped guided missiles. One of the most successful of these was the "GLOMB", a television-guided, radiocontrolled glider which was towed to the vicinity of the target by a tow plane which, after launching the glider, could control its course to the target. The model LBI-1 GLOMB shown at left will stand 300 miles an hour in a power dive. The Navy also achieved considerable success in the Pacific area with the TDR-1 Drone, a twin-engine powered aircraft which could carry a very heavy explosive load.*

GB-4

A TELEVISION GUIDED, RADIO CONTROLLED GLIDE BOMB

In June 1942 a new type of bomb, though conceived with RCA television equipment, was ready under coming contract at Eglin Field, Florida. This bomb, the result of an extended period of development at Eglin Field, namely, the GB-4, is a standard 500-pound bomb to which is attached a compact air-frame which makes the glide path of the bomb, upon being from the target. Additional adjustment of the bomb are shown on following pages. In short the GB-4 is a "gliding" bomb, or other RPV.

Suicide Corps to control surface and aerial torpedoes. The efficiency of this method, of course, is yet to be proved, but if such a psychological training of personnel is possible, this weapon will be of the more dangerous nature. We hardly can expect to introduce such methods in this country and therefore have to rely on our mechanical superiority to meet the difficulty."

Dr. Zworykin then declared that "one possible means of obtaining practically the same results as the suicide pilot is to provide a radio-controlled torpedo with an electric eye," and added: "This torpedo will be in the form of a small-wing angle glider, without an engine, and equipped with radio controls and a television camera. One or several such torpedoes can be carried on an airplane to the proximity of where it is to be used, and released. After it has been released the torpedo can be guided to its target with the short-wave radio control, the operator being able to see the target through the 'eye' of the torpedo as it approaches."

"This," Dr. Zworykin commented, "introduces an entirely new principle in ballistics, since in all existing methods the operator has no way of controlling the projectile once it has been released."

The RCA television pioneer included in his memorandum details as to radio-control equipment combined in this flying torpedo and went so far as to estimate that this entire equipment, the television transmitter and all, could be built to weigh only 140 pounds.

In that memorandum and in a supplementary memorandum written in the latter part of 1935, a year and a half later, Dr. Zworykin told how the system might be applied in more elaborate form to an explosive-carrying plane which, like the flying torpedo, could be radio-controlled and guided to enemy targets by television. Such aircraft, he pointed out, had the advantage of easy launching from land points or from vessels at sea. His estimate of the total weight of a satisfactory radio and television system for this use was 100 pounds, and that included an automatic pilot.

Television equipment in 1934 was not light enough to be used in an airplane. But in 1935 RCA, on its own initiative, started the construction of airborne reconnaissance television

(Left): This diagram shows how the maneuvers of a highwaysle bomb is controlled to obtain greater accuracy. The free falling path would cause the bomb to strike point P. Radio control exerts a correction at A, the bomb traveling in a straight line shortly beyond this point.

IS AN RCA DEVELOPMENT

"BLOCK" and "RING" Equipments Demonstrated by RCA and the Navy at Anacostia in March are the Culmination of Ten Years Work on Airborne Television

The windows of the lighthouse became visible and a "backspring" antenna could clearly be observed on the tower's peak. The last intervening space between the flying camera and the lighthouse was closed with a rush . . . the image of the target completely filled the screen—and then, oblivion.

The pilot glanced out the side window of the cockpit. Several miles away, in the lower entrance of Rabaul Harbor, could be seen a tall geyser of water and debris, which quickly settled leaving nothing in sight but the smooth surface of the bay. The lighthouse was gone—the victim of a new type of flying bomb.

The "bomb", which destroyed the Rabaul lighthouse, differed considerably from any that had been used before in those waters. It was one of the Navy's new guided missiles—in this case, a twin-engined TDR pilotless drone controlled remotely by radio. Radio-controlled drones, of course, were not new—but the unique feature of this drone was that it could "see". A television camera in the nose of the drone was adjusted to produce an electronic image of the target and surrounding area along the forward extension of the plane's longitudinal axis. A high-frequency transmitter and antenna were provided to transmit the signal to a television receiver located in the TBF "mother" plane about miles away. The image had the unusual, but very valuable feature of containing more and more visual detail as the distance between the drone and the target diminished, thereby permitting greater accuracy of control. This image was reproduced on a screen located in the instrument panel directly in front of the control pilot. As the target moved away from the cross-hairs center of the screen, it was quickly brought back by the pilot's stick controlling the direction of flight of the drone. Several tons of RDX in the drone's belly did the rest.

A 1934 IDEA

At the time of this Rabaul mission the idea of a guided missile with a television eye was just ten years old. Dr. V. K. Zworykin of RCA Laboratories first proposed the notion in 1934 when he

In November 1941 *the first three television-guided missiles on record—built by RCA under an NDRC contract—were tested at Muroc Lake, Calif. This early missile was designed entirely by RCA engineers; the bombs were built under their direction by a well-known aircraft company. The pictures below show the missile itself (top left) with cords to the landing parachute which permitted repeated flights; the bomb being attached to the plane (top right); the bomb in position for flight (lower left); and one of the bombs after an accidental crash (lower right).*

AIRBORNE TELEVISIO

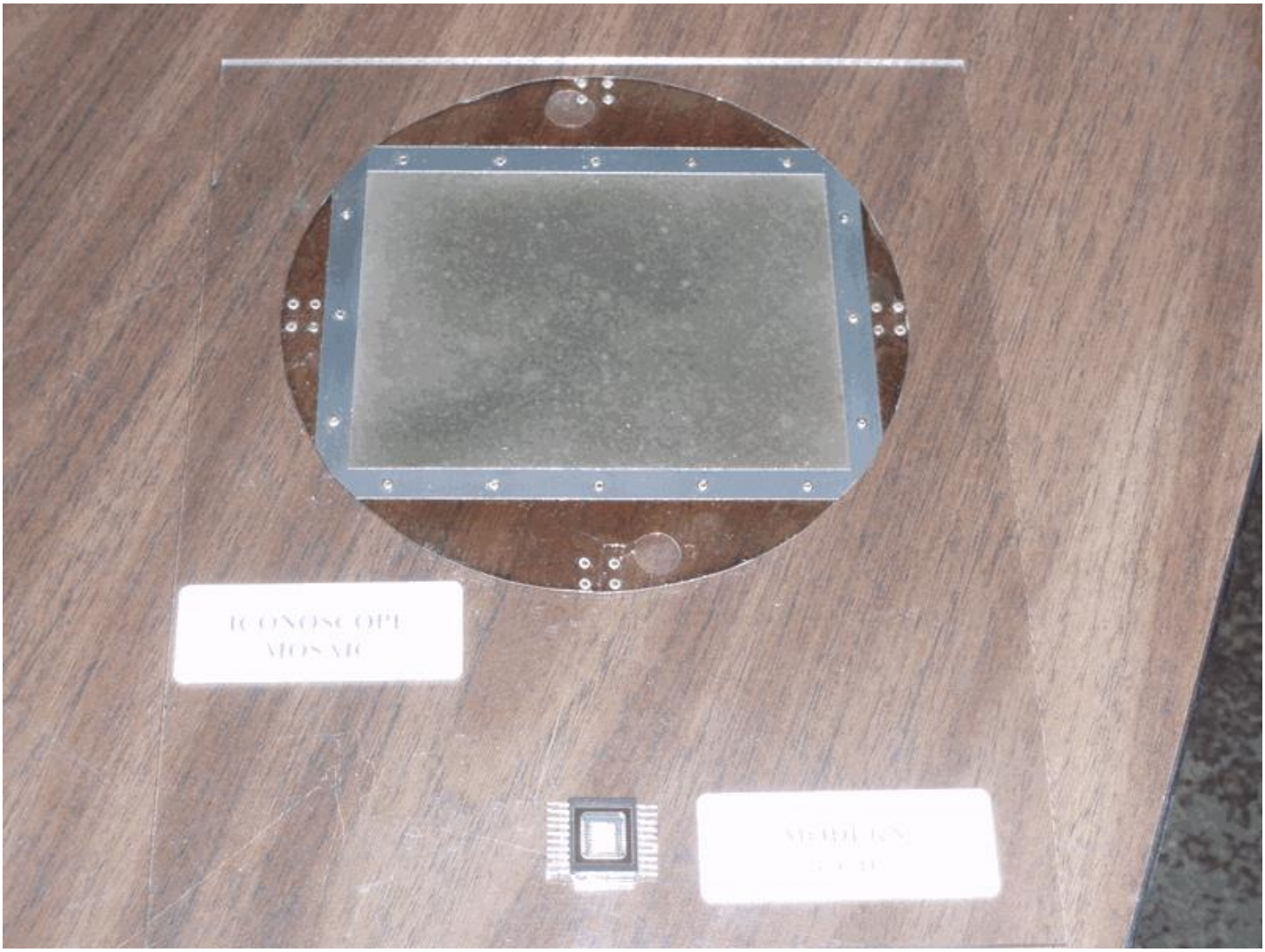
by HENRY E. RHEA, Manager
TELEVISION TRANSMITTING EQUIPMENT SALES
Engineering Products Department

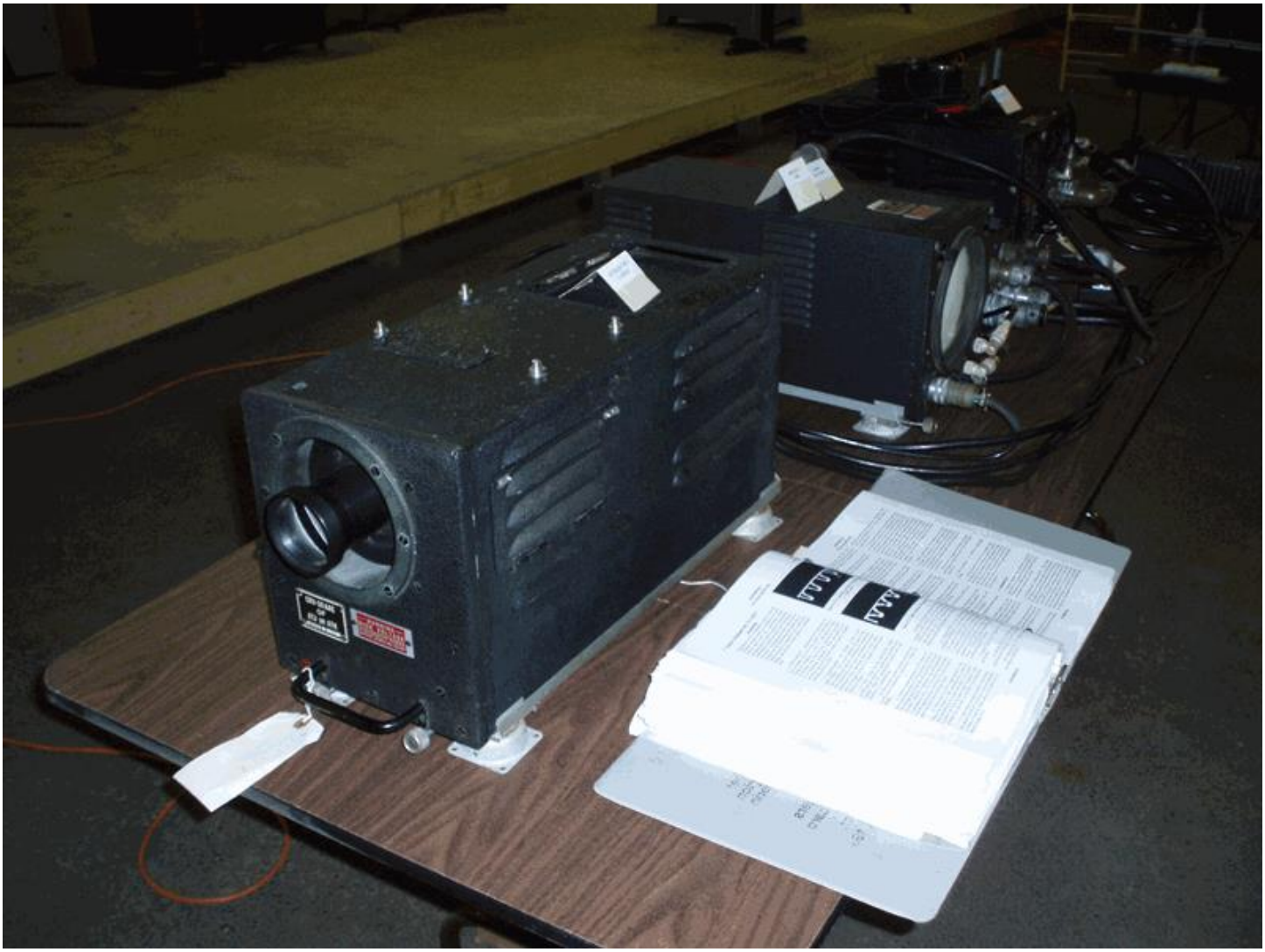
In 1934 *Dr. V. K. Zworykin at RCA Laboratories produced Kinescope and employed the radio-controlled television-equipped aerial torpedo as a means of obtaining equal electronic without the invisible cord in about three. In the photo above, Dr. Zworykin is examining the latest RCA pickup tube, the Image Orthicon. This new tube, which solved the problem of television pickup under conditions of poor visibility, was developed at the RCA Laboratories by Dr. Albert Rose, Paul K. Weimer, and Harold B. Law, of the RCA research staff.*

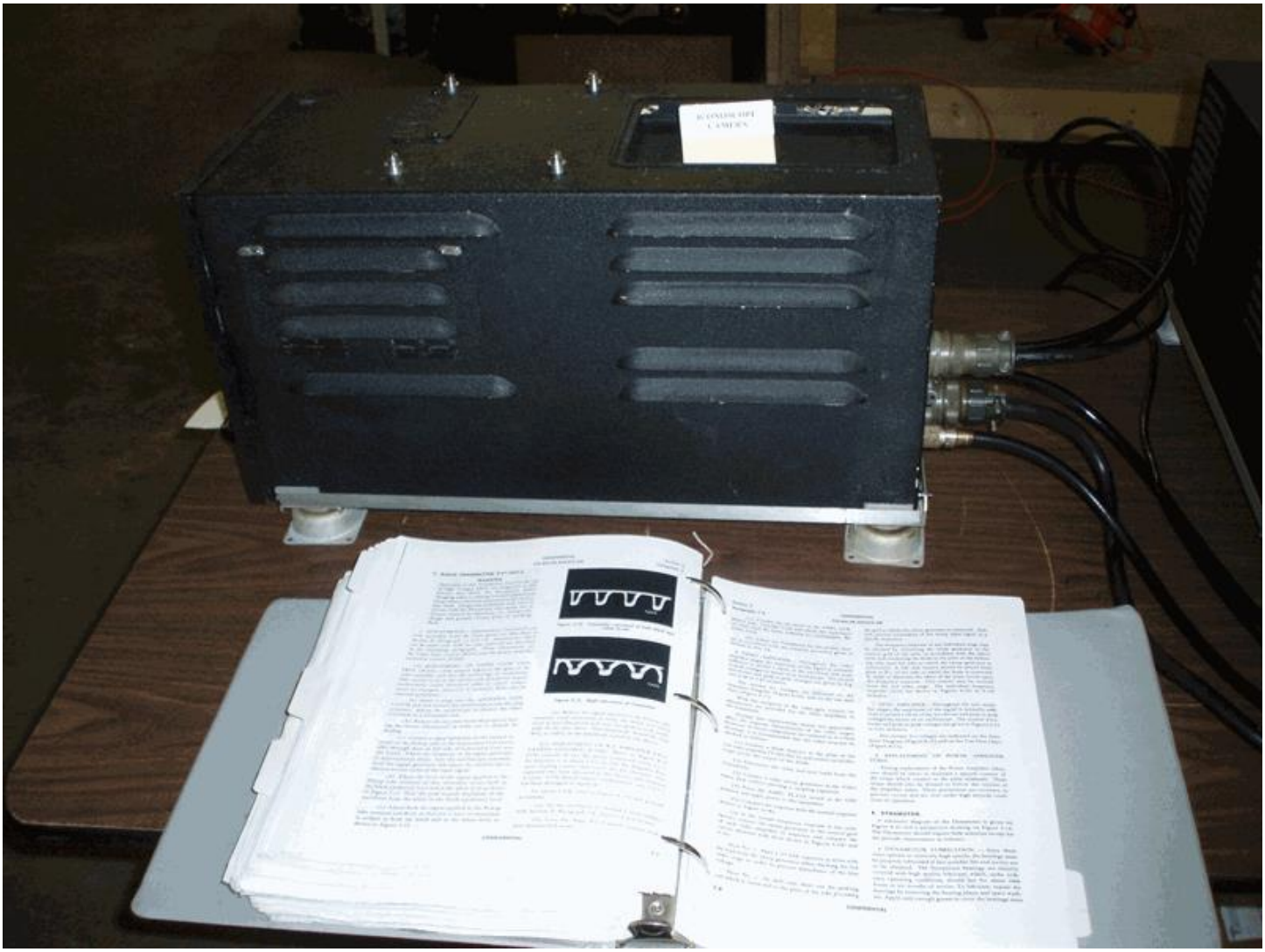
In 1937 *the first television system designed specifically for aircraft was built and tested by RCA engineers. The photo below shows this equipment installed in a Ford Trimotor. The camera in the background points downward through a hole in the bottom of the fuselage.*

A Navy TBF Avenger was slowly circling at a thousand feet above the blue waters of the South Pacific. In the after cockpit an officer was seated in front of a special instrument panel. Between his knees was a small metal box with a miniature cathode tube mounted on top. In the instrument panel before him was a cross-haired television screen on which was reproduced an image which the officer was intently studying. As he watched the outlines a large harbor came into view. Near the entrance of the harbor, protruding from the water, was a small vertical column. The shifting of the scene and the gradual enlargement of individual objects showed that the television camera mounted the area was approaching closer and closer. The column in the center grew larger and larger. From time to time, as the pitching and sideslip motion of the camera displayed it from the cross hairs on the screen, the officer manipulated the control stick to bring it back in center. The column increased in size until it eventually became recognizable as a lighthouse. Then, as the seconds passed, the increase in size became more and more rapid.

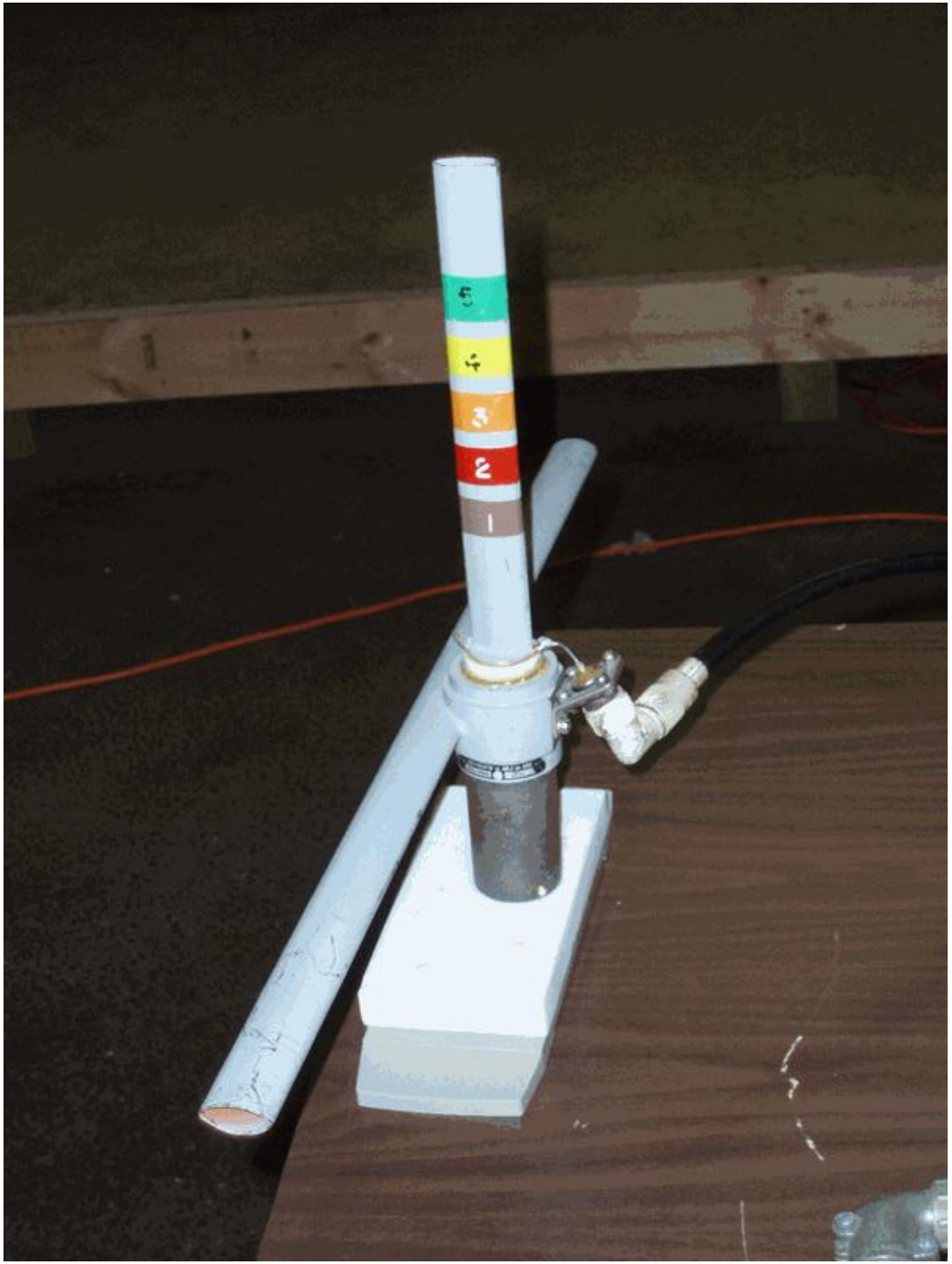
In 1940 *in cooperation with United Airlines, RCA engineers installed the then newly-developed RCA television field pickup equipment in a Boeing 247 and successfully transmitted pictures to a receiver in Radio City. This picture in turn was broadcast by NBC's Television Station.*


ICONOSCOPE
MOSAIC



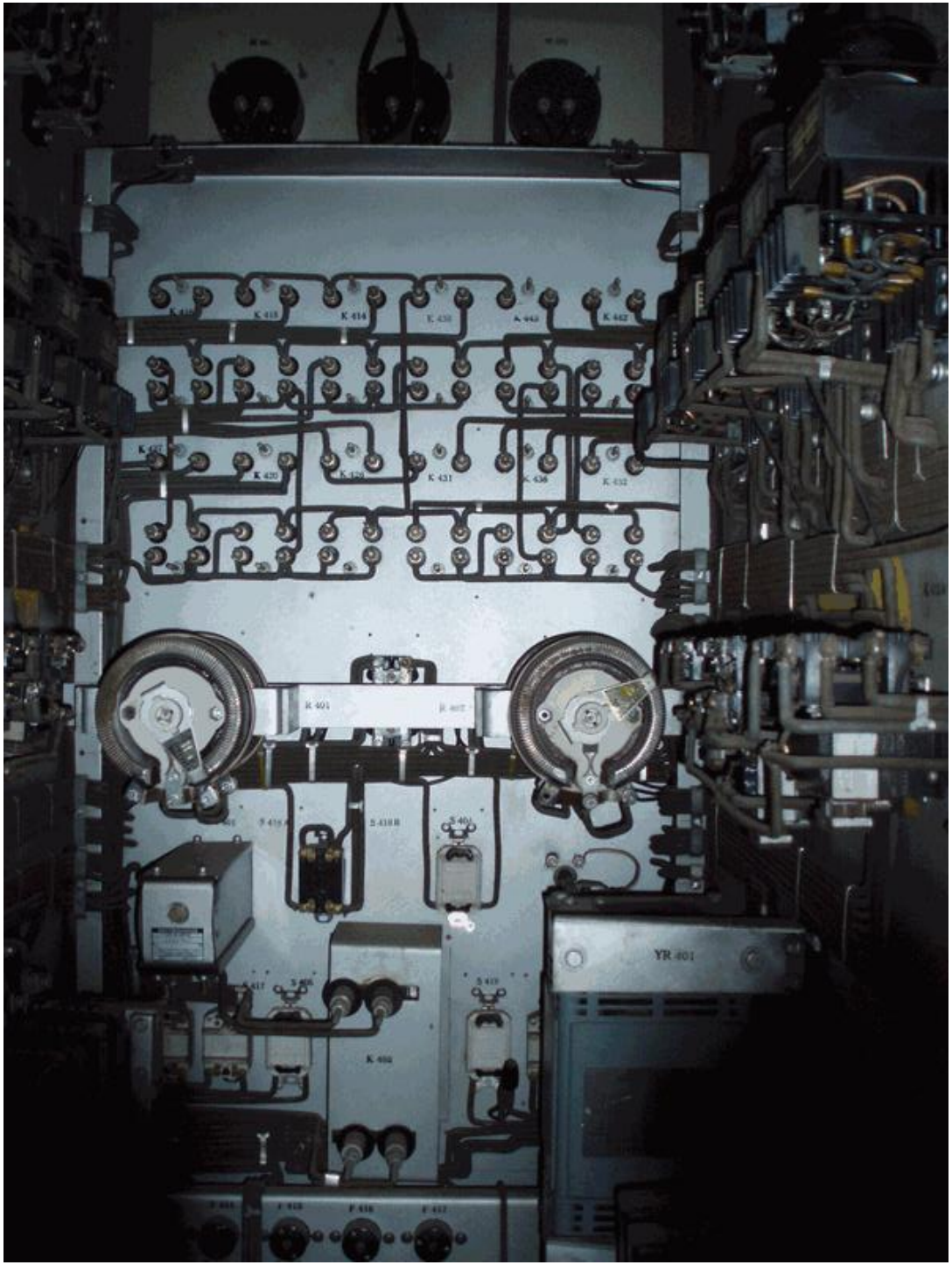


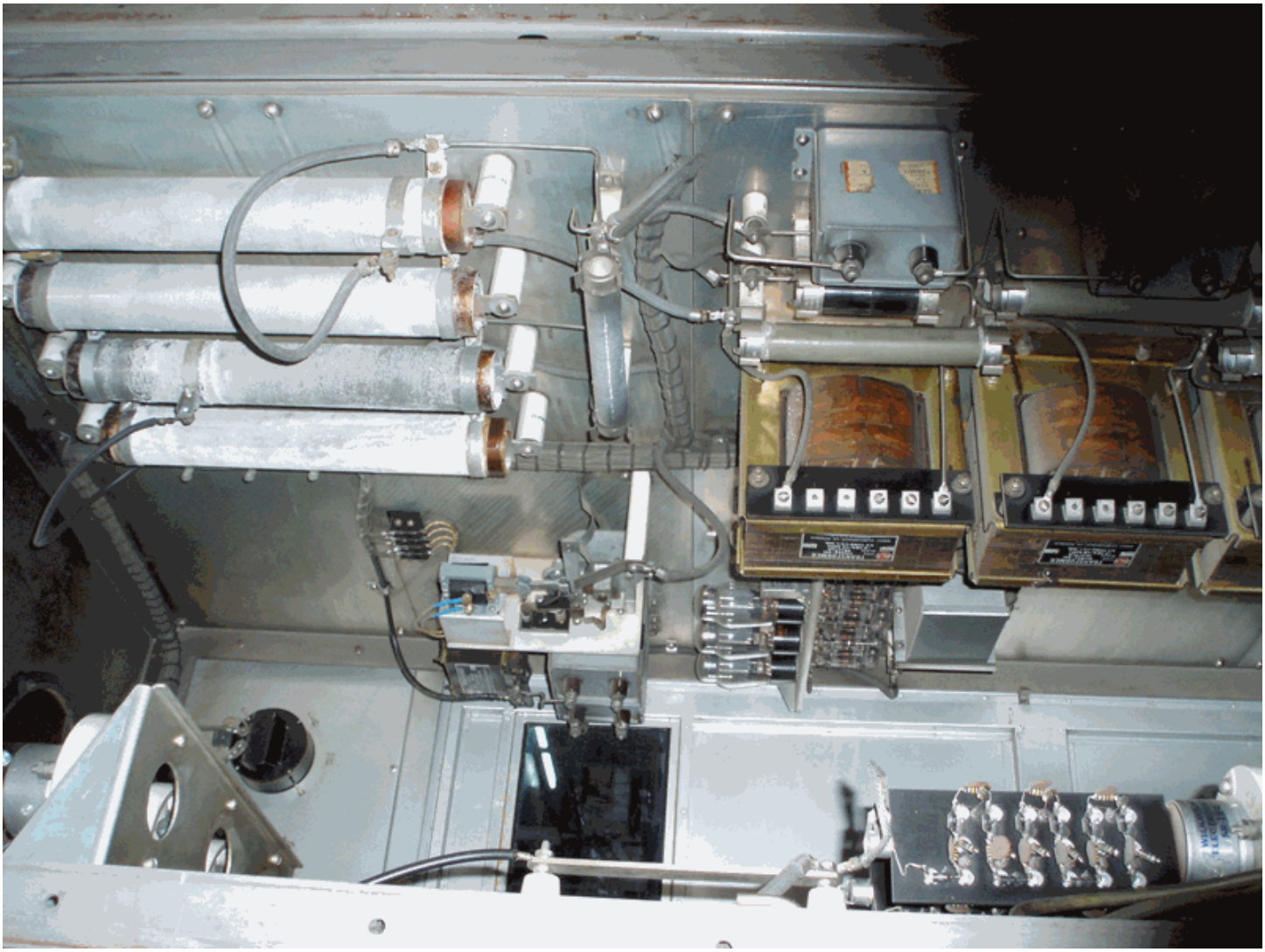

DY-25/AXT-2
POWER
VIDEO

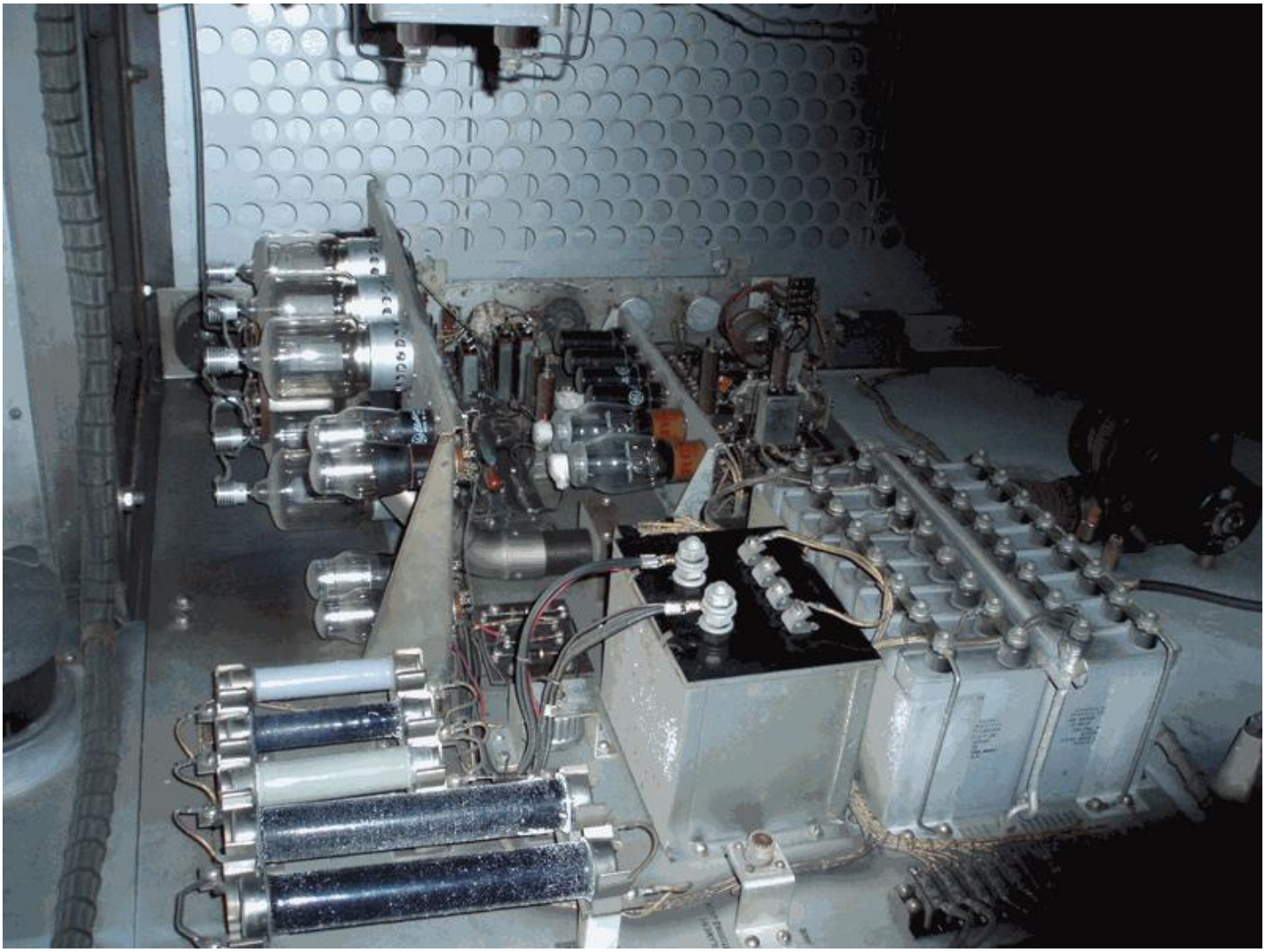

5
4
3
2
1


INDICATOR BC-727
DANGER
DANGER
TO DESTROY SPECIAL RADIO
PRESS BOTH BUTTONS
SIMULTANEOUSLY
RECEIVER
DESTRUCTOR


RCA TK-20
Iconoscope
Film Camera
General Electric
PC-2 Film and
Slide Camera

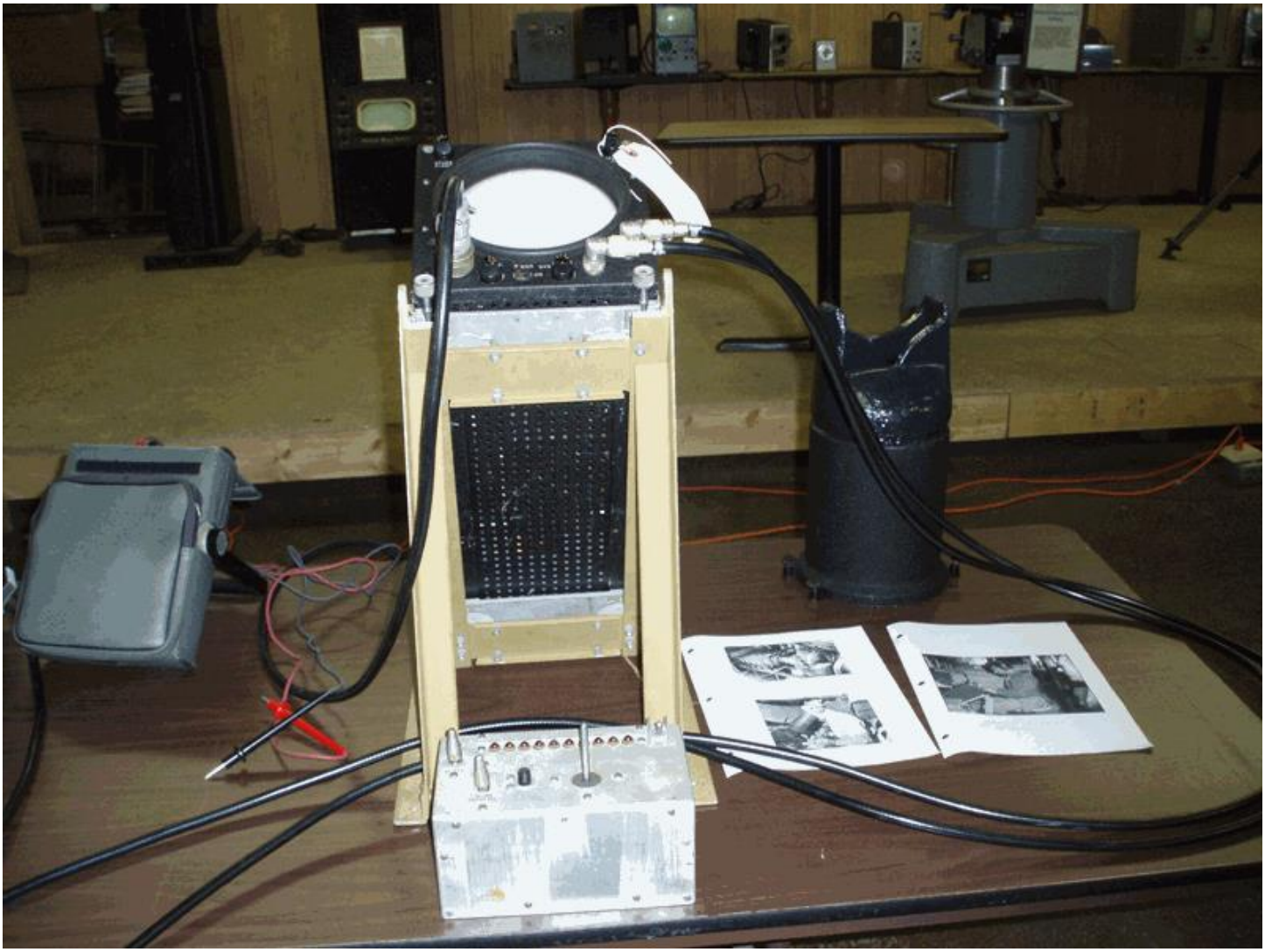

K 414
K 431
K 401
YR 401

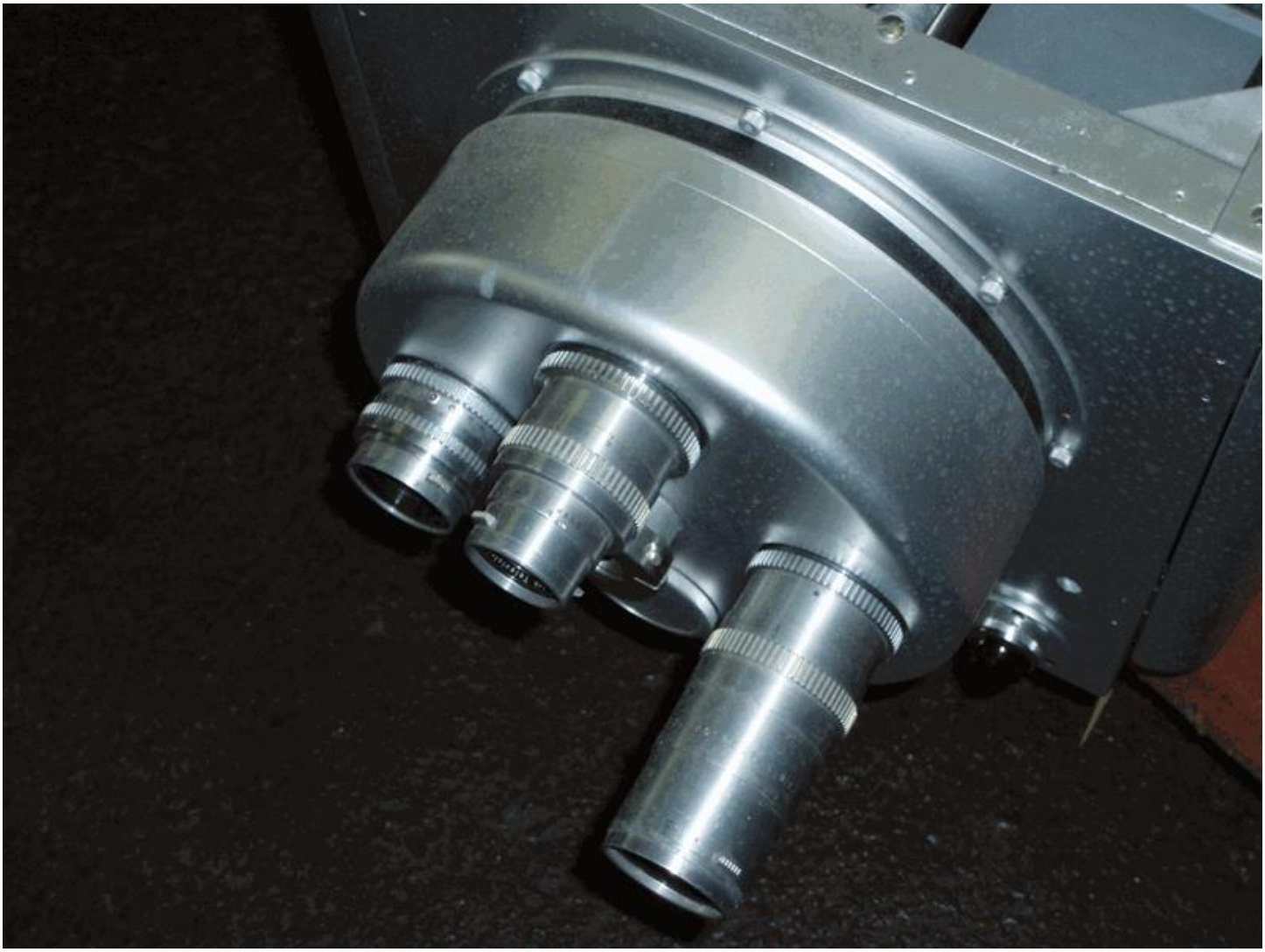


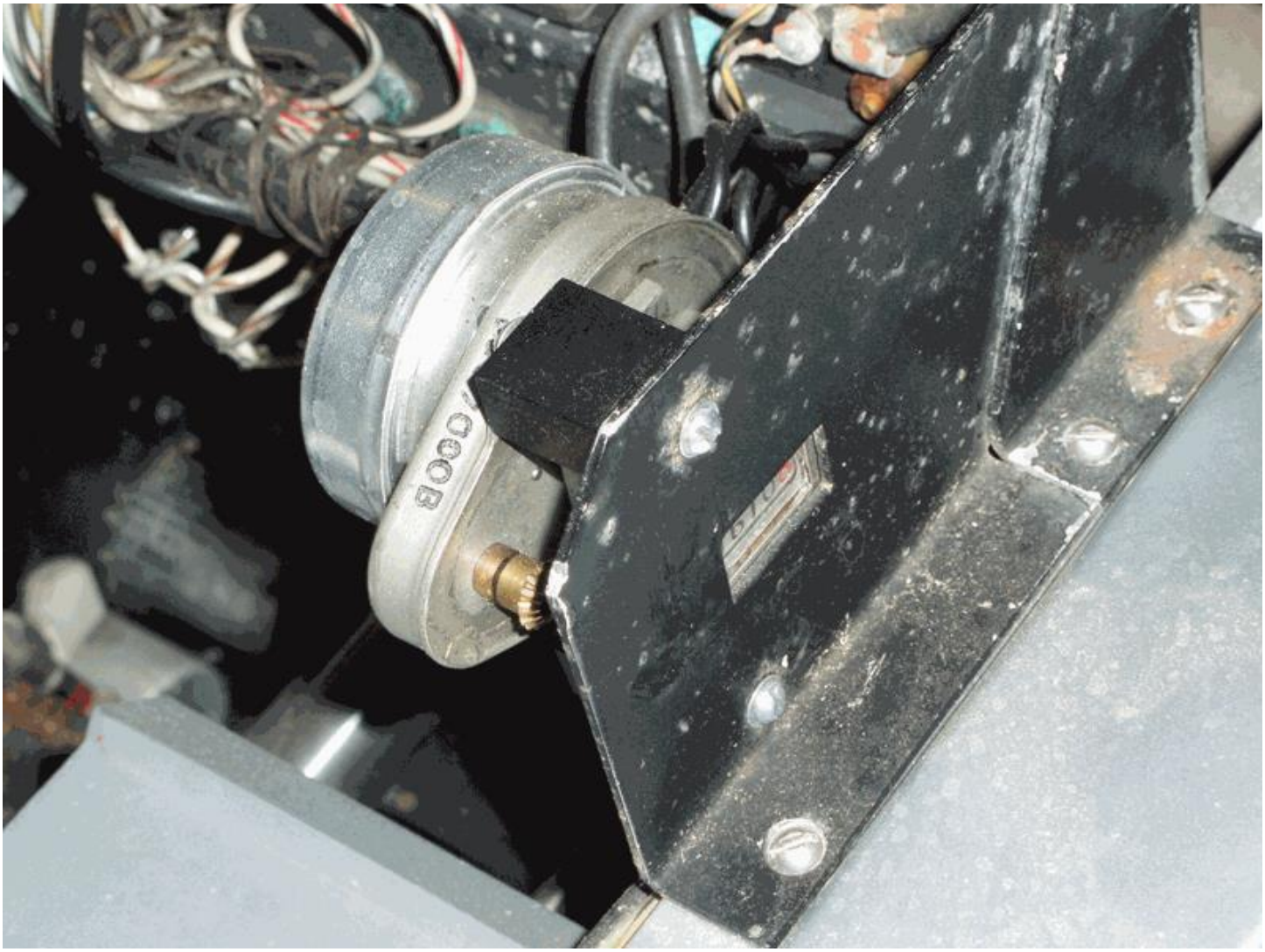


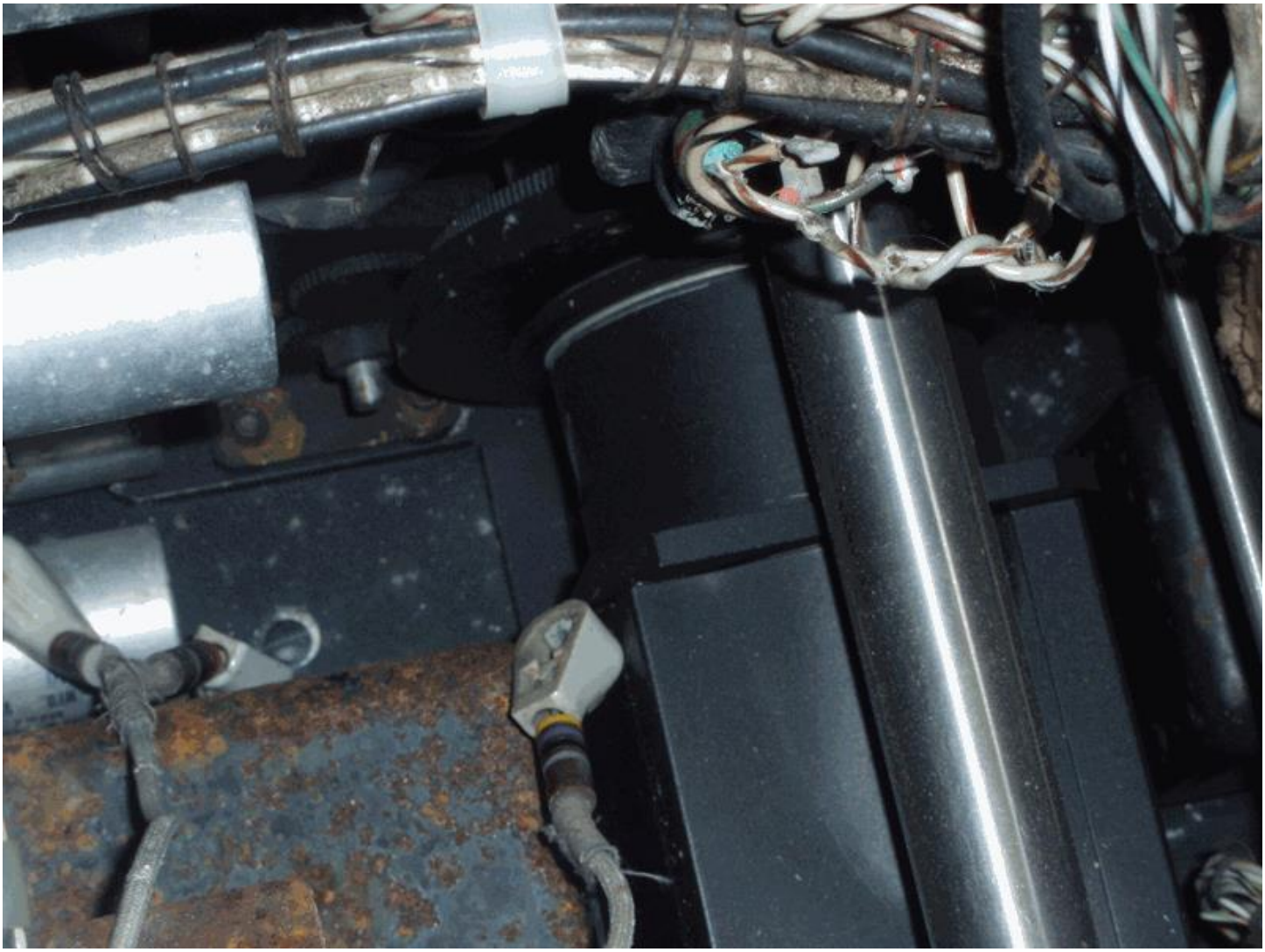

TV 13


TV-13

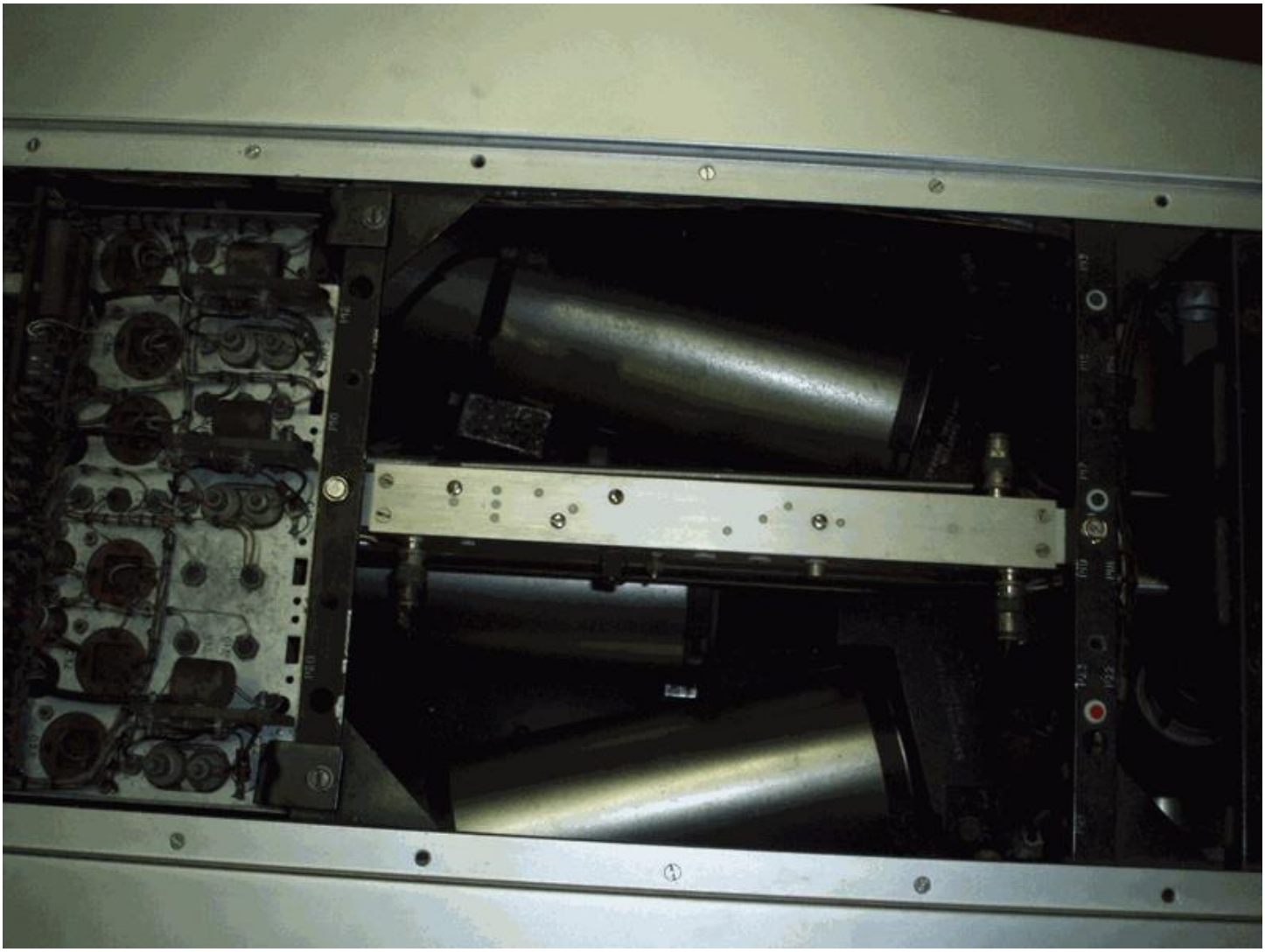


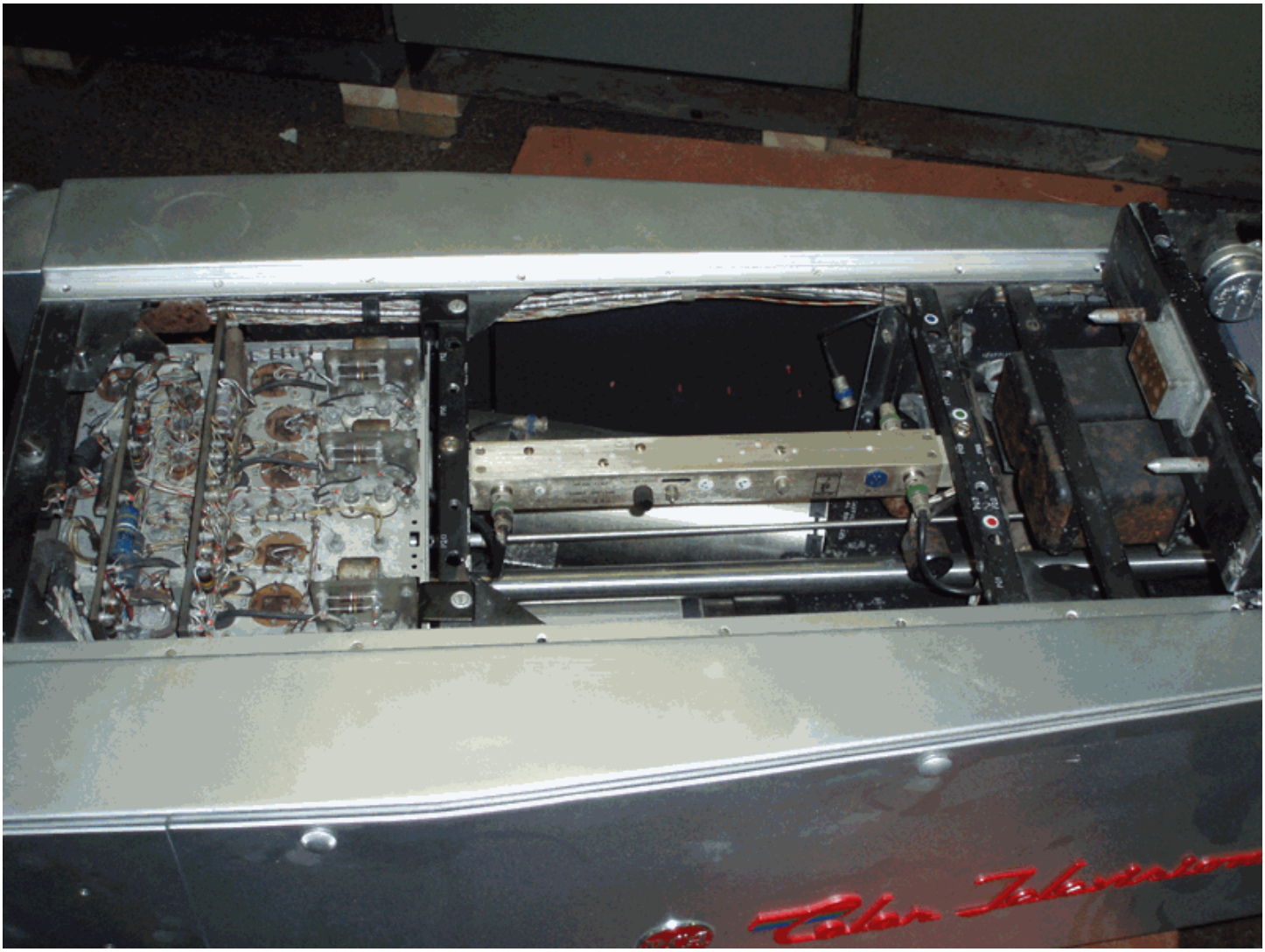




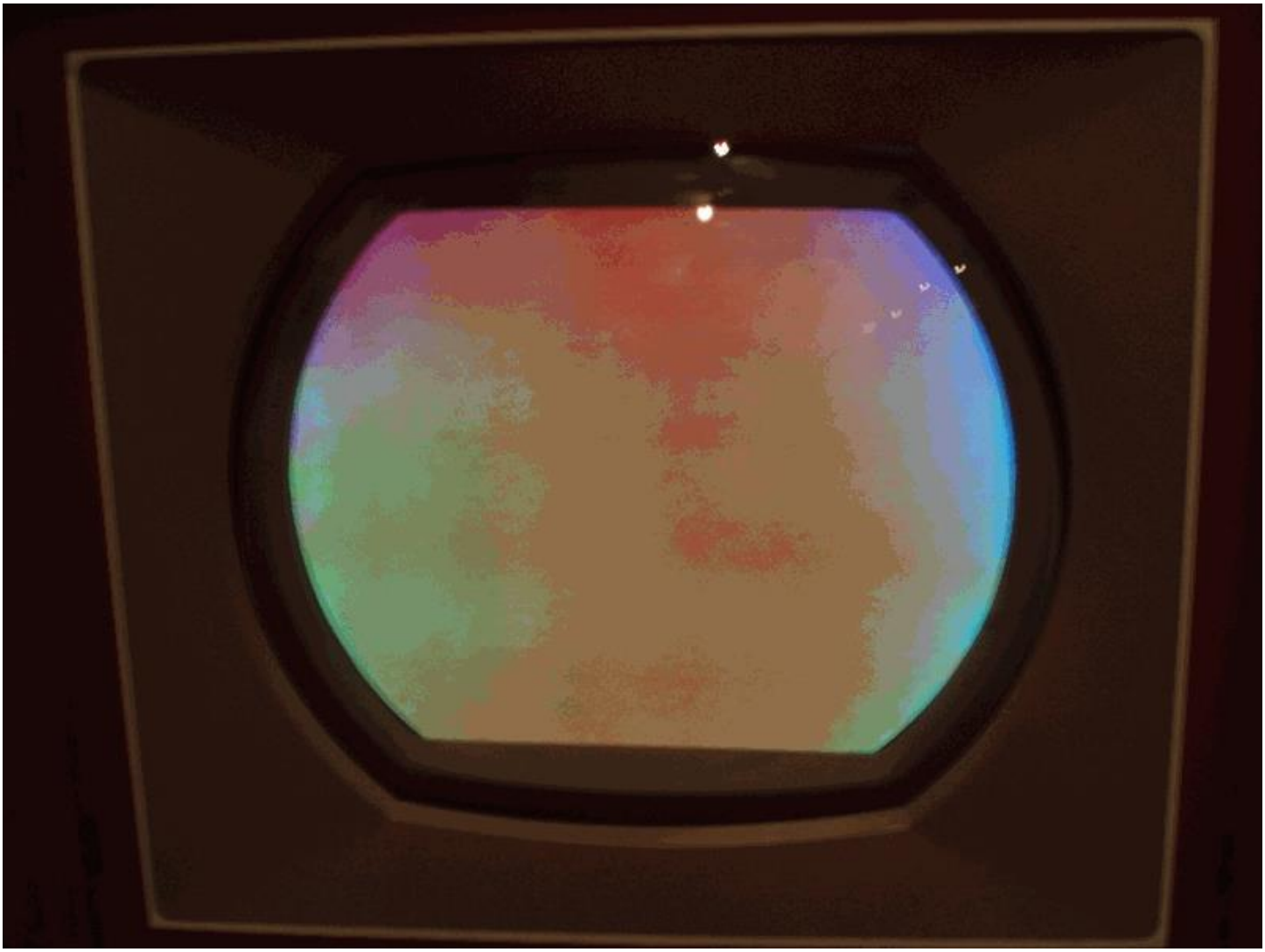


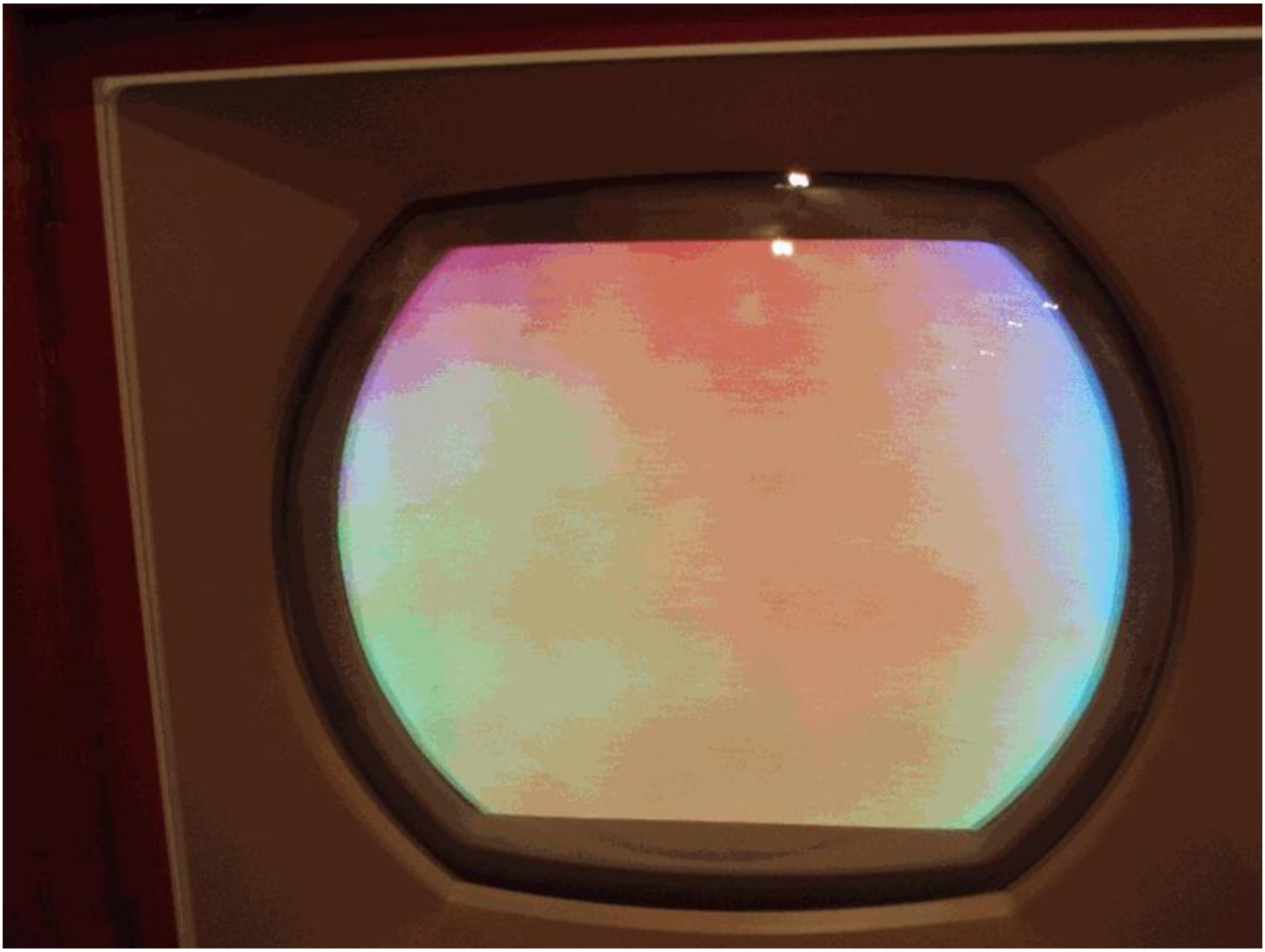

CAUTION
OPTICAL SURFACES

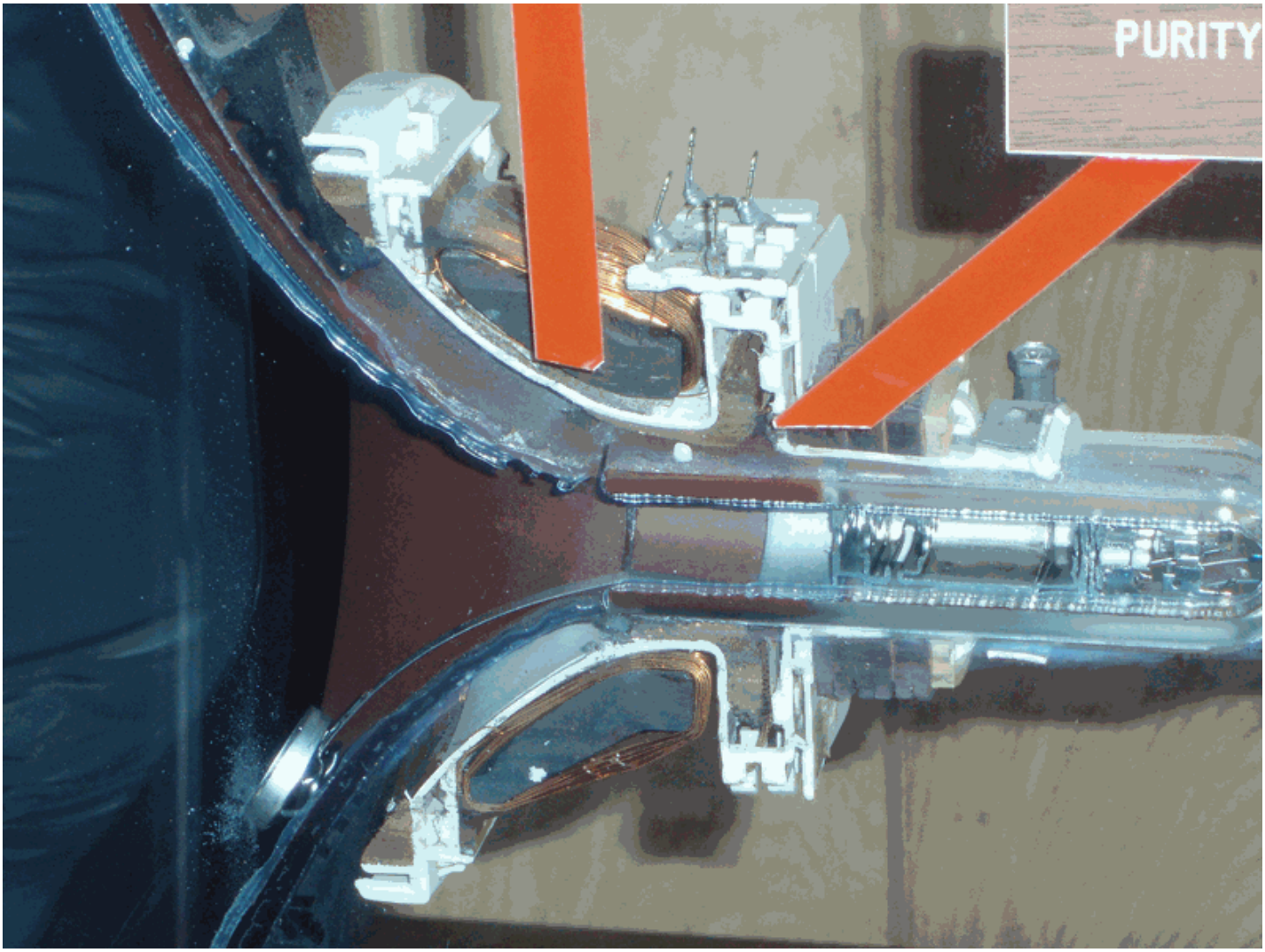


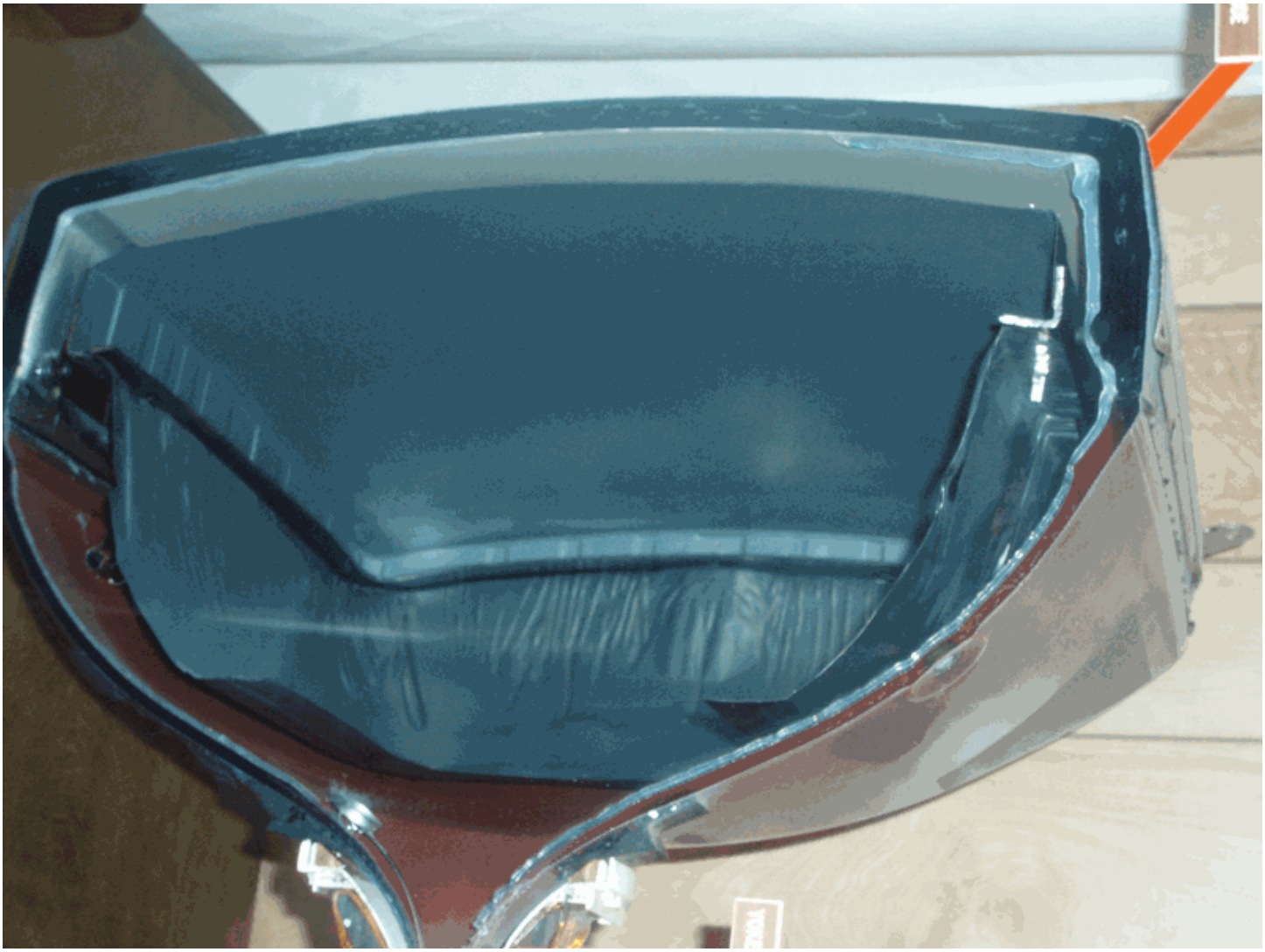

Color Television


Color Television





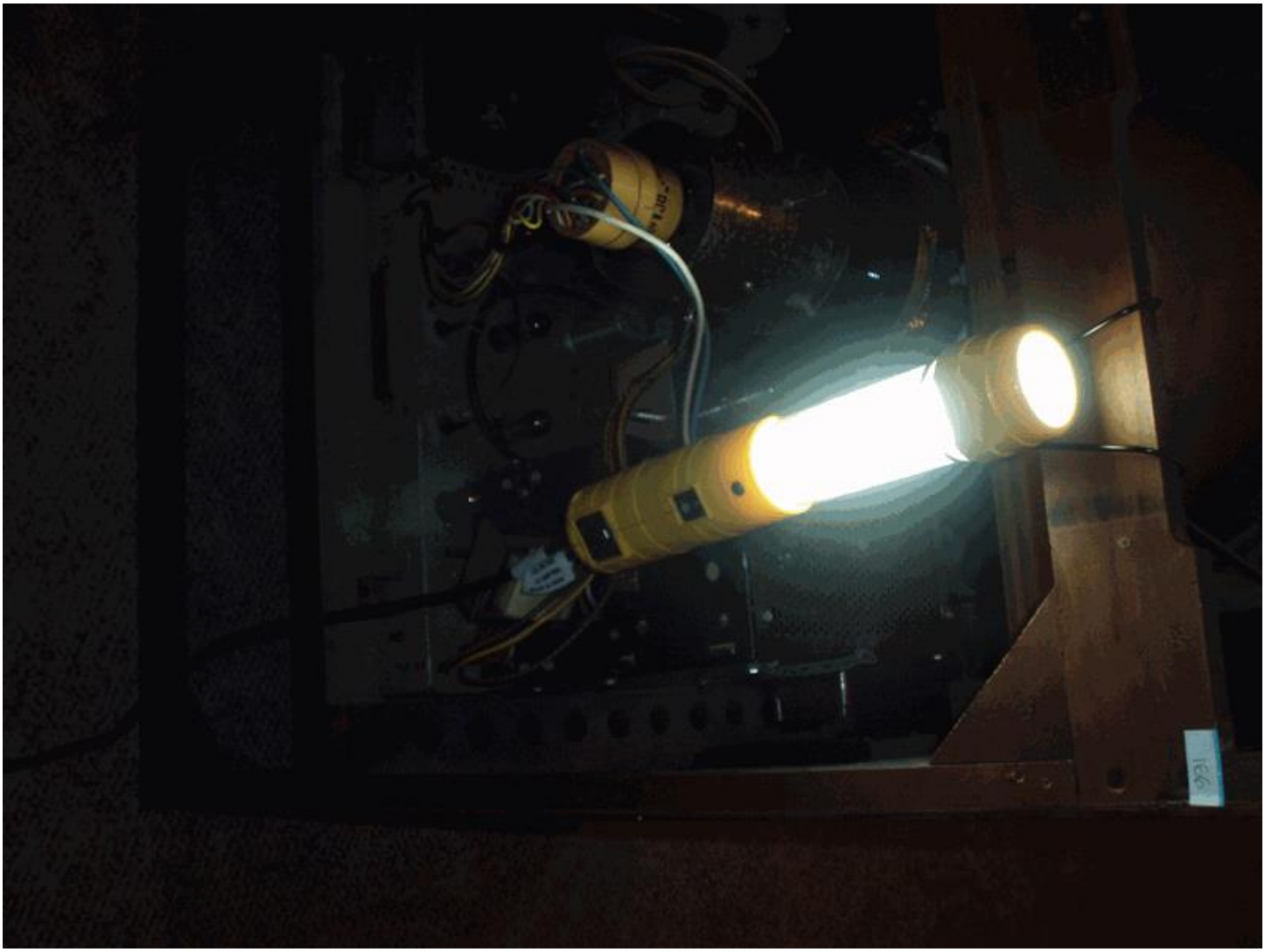

PURITY

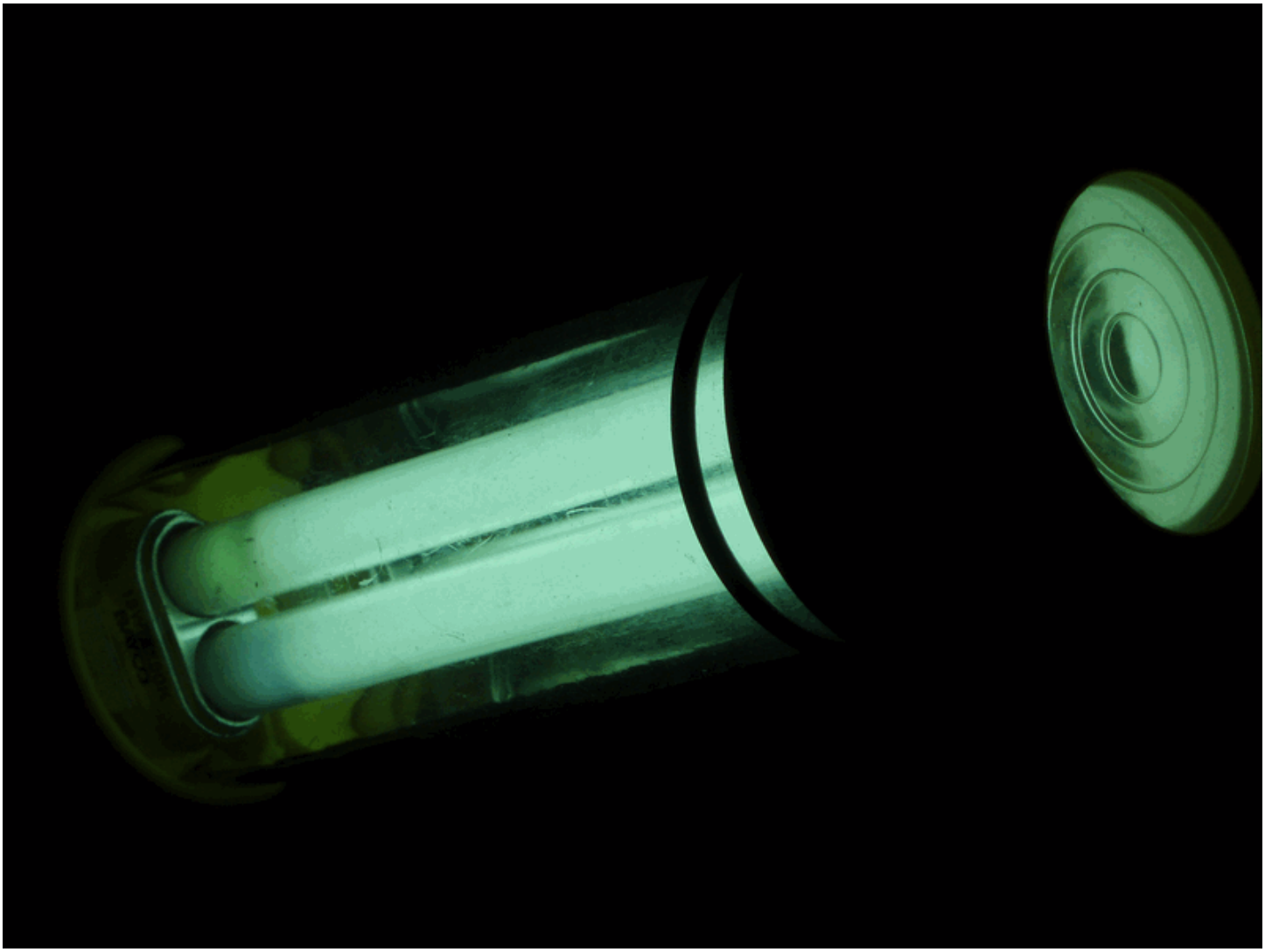



20BP4
30BP4

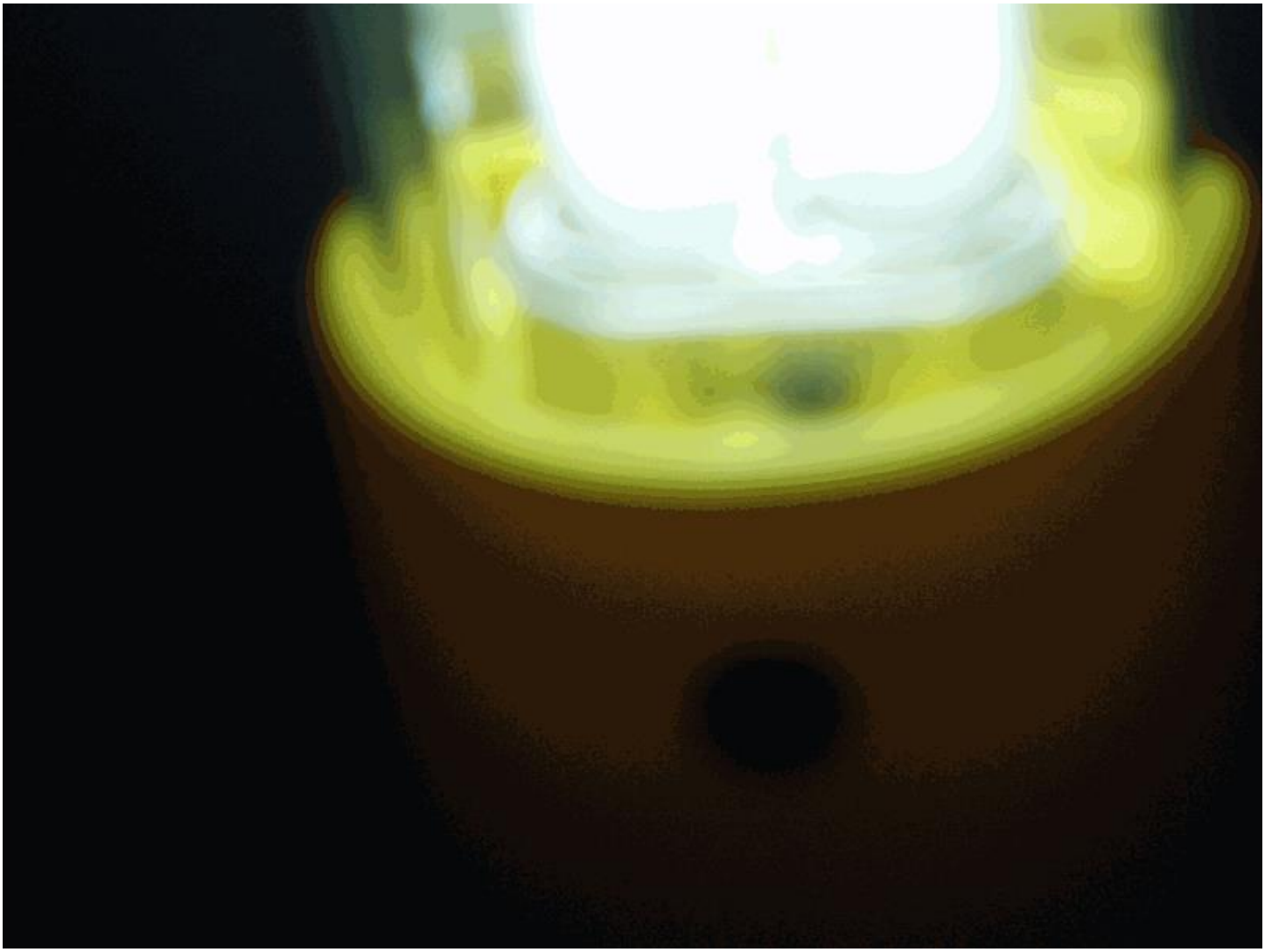

20BP4
RCA-C732WC
19VP22
15GP22
363P4
1939 German DKT
The Incomparable

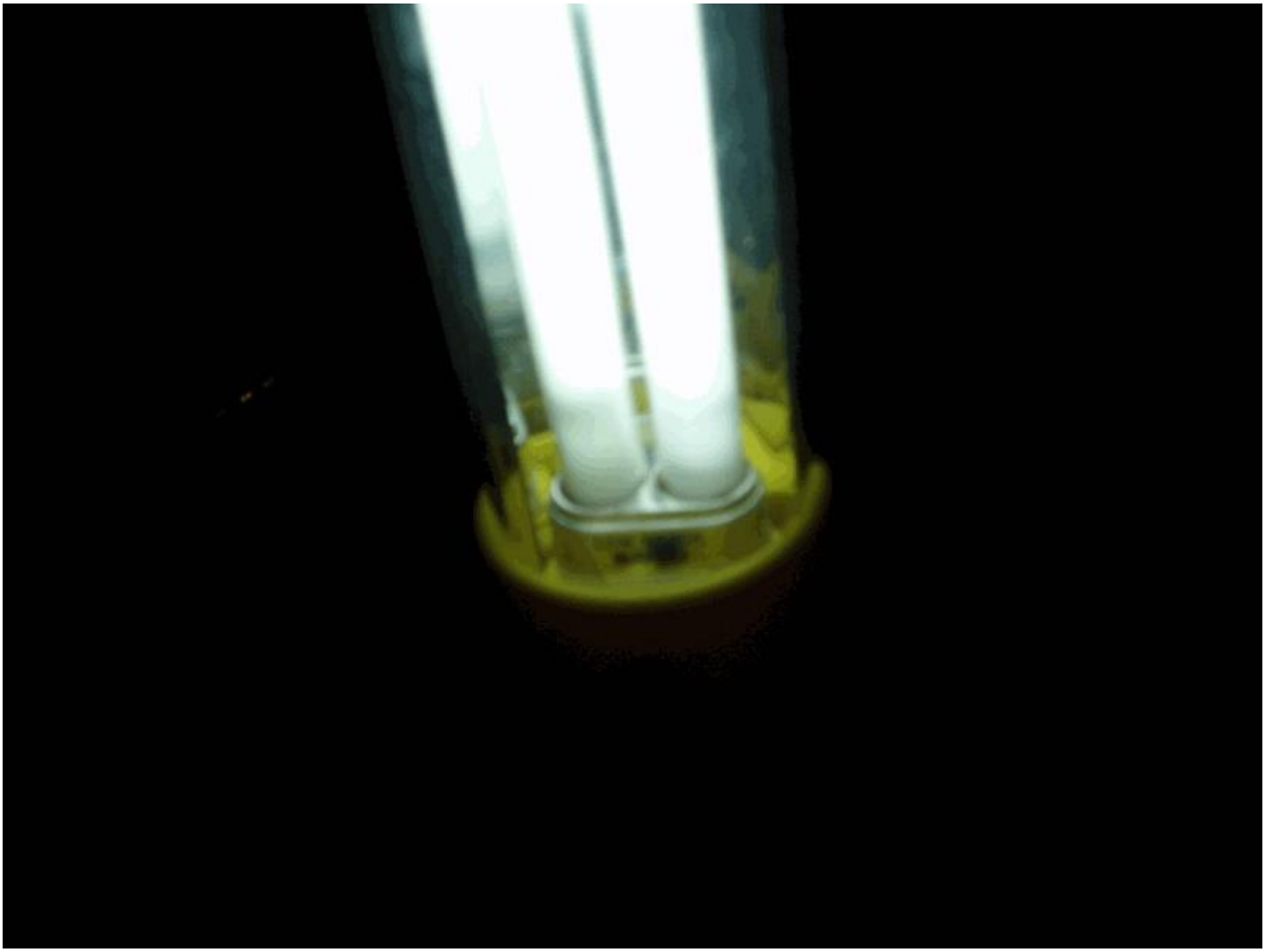

30BP4
This tube was made by DuMont in 1951 for the Royal Sovereign. It is the largest black and white tube ever made.
1936 German CRT
The Incomparable
Muntz
Muntz TV
America's Television Triumph !



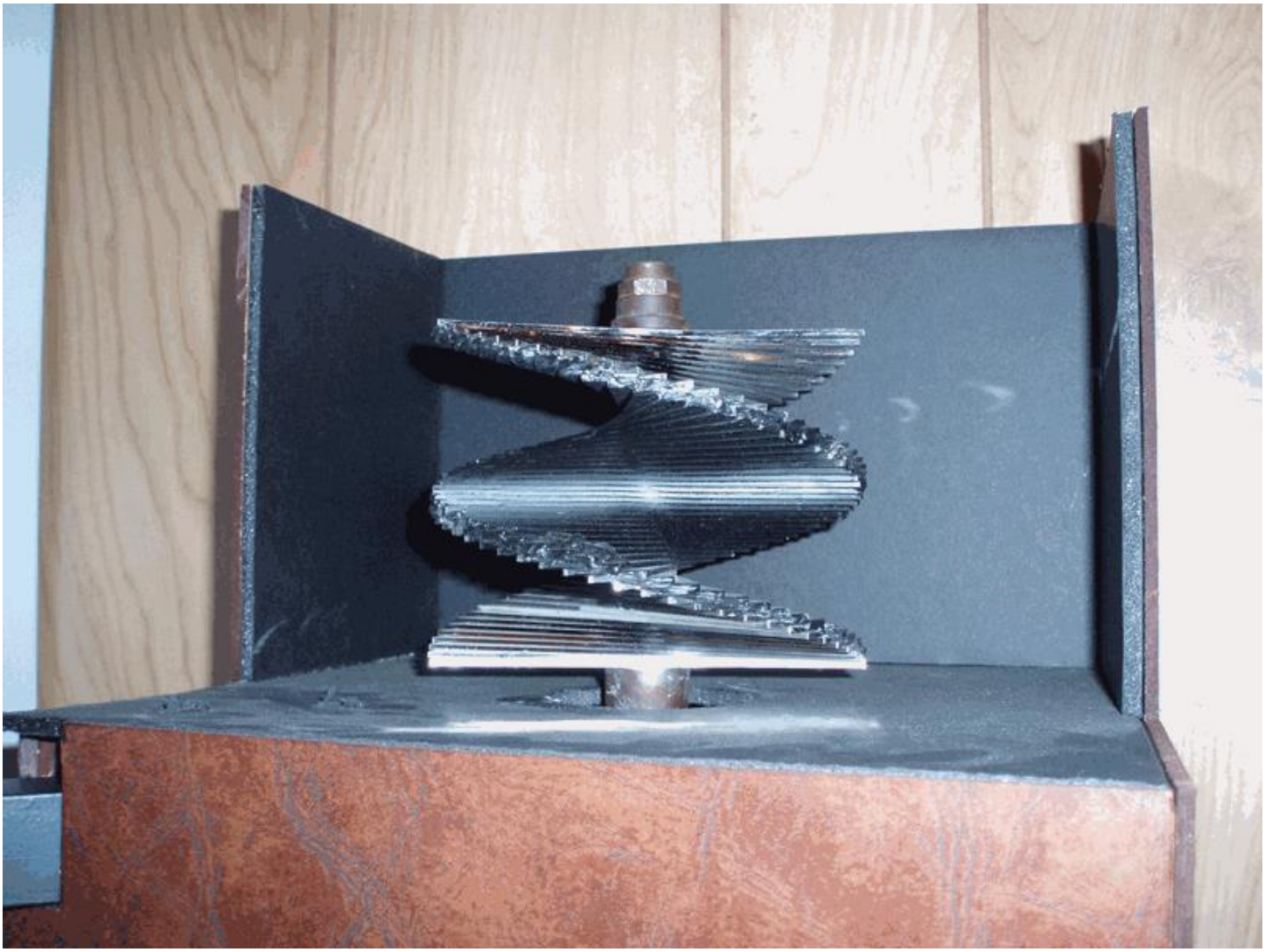



13W 6500K
BAYCO





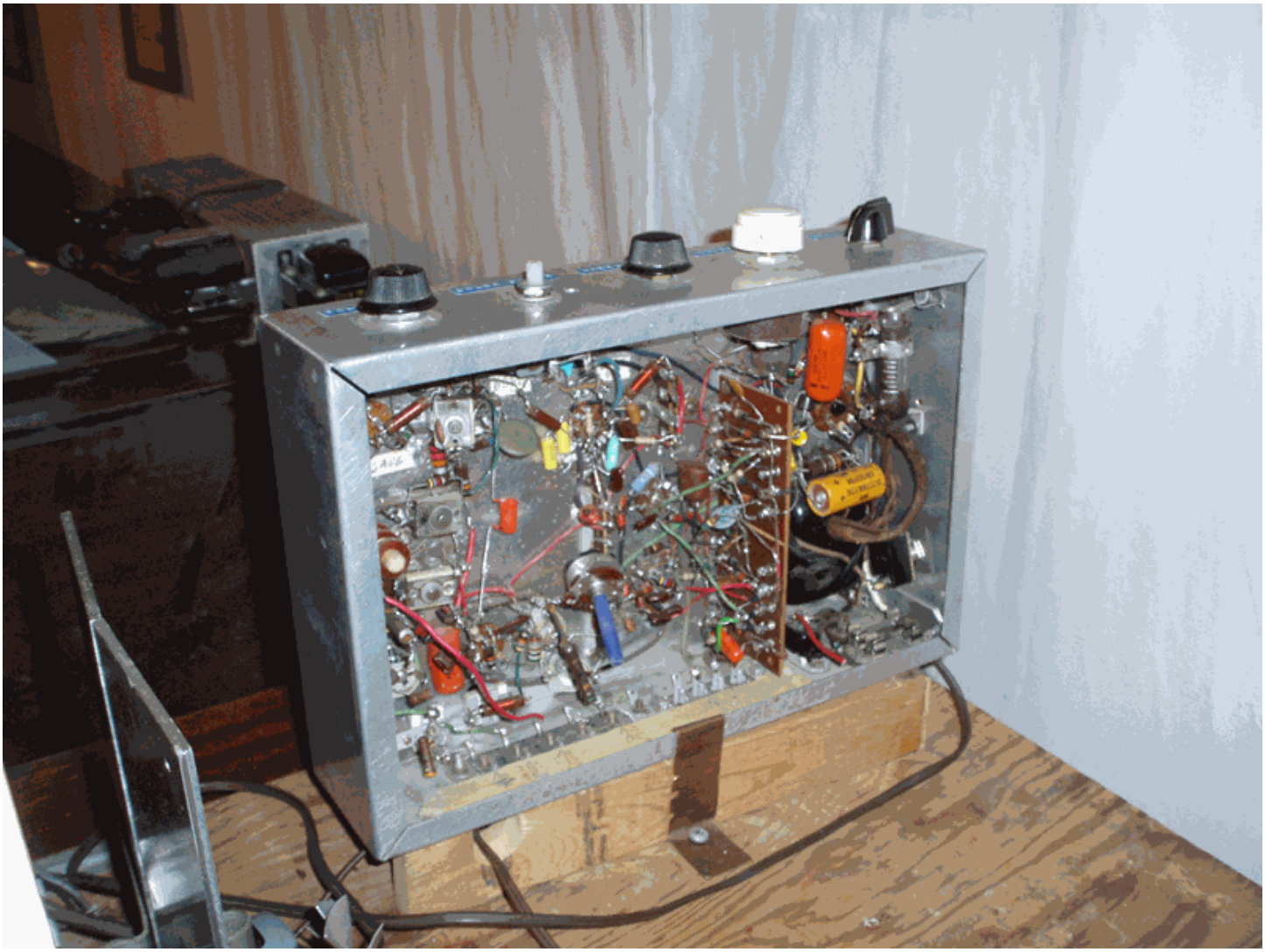

1951-56
Color Sets

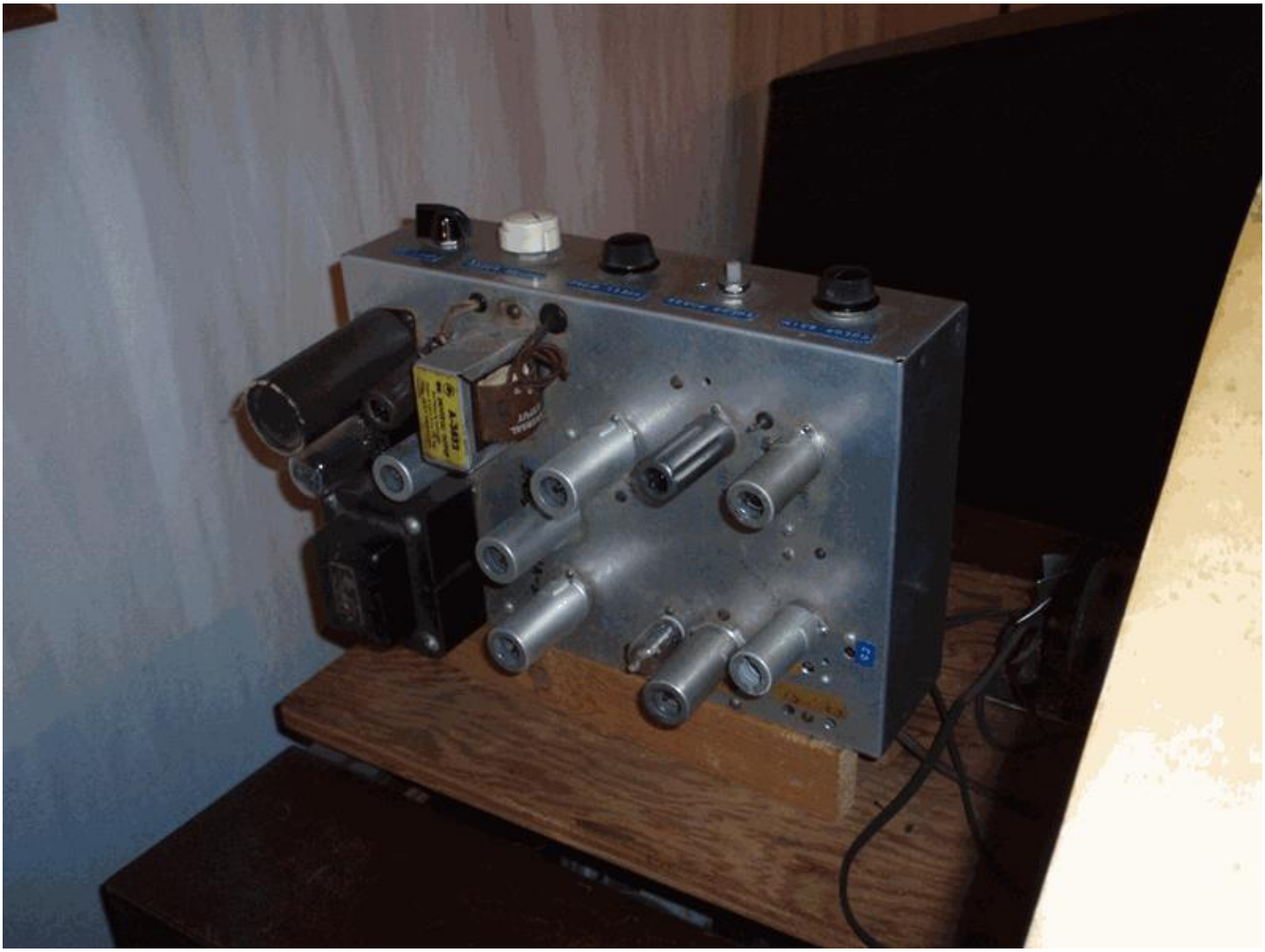



7EP4


Color TV in 1932?
This TV set uses a mirror screw we acquired from a former Bell Labs engineer. It was originally used in their early television experiments. In 1932 it produced a black and white picture, but we have made it display color pictures.
John Logie Baird produced the first color television images in 1928, using a Nipkow disk.


NOW! ENJOY BETTER COLOR TV!
STOP WATCHING
FUZZY...OUT OF FOCUS COLOR!
TV COLOR CLEAR
ELECTRO-MAGNETIC
TV COLOR PURIFIER
INSTANTLY
RESTORES COLOR BALANCE
AND PICTURE SHARPNESS!
ELECTRONICALLY
WIPES AWAY
DISTORTIONS!
LEARN
WHY IT
REALLY
WORKS!



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INDIANA

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STEVE DICHTER

HOLLYWOOD, CA.


COLOR TV IS HERE
U.S. COLOR SHOW WILL BEGIN NOV. 11
COLOR TELEVISION BY R.C.A. IS SHOWN
CBS Field Sequential
Color Television
1951
Now Available! CBS-Columbia Glorious Color Television
FIRST TIME at DAVEGA
Full Color Television
CBS-Columbia
Color Television Receivers
Use The Only Approved Color System
Enjoy The Thrills & Excitement of
FOOTBALL IN FULL COLOR
9
MAJOR COLLEGE GAMES
FIRST GAME-TOMORROW
PENNSYLVANIA
vs
CALIFORNIA
•Not "Next Year"-Not "Tomorrow"-But TODAY!
All You Do Is Flick A Switch To Enjoy...
PROGRAMS IN FULL COLOR...& ALL REGULAR BLACK & WHITE PROGRAMS
Special Trade-in Offer!
Davega Will Give A Big Allowance For Your Trade-In TV, Radio, or Phono...The Value Of Your Trade-In May Mean
NO CASH DOWN ★ 78 WEEKS TO PAY
FOR FURTHER INFORMATION – CALL WA 4-4848
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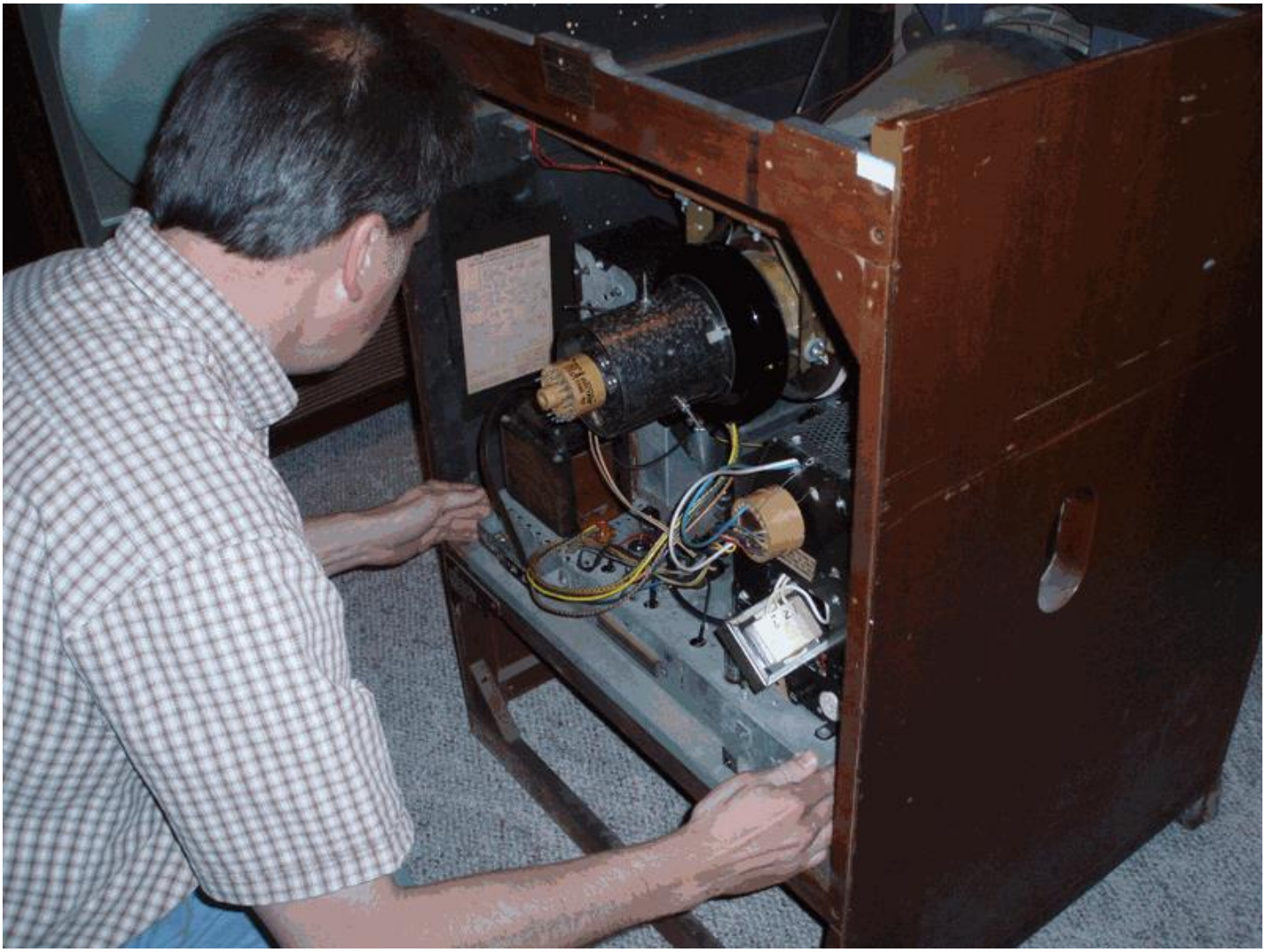
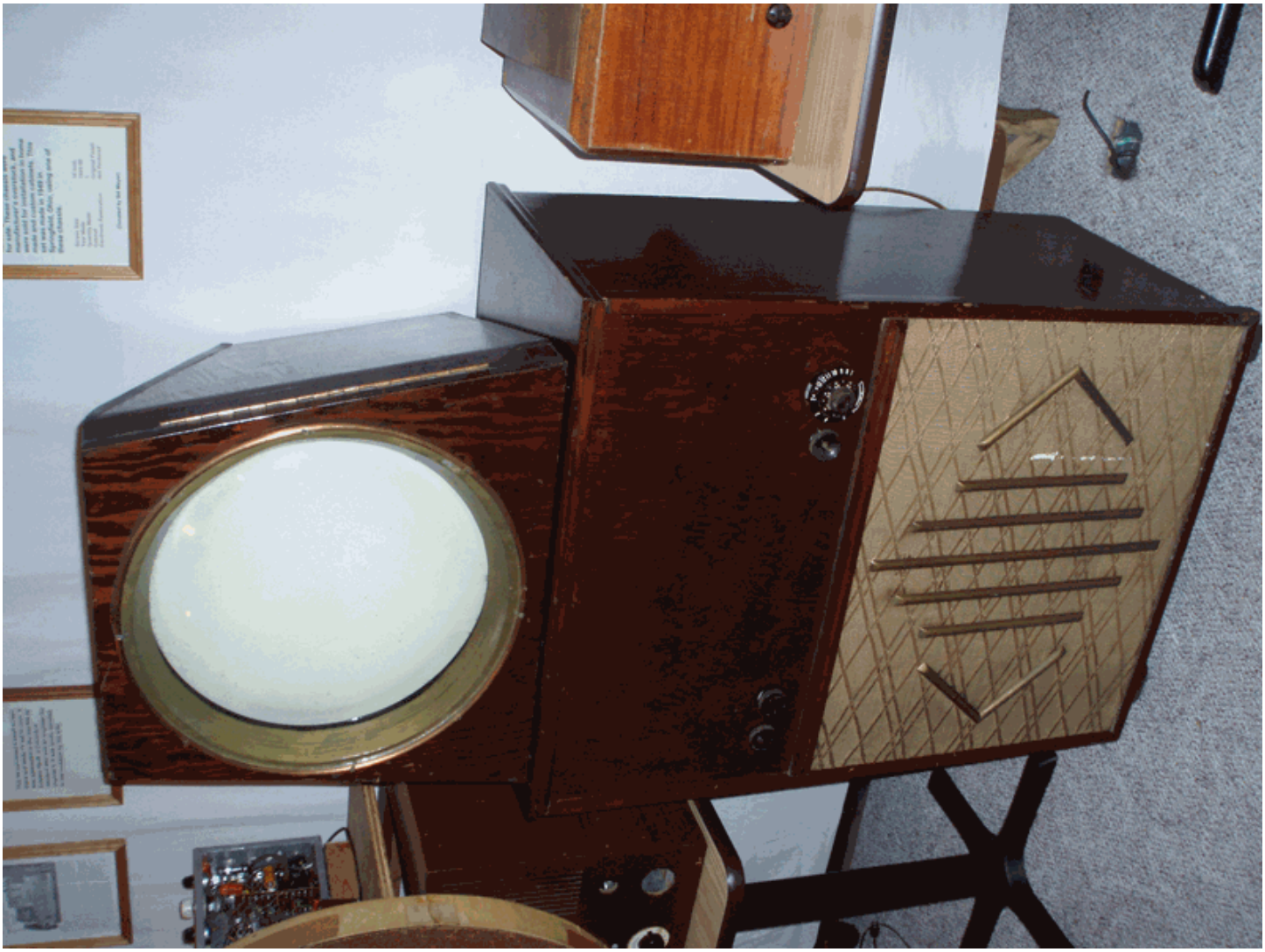



1850
Iconoscope
1946
Iconoscope
5820 Image
Orthicon


This tube was made in the late 40s by a Philco engineer. It appears to be hand made.
Image Dissectors
ATI Monoscope
Monoscope tube made by the American Television Institute students (late 30s - early 40s). Usually there is a pattern of some sort on the target (right).


12JP4

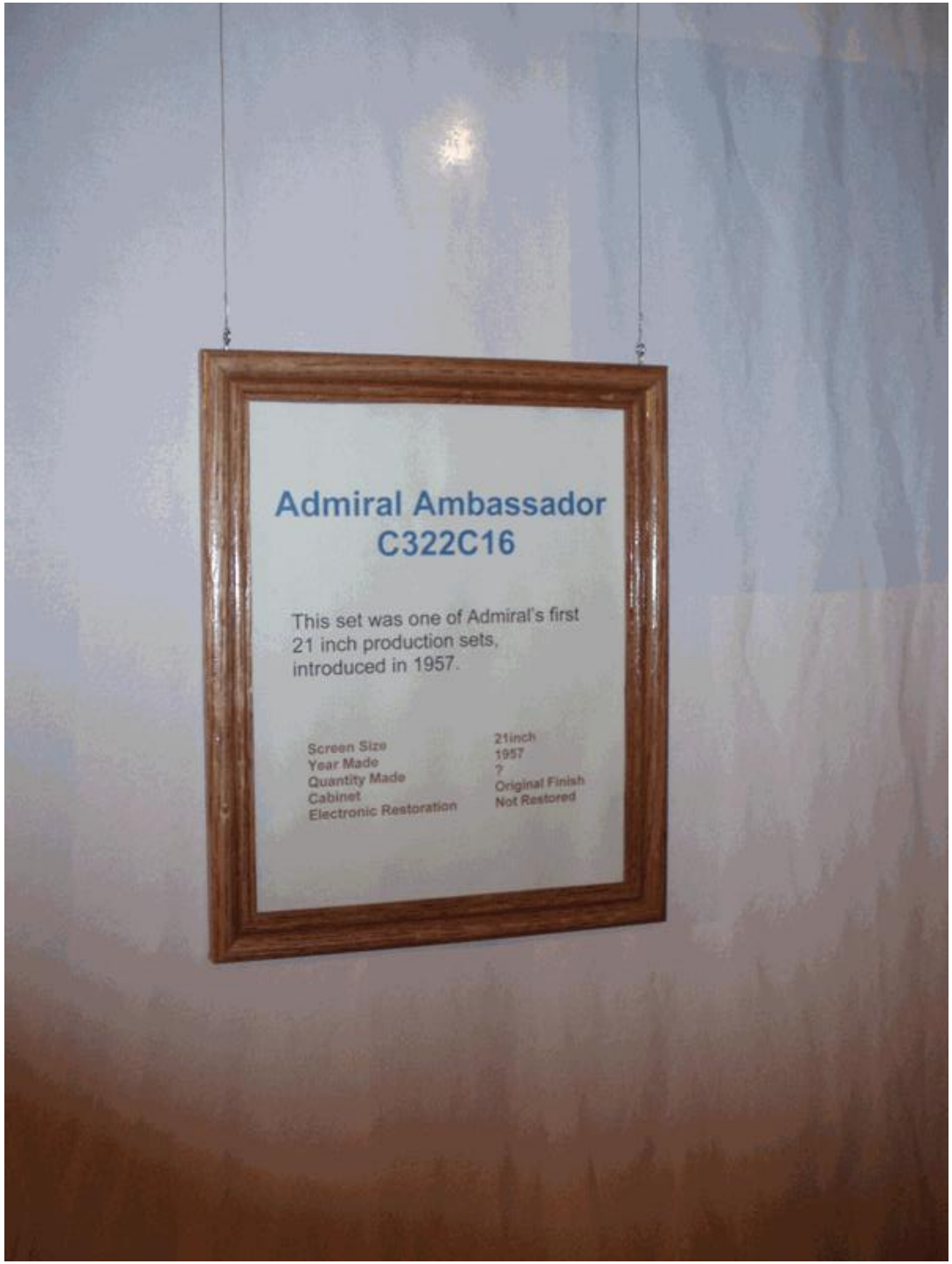

The Dave
Johnson
CRT
Collection

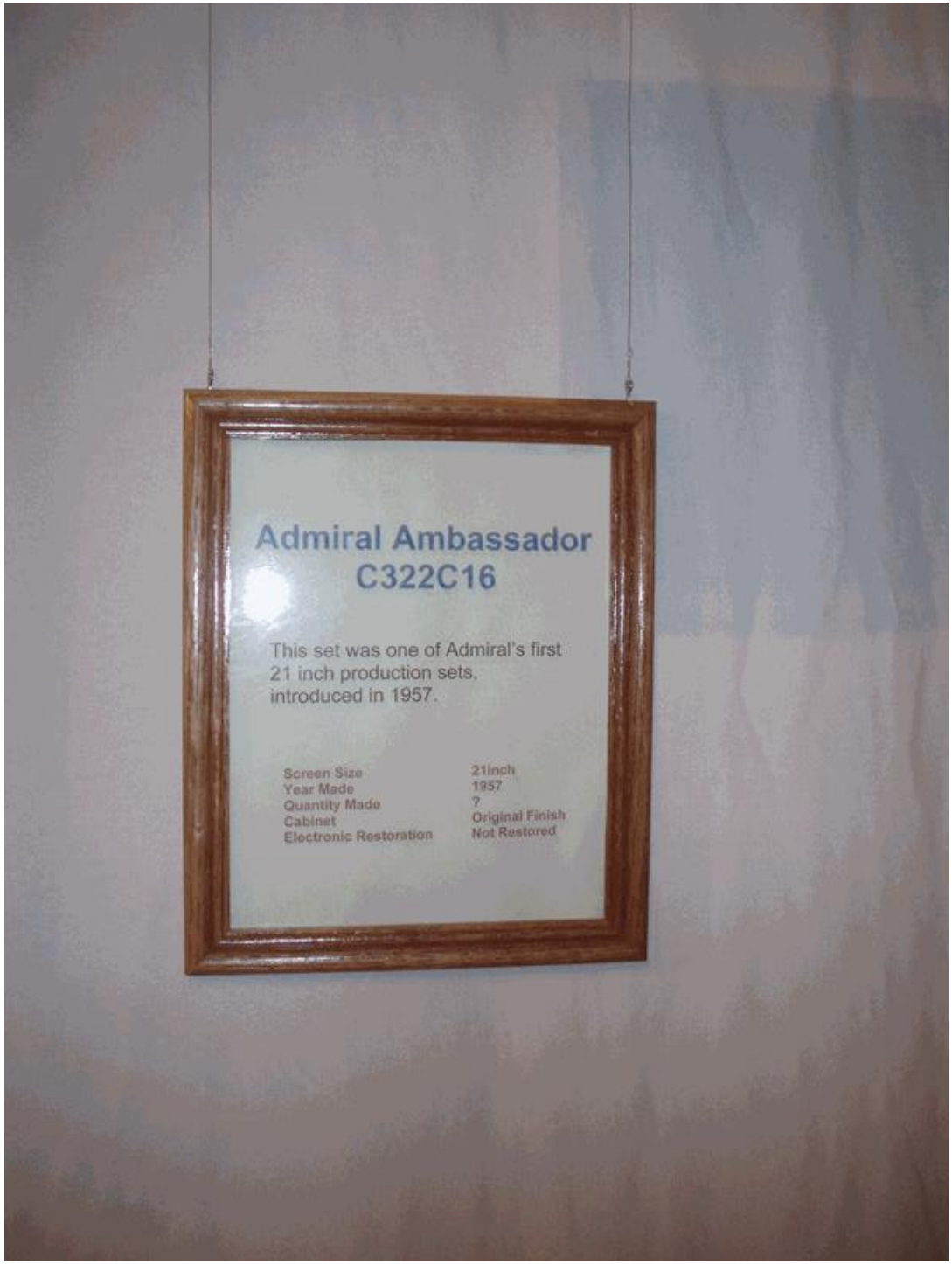



Colordaptor
Home Made 1949 Set
In the late 40s and early 50s radio magazines started advertising RCA 630 type chassis for sale. These chassis were manufacturer's overstock, and were sold for installation in home made and custom cabinets. This set was made in 1949 in Springfield, Ohio, using one of these chassis.


COLOR DAPTOR
WHEEL SYNC POLE PIECES
DRIVE MOTOR
PERMANENT MAGNET
Colordaptor
This kit converted a small screen black and white TV set to color. It was assembled in the mid 50s by Edward Hauff, a Columbus resident who was an engineer for channel 6. It was kindly donated to the museum by his wife.


COL-R-TEL
color converter
YOUR ANSWER TO COLOR TV
Col-R-Tel
The Col-R-Tel was designed to be put in front of a ten inch black and white TV set to convert it to color. It has a large plastic wheel with one segment containing each of the three primary colors. The wheel is turned by a small electric motor. This unit was donated by Dick Carr of Warren, New Jersey.
Screen Size 10 inch
Year Made 1955
Quantity Made ?
Cabinet Original Finish
Electronic Restoration Not Restored


Admiral Ambassador
C322C16
This set was one of Admiral's first
21 inch production sets,
introduced in 1957.
Screen Size 21inch
Year Made 1957
Quantity Made ?
Cabinet Original Finish
Electronic Restoration Not Restored


Admiral Ambassador
C322C16
This set was one of Admiral's first
21 inch production sets,
introduced in 1957.
Screen Size 21inch
Year Made 1957
Quantity Made ?
Cabinet Original Finish
Electronic Restoration Not Restored

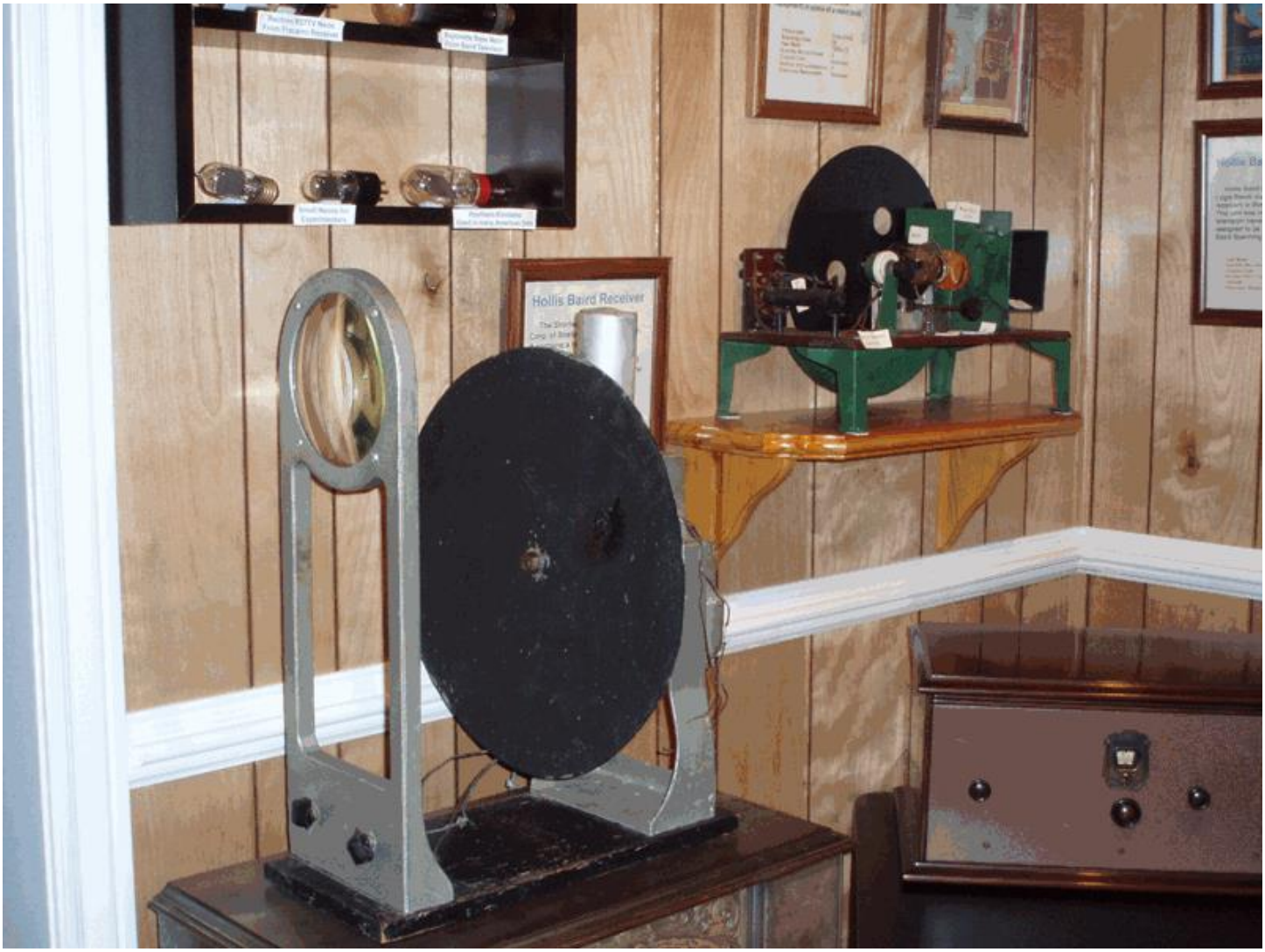

Admiral Ambassador
C22C16


RCA Phototube


Felix the Cat


Felix the Cat


TELEVISION


Hollis Baird Receiver


Radio-Craft
The ROMANCE and REALITY
TELEVISION
Hollis Baird Model 25
Hollis Baird (no relation to John Logie Baird) manufactured television receivers in Boston in the late 20s. This unit was used to receive 60 line television transmissions, and was designed to be used with a Hollis Baird Scanning Disk unit.
Baird
TELEVISION KITS
At ½ Regular Price and Fully Guaranteed
$39.50
Send for this booklet today !!
TELEVISION SALES CO.
Magnifying Lens


1939 Television Kit Chassis
This is a pre-war kit chassis that was built by an RCA tube engineer in 1939. It tunes two channels, using some of the same parts as the RCA TRK series. The design came from the Sickles company, which made the IF transformers.
Philco Television Oscilloscope
Introduced by Philco in 1939 specifically for television servicing.

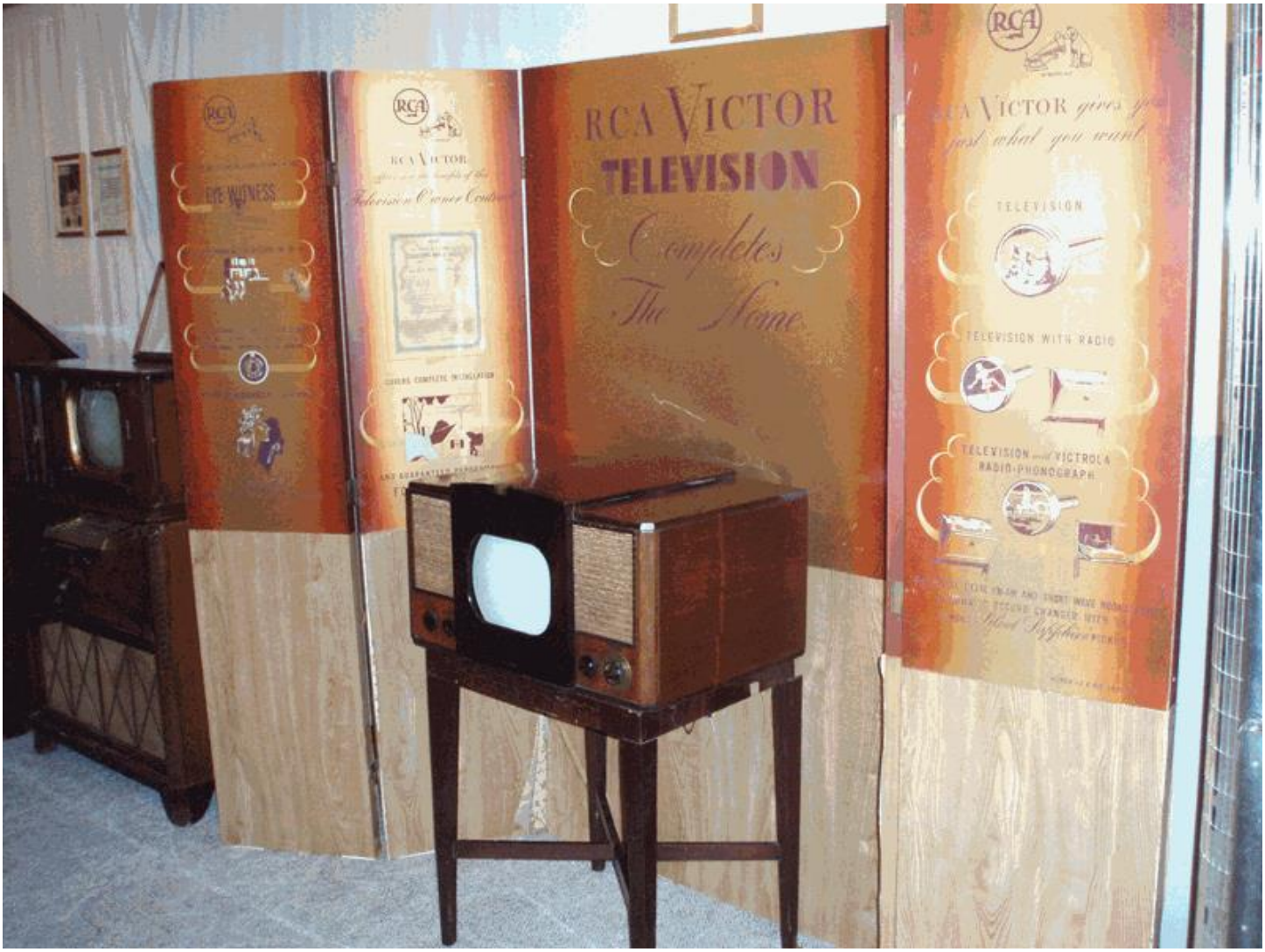

WWI Iconoscope
Camera


12AP4
This tube was made in 1939, and used in all U.S. 12 inch mirror in lid sets.
The reason for the mirror in lid design is that the 12AP4 is so long that a set made with the tube mounted horizontally would stick out too far from the wall.


12AP4


DUMONT

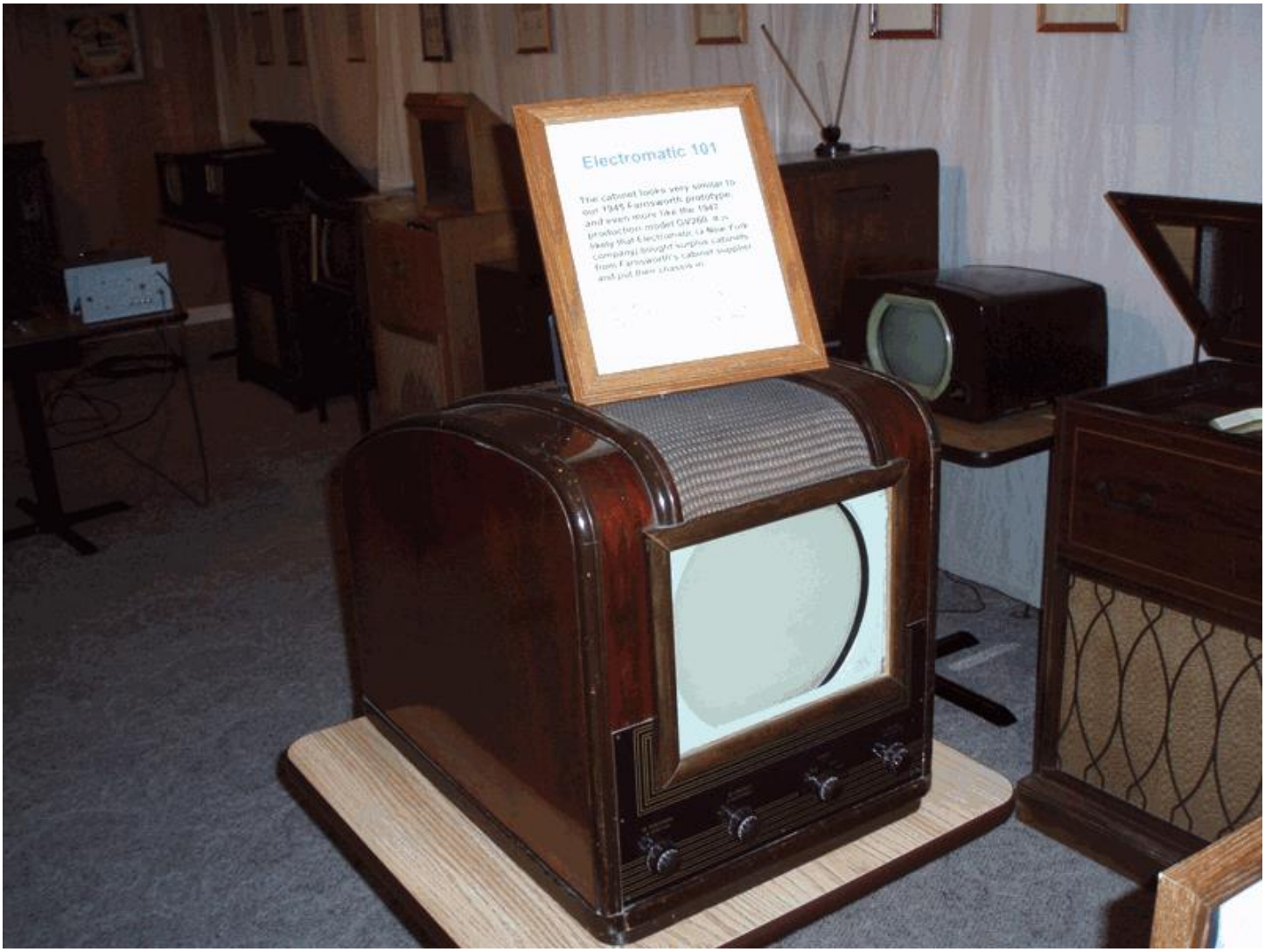

EXIT
Starrett
Opticlear
TELEVISION
RCA
EYE WITNESS
RCA VICTOR
Television Owner Contract
COVERS COMPLETE INSTALLATION

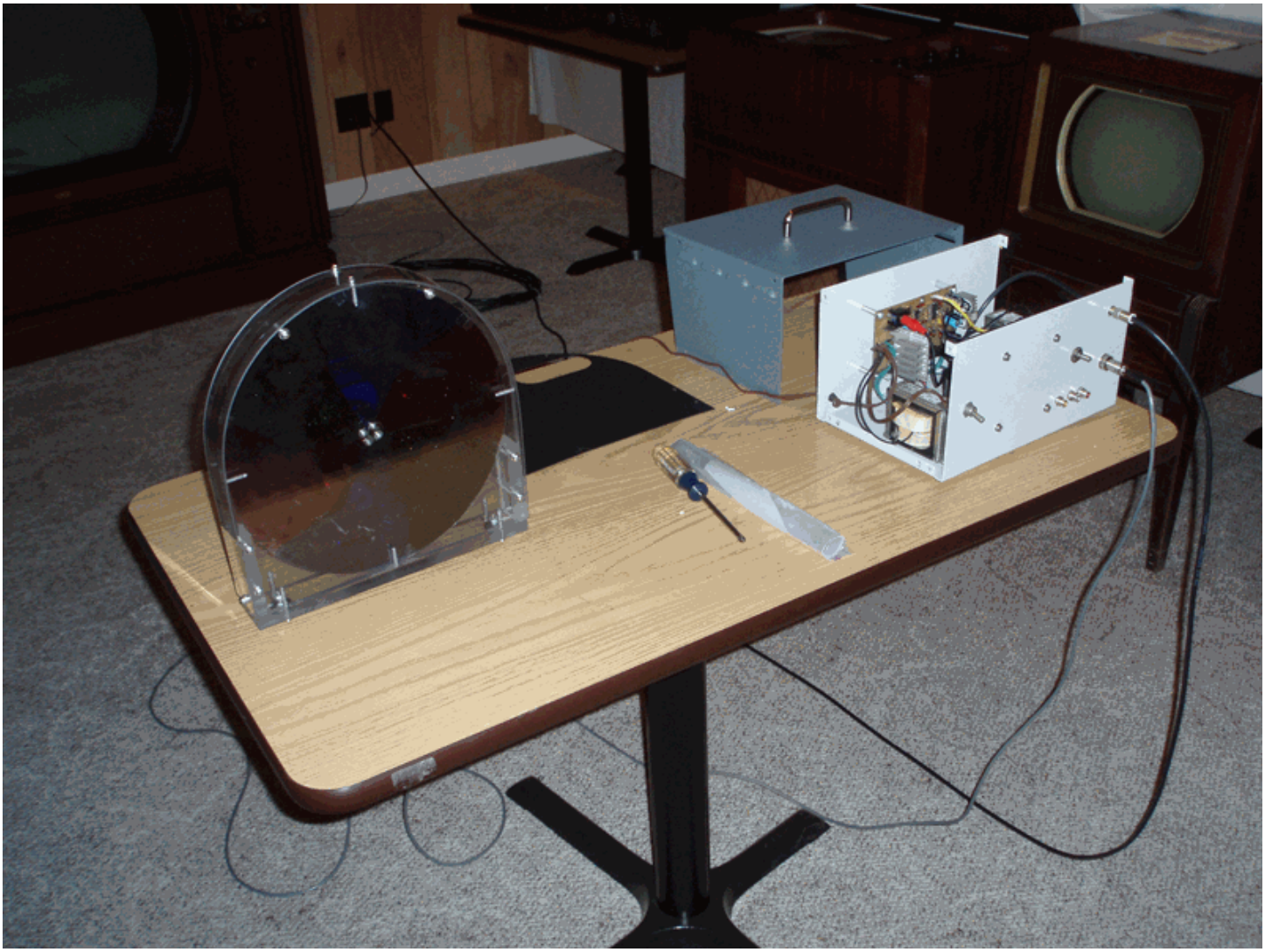

RCA VICTOR
TELEVISION
Completes
The Home
EYE-WITNESS
RCA VICTOR gives you just what you want
TELEVISION
TELEVISION WITH RADIO
TELEVISION and VICTROLA
RADIO-PHONOGRAPH


Teletone TV-209
This is a rare Teletone "Tele-scope" with a 10 inch porthole screen. It sold for $219.95. The chassis is very similar to the RCA 721, but was made by Teletone.


1945-48
merican Sets


1945-48
American Sets

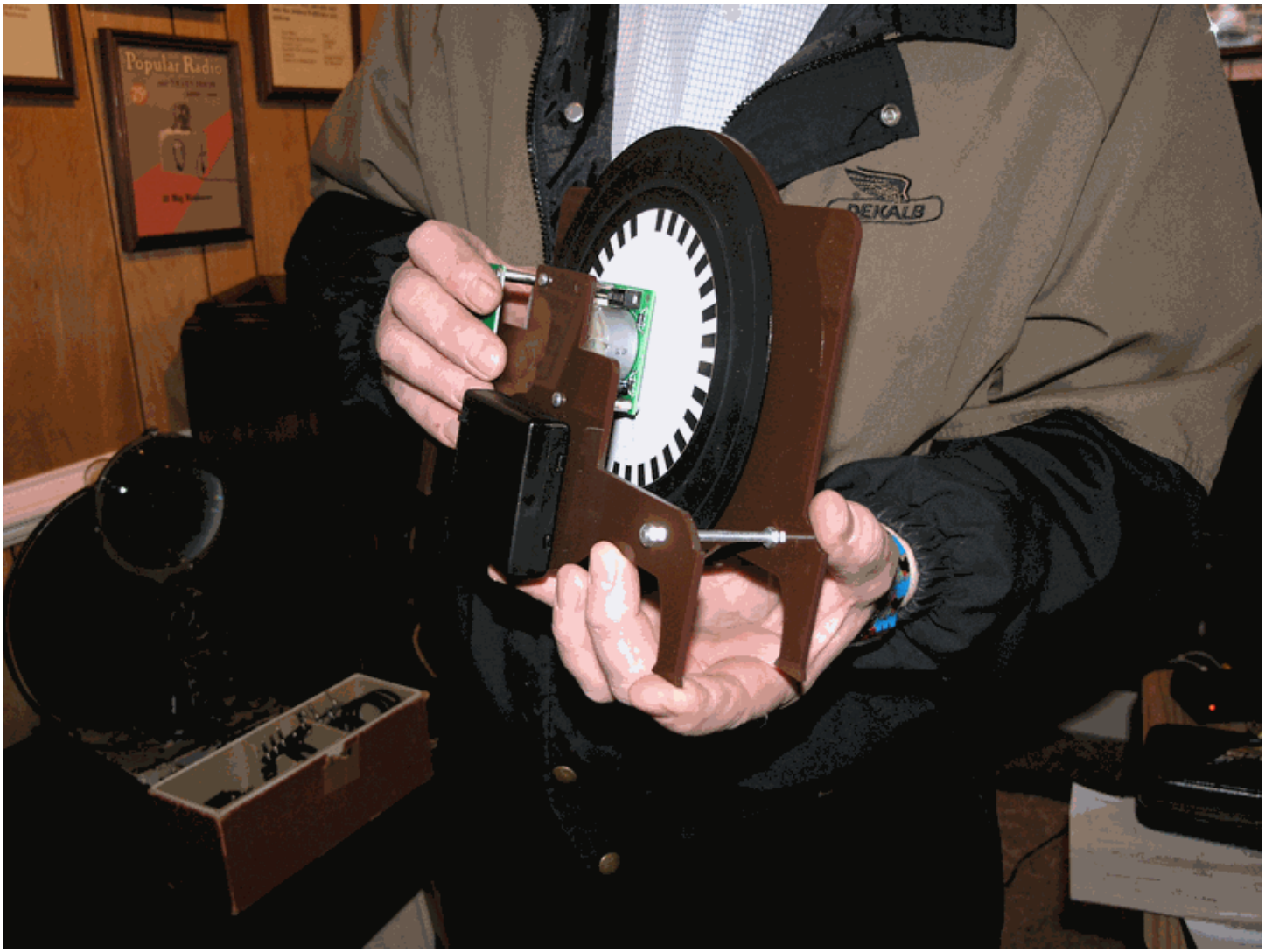

Electromatic 101
The cabinet looks very similar to
our 1945 Farnsworth prototype
and even more like the 1947
production model GY260. It is
likely that Electromatic in New York
company bought surplus cabinets
from Farnsworth's cabinet supplier
and put their chassis in.




TELEVISION


EXIT
Starrett
Opticear
TELEVISION


DAVEGA
COUSIN TV


Popular Radio
DEKALB


This mirror drum was made in the early 30s in Britain. It produced a picture about 5 by 5 inches, and worked with the Baird 30 line standard.
Mervyn made a disk scanner kit, but we have found no information on a mirror drum set made by them.
It Works!
JENKINS
Popular Radio
and TELEVISION
accaro 30 Line


Color Television