
Early Television Museum

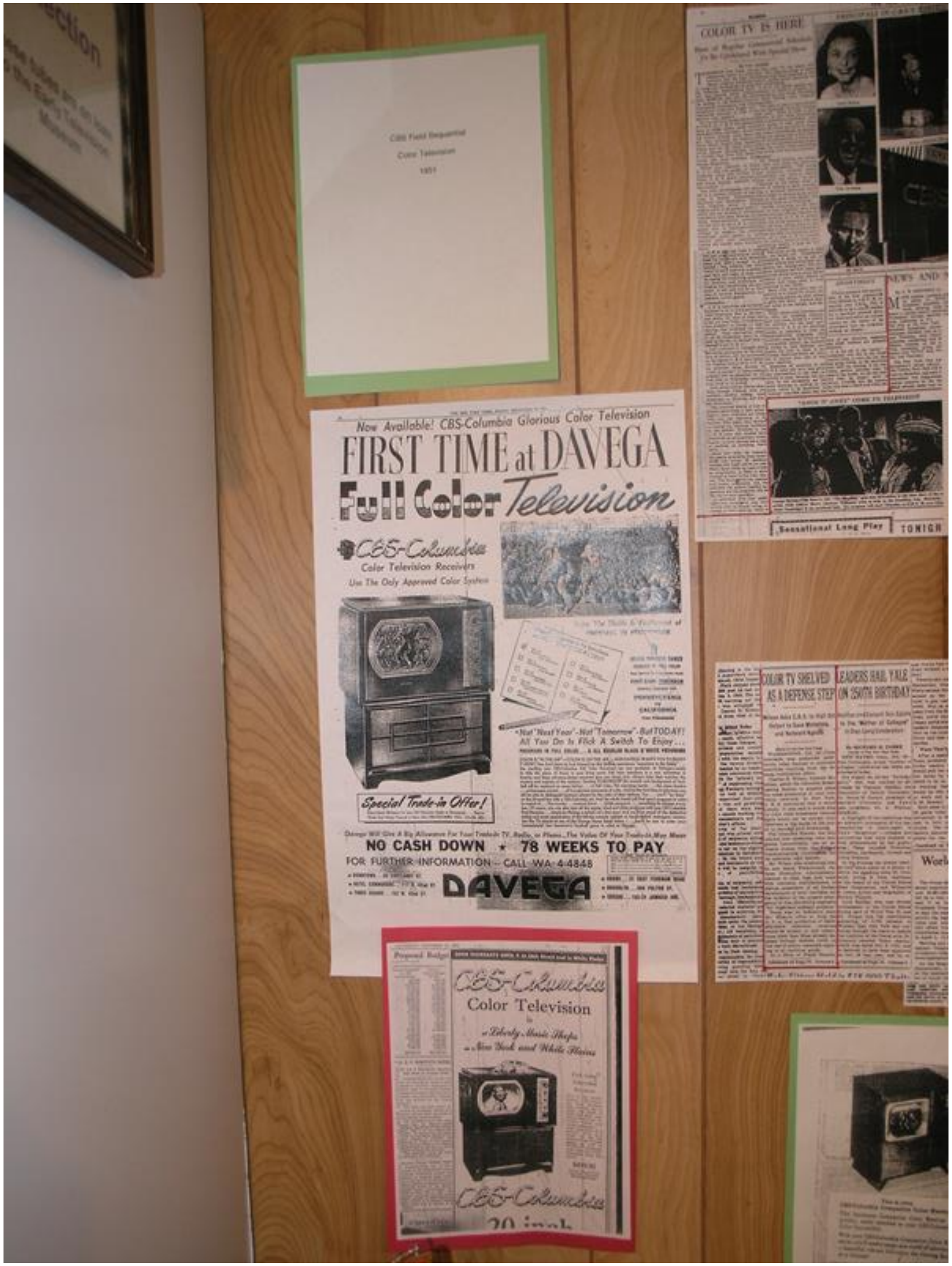

5396
Early
Television
Museum
Saturday 10-6
Sunday 12-5
771-0510


Capehart
Capehart CXC-12
Made in 1954, this is the only surviving example of this early 19 inch color set. It uses the CBS 19VP22 tube. It ...as restored by Steve Kissinger.
Screen Size
Year Made
Cabinet
Electronic Restoration
19 inch
1954
Original Finish
Restored


Capehart
COLOR TELEVISION
OPERATION
SET-UP
INSTRUCTIONS
CHASSIS CXC-12
Capehart CXC-12
Made in 1954, this is the only surviving example of this early 19 inch color set. It uses the CBS 19VP22 tube. It was restored by Steve Kissinger.
Screen
Year Made
Cabinet
Electronic Restoration
19 inch
1954
Original Finish
Restored


Capehart
COLOR TELEVISION
OPERATION
SET-UP
INSTRUCTIONS
CHASSIS CXC-12
Capehart CXC-12
Made in 1954, this is the only surviving example of this early 19 inch color set. It uses the CBS 19VP22 tube. It was restored by Steve Kissinger.
Screen Size 19 inch
Year Made 1954
Cabinet Original Finish
Electronic Restoration Restored


15GP22
CBS Color
Personal Viewer



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
Special Trade-in Offer!
NO CASH DOWN ★ 78 WEEKS TO PAY
FOR FURTHER INFORMATION—CALL WA 4-4848
DAVEGA
CBS-Columbia
Color Television
CBS-Columbia
COLOR TV IS HERE
COLOR TV SHELVED AS A DEFENSE STEP
LEADERS HAIL YALE ON 250TH BIRTHDAY
Sensational Long Play

THE NEW YORK TIMES, FRIDAY, SEPTEMBER

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

FIRST GAME TOMORROW

Saturday, September

PENNSYLVANIA vs CALIFORNIA

from Philadelphia

• 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

COLOR IS "IN THE AIR"—COLOR IS ON THE AIR . . . AND DAVEGA WANTS YOU TO ENJOY IT NOW! You don't have to look forward to this thrilling experience "sometime in the future" . . . the startling new CBS-Columbia Full Color Receivers are now available at Davega—ready to take the place of honor in your living room. Full color television is a new adventure in beauty, and these advance-design receivers give you deep, rich, vibrant color that matches the mystery and majesty of the rainbow. Starting TOMORROW the warmth and background of football will be captured as never before . . . in Full Color. The marching bands . . . the cheer leaders . . . picturesque crowds . . . all in a glorious panorama of color. And for the first time in television you will be able to distinguish between players by the color of their uniform. Yes . . . you'll "be there" on the 50-yard line with a CBS-Columbia set. And the whole family will find great programs in color to marvel at . . . fine movies . . . musical shows . . . kiddie programs . . . something to intrigue everyone. Of course, you can also view all the regular black and white programs with your CBS-Columbia Dual Receiver . . . simply by flicking a switch—it's that easy! And you'll be proud of the distinctive styling and smart appearance of the full-size console cabinet in hand-rubbed mahogany veneers. See this TV miracle at any of the Davega Stores listed below . . . you'll be sure to order yours immediately! See tomorrow's football game in color at Davega.

Special Trade-in Offer!

Extra Liberal Allowance for your Old Television, Radio or Phonograph . . . They're Worth Real Money Towards A New, New CBS-COLUMBIA FULL COLOR SET.

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

FREE TRADE-IN ESTIMATE

★ DOWNTOWN . . . 63 CORTLANDT ST.
★ HOTEL COMMODORE . . . 111 E. 42nd ST.
★ TIMES SQUARE . . . 152 W. 42nd ST.

DAVEGA

★ BRONX . . . 31 EAST FORDHAM ROAD
★ BROOKLYN . . . 360 FULTON ST.
★ QUEENS . . . 163-24 JAMAICA AVE.

THURSDAY, OCTOBER 11, 1951

Proposed Budget

OPEN THURSDAYS UNTIL 9 At 50th Street and in White Plains

CBS-Columbia


THURSDAY, OCTOBER 31, 1951.
Proposed Budget
G. O. P. MANIFESTO GROWS
All but 2 Republican Senators Sign Blast at Truman Order
Arizona Project Delayed Again
OPEN THURSDAYS UNTIL 9 At 50th Street and in White Plains
CBS-Columbia
Color Television
is
at Liberty Music Shops
in New York and White Plains
Full Color Television Receiver
This is the revolutionary CBS-Columbia Dual Receiver that enables you to enjoy the thrill of both full color television and your favorite black and white programs . . . with the flick of a switch! You are ready for the big major college football games as well as WCBS-TV programs with this new CBS-Columbia Dual Receiver.
$499.95
CBS-Columbia
20 inch


CBS-Columbia
$499.95
CBS Color
Personal Viewer
This viewer came from the estate of John
Christianson, a CBS engineer. It was designed
to be placed on a table where a person could
look through the opening at a black and white
set some distance away. With this
arrangement, a set of any screen size could be
used.
We don't know if this was for laboratory
testing, or if it was a prototype of a unit to be
sold to the public. The knob on the rear is a
motor speed control, and there is apparently
no synchronization. The operator would adjust
the knob until the proper colors appeared,
would have to constantly re-adjust it to keep
the colors right.
We plan to modify the Bendix 235MI
our collection to operate with CBS field
sequential video, and use it with the
viewer.

RADIO — THE NEW YORK TIMES, SUNDAY, JUNE 24, 1951 — TELEVISION

COLOR TV IS HERE

Start of Regular Commercial Schedule To Be Celebrated With Special Show

By VAL ADAMS

PRINCIPALS IN C.B.S.'S FIRST COMMERCIAL COLOR TELECAST TOMORROW

Isabel Bigley.

Sam Levenson.

Ed Sullivan.

Frank Stanton, left, president, C. B. S., and Wayne Coy, chairman, F. C. C.

Garry Moore and Faye Emerson.

Patty Painter.

Arthur Godfrey.

Robert Alda.

ANONYMOUS

NEWS AND NOTES FROM THE STUDIOS

More Good Music—Georgetown Forum—Other Items

By T. R. KENNEDY Jr.

OBSERVANCE

"AMOS 'N' ANDY" COME TO TELEVISION

Sensational Long Play

TONIGH

THE NEW YORK TIMES, WEDNESDAY

C.B.S. COLOR SHOW WILL BEGIN NOV. 11

Eight Top Producers and 'Met' to Stage 'Broadway Bazaar,' Hour-Long TV Program

RADIO AND TELEVISION

Telecast of Princess Elizabeth's Canadian Tour Picks Up Some Amusing Sidelights

COLOR

BY R.

ON THE RADI

WEDNESDAY, OCT.

MORNING

ARTICLES & ADS COURTESY

STEVE DICHTER

HOLLYWOOD, CA.

C. B. S. COLOR SHOW WILL BEGIN NOV. 11

Eight Top Producers and 'Met' to Stage 'Broadway Best,' Hour-Long TV Program

RADIO AND TELEVISION

Telecast of Princess Elizabeth's Canadian Tour Picks Up Some Amusing Sidelights

COLOR TELEVISION BY R.C.A. IS SHOWN

Large-Screen Demonstration in Theatre Staged Here to Invited Audiences

ON THE RADIO

WEDNESDAY, OCT. 17, 1951

MORNING

AFTERNOON

MONTGOMERY WARD SUES TEAMSTER UNITS

COLOR TV SHELVED AS A DEFENSE STEP

Wilson Asks C.B.S. to Halt Set Output to Save Materials, and Network Agrees

Special to THE NEW YORK TIMES.

WASHINGTON, Oct. 19—Color television was postponed indefinitely today because of materials scarcities resulting from the defense mobilization effort.

Charles E. Wilson, Defense Mobilizer, asked the Columbia Broadcasting System to suspend plans for mass production of color television receivers. In New York, C. B. S. announced that it would comply. It also said it would drop its color video broadcasts because there would not be enough color receivers in the hands of the public to warrant such broadcasts.

The Columbia System, the only concern now producing color programs commercially, has an exclusive license from the Federal Communications Commission for its television color system.

Mr. Wilson also announced that he and Manly Fleischmann, Defense Production Administrator, planned to meet here next week with television manufacturers to discuss suspension of all further development of color television for the duration of the present emergency to free electronics engineers "for important military projects."

There was no indication from Mr. Wilson's office or from the D. P. A. that production of black-and-white television receivers would be subject to any restrictions other than those already imposed through defense curbs on the use of scarce materials applying to all electrical goods.

In a letter to Frank Stanton,

Continued on Page 21, Column 2

LEADERS HAIL YALE ON 250TH BIRTHDAY

Halifax and Conant Join Salute to the 'Mother of Colleges' in Day-Long Celebration

By RICHARD H. PARKE

Special to THE NEW YORK TIMES.

NEW HAVEN, Conn., Oct. 19—Yale University, proud "mother of colleges," celebrated her 250th anniversary today.

She staged an all-day "birthday party" that was marked by addresses by Viscount Halifax, the Chancellor of Oxford University; Dr. James B. Conant, president of Harvard University, and Yale's own president, Dr. A. Whitney Griswold.

A highlight of the festivities was an academic procession of the representatives of thirty-eight of Yale's "daughters"—colleges and universities that were founded or first administered by her graduates. These included Princeton, Columbia, Dartmouth, Cornell and Johns Hopkins.

In the evening the alumni toasted their alma mater at a dinner at which the speakers were Dr. Griswold; Irving S. Olds, chairman of the board of the United States Steel Corporation, and Wilmarth S. Lewis, author and biographer of Horace Walpole.

Lord Halifax, who was British Ambassador to the United States during part of World War II, and Dr. Conant told the convocation gathering of 2,700 persons in Woolsey Hall that Yale had continued through the years to uphold the tradition of the liberal arts. Dr. Griswold recalled Yale's charter, which was dated Oct. 9, 1701, and is believed to have been approved on Oct. 16 that year, and he re-

Continued on Page 10, Column 5

OCT. 19. 1951

THE NEW YORK

Color Video Is Shelved Indefinitely To Conserve Materials for Defense

Continued From Page 1

president of the Columbia Broadcasting System. Mr. Wilson said "the defense mobilization program in which we are now engaged requires the use of vast quantities of scarce materials in the production of military items and essential industrial expansion."

The letter continued:

"We are making strenuous efforts to expand our sources of raw materials. Eventually we should be able to carry forward the military program and at the same time maintain our normal civilian production. In the interim, we are calling upon American industry to minimize the use of scarce materials and to stretch supplies through the use of substitutes.

"We must, however, request industry to suspend plans for mass production of new products which are not absolutely essential and which would require the use of critical materials. After careful study, I have reluctantly concluded that the production of color television sets presents such a case.

"I am, therefore, requesting Columbia Broadcasting System to suspend its plans for the manufacture of color television receivers in order to conserve critical materials until such time as these materials are in sufficient supply to warrant production. * * *"

Columbia entered the set-manufacturing industry by buying out Hytron Radio and Electronics Corporation after other major manufacturers had shown reluctance to make sets according to C. B. S. specifications.

Center of Controversy

The Columbia color system has long been the center of controversy. The Communications Commission approved the Columbia color system last year after protracted hearings at which the Radio Corporation of America contended that its all-electronic system would prove superior in the long run if allowed more time for perfection. The Columbia system involves the use of a mechanical scanning disk.

The right of the commission to approve the C. B. S. system and reject the R. C. A. method was later upheld by the Supreme Court.

The main argument for the rejected system was that it was "compatible" in that owners of present sets could receive color broadcasts in black and white without the purchase of additional equipment.

Despite the fact that the Columbia color system was "incompatible," meaning that its color cannot be received on present sets in black and white without the purchase of additional equipment, the F. C. C. approved it on the ground that its color image was best.

To Push Experimental Work

Mr. Stanton said yesterday that the Columbia Broadcasting System and its manufacturing subsidiaries would comply with the request of the Office of Defense Mobilization.

In addition, he said, regular color broadcasts will be discontinued after the color broadcast of today's football game between the Universities of North Carolina and Maryland. Too few color sets are owned by the public to warrant further broadcasts, Mr. Stanton said.

"Within the limitations which may be imposed by the defense mobilization effort," Mr. Stanton said, "we intend to continue experimental and developmental work during the period of manufacturing suspension."

He declared that Columbia would work for the development of a tri-color tube and "on the development of a simple adapter which may be attached to ordinary black-and-white television sets and which will enable those sets to receive color television signals in black and white."

Mr. Stanton said that C. B. S.-Columbia, Inc., the C. B. S. manufacturing subsidiary, would continue to manufacture black-and-white television sets and electronic equipment for the defense program.

The cancellation of color broadcasts will upset a $250,000 schedule of Sunday afternoon programs that were to have been produced by leading Broadway figures and the Metropolitan Opera Company beginning Nov. 11.

ON THE RADIO

ON THE RADIO
This is your
CBS-Columbia Companion Color Receiver
This handsome Companion Color Receiver is quickly, easily attached to your CBS-Columbia Color Convertible.
With your CBS-Columbia Companion Color Receiver, you'll meet a magic new world of television — beautiful, vibrant full-color, the viewing thrill of a lifetime!
lumbia
Recorder
ER·CHICAGO
$187.50
Low Cost
onic Memory!
ER·CHICAGO
Recorder
ms Arranged
25 Weekly
Color Convertibles
Dual Engineered for Black-and-White
and the addition of Full Color Television
20-Inch Television
In a handsomely designed table model cabinet finished in hand rubbed mahogany veneer. Has built in receptacle for easy attachment of CBS-Columbia companion color receiver.
$299.95
20-Inch
Television Console
Rich, hand rubbed, mahogany finish cabinet with 2/3 doors. One knob picture control makes tuning exceptionally simple and precise. Has built in receptacle for easy attachment of a CBS-Columbia companion color receiver.
$389.95
Terms If Desired
LIBERTY
Music Shops
450 MADISON AVE. AT 50TH ST.
228 EAST POST ROAD, WHITE PLAINS

RCA DEBUTS

COMPATIBLE COLOR TV

1953/54

RCA Wins Fight for Compatible Color Television; FCC Decision Benefits Public and Television Industry.

David Sarnoff, Chairman of the Board, Radio Corporation of America

RCA LEADERSHIP

Compatible color television broadcasting has been approved. This progressive action by the Federal Communications Commission speeds the day of color television in the American home.

The RCA COLOR TELEVISION SYSTEM operates on the compatible color signal standards approved by the FCC.

Color television opens a new era in electronic communications and adds a new dimension to the entertainment arts. It supplies a new power to advertising and greatly increases its merchandising possibilities. It adds realism to journalism, intensifies television as a social and educational force and opens the way for a significant advance in service to the public.

December 17, 1953, the day on which the FCC approved standards for the commercial broadcasting of COMPATIBLE COLOR TELEVISION, will be remembered in the annals of communications along with the historic date of April 30, 1939, when RCA-NBC introduced ALL-ELECTRONIC BLACK-AND-WHITE TELEVISION as a new broadcast service to the public at the opening of the World's Fair in New York.

At that time we added sight to sound. Now we add color to sight.

RCA is proud of the leadership its scientists and engineers achieved in developing—the all-electronic black-and-white television system—the all-electronic compatible color television system—and the RCA tricolor tube, which made the latter practicable.

Dedicated to pioneering and steadfast in our purpose to give America pre-eminence in communications, we shall continue our efforts to advance and to merit the faith and confidence the American people have in "RCA" as an emblem of quality, dependability and progress.

David Sarnoff
Chairman of the Board

RCA-NBC PIONEER A NEW ERA IN TELEVISION

Seven years ago—on May 7, 1946—David Sarnoff, Chairman of the Board of the Radio Corporation of America, said:—

"When a uniform and practical color television system for the home is here, RCA will have it."

The Public Will Benefit

On December 17, 1953, the Federal Communications Commission approved compatible standards for color television broadcasting. This is a great victory for RCA. But it is an even greater triumph for the public and the entire television industry.

Color is a new dimension that will greatly increase the public's enjoyment and appreciation of the wealth of news events, entertainment, and education available on television sets.

Behind this great development are many long years of scientific research, hard work and financial risk. Our scientists were engaged in research basically related to color television as far back as the 1920's ... even before we introduced black-and-white television service.

In the intervening years we have spent more than $25,000,000 to achieve our objective of adding the beauty and reality of color to the black-and-white service we pioneered.

[illegible]

When Will Color Television Sets Be Available?

[illegible]

When Will Color Programs Be Available?

[illegible]

The Industry Will Benefit

[illegible]

Frank M. Folsom
President

RCA RADIO CORPORATION OF AMERICA

FRENCH FAIL TWICE TO PICK PRESIDENT

'S FOR KOREANS KED TO RACKET

New Rift on Heirless Property

New Rift on Heirless Property

Special to The New York Times.

...DON, Dec. 18—A rupture of ...tions between Austria and ... representatives for resti... of property taken from Jews ... Nazis was announced here ...

...ahum Goldmann, who had ...gotiating with the Austrian ...ment until two months ago, ... had written to the Austri... ...ncellor, Dr. Julius Raab, ...y refusing an invitation to ... talks.

...oldmann, chairman of the ...xecutive Board for Jewish ... on Austria, charged at a ...nference that the Austrian ...ent had "sharply re... ...its policy" and wanted to ... discussing part of the ... until after an Austrian ...aty was signed.

...oldmann said that in his ... Chancellor Raab he had ...d his "distinct shock" and ...r further negotiations un... was a change of attitude. ...plained that the amount ... was "ridiculously small," ...12,000,000 in a total settle... ...at will be less than $100,-...

...he so-called heirless prop... ...it is involved—the sums ...nd by victims of the ex... ...tion camps who left no ... Dr. Goldmann explained ... had stipulated, and the Austrians had agreed in June at the outset of negotiations, that restitution for the heirless property should be made.

But on Nov. 19, he said, he received a letter from Herr Raab indicating that these claims could not even be discussed until six months after an Austrian state treaty had been signed.

"Although we all hope that a peace treaty with Austria will come into effect, everybody knows that is not something we can determine," Dr. Goldmann declared. "The treaty is not a complete draft. It may never be completed. It is not in force. It may never be in force."

Dr. Goldmann, who successfully negotiated an $822,000,000 agreement with the West German Federal Republic, declared that Austria had proved far less willing to acknowledge and compensate Jewish claims. The German settlement, he pointed out, included the principle of compensation for slain Jews whereas Austria was being asked simply to restore property.

"They showed a complete lack of goodwill," he declared, adding that "preferential treatment for ex-Nazis" was stopped only by a veto by the occupying powers of a measure that would have re-

Continued on Page 2, Column 1

Reluctance of the Authority

It was indicated that a special meeting of the authority might be called to discuss the situation before the next regular meeting, scheduled for next Thursday.

The authority, however, was understood to be reluctant to be bound to the recommendations of a fact-finding board or to any commitment to make such findings retroactive. Also unresolved by the authority was the question of whether, as a public agency, it would sign any contract covering wages and working conditions of its employes.

Although the Transit Authority has a memorandum of understanding with the union that runs to Dec. 31, it was signed originally by the Board of Transportation and is not technically a binding legal contract but is merely a mutual expression of moral obligations.

Authority members are not yet certain whether they, under the state laws that govern their powers, can bind the transit agency to any agreement with an employe organization.

In connection with its program of curtailing service on lines where passenger volume is low, the authority announced yesterday that it would discontinue trains on the Third Avenue elevated between Chatham Square and City Hall beginning at 6:45 New Year's Eve.

The five-block section of the line above Park Row will be sur-

Continued on Page 10, Column 1

...ond session of the Eighty-third Congress Jan. 6 to raise by perhaps $15,000,000,000 the national debt limit.

Such a decision had been long foregone and the House of Representatives in fact had accepted the

Continued on Page 9, Column 5

F.C.C. Rules Color TV Can Go on Air at Once

By VAL ADAMS

Color television was given an unrestricted go-ahead yesterday when the Federal Communications Commission told networks and stations they might transmit color programs at any time.

On Thursday the commission approved a new color system that can be received on existing black and white sets. Under the rules, however, no commercial program can be transmitted until thirty days after the order is published in the Federal Register, the Government bulletin.

But the only requirement now, the commission said yesterday in waiving the waiting period, is that networks notify the F. C. C. in advance of the color telecasts.

The National Broadcasting Company will present three color telecasts within the next two weeks. They include "Amahl and the Night Visitors," the Gian-Carlo

Continued on Page 23, Column 7

... THINKS REDS ... RENEW TALKS

...Back From Korea, Tells ... He Also Feels Foes ... Not Resume War

Special to The New York Times.

...INGTON, Dec. 18—Ar... Dean, United States nego... ...r a Korean peace con... told John Foster Dulles, ... of State, today he was ... the Communists would ... necessary effort to renew ...ratory discussions. ...an returned to Washing... last night after having ... the talks in Panmunjom ...

Japanese Announce U. S. Will Return Island Group

TOKYO, Dec. 19 (UP)—The Jap...

PUBLIC GIFTS ASKED FOR REFUGEES' AID

U. N. Commissioner Says Fund Has Run Dry in Appeal for Cash Contributions

Special to The New York Times.

UNITED NATIONS, N. Y., Dec. 18—A direct appeal to the people of the United Nations to contribute funds for emergency care for thousands of refugees was made today by Dr. G. J. Van Heuven Goedhart, United Nations High Commissioner for Refugees.

Dr. Van Heuven Goedhart said ...

refugee program are paid from a separate $683,000 budget voted by the General Assembly and contributed by all members of the United Nations.

In his Christmas season appeal for funds from the public, Dr. Van Heuven Goedhart said many of the refugees had left their homes and often their families because "they valued freedom above everything else."

"By doing so they earned our respect," he said. "But more than our respect they need our sympathy, our friendship and our help."

The high commissioner urged the public to send contributions of any amount to his office in Geneva, Switzerland, or addressed to him at the United Nations, N. Y.

In another message, this one directed to the people still living in refugee camps, Dr. Van Heuven Goedhart said his office would do everything it could to help them

WAAT	970	WHOM	...
WABC	770	WINS	...
WBNX	1380	WLIB	...
WCBS	880	WMCA	...
WEVD	1330	WNEW	...

L+ 23

Color TV Gets Quick Go-Ahead; First Program Goes on Tomorrow

Continued From Page 1

Menotti opera, tomorrow from 5 to 6 P. M., and "Season's Greetings," a special holiday show, on Tuesday from 8 to 9 P. M.

"Dragnet," a regular Thursday evening series, will be presented in color next Thursday at 9 o'clock. The program filmed a special Christmas story in color some weeks ago in the hope that the Commission would approve color in time for holiday presentation.

The Tournament of Roses Parade in Pasadena, Calif., will be televised in color by N. B. C. on Jan. 1. The network said it was considering other remote pick-ups for color programs including the Friday evening boxing bouts at Madison Square Garden, the Mardi Gras in New Orleans, the Cherry Blossom Festival in Washington and skiing events at various winter resorts.

The Columbia Broadcasting System announced that it would add two new color programs "during the first quarter of 1954." In recent weeks the network has been transmitting an experimental color program each Friday from 5:30 to 6 P. M., which will continue. The quality of the C. B. S. color picture was improved yesterday over that of previous weeks.

The R. K. O. Eighty-first Street Theatre on Broadway was leased yesterday by C. B. S. for conversion to color program productions. J. L. Van Volkenburg, president of C. B. S. television, said alterations would require about four months. The theatre will cease its movie operations after Monday night.

The coming year is viewed by the television industry as an experimental period for color television. Although the color programs that go on the air can be seen in black and white by any set owner, not many will be able to see them in color. The total volume of color sets to roll from the production line in 1954 has been estimated from "a trickle" to perhaps a hundred thousand.

Benjamin Abrams, president of the Emerson Radio and Phonograph Corporation, said that the total production for the entire industry during the year "may not exceed 50,000, which is equivalent to not more than one set per dealer for all of 1954."

Mr. Abrams thought the commission's color decision would result immediately in increased sales of seventeen and twenty-one inch black and white sets at $150 and $200, as compared with a twelve or fourteen inch color receiver initially priced from $700 to $1,000.

Dr. Allen B. Du Mont, president of the Allen B. Du Mont Laboratories, Inc., said that his company would introduce "a large screen" color TV receiver in 1954, although not in quantity. The Admiral Corporation said it had set a goal of 30,000 receivers during the year.

The color standards approved by the F. C. C. were developed by the National Television System Committee, an all-industry group. The standards replace a method developed by C. B. S. and approved three years ago by the F. C. C.

Canada Must Wait

OTTAWA, Dec. 18 (Canadian Press)—Color television is years away for Canada where black and white broadcasting has been in operation only a little more than a year. Transport Department officials and broadcasters have been to New York to see the tests of the new color system and are enthusiastic about it. But they said it was too early to say whether Canada would adopt the new system immediately.

TO MAKE COLOR TV TUBE

Thomas Electronics to Produce Chromatic 21-Inch Type

PASSAIC, N. J., Dec. 18 (UP)—Thomas Electronics, Inc., today announced it has signed a contract to produce 21-inch color television tubes for the Chromatic Television Laboratories, Inc., of Oakland, Calif.

The Thomas Company, independent manufacturer of cathode ray tubes, is the second to be licensed to produce the tubes. The other company is the Crosley division of Avco Manufacturing Company.

Robert E. Burrows, sales manager, did not disclose the size of the contract to produce the tubes invented by Dr. Ernest O. Lawrence, director of the radiation laboratories of the University of California.

John Ward to Open New Store

John Ward, a division of Melville Shoe Corporation, will open its eighth shoe store in the New York metropolitan area today at Madison Avenue and Forty-seventh Street, on the former site of the Ritz Carlton Hotel.

ON TELEVISION

Channel 2 .... WCBS-TV | Channel 7 .... WABC-TV
Channel 4 .... WRBT | Channel 9 .... WOR-TV

Television in Review: Color Film

Christmas Eve 'Dragnet' Show Is First Sponsored Dual Transmission

Tint Effects Disclose Lack of Experience—Religion Is Motif

By JACK GOULD

JACK WEBB, the earnest entrepreneur of "Dragnet," over-extended himself in his observance of the Christmas season. His special holiday assignment for television's most popular fictional detectives, Joe Friday and Frank Smith, aspired to the status of a Yuletide classic on two different counts and fell short on both.

First, the program was the initial commercial film to be shown in full color as well as the usual black and white (9 P. M. Christmas Eve over N. B. C.). Sad to relate, it was by far the worst completely electronic color TV to be seen in many a day—roughly comparable, in fact, to the ragged experiments of several years ago.

•

Second, the "Dragnet" presentation tried to do a modern-day Christmas story about a little boy who prays for a new red wagon and, when he receives it, wants to give the Christ Child the first ride. The youngster's thought in itself was a touching climax, but the drama as a whole had little plausibility and was overly contrived in its emotionalism.

The color premiere of "Dragnet" was of special interest to the TV industry because of the wide use of films in video, but the quality of the tints wasn't even in the running with the home norm for color TV in recent weeks. After a viewer had watched the beautiful colors shown last week in Harry Wood's "live" production of "Season's Greetings," he undoubtedly found the "Dragnet" color neither artistically nor commercially acceptable.

Mr. Webb's familiar technique of flashing from close-up to close-up during conversations between the detectives can be rather trying in monochrome; in color it was absolutely blinding to the eye, especially with extremely erratic lighting and poor matching of color values.

•

The flesh tones on the faces of Mr. Webb and Ben Alexander, who play Friday and Smith respectively, were very uneven. The grey of Mr. Webb's jacket was mostly blue and, in distant shots, the colors varied strongly with movement of the cameras.

The fault appeared to be with the film itself, because Technicolor in the past has shown up much better on color TV. Significantly, there was no invited audience to see "Dragnet" as it came over the air in color. N. B. C.'s reluctance to call attention to the showing was not hard to understand.

By his bit of pioneering, however, Mr. Webb performed a useful service for the West Coast film-makers. With color television they must put forth a maximum effort because the contrasts between "live" and filmed images apparently is going to prove much more marked in color than in monochrome. Producers who rush into color films without first learning the tricks of the new electronic art could lose their shirts. The standards for home color TV are already much higher than perhaps Hollywood appreciates.

•

After the contents of the Christmas Eve installment of "Dragnet," Mr. Webb apparently succumbed to the temptation to push his luck. Amid glowing advertisements hinting that the program was something of a precinct house version of "Amahl and the Night Visitors," a phonograph recording of the sound track was put on sale in retail stores some weeks ago. Generally speaking, classics are born after their premiere, not before.

The chief drawback of the program was that it was self-conscious about its religious motif. In this story a figurine of the Christ Child disappeared from the altar of a mission. Commercially, the figure had no value, not even in a pawn shop, but none-the-less "Dragnet" operated on the assumption that its disappearance was larcenous. The contradiction was difficult to accept. In compensation, Mr. Webb gave more attention to the Christmas mood than to his Christmas story. A reversal of emphasis would have brought happier results.

COLOR TV RUSHED TO MANY OUTLETS

26 Stations in 19 Cities Due to Be Equipped This Week, According to Sarnoff

Twenty-six television stations in nineteen cities are scheduled to be equipped this week for transmitting programs in color, according to a year-end statement issued yesterday by David Sarnoff, chairman of the Radio Corporation of America. He said that R. C. A. had been shipping color equipment to stations since the first of the month.

Seventy stations, including five owned by the National Broadcasting Company, an R. C. A. subsidiary, already have announced intentions of equipping for color, and more will follow in 1954, Mr. Sarnoff said.

"Based upon standards of the past, 1954 should be a good year for the radio-television electronics industry," the executive added. "This does not necessarily mean that new records will be made in production and sales. It is more likely that a moderate degree of economic adjustment will take place in many industries throughout the year. But this can be achieved without dislocation of our economy."

Mr. Sarnoff said the electronics industry this year had advanced on many fronts, including the development of weapons and instruments for national defense, magnetic tape for recording television pictures in both black and white and color, and in new levels of popularity for recorded music.

The gross income for R. C. A. in 1953 was about $830,000,000, the largest volume in its thirty-four-year history, Mr. Sarnoff said.

WATER RATE RISE ASKED

Company in New Canaan, Conn., Meets No Opposition So Far

Special to The New York Times.

HARTFORD, Conn., Dec. 27—The New Canaan Water Company has applied to the Connecticut Public Utilities Commission for its first rate increase since 1931. The proposed increase would amount to about 8.2 per cent, according to Walter C. Lusher, company president. He told the commission the increase would increase the utility's revenues by about $7,200 a year. He said the increase was needed to meet higher operating costs.

A preliminary hearing was held on the application this week. Another hearing will be held here on Jan. 15. Clarence E. Costales, first selectman of New Canaan, has registered as an intervener in the case, which would enable him to take the stand as a witness at the next hearing.

G. E. Develops Color TV Tube

SCHENECTADY, N. Y., Dec. 27 (UP)—The General Electric Company announced today it had developed its first receiving tube for use in color television sets. The company also said that pilot production of color TV picture tubes would begin next month at its Electronics Park plant in Syracuse. G. E. said it would start production of the tubes in the first quarter of 1954 at its Owensboro, Ky., plant.

Union College Gets $375,000

SCHENECTADY, N. Y., Dec. 27 (UP)—Union College announced today it had received a new $375,000 grant from the Lilly Foundation of Indianapolis to finance its character research project for another four years. The study was begun in 1935. The goal is to determine and apply the laws governing growth and development of Christian character.

ON THE RADIO

MONDAY, DEC. 28, 1953

FM PROGRAMS

ON TELE

Channel 2 .... WCBS-TV
Channel 4 .... WRBT
Channel 5 .... WABD

THE NEW YORK TIMES, FRIDAY, DECEMBER 18, 1953.

Dewey Considering a 'Czar' For Harness Racing in State

By WARREN WEAVER Jr.

COMPATIBLE COLOR APPROVED FOR TV

F.C.C. Reverses Itself—Signal Receivable on Present Sets in Black and White

By JACK GOULD

A system of color television that can be received in black and white on the 27,000,000 existing sets was approved last night by the Federal Communications Commission in Washington.

Within an hour after the announcement the Columbia Broadcasting System was on the air with a special variety show in color. Minutes later the National Broadcasting Company offered a presentation from its color studio.

Regular transmission of commercial programs in color, however, will not begin for approximately forty days. The F. C. C. approval becomes effective thirty days after its publication in the Federal Register, the Government bulletin. Publication is expected next week.

Officials of C. B. S. and N. B. C. said they planned to rotate "color premieres" of their major night programs in the next few months.

Manufacturers immediately planned to tool up for the production of color receivers within perhaps six to nine months. Initial sets, with a fourteen-inch screen, will cost from $700 to $1,000.

The total volume of color sets to be expected during 1954 has been variously estimated from "a trickle" of units to perhaps a hundred thousand.

The F. C. C. action came as a severe blow to television retailers, whose trade organizations had asked the commission to hold off

Continued on Page 46, Column 5

Son Said to Admit Killing Parents With Poison in Champagne Toast

Sports Today

COMPATIBLE COLOR APPROVED FOR TV

Continued From Page 1

giving approval to color until after the Christmas shopping season. Set sales have been much slower this year and many potential customers have explained that they wanted to wait for color.

The commission's announcement of the adoption of new technical standards for color TV represented one of the few times that it had reversed itself publicly on a major engineering matter.

Two years ago the commission approved a color system, developed by C. B. S., that required the purchase of additional equipment if a present set owner was to see a color program in black and white.

An all-industry group, known as the National Television System Committee, set out to develop a method that would permit introduction of color without disruption of monochrome service. Such a method had been pioneered by the Radio Corporation of America.

The formal effect of yesterday's decision by the commission was to scrap the old C. B. S. standards and adopt the new N. T. S. C. signal specifications.

The commission stated that the new specifications produced "a reasonably satisfactory picture with a good over-all picture quality, and are sufficiently flexible to accommodate later improvements and refinements."

Dr. W. R. G. Baker, chairman of the N. T. S. C. and vice-president

Stavangerfjord in Oslo After Rudderless Crossing

ON THE RADIO

FM PROGRAMS

"All the News That's Fit to Print"

The New York Times.

LATE CITY EDITION

NEW YORK, FRIDAY, DECEMBER 18, 1953. FIVE CENTS

16° Low for Season; Cold to Hold Today

PIER VOTE TUESDAY SET DESPITE PLEAS OF TOP OFFICIALS

Quick Action Ignores Warnings by White House and Dewey That It Will Aid Gangsters

EISENHOWER RALLIES CONGRESS LEADERS TO PARTY PROGRAM

He Stresses Republican Pledges in 1954 Legislative Plan

PLEDGES SPENDING CUTS

TIME OUT: President Eisenhower shares a joke with Senators Homer Ferguson, left, of Michigan and William F. Knowland of California during yesterday's White House meeting of Republican leaders to draft program for opening of Congress on Jan. 6.

FRENCH FAIL TWICE TO PICK PRESIDENT

Socialist Leads, With Laniel Second, After Two Ballots—Neither Near Needed Vote

GIFTS FOR KOREANS LINKED TO RACKETS

Wagner Impersonated in Drive —Inquiry Chairman Urges Aid for Legitimate Funds

Dewey Considering a 'Czar' For Harness Racing in State

T. V. A. WILL MAKE ATOM POWER STUDY

A.E.C. Enlists Vast Resources of Authority to Speed Use of Nuclear Energy for Peace

COMPATIBLE COLOR APPROVED FOR TV

F.C.C. Reverses Itself—Signal Receivable on Present Sets in Black and White

r all prac-
mitted in
hackneyed
should be
e custody

t week's
ourse, the
Robert E.
written
medium,
rica." As
Wednes-
es, it was
organized
ired.
erwood it
e was on
ntion had
ique con-
der which
eedom of
a report-
that any-
sic might
1 so, such
Backbone
rdly been

surprising,
Sherwood
the short-
has been

"The Groaner" will sing and dance his way through a variety show ove

AUDIENCE

President and Mrs. Eisenhower are now among the few who can enjoy color television. A color set has been installed in the oval study of the White House, which also contains two twenty-one-inch black-and-white receivers. The set was a gift of David Sarnoff, chairman of the board of the Radio Corporation of America.

earlier, the Television Playhouse, in its adaptation of Robert Alan Aurthur's book, "The Glorification of Al Toolum," touched on the identical subject matter and offered an eminently credible and amusing production.

It must be hoped that in his future plays Mr. Sherwood will make more positive use of the wide latitude he has been granted

NEWS AND NOT

By SIDNEY LOHMAN

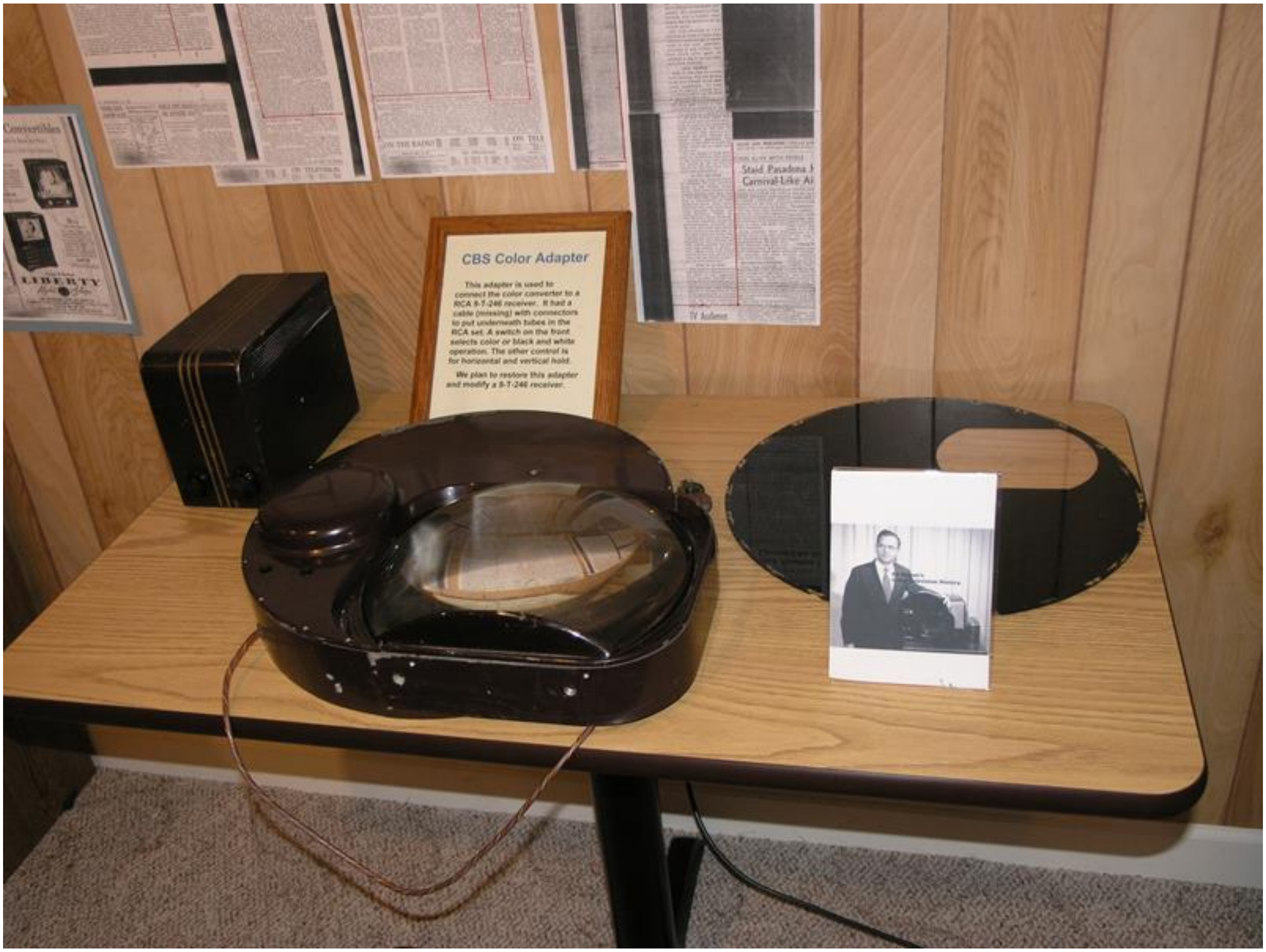
ONE of the most ambitious cooperative ventures utilizing the facilities and personnel of the broadcasting industry and a major university gets underway this week with the opening of Columbia University's bicentennial celebration. All year long regularly scheduled programs—plus others specially arranged—will be promoting the bicentennial theme: "Man's Right to Knowledge and the Free Use Thereof."

According to Leon Levine, director of radio and television for the bicentennial, Columbia is not seeking publicity for itself but is stimulating a crusade for free inquiry and free expression. To this end he has furnished story material and ideas to program pro-

Colun

on bicent
days at
Mr. Le
of disc
C. B. S.,
operation
mercial
summed
ought to
ture on t

DOCU
last six
Broadcas
aid of a
P. Sloan
tape reco
the rebir


CBS Color Adapter
This adapter is used to connect the color converter to a RCA 9-T-246 receiver. It had a cable (missing) with connectors to put underneath tubes in the RCA set. A switch on the front selects color or black and white operation. The other control is for horizontal and vertical hold.
We plan to restore this adapter and modify a 9-T-246 receiver.
Staid Pasadena
Carnival-Like Ai
LIBERTY

12 ** Los Angeles Times
Part I—SAT., JAN. 2, 1954

Parade Vivid and Brilliant in Color TV

Dazzling Hues Bring Full Glory of Floral Spectacle to Viewers

BY WALTER AMES
Radio-TV Editor

I watched yesterday's Tournament of Roses Parade through rose-colored glasses. Only the glasses were electronic marvels called color television.

It's almost impossible to estimate how many of the country's black and white set owners were tuned in on yesterday's telecast of the famed procession. But compared to these millions, only a handful were able to see the parade in all its colorful glory.

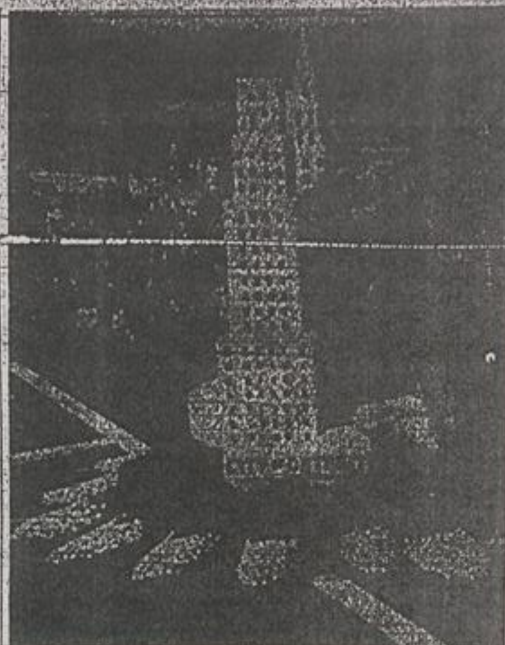
But from listening to the opinions of those in town who were fortunate enough to be invited to the color television showings it was evident that they would never again be satisfied to see it on the black and white receivers.

Hues Dazzling

Most of the time the colors were dazzling. The reds, greens, blues and yellows being especially outstanding. To these eyes of mine it seemed as if the browns faded into the background and were lost.

Of course the small screens—the color sets project a 12½-inch picture as compared to the

inch picture as compared to the 21, 24 and 27-inch black and white receivers—proved a draw-



TOP HONORS—The entry of the city of Det entitled "Life of an American Workman,"—w

blues and yellows being especially outstanding. To these eyes of mine it seemed as if the browns faded into the background and were lost.

Of course the small screens—the color sets project a 12½-inch picture as compared to the inch picture as compared to the 21, 24 and 27-inch black and white receivers—proved a drawback in most of the demonstrations. People in the rear of the crowds that gathered around the color viewers certainly didn't appreciate the beauty of the color as much as those within six or eight feet of the set.

But the impact it must have made on viewers in other parts of the country who were seeing the parade in all its natural beauty for the first time must have been tremendous.

At Two Showings

I visited two demonstrations at Hoffman TV and the RCA setup in the Statler Sierra Room. Both were jammed with dealers getting their first look at the sets they soon will be able to demonstrate on their showroom floors. Other manufacturers who held demonstrations included Douglas, Admiral, Raytheon, Philco, Pacific Mercury, Sears Roebuck.

Another handicap facing the demonstrations yesterday was the lack of a color-test pattern with which to tune the sets. Unlike their black and white counterparts, the color sets must be adjusted for color contrast. But NBC, which handled the colorcast, was unable to project a color signal until the parade started at 9:15 p.m. Hence there was a big last minute hassle to get the color sets tuned.

First of Its Kind

This was the first attempt by the network to telecast in color an event of this magnitude. They probably learned many things from it that will be corrected in future colorcasts. For one thing they were shooting against a background of one of the grandstands on Colorado St. Given an even color for backing, the floats undoubtedly would have stood out better than they did.

TV Audience

MUSIC AND PRECISION—Wearing gree with white trim, Michigan State Band won c

CURBS ALIVE WITH PEOPLE

Staid Pasadena H Carnival-Like Ai

Staid and proper Pasadena, normally a 9 o'clock city with rollaway sidewalks, underwent its annual nocturnal metamorphosis on the eve of yesterday's Tournament of Roses.

For the 65th time, Pasadena turned its main thoroughfares into carnival midways to greet the hundreds of thousands who came to view the giant New Year's spectacle.

Along Colorado Blvd. and Orange Grove Ave. the vacant lots sprouted huge, interlocking grandstands; the store windows displayed row upon row of spectator seats; and shortly after midnight these sites and the sidewalks and curbs became alive with people.

Hundreds Upon Hundreds

There were hundreds upon hundreds who were willing to wait through the long chill predawn hours in order to have a prime vantage point from which to see the colorful tournament. They started coming singly, in the early hours, then by tens and by scores, and finally by the hundreds and even thousands.

They came bearing all sorts of contraptions—beds and cots and sleeping bags; canteens and thermos bottles and paper boxes of lunches; radios and musical instruments and playing cards; lawn chairs and folding

as harried poli
to and fro on n
in radio cars,
the flow of traffi

Michiganders
nians, proudly
pennants, calle
challenges acro
amid a hubbub
rose each tim
State or a UCL
displayed, in g
of the Rose
classic.

Children E

Children were
some bustling
their parents,
hairs — some
blankets or com
hugging close t
aura cast by the
made tin-can-he

Two hardene
ohe previous Ro
Scouts Gary B
Dodd, O'Grady
South Pasadena
tent on the park
Grove Ave. near
boys, both 14,
their sheltered
midnight and sp
ing hours in com
ing.

A quartet of y
Gabriel, Antho
Dick Butterfield
Tom Deey

The Dave Johnson CRT Collection
Gray Research Monitor


15GP22
This is the first production color tube, made in 1954. It was used by RCA, Westinghouse and others in their first color sets.
RCA C73293C
Color Television
NO CASH DOWN
78 WEEKS TO PA
DAVEGA
CBS Color Personal Viewer


Prototype Rectangular 14 inch
This tube was made in the late 40s by a Philco engineer. It appears to be hand made.
Image Dissectors


their 180 series sets
TP400
This tube was used in the 1948 Philco 48-2500 projection set.
Rauland 6620
Prototype projection tube made for CBS


14AP4
This tube was made in by DuMont in 1938. It was used in their 180 series sets


set.
made for CBS
5AZP4
Projection tube
7NP4
Projection tube


7GP4
Electrostatic deflection tube from the late 40s.
10HP4
This unusual electrostatic tube was made in the late 40s.
12JP4
This is a prototype tube, made by DuMont in the late 40s.


Westinghouse Experimental CRT
A CRT from the early 30s, used in TV experiments by Westinghouse and RCA
MW18-3
General Electric prewar tube based on Mullard design
5AP4
1936 Cossor Picture Tube
This is the original tube from the Cossor 137T set. It has a bad filament.
This tube uses electrostatic deflection.

Early 5 inch CRT
MW 13-2
This tube was made by Mullard in England.
Prewar French CRT
Western Electric 224-


20BP4
This tube was made by DuMont in the late 40s for the RA-101 Custom. It is modeled after a prewar 20 inch DuMont tube.
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


CBS Colortron
265
19VP22
This tube was made by CBS in 1954, and was used by CBS and Motorola in early color sets.


4
TV 13


TV 13


Dage Industrial Cameras
RCA HC-1
"TV Eye"
Vidicon Camera

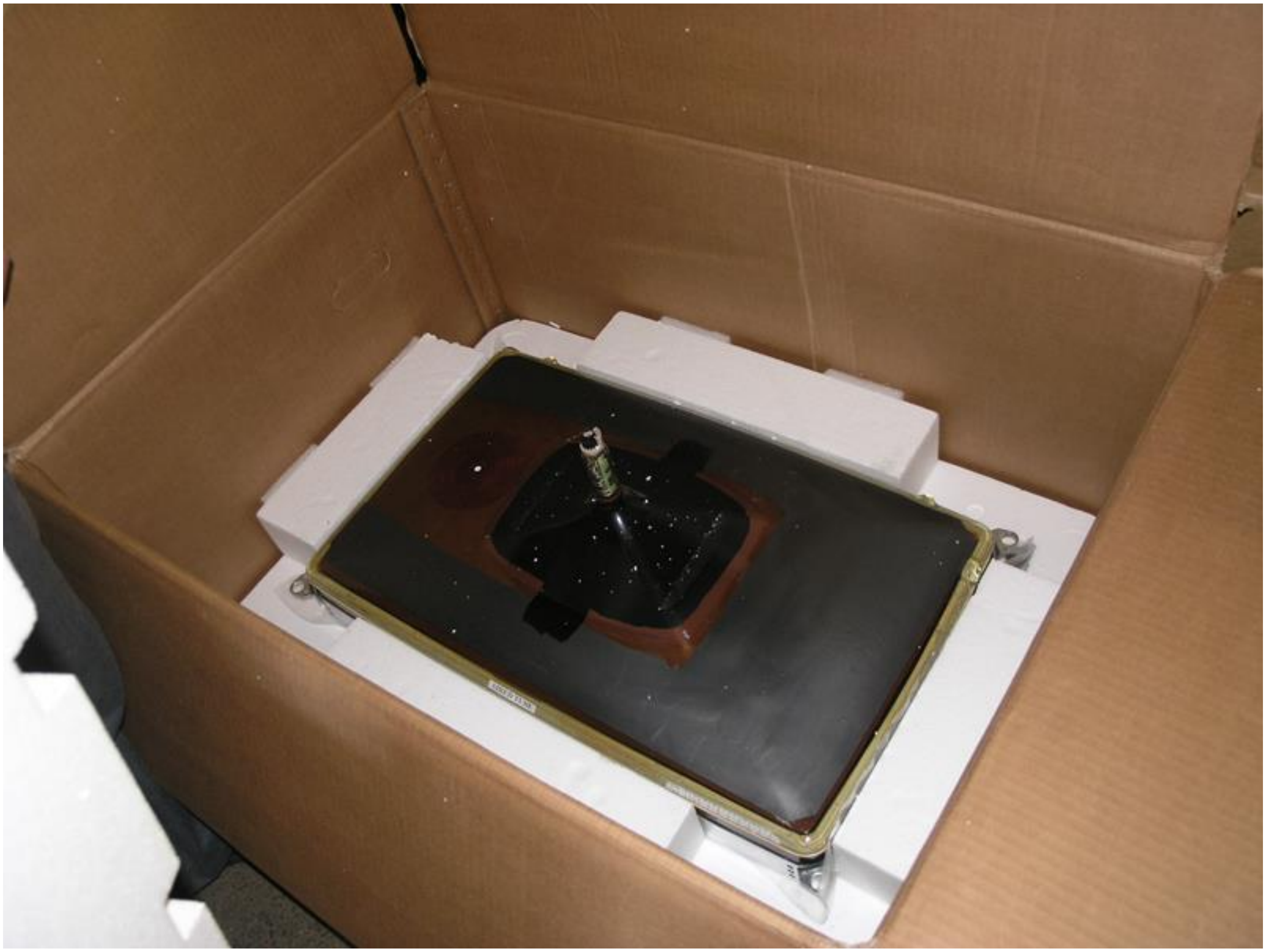

Farnsworth Utiliscope
Image Dissector
Camera and Monitor
This camera was made in the late 40s or early 50s by Farnsworth for the Diamond Power Specialty Co. of Lancaster, Ohio. It uses an image dissector camera tube (in the Dave Johnson CRT collection), and was made to monitor boilers in power plants. The image dissector had very poor light sensitivity, but it was ideal for high light levels such as the flames inside a boiler.
The camera has its own count-down sync generator, with both video and RF output.
CONTRAST
FOCUS
BRILLIANCE


Western Electric Video and Waveform Monitors
These monitors were made for the Western Electric Co. (the Bell system equipment manufacturer) in 1946 for use in Bell's first microwave TV network. The video monitor was donated by Don Saltzman of Weston, CT.


RCA TK-31 Field Camera Contol Unit
RCA TM-5 Master Monitor
General Electric PC-2 Film and Slide Camera


RCA TK-31 Field Camera
This camera was introduced in 1950 and was the standard field camera for almost a decade. Some stations also used them as studio cameras.
Television
HOUSTON FEARLESS


TV
abc
13
General Electric PC-4
Camera



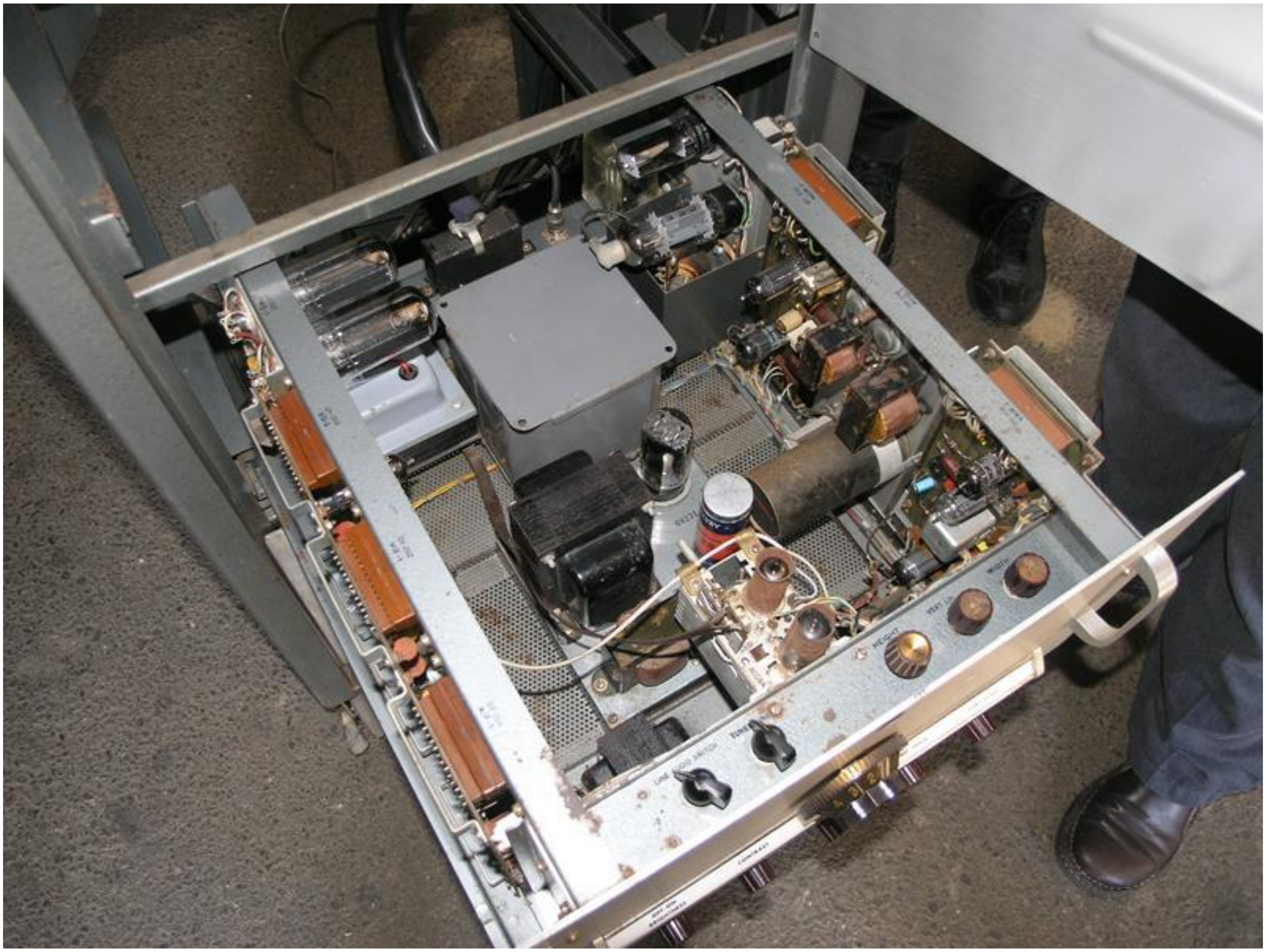

EXIT

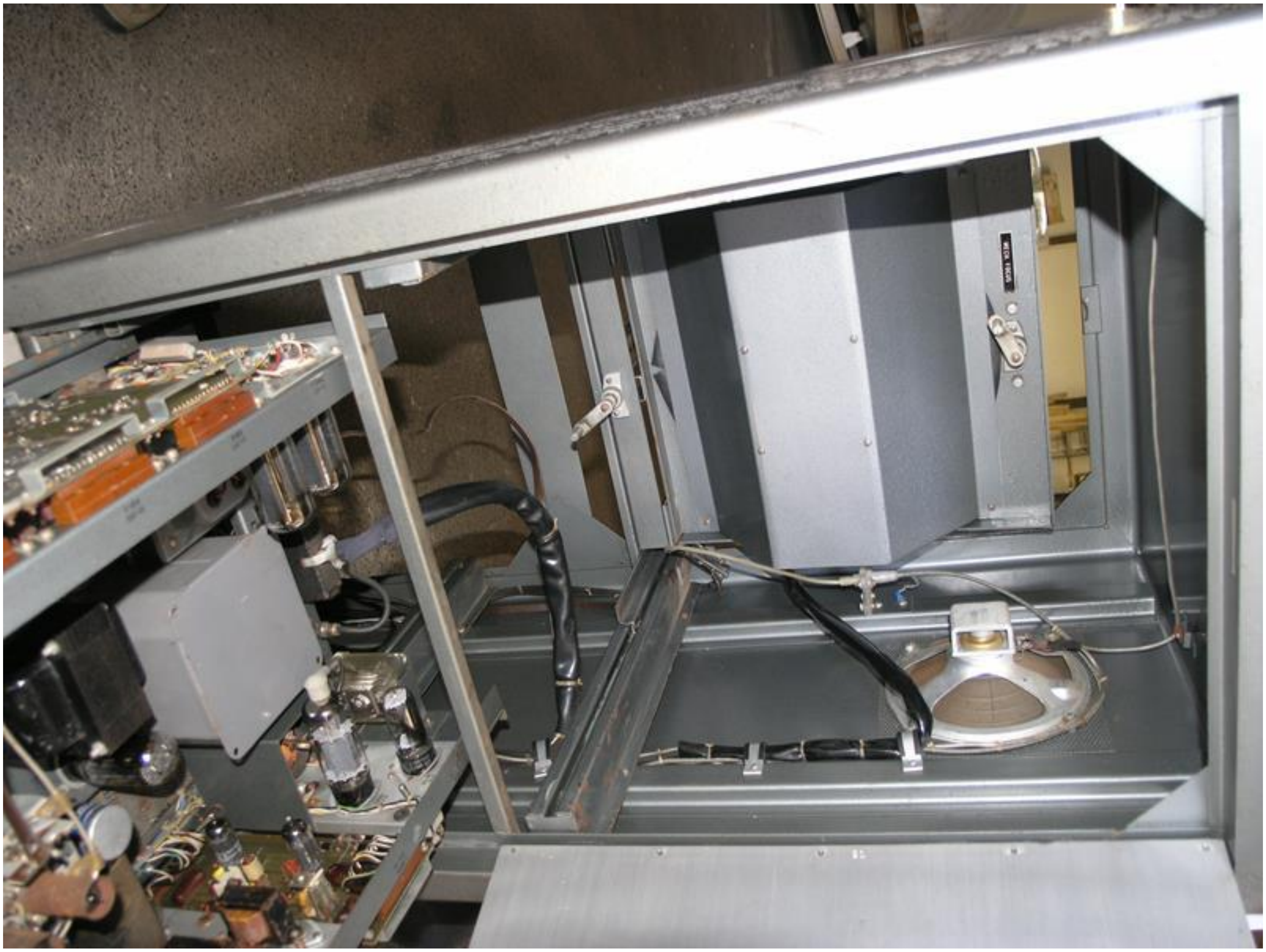

HOR VERT
PITCH AZ


CoPilot Taxi
FRAGILE


gianTView


CONTRAST
VOLUME
HORIZ HOLD
VERT HOLD
FOCUS


HEIGHT

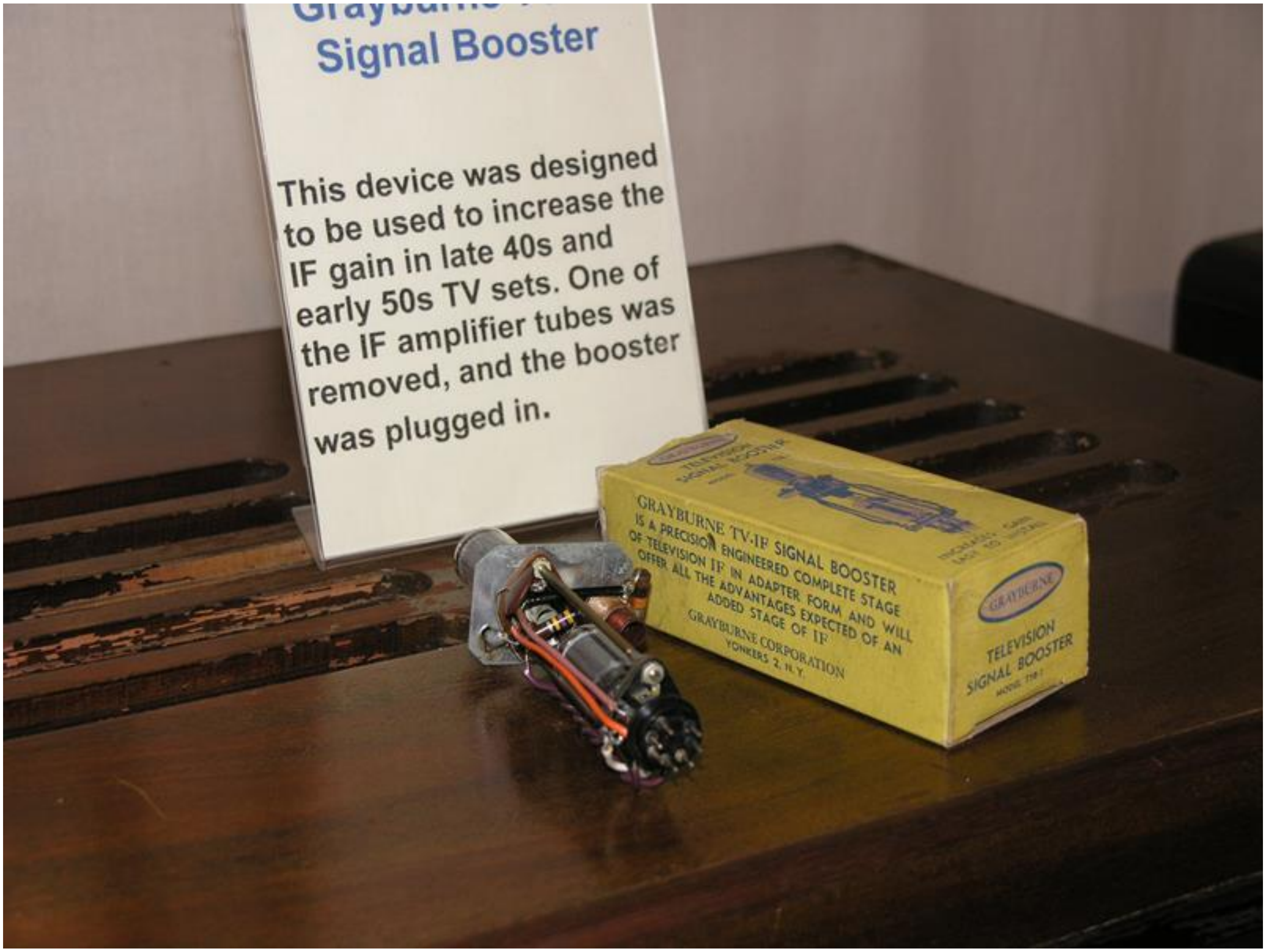



RCA RR-359
RCA made about 100 of these sets in 1936-37 for field trials of 343 line electronic television. This model has a 9 inch screen, and is one of only two to survive.
RCA never sold the sets to the public. They were placed in locations around New York to test TV reception.
Screen Size
Year Made 1936
Quantity Manufactured About 100
Original Cost ?
Number Still in Existence 2
Cabinet Original Finish
Electronic Restoration Restored


TELEVISION
Its range is short.
its roads narrow
SENDING
RECEIVING
ICONOSCOPE
KINESCOPE
An hour's program
costs N.B.C. $2,000
This act looks like
this when televised
EARLY
TELEVISION
SHOWS

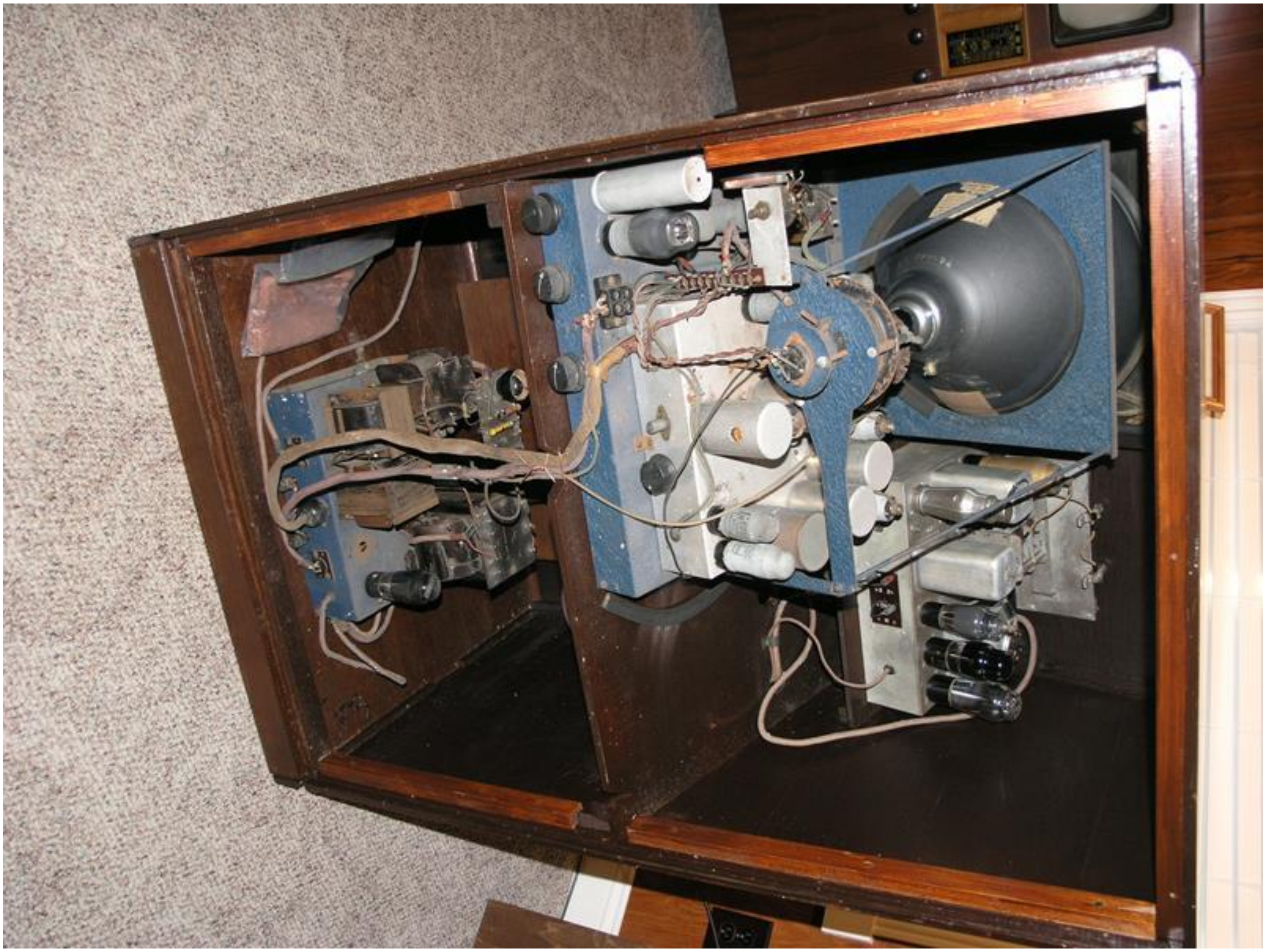

Crest Labs Bar Generator
This device was made in the late 40s to generate vertical and horizontal bars to adjust the linearity of TV sets. It was installed on the back of the picture tube to make the adjustments.
(Donated by Joe Sousa)

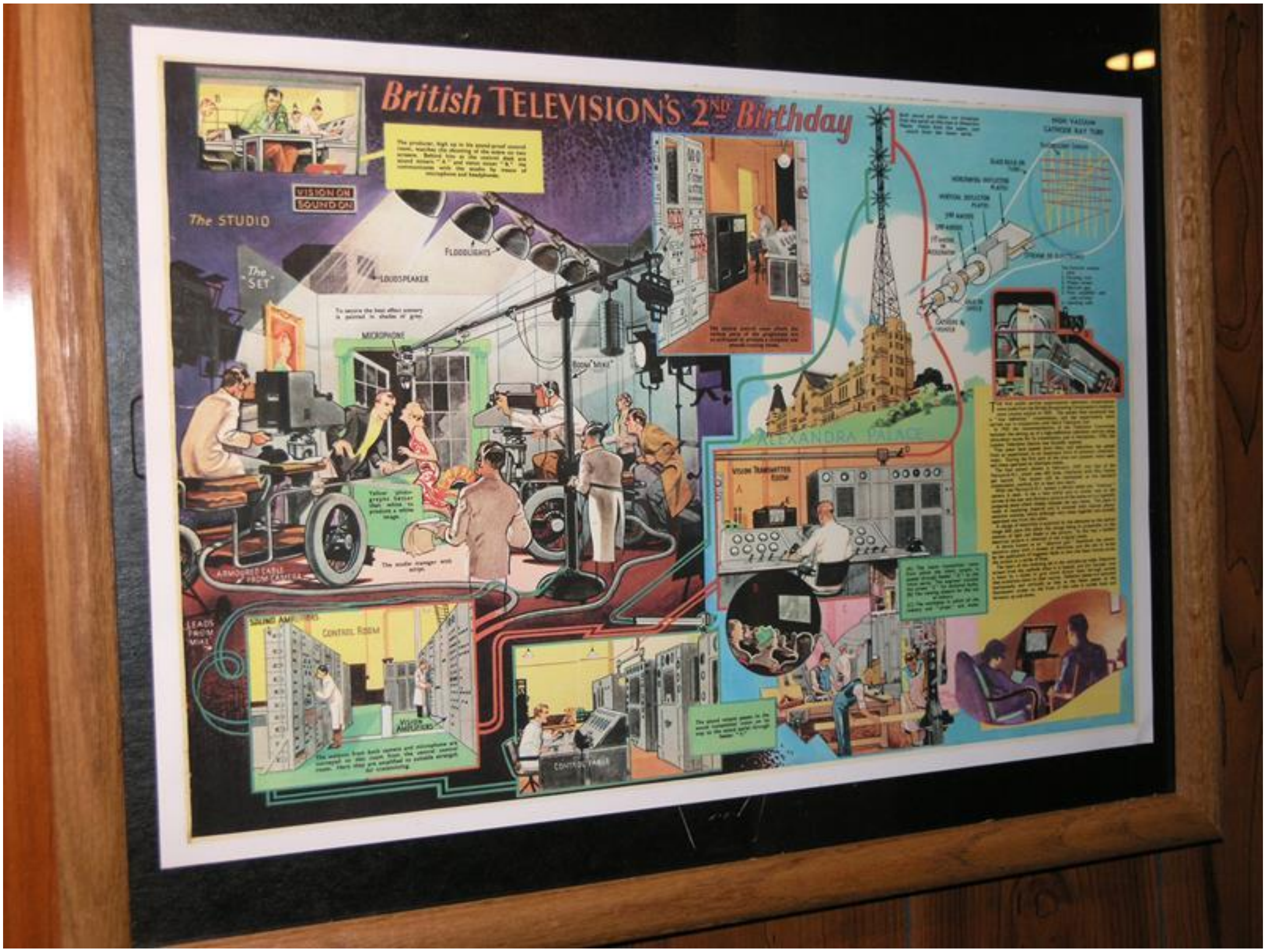

make the adjustments.
(Donated by Joe Sousa)
TV
BAR
GENERATOR
CATH
CREST
LABORATORIES INC.
SYNC.


Signal Booster
This device was designed to be used to increase the IF gain in late 40s and early 50s TV sets. One of the IF amplifier tubes was removed, and the booster was plugged in.
GRAYBURNE TV-IF SIGNAL BOOSTER IS A PRECISION ENGINEERED COMPLETE STAGE OF TELEVISION IF IN ADAPTER FORM AND WILL OFFER ALL THE ADVANTAGES EXPECTED OF AN ADDED STAGE OF IF
GRAYBURNE CORPORATION
YONKERS 2, N.Y.
TELEVISION SIGNAL BOOSTER

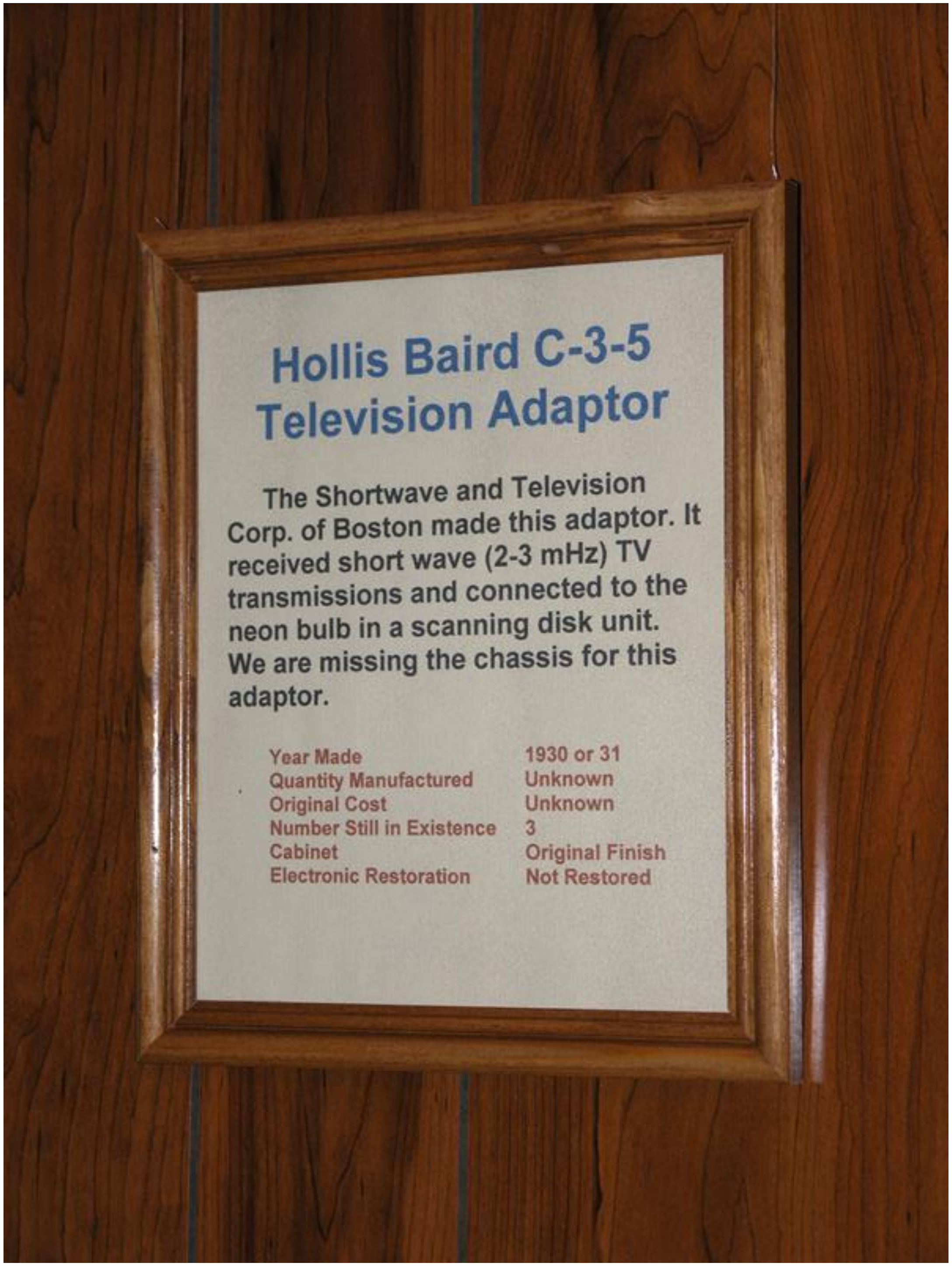
TV is KING
You've seen the 20th century – now see the box it came in!
City Art Centre, 2 Market Street, Edinburgh
16 March - 7 May 1994
Monday - Saturday 10am - 5pm, Sunday 1pm - 5pm
Admission
£2 Adults, £1 Children, £5 Family Ticket
THE SCOTSMAN


Best Wishes
Betty Furness
WESTINGHOUSE




British TELEVISION'S 2ND Birthday
The STUDIO
VISION ON
SOUND ON
FLOODLIGHTS
The "SET"
LOUDSPEAKER
MICROPHONE
BOOM MIKE
ARMOURED CABLE FROM CAMERA
LEADS FROM MIKE
SOUND AMPLIFIERS
CONTROL ROOM
VISION AMPLIFIERS
CONTROL TABLE
ALEXANDRA PALACE
VISION TRANSMITTER ROOM
HIGH VACUUM CATHODE RAY TUBE


WETF
CHANNEL
3


Hollis Baird C-3-5
Television Adaptor
The Shortwave and Television Corp. of Boston made this adaptor. It received short wave (2-3 mHz) TV transmissions and connected to the neon bulb in a scanning disk unit. We are missing the chassis for this adaptor.
Year Made 1930 or 31
Quantity Manufactured Unknown
Original Cost Unknown
Number Still in Existence 3
Cabinet Original Finish
Electronic Restoration Not Restored


Felix the Cat
A doll like this was used by RCA it its TV tests from 1928 through 1932. It was placed on a turntable and rotated in front of the camera. If you look closely at the picture of the RCA camera on the left, you can see Felix.

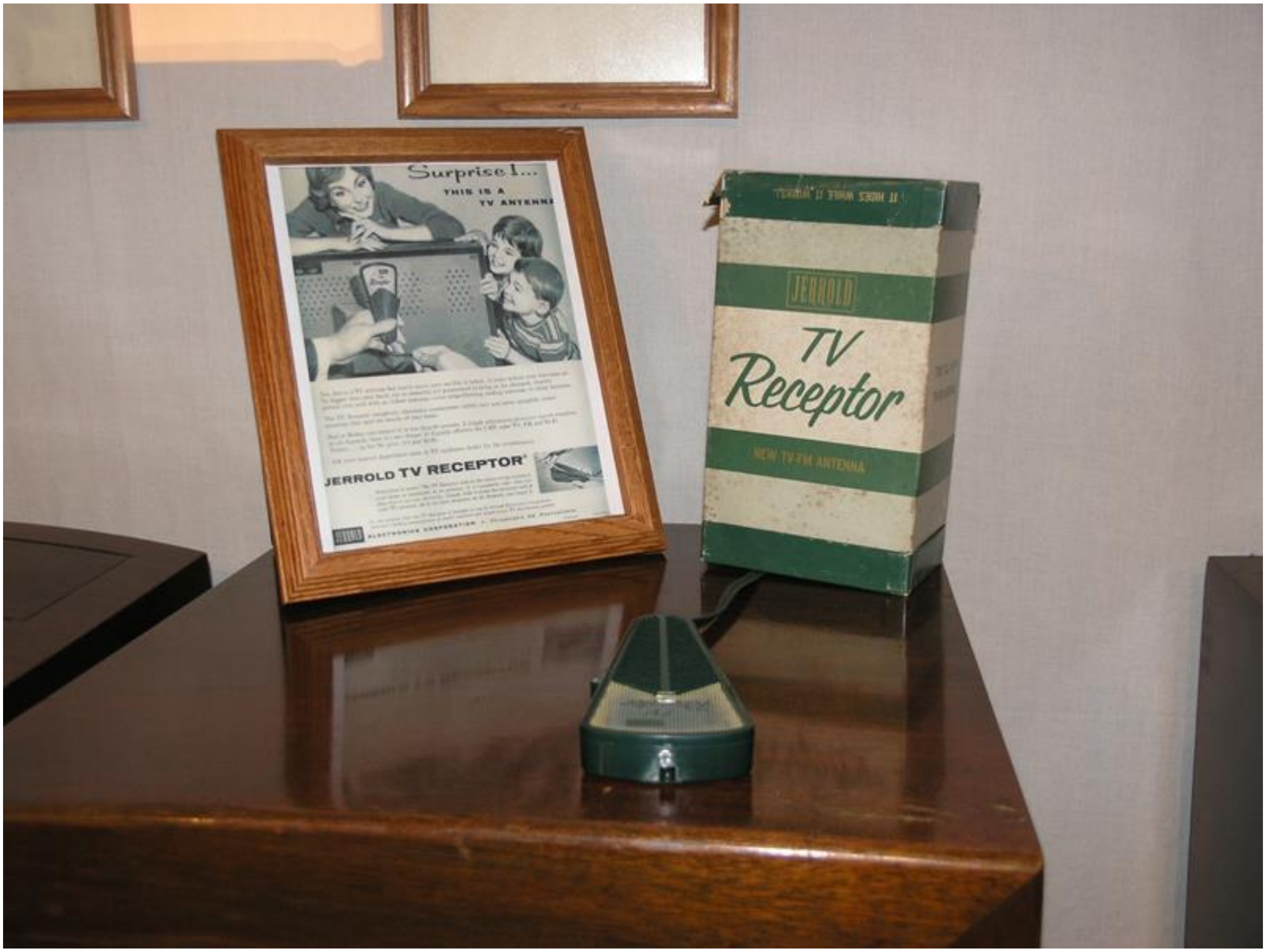

Early
Mechanical
Television

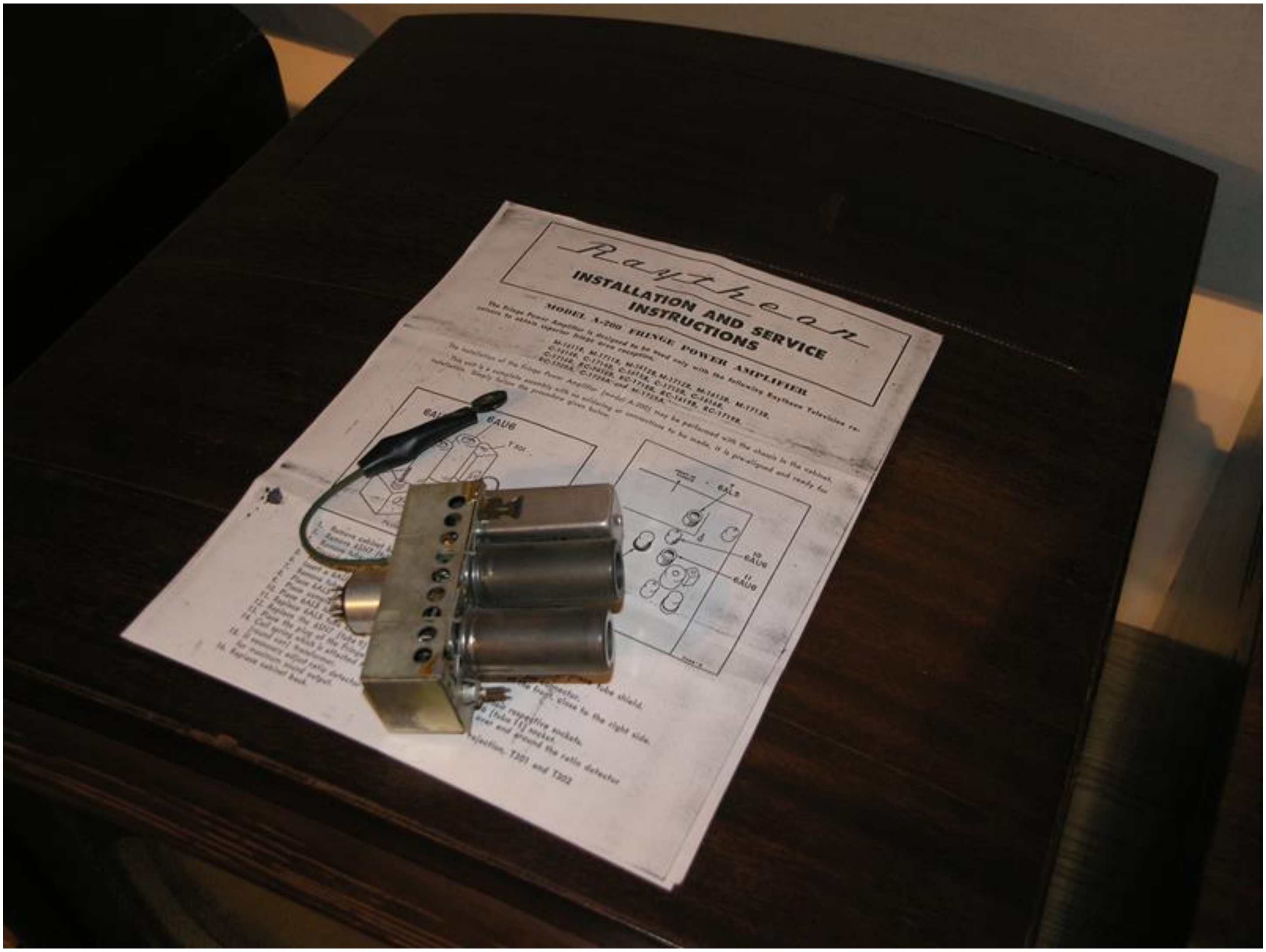

RCA Phototube


TELEVISION

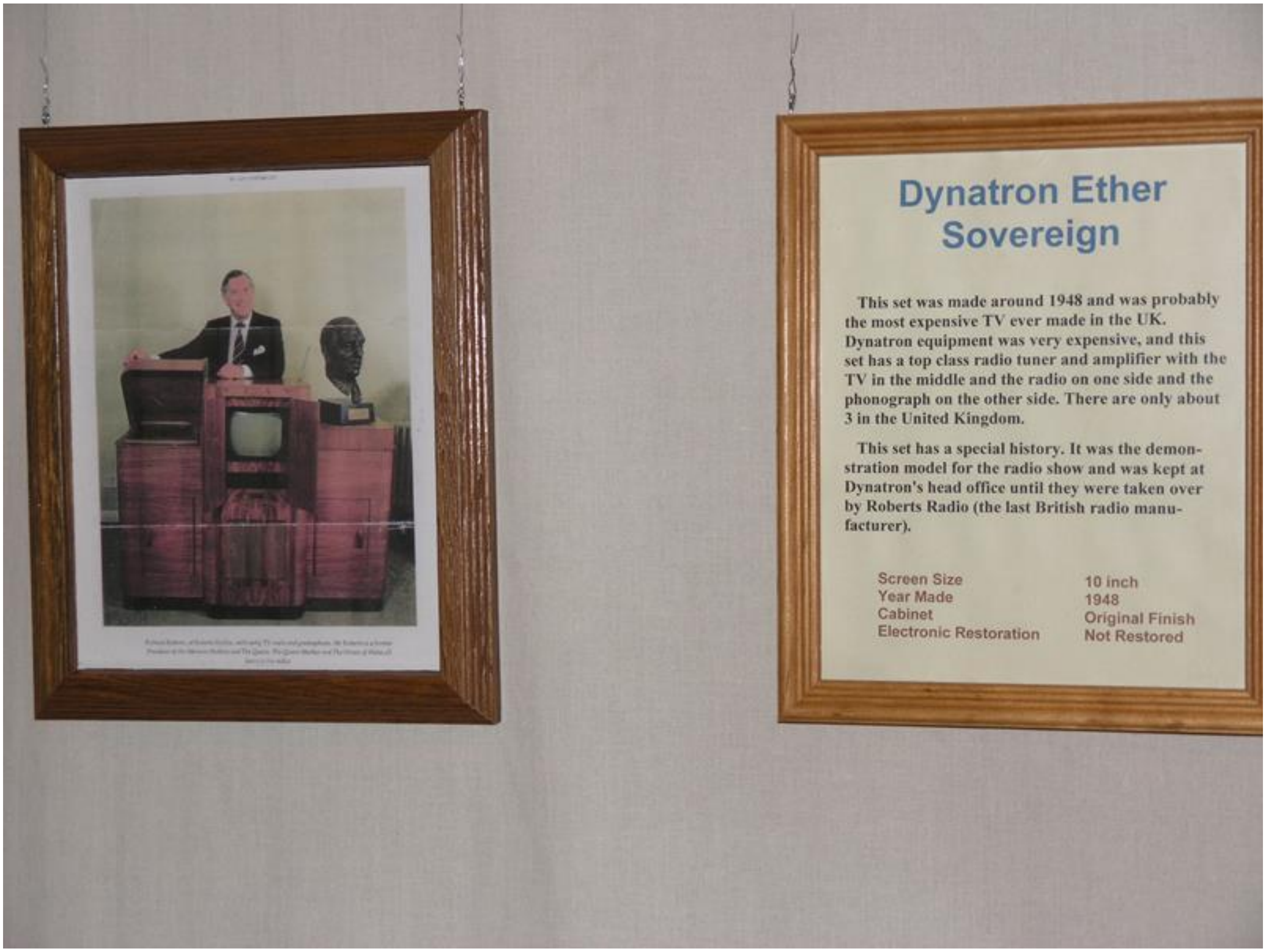

TELEVISION
DU MONT
TELEVISION


Surprise!...
THIS IS A
JERROLD TV RECEPTOR
JERROLD
TV Receptor
NEW TV-FM ANTENNA


Surprise!...
THIS IS A
JERROLD TV RECEPTOR
JERROLD
TV Receptor
NEW TV-FM ANTENNA


Raytheon
INSTALLATION AND SERVICE INSTRUCTIONS
MODEL A-200 FRINGE POWER AMPLIFIER
6AU6
6AL5


Philips 6027/6028
This projection set has a separate mirror. There is a pullout measuring tape on the projection unit to locate the position of the screen. The screen folds down into its housing.


Dynatron Ether
Sovereign
This set was made around 1948 and was probably the most expensive TV ever made in the UK. Dynatron equipment was very expensive, and this set has a top class radio tuner and amplifier with the TV in the middle and the radio on one side and the phonograph on the other side. There are only about 3 in the United Kingdom.
This set has a special history. It was the demonstration model for the radio show and was kept at Dynatron's head office until they were taken over by Roberts Radio (the last British radio manufacturer).
Screen Size
10 inch
Year Made
1948
Cabinet
Original Finish
Electronic Restoration
Not Restored


Philips Projection Set Optical Alignment Device
This device was used to adjust the optical focus of sets using the Philips Protelgram projection assembly. The device is installed in place of the 3NP4 CRT. It has a test pattern on its face, with a light bulb behind it. Once the image was focused on the screen, the device is removed, the CRT re-installed. Then the electrical focus could be set.


Philips Projection
Set Optical
Alignment Device

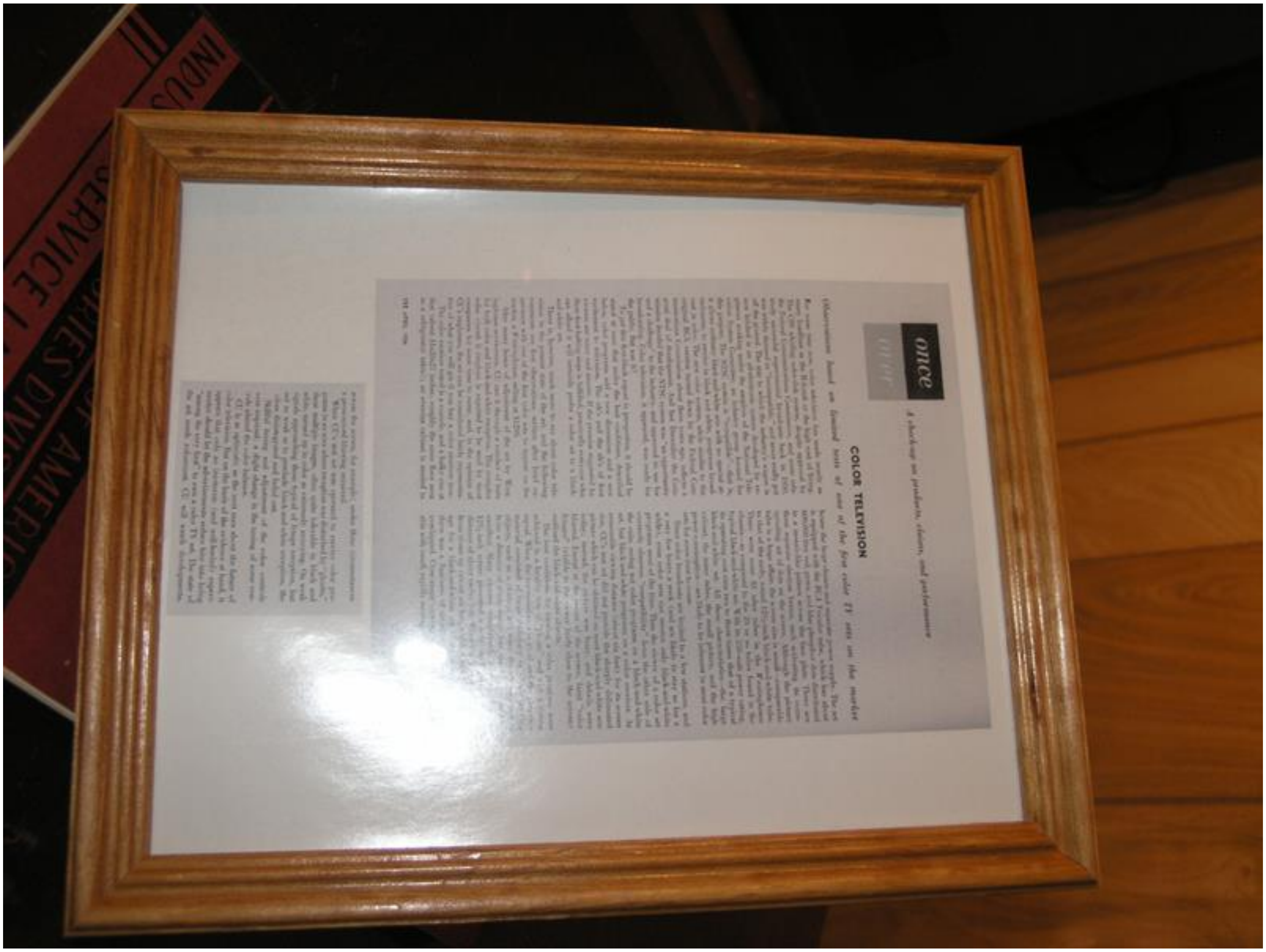

Baird Townsman
This rare British set was made in 1949. It was available as the Townsman, for reception close to the transmitter, and the Countryman, for fringe areas. It has a 12 inch picture tube
Screen Size 12 inch
Year Made 1949
Cabinet Original Finish
Electronic Restoration Not Restored

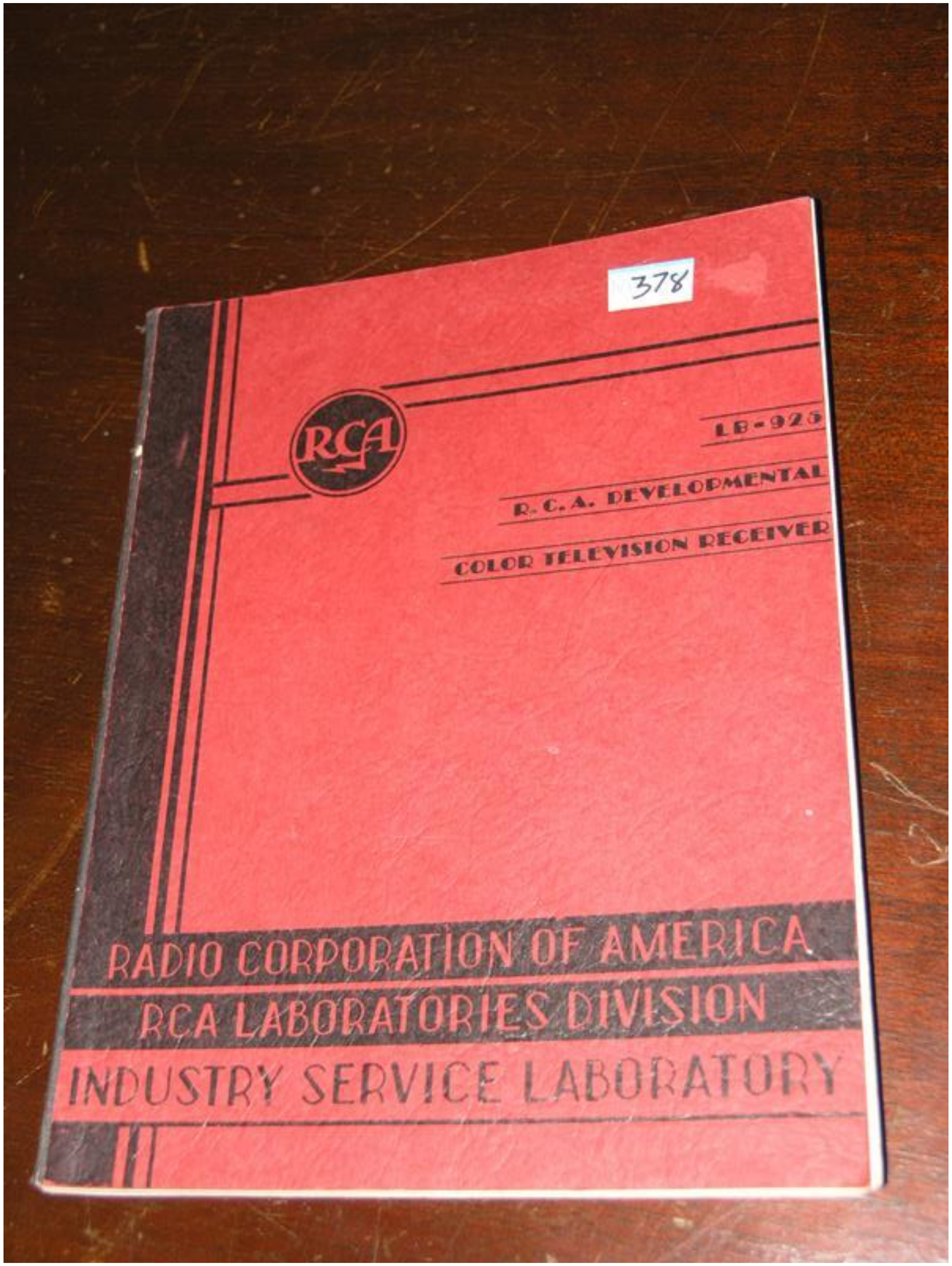

Philco Tandem Predicta
POPULAR SCIENCE
PHILCO CREATES WORLD'S FIRST SEPARATE SCREEN TV SET!
...put the picture anywhere!
PHILCO
Philco Safari
This is the first truly portable TV set, made by Philco in 1959. It is battery operated and transistorized. A 2 inch CRT is used, with a magnifying mirror. Donated by Bill and Myrtle Simmons and David and Rosemary League of Eagle Rock, Virginia
Screen Size
Year Made
Cabinet
Electronic Restoration
2 inch
1959
Original Finish
Not Restored


COLOR TV


1951-56
Color Sets


Hoffman 15 inch
Colorcaster
Hoffman made 30 of these sets in 1954 for exhibition at dealer showrooms. This set has the original RCA 15GP22.
Hoffman


once
COLOR TELEVISION


378
RCA
LB-925
R.C.A. DEVELOPMENTAL
COLOR TELEVISION RECEIVER
RADIO CORPORATION OF AMERICA
RCA LABORATORIES DIVISION
INDUSTRY SERVICE LABORATORY

Examples of Use of Range Values:

For ultor voltage of 20000 volts

Grid-No.4 (Converging Electrode) Voltage‡	8000 to 10000	volts
Grid-No.3 (Focusing Electrode) Voltage	3400 to 3800	volts
Grid-No.2 Voltage (Each Gun) when circuit design utilizes grid-No.1 voltage of −100 volts (each gun)	140 to 319	volts
Grid-No.1 Voltage for Visual Extinction of Focused Raster (Each Gun) when circuit design utilizes grid-No.2 voltage of 300 volts (each gun)	−42 to −100	volts

Circuit Values:

Grid-No.1-Circuit Resistance (Each Gun)	1.5 max.	megohms
Dynamic Converging Voltage (Approx.)**	800	volts
Dynamic Focusing Voltage (Approx.)**	215	volts

* The "ultor" in a cathode-ray tube is the electrode to which is applied the highest dc voltage for accelerating the electrons in the beam prior to its deflection. In the C-73599, the ultor function is performed by grid No.5. Since grid No.5, grid No.6, and collector are connected together within the C-73599, they are collectively referred to simply as "ultor" for convenience in presenting data and curves.

\# This value is the product of ultor voltage and average current measured at the ultor terminal with a dc ammeter.

‡ This range does not include the ac component of the dynamic converging voltage.

° Centering of the raster on the screen is accomplished by passing direct current of the required value through each pair of deflecting coils to compensate for the raster shift resulting from optimum adjustments for convergence, color purity, and concentricity.

** Peak-to-peak value. This ac voltage having essentially parabolic waveform is synchronized with scanning and does not include any voltage developed during the blanking time.

GENERAL CONSIDERATIONS

The maximum ratings in the tabulated data for the C-73599 are working design-center maximums established according to the standard design-center system of rating electron tubes. Tubes so rated will give satisfactory performance in equipment designed so that these maximum ratings will not be exceeded when the equipment is operated from ac or dc power-line supplies whose normal voltage including normal variations falls within ± 10 per cent of line-center voltage value of 117 volts.

X-Rays. As may occur in conventional black-and-white kinescopes, x-ray radiation is present at the face of the C-73599 when it is operated at its normal ultor voltage. Simple shielding should prove adequate to provide protection against personal injury from prolonged exposure at close range.

Tube Handling. Grasp the tube (1) with both hands by placing the thumb of each hand on the flange and the fingers on the faceplate or cone [illegible] without touching the insulating coating on the glass; or (2) with one hand on the faceplate and the other on the cone section in the region of the conductive coating. Never handle the tube by the neck alone. Contamination of the insulating coating with fingerprints or dust may cause electrical breakdown during humid weather. Do not strike or scratch the tube, or subject it to more than moderate pressure when installing in or removing from equipment. Such treatment may result in immediate or delayed cracking of the bulb. The same safety precautions against breakage should be employed for the C-73599 as are employed with similar-size glass picture tubes of the black-and-white type.

Metal Flange. The metal flange operates at high voltage and, as a safety measure, should be covered with a suitable insulator* having adequate insulation to prevent the possibility of electrical leakage including corona between the flange and any grounded element in the receiver. It is recommended that the shape and width of the insulator be chosen so that the leakage path between the metal flange and the nearest grounded element shall be not less than 4 inches. Always ground the metal flange before touching after the power is turned off. The flange should not be scraped nor be allowed to bear against any sharp edge. Do not allow the metal flange to come in contact with a magnet and thus become permanently magnetized. A magnetized flange may produce localized color impurity.

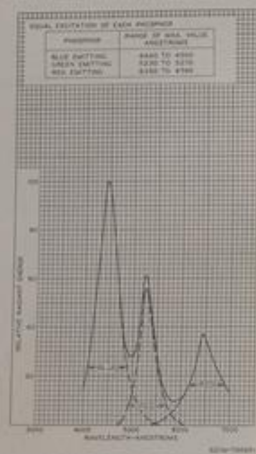


Fig.1 - Spectral-Energy Emission Characteristic of Group Phosphor [illegible].

* [illegible] insulator having the manufacturer's designation [illegible] may be obtained from [illegible] Co., [illegible] St., Long Island City [illegible], N.Y.

Insulating Material for External Mask. The external mask should be made only of material providing insulation adequate for one half of the applied ultor voltage in order to minimize leakage across the surface of the glass between the metal flange and the external mask which is at ground potential. Mask material having the specified qualities can bear directly against the faceplate.

Shatter-Proof Cover Over The Tube Face. Following conventional kinescope practice, it is recommended that the cabinet be provided with a shatter-proof, clear glass or plastic cover over the face of the C-73599 to protect it from being struck accidentally and to protect against possible damage resulting from tube implosion under some abnormal condition.

External Shielding. External magnetic shielding is required for the C-73599 to prevent external magnetic fields from affecting tube performance. Further information on shielding considerations is given in the discussion of Mounting, Shielding, and Related Components on page 33.

Support. The C-73599 should be supported by any properly insulated arrangement at the faceplate end and by a suitable mechanism engaging the cone section of the envelope in the support region indicated on the Dimensional Outline. The tube should not be supported by the neck or by the base. It is also to be noted that support for the tube should not be provided, in accord with conventional practice for picture tubes, by the deflecting yoke because the latter must have flexibility of adjustment on the neck.

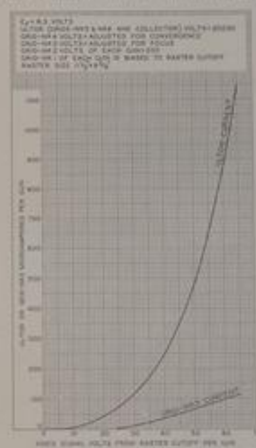


Fig.2 - Typical Drive Characteristic of Dev. Type C-73599.

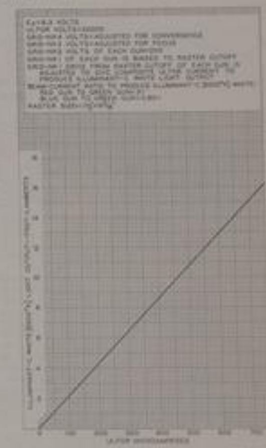


Fig.3 - Typical Light-Output Characteristic of Dev. Type C-73599.

Preliminary and Tentative Data on Following RCA Developmental Tube Types

* Each of these developmental numbers identify a particular laboratory design, but the number and identifying data are subject to change.

Three-Gun Tricolor Kinescope

Developmental No. C-73599

RCA Developmental Type C-73599 is a directly viewed picture tube of the glass-envelope type for use in color television receivers. It is capable of producing either a full-color or a black-and-white picture 11-1/2" x 8-5/8" with rounded sides.

The C-73599 utilizes three electrostatic focus guns spaced 120° apart with axes parallel to the tube axis, and an assembly consisting of a shadow mask and a plane, tricolor, filterglass phosphor-dot (screen) plate located between the shadow mask and a clear-glass faceplate.

The tricolor, phosphor-dot plate, which serves as the directly viewed screen, carries an orderly array of small, closely spaced, phosphor dots arranged in triangular groups (trios). Each trio consists of a green-emitting dot, a red-emitting dot, and a blue-emitting dot. The phosphor-dot plate has approximately 195,000 dot trios or 585,000 dots and is metalized after application of the phosphor dots to give increased light output and contrast as well as to prevent ion-spot blemish.

The metal shadow mask, interposed between the electron gun structure and the phosphor-dot plate, contains round holes equal in number to and centered with respect to the dot trios.

DATA

General:

Focusing Method . . . . Electrostatic
Convergence Method . . . . Electrostatic
Deflection Method . . . . Magnetic

Maximum Ratings, Design-Center Values:

Characteristics Range Values for the Design of Experimental Receivers:

High Voltages. The high voltages at which cathode-ray tubes are operated may be very dangerous. Great care should be taken in the design of apparatus to prevent the operator from coming in contact with the high voltages. Precautions include the enclosing of high-potential terminals and the use of interlocking switches to break the primary circuit of the power supply when access to the equipment is required.

In the case of cathode-ray tubes, it should always be remembered that high voltages may appear at normally low-potential points in the circuit because of capacitor breakdown or to incorrect circuit connections. Therefore, before any part of the circuit is touched, the power-supply switch should be turned off and both terminals of any capacitors should be grounded.

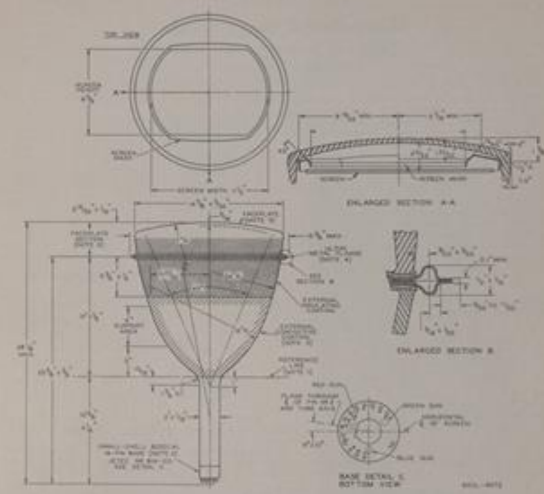
REFERENCE

IES Handbook (Second Edition), 1952, Section 5-5, Illuminating Engineering Society, 1860 Broadway, New York 23, N.Y.

SOCKET CONNECTIONS
Bottom View

PIN 1: HEATER
PIN 2: CATHODE OF RED GUN
PIN 3: GRID No.1 OF RED GUN
PIN 4: GRID No.2 OF RED GUN
PIN 5: NO CONNECTION
PIN 6: GRID No.3
PIN 7: CATHODE OF GREEN GUN
PIN 8: GRID No.1 OF GREEN GUN
PIN 9: GRID No.2 OF GREEN GUN
PIN 11: GRID No.4
PIN 17: GRID No.2 OF BLUE GUN
PIN 18: GRID No.1 OF BLUE GUN
PIN 19: CATHODE OF BLUE GUN
PIN 20: HEATER
METAL FLANGE: ULTOR (Grid No.5, Grid No.6, Collector)

DIMENSIONAL OUTLINE



NOTE 1: REFERENCE LINE IS DETERMINED BY POSITION WHERE A CYLINDRICAL GAUGE 2.000" ± 0.003" I.D. WHICH IS HELD CONCENTRIC WITH TUBE NECK AXIS WILL REST ON FUNNEL.

NOTE 2: SOCKET FOR THIS BASE SHOULD NOT BE RIGIDLY MOUNTED; IT SHOULD HAVE FLEXIBLE LEADS AND BE ALLOWED TO MOVE FREELY. BOTTOM CIRCUMFERENCE OF BASE SHELL WILL FALL WITHIN A CIRCLE CONCENTRIC WITH FACEPLATE-SECTION AXIS AND HAVING A DIAMETER OF 3".

NOTE 3: EXTERNAL CONDUCTIVE COATING MUST BE GROUNDED.

NOTE 4: METAL FLANGE OPERATES AT HIGH VOLTAGE. ADEQUATE INSULATION MUST BE PROVIDED BETWEEN THE FLANGE AND ANY GROUNDED ELEMENT IN THE RECEIVER TO PREVENT THE POSSIBILITY OF ELECTRICAL LEAKAGE INCLUDING CORONA.

NOTE 5: MASK MATERIAL BEARING ON THE FACEPLATE MUST HAVE INSULATING QUALITIES ADEQUATE FOR ONE HALF THE APPLIED ULTOR VOLTAGE TO MINIMIZE SURFACE LEAKAGE BETWEEN METAL FLANGE AND MASK.

Preliminary and Tentative Data
on RCA Developmental

Sharp-Cutoff Beam Triode

High-Voltage, Low-Current, Regulator Type

Developmental No. A-2334-C

RCA Developmental Type A-2334-C is a low-current beam triode of the sharp-cutoff type designed specifically for the voltage regulation of high-voltage, low-current dc power supplies such as the power supply used with the RCA Developmental Tricolor Kinescope C-73598. It has a maximum dc plate-voltage rating of 20000 volts, a maximum dc plate-current rating of 1.5 milliamperes, and a maximum plate-dissipation rating of 20 watts.

The high-voltage insulation in the A-2334-C for its intended service is obtained by the use of a double-ended structure utilizing a suitably designed electron gun which consists of a thermionic cathode and one grid. The plate connection is made to a small cap at the end of the bulb.

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:		
Voltage (ac or dc)	6.3	volts
Current.	0.6	amp
Direct Interelectrode Capacitances:		
Grid to Plate.	1.6	μμf
Grid to Cathode.	2.8	μμf
Plate to Cathode	0.01	μμf
Amplification Factor	1800	

Mechanical:

Mounting Position.	Any
Maximum Overall Length	8-1/8"
Seated Length.	6-1/2" ± 1/8"
Maximum Diameter	3-13/32"
Bulb	T-12
Cap	Small (JETEC No. C1-1)
Base . . . Short Jumbo-Shell Octal 8-Pin (JETEC No. B8-73)	
Weight (Approx.)	3.7 oz

VOLTAGE-CONTROL SERVICE

Maximum Ratings, *Design-Center Values:*

DC PLATE VOLTAGE	20000 max.	volts
UNREGULATED DC SUPPLY VOLTAGE. . . .	40000 max.	volts
GRID VOLTAGE:		
DC value	-125 max.	volts
Peak value	-550 max.	volts
DC PLATE CURRENT	1.5 max.	ma
PLATE DISSIPATION.	20 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode. . .	180 max.	volts
Heater positive with respect to cathode. . .	180 max.	volts

Typical Operation As Shunt Voltage-Regulator Tube in Accompanying Circuit:

Unregulated Supply:		
DC voltage	36000	volts
Equivalent Resistance.	8	megohms
Voltage Divider Values:		
R_1 (6 watts)	220	megohms
R_2 (2 watts)	1	megohm
R_3 (1/2 watt).	2	megohms

Reference Voltage Supply:		
DC value	600	volts
Equivalent Resistance.	1000	ohms
Effective Grid-Plate Transconductance	120	μmhos
DC Plate Current:		
For load current of 0 ma	1000	μamp
For load current of 1 ma	100	μamp
Regulated DC Output Voltage:		
For load current of 0 ma	20000	volts
For load current of 1 ma	19790	volts

Maximum Circuit Values:

Grid-Circuit Resistance:	
With unregulated supply having an equivalent resistance of at least 8 megohms . .	3 max. megohms
With unregulated supply having an equivalent resistance less than 8 megohms. .	See Curve in Fig.1

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

	Note	Min.	Max.	
Heater Current	1	0.54	0.66	amp
Grid Voltage (1)	1,2	-2	-	volts
Grid Voltage (2)	1,3	-	-25	volts
Grid-Voltage Change. . . .	1,4	-	8	volts

Note 1: With heater voltage of 6.3 volts ac or dc.

Note 2: With dc plate voltage of 20000 volts and dc plate current of 1 ma.

Note 3: With dc plate voltage of 20000 volts and dc plate current of 0.1 ma.

Note 4: Difference between grid voltage (1) and grid voltage (2).

SHUNT VOLTAGE-REGULATOR CIRCUIT

Typical performance data for this basic circuit with certain characteristics of the unregulated dc supply and related voltage-divider values are given in the above tabulated data. Other combinations are feasible within the maximum ratings and the maximum circuit values for the A-2334-C.

OPERATING CONSIDERATIONS

The maximum ratings in the tabulated data are working design-center maximums established according to the standard design-center system of rating electron tubes. Tubes so rated will give satisfactory performance in equipment designed so that these maximum ratings will not be exceeded when the equipment is operated from ac or dc power-line supplies whose normal voltage including normal variations falls within ± 10 per cent of line-center voltage value of 117 volts.

Fig. 1 - Maximum Grid-Circuit Resistance for Dev. Type A-2334-C as a Function of Unregulated DC Voltage Supply Resistance.

The high dc voltages at which the A-2334-C is operated may be extremely dangerous to the user. Great care should be taken during the adjustment of circuits. The tube and its associated apparatus, especially all parts which may be at high potential above ground, should be housed in a protective enclosure. The protective housing should be designed with interlocks so that personnel cannot possibly come in contact with any high-potential point in the electrical system. The interlock devices should function to break the primary circuit of the high-voltage supply when any gate or door on the protective housing is opened, and should prevent the closing of this primary circuit until the door is again locked.

It should always be remembered that high voltages may appear at normally low-potential points in the circuit because of capacitor breakdown or to incorrect circuit connections. Therefore, before any part of the circuit is touched, the power-supply switch should be turned off and both terminals of any capacitors should be grounded.

The bulb becomes hot during operation. To insure adequate cooling, it is essential that free circulation of air be provided around the A-2334-C.

The plate shows a dull red color when the A-2334-C is operated at maximum plate dissipation. Connection to the plate cap should be made by a suitable connector with flexible lead to prevent any strain on the seal at the cap.

Operation of the A-2334-C with a plate voltage above approximately 16000 volts (absolute value) results in the production of x-rays which can constitute a health hazard on prolonged exposure at close range unless the tube is adequately shielded. Relatively simple shielding should prove adequate, but the need for this precaution should be considered in equipment design (see *References 1 and 2*).

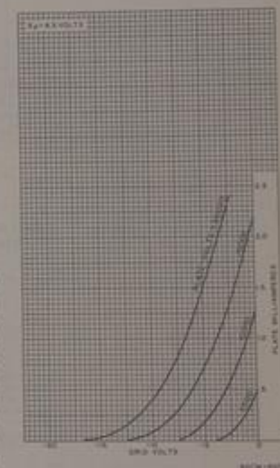


Fig. 2 - Average Transfer Characteristics of Dev. Type A-2334-C.

The A-2334-C may exhibit a blue glow on the upper half of the inner surface of the bulb wall under normal operating conditions. This effect is caused by fluorescence and is not to be mistaken for gas.

Preliminary and Tentative Data
on RCA Developmental

Purifying Coil, Beam-Positioning Magnets, and Neck-Shield Assembly

Developmental No. XD-2233-C

XD-2233-C is a developmental assembly consisting of a purifying coil for obtaining multi-beam alignment, three magnets for positioning the individual beams, and a magnetic shield. It is designed for mounting on the neck section of the RCA Tricolor Kinescope Developmental No.C-73599 and is equipped with a clamp for attaching the assembly to the kinescope neck.

The purifying coil of the XD-2233-C assembly produces a transverse magnetic field which can be adjusted by rotation of the coil and by change of current in the coil to provide accurate alignment of the common axis of the beams so that the common axis coincides with the axis of the kinescope. As a result, when the beams are focused, converged, and deflected they approach each hole in the shadow mask at the proper angle to strike the centers of their appropriate color dots thus producing color purity.

The beam-positioning magnets of the XD-2233-C assembly are supported by the shield of the XD-2233-C and are spaced at 120° intervals to correspond with the positions of the kinescope guns. They provide accurate positioning of their associated beams in a direction perpendicular to the change in beam direction produced by the electrostatic convergence lens.

The magnets are threaded and are slotted at both ends to provide ease and accuracy of adjustment. A red dot identifies the north pole of each magnet; effect of magnet on beam position is reversible by inserting the opposite end of the magnet into the shield.

The shield section of the XD-2233-C assembly is a Nicaloi magnetic shield for isolating the beams passing at low velocity through the neck section of the tricolor kinescope from effects of extraneous magnetic fields.

Information on adjustment procedure for the purifying coil and the beam-positioning magnets is given on Pages 43 and 44 of the Application material.

DATA

Purifying Coil:

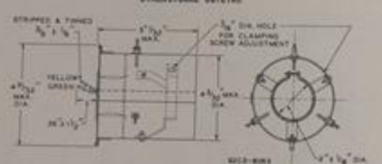
Ratings:

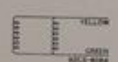
DC Current	600 max.	ma
DC Voltage (Coil to Shield).	500 max.	volts

Characteristics:

DC Resistance at 25°C.	17.5 ± 10%	ohms

DIMENSIONAL OUTLINE





Terminal Connections for Developmental No. XD-2233-C.

Preliminary and Tentative Data
on RCA Developmental

Field-Neutralizing Coil

Developmental No. XD-2315-A

XD-2315-A is a developmental field-neutralizing coil designed to be placed around the faceplate end of the RCA Tricolor Kinescope Developmental No.C-73599. Its function is to produce a uniform magnetic field which can be adjusted to neutralize extraneous magnetic fields causing tangential displacement of the beams from their color centers as explained on Page 35 of the Application Material.

Correction of the direction of beam displacement is accomplished by adjusting the direction of current flow in the coil; correction of the magnitude of beam displacement is accomplished by adjusting the current value. A convenient means of adjusting both the current value and the direction of current flow is to use the coil in conjunction with a center-tapped potentiometer in a centering-supply circuit.

The XD-2315-A has an inside diameter large enough to facilitate mounting at the faceplate end of the kinescope and the insulating of the kinescope's flange section.

DATA

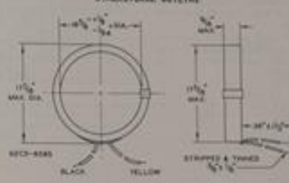
Ratings:

DC Current	100 max.	ma

Characteristics:

DC Resistance at 25°C	26.4 ± 10%	ohms

DIMENSIONAL OUTLINE



Terminal Connections for Developmental No. XD-2315-A.

208T9

VERTICAL-BLOCKING-OSCILLATOR TRANSFORMER

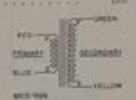
Quiet Operation

Moisture Resistant

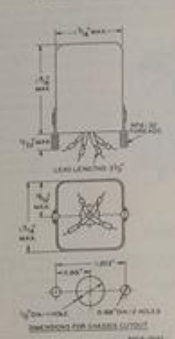
The RCA-208T9 is a vertical-blocking-oscillator transformer for television receiver circuits. It is used in typical blocking-oscillator circuits which generate pulses for driving the grids of the vertical-discharge tubes. It employs a potted type of construction which provides quiet operation and resistance to moisture absorption.

DATA

Characteristics:



DIMENSIONAL OUTLINE



Application of RCA Developmental Tricolor Kinescope Dev. No. C-73599 and Associated Tubes and Components

This material discusses the operation and adjustment of components for the RCA Developmental Tricolor Kinescope Dev. No.C-73599. Included is information on (1) mounting, shielding, and related components; (2) deflection, high-voltage, and dynamic-focus and convergence circuits; and (3) kinescope component adjustment procedure. Obviously, the circuits given are not the only ones that can be used, but are suggested as a starting point in experimental designs because they do not require unusual circuit arrangements.

1. MOUNTING, SHIELDING, AND RELATED COMPONENTS

The glass tricolor kinescope Developmental No.C-73599 can be supported by any of numerous methods, but certain precautions should be taken into consideration when the mounting for this kinescope is designed. The front end of the kinescope should be supported in the region between the metal flange and the faceplate in such a manner that no pressure is exerted directly on the flange. The front support should be cushioned with shock-absorbing material. A high-voltage insulator* should be used to insulate the metal flange, which is the ultor terminal, from the magnetic shield and other grounded elements.

The rear support of the kinescope can consist of the grounded magnetic shield supporting the kinescope in the cone area indicated in Fig. 1 or on the dimensional outline drawing in the tube bulletin (page 9). Neither the neck nor the base should be used to support the tube. The magnetic shield may be supported from the chassis or the receiver cabinet. Pads of neoprene-base rubber or similar material should be provided between the magnetic shield and the glass envelope.

The deflecting yoke should not be used for supporting the kinescope because it should be centered on the neck and free to move along the neck for a distance of approximately one inch for adjustment purposes. The yoke mount should also provide for a small amount of rotational adjustment. An assembly consisting of the purifying coil, beam-positioning magnets, and neck shield is preferably supported by the neck of the kinescope.

Shielding and Extraneous-Field Neutralization

Proper operation of the tricolor kinescope requires shielding of the electron beams from the earth's magnetic field and other extraneous magnetic fields. Shielding and effective neutralization of external magnetic

* A suitable insulator having the manufacturer's designation Insulator Part No. [illegible] may be obtained from Anchor Industrial Co., 36-36 36th St., Long Island City 6, N.Y.

fields may be accomplished by the use of two shields and two coils. One shield, which may be used as part of the rear support of the kinescope, is located on the conical section of the kinescope envelope. The other shield is located on the tube neck. One coil is located around the periphery of the faceplate; the other coil is located on the tube neck.

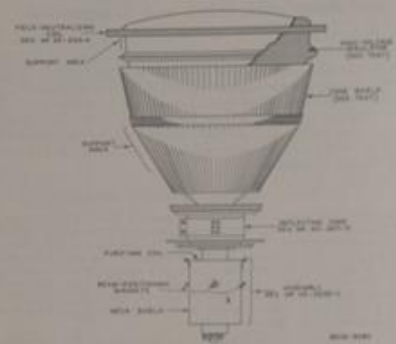


Fig.1 - Sketch showing the relative placement of components and the support regions on faceplate section and cone area.

For the conical section, the magnetic shield* may be made of Mumetal. Fig.2 is a dimensional outline for a typical cone shield made of this material. Although effective shielding is provided with high-nickel alloys such as Mumetal, Nicaloi, or equivalents, lower-cost shielding can be obtained with the use of multiple shields of 3.5 to 4 per cent annealed silicon steel. The most effective shielding is provided by the use of annealed material having high permeability and low coercive force.

Properties of materials suitable for shields are:

Material	*Permeability at 10 Gauss (approx.)*	*Coercive Force (Hc)*
Mumetal	>10000	0.03 - 0.07
Nicaloi	4000 - 5000	0.1
3.5% - 4.0% Silicon Steel	2000	0.3

* A suitable cone shield having the manufacturer's designation Sketch No. [illegible] may be obtained from the Magnetic Metals Co., Hayes Avenue at 21st St., Camden 1, N.J.

In addition to rubber pads for cushioning, the shield may be conveniently equipped with a spring of beryllium-copper or other suitable material to provide the electrical contact for grounding the external conductive coating on the kinescope.

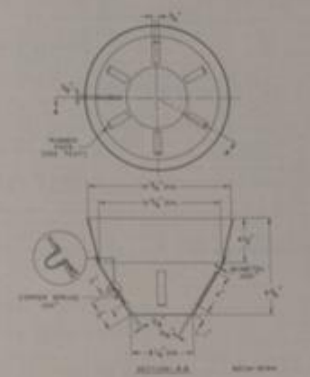


Fig.2 - Dimensional outline of typical cone shield made of Mumetal.

Field-Neutralizing Coil

For producing an adjustable magnetic field to neutralize the effects of extraneous fields the use of a coil around the faceplate section of the kinescope is recommended. Such a coil is the Field-Neutralizing Coil RCA Developmental No.XD-2315-A. This coil is positioned around the periphery of the faceplate as shown in Fig.1. It may be supported in any convenient manner. The field of this coil is controlled in both amplitude and direction by adjustment of the current through it. It is recommended that the current be adjusted by a center-tapped potentiometer so that easy reversal of the direction of the current may be obtained. This control should provide a minimum of 100 milliamperes in either direction through the coil. This current value will produce approximately 15 ampere turns. Adequate high-voltage insulation between this coil and the metal flange of the kinescope is provided by the high-voltage insulator previously mentioned.

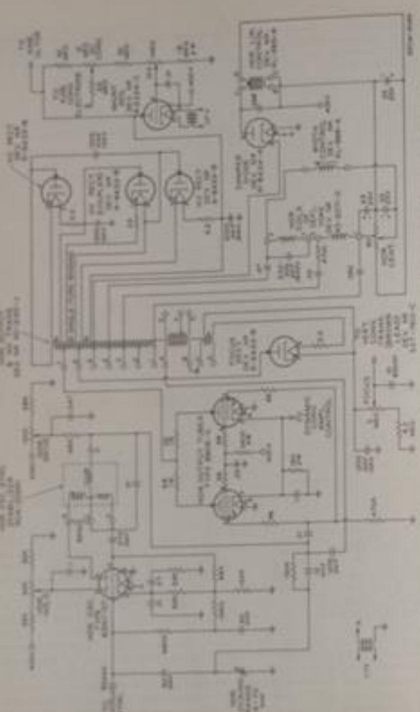


Fig.3 - Horizontal-deflection and high-voltage circuit for RCA Developmental Tricolor Kinescope Dev. No. C-73359. Capacitor values are in microfarads, resistor values in ohms, and resistor rating is 0.5 watt, unless otherwise indicated. K = 1000 ohms.

Purifying Coil, Beam-Positioning Magnets, and Neck-Shield Assembly

The neck shield may be part of an assembly including the purifying coil and the beam-positioning magnets. Such an assembly is the Purifying Coil, Beam-Positioning Magnets, and Neck-Shield Assembly, RCA Developmental No. XD-2233-C. The purifying coil provides for proper alignment of the three beams with respect to the phosphor-dot plate and the shadow mask; the neck shield shields the low-velocity section of the beams from stray magnetic fields; the three beam-positioning magnets help to provide proper alignment of each of the three beams with respect to the others.

This assembly is mounted on the kinescope neck with the purifying coil at the end away from the base. The three threaded magnets are spaced at 120-degree intervals to correspond to the three positions of the three electron guns of the tricolor kinescope. The clamp of the assembly should be tightened around the kinescope neck. Each positioning magnet provides deflection of its associated beam in a direction perpendicular to the change in beam direction produced by the electrostatic convergence lens. The direction of deflection can be reversed by reversing the magnet and threading its other end into the assembly. Proper convergence in the center of the raster is obtained by adjusting the position of the magnets in or out and by adjusting the voltage on the convergence electrode as required.

The adjustment for color purity is made by simultaneously rotating the purifying coil and adjusting the current through it as required. Rotation of the coil affects the direction of the field; adjustment of current affects the magnitude of the field. A minimum of 150 milliamperes through the purifying coil should be provided at the maximum setting of the current control.

2. DEFLECTION, HIGH-VOLTAGE, FOCUS, AND CONVERGENCE CIRCUITS

Deflection and High-Voltage Circuit

A schematic diagram of a suggested horizontal-deflection and high-voltage circuit is given in Fig.3. Correct operation of this circuit can be obtained with a conventional oscillator-discharge circuit, such as the one shown, which is capable of delivering a driving voltage of the amplitude and waveform shown in Fig.4. Two RCA-6BG6's in parallel

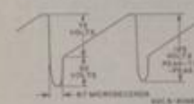


Fig.4 - Typical waveform of input to grid-No.1 circuit of horizontal-deflection-output tubes type 6BG6-G measured across 470,000-ohm grid resistor.

are used as horizontal-output tubes. In order that circuit efficiency be maintained, the output tubes must be cut off rapidly at the end of each scanning cycle and kept cut off during the entire retrace interval. To assure complete cutoff, it is desirable to add a negative peaking pulse to the sawtooth driving voltage during retrace. The winding be-

Preliminary and Tentative Data
on RCA Developmental

Deflecting Yoke

Developmental No. XD-2071-D

XD-2071-D is a developmental deflecting yoke for use with the RCA Tricolor Kinescope Developmental No. C-73599 having a horizontal deflection angle of 45°. It is designed to operate efficiently with the developmental No. XD-2165-J Horizontal-Output and High-Voltage Transformer and to provide full deflection, good uniformity of focus, optimum convergence, and high deflection sensitivity.

The horizontal and vertical coils of this yoke are especially wound to produce proper magnetic fields for simultaneous deflection of the three beams and, in addition, are flared widely at the end of the yoke placed nearest the tube funnel to provide the desired flux distribution for optimum convergence. High deflection sensitivity and good field symmetry are achieved by the use of a precision-shaped ferrite core having unique design characteristics. The core consists of 8 separate ferrite sections fitted to form a single unit having a chamfered front which corresponds with the shape of the funnel-to-neck section of the kinescope.

A flame-retardant polyethylene liner is used to provide adequate insulation between the yoke coils and the grounded coating.

The yoke should not be used for supporting the kinescope-neck section since optimum performance requires three adjustments: (1) centering the yoke on the axis common to the three beams, (2) moving the yoke along the neck of the kinescope, and (3) moving the yoke rotationally about the neck. Further information on yoke adjustments is presented on Pages 43 and 44.

DATA

General:

Outside Diameter	7-13/16 max.	inches
Inside Diameter.	2.21 min.	inches

Performance:

Percentage tolerances indicate deviation of characteristics from corresponding characteristics of a specimen yoke established as a standard and operating in a circuit with an RCA Tricolor Kinescope Developmental No. C-73599 to provide an 11-3/4 inch by 8-7/8 inch raster.

Horizontal Deflection.	+5 / -5	per cent / per cent
Vertical Deflection.	+5 / -3	per cent / per cent
Departure from Linearity* (Vertical or Horizontal) . . .	±10	per cent
Pincushion or Barrel†	±2	per cent
Trapezoid (Horizontal or Vertical) Departure from Rectangularity)† .	±2	per cent

Maximum Ratings:♦

Peak Voltage Between Horizontal and Vertical Coils, for maximum duration of 8 microseconds■ . . .	3500 max.	volts
Ambient Temperature.	50 max.	°C
Horizontal Coils (Series Connected):		
Peak-to-Peak Sawtooth Current■ . .	1100 max.	ma
Peak Pulse Voltage, for maximum duration of 8 microseconds■ . . .	3000 max.	volts
Vertical Coils (Series Connected):		
Peak-to-Peak Sawtooth Current□ . .	300 max.	ma
Peak Voltage, for maximum duration of 600 microseconds□	800 max.	volts

Characteristics:

Horizontal Coils (Series Connected):		
Inductance at 1000 cps	11.8 approx.	mh
DC Resistance at 25°C	7.3 approx.	ohms
Vertical Coils (Series Connected):		
Inductance at 1000 cps	125 approx.	mh
DC Resistance at 25°C	54 approx.	ohms

* With non-linearity equally distributed about the center of the screen by means of circuit adjustments.

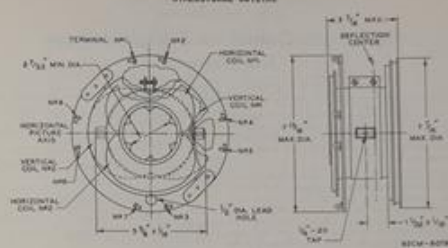
† With raster distortion equally distributed about the center of the screen by circuit adjustments.

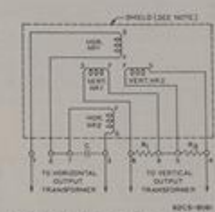
♦ These maximum ratings are limiting values above which the serviceability of the yoke may be impaired from the viewpoint of life and satisfactory performance. Therefore, in order not to exceed these maximum ratings, the equipment designer has the responsibility of determining an average design value for each rating below the maximum value of that rating by an amount such that the maximum values will never be exceeded under any usual condition of supply-voltage variation, load variation, or manufacturing variations in the equipment itself.

■ At 15750-cps scanning rate.

□ At 60-cps scanning rate.

DIMENSIONAL OUTLINE



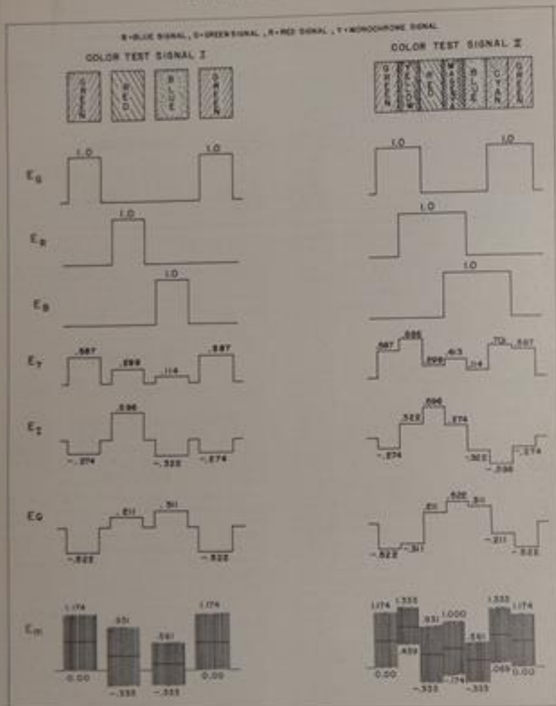


NOTE: PROVISION SHOULD BE MADE FOR GROUNDING THE SHIELD WHICH IS INTERNALLY CONNECTED TO THE MOUNTING LUGS. RESISTORS AND CAPACITOR SHOWN ARE TYPICAL VALUES AND ARE NOT SUPPLIED WITH THE XD-2071-D. C1 = 250 TO 390 μμf, 1000 VOLTS. R1, R2 = 1500 OHMS ± 10%, 0.5 WATT.

Terminal Connections for Developmental No. XD-2071-D.

RCA Glass-Envelope Tricolor Kinescope
DEVELOPMENTAL Nº C-73599

Contents



Color Circuit Radiation

Deflection Synchronization

Automatic Gain Control

Horizontal Deflection and High Voltage

heading "Color Synchronization". The chroma and I gain controls are advanced until rectangular pulses corresponding only to the particular color bars are observed with an oscilloscope at three kinescope grids.

Delay Adjustments

Best reproduction of color transitions requires that the overall time delay for the luminance channel, I chrominance channel and Q chrominance channel be identical. The broad band luminance channel has negligible delay of its own. Both chrominance channels have the delay of the bandpass stage and their respective low-pass stages with the 0.5-Mc Q channel having the greatest delay possibility. Equalization of the I and Q delays is accomplished by choosing a filter for the I channel having proper bandwidth and a time delay equal to that of the Q channel. Additional delay is added between the first and second video amplifiers to equalize the luminance channel. One technique for adjusting delays requires an r-f signal modulated with the color bar pattern of the test signal generator described in LB-913, *A Color Television Test-Signal Generator*. An oscilloscope with an expanded sweep at line frequency is connected to a kinescope grid. The sweep is adjusted to allow examination of the color transition appropriate to the grid under observation. The delay is adjusted to provide symmetrical transients or "spikes" around the transitions.

Color Synchronization

In order to recover the color information contained in an NTSC type signal, it is necessary to generate a local subcarrier of proper frequency and phase. To accomplish this, phase reference information is transmitted as a component of the composite color video signal. The color synchronizing information is transmitted in the form of a "burst" of approximately 8 cycles of the color subcarrier frequency and appears immediately following each horizontal synchronizing pulse in the composite signal.

This "burst" is separated from the composite video signal and is used in establishing two continuous-wave signals of color subcarrier frequency having a 90-degree phase displacement with respect to each other. These signals, called I c.w. and Q c.w., are generated by a quartz crystal oscillator which is locked in phase and frequency by a reactance tube. The reactance tube derives its control information from an error signal proportional to the difference in phase between the transmitted "burst" and the local crystal oscillator output.

The color synchronizing channel shown in Fig. 8 includes a keyed burst amplifier stage, phase detector, 3.579-Mc driver and color phasing amplifier, crystal oscillator, reactance tube, and quadrature 3.579-Mc amplifier.

The burst amplifier stage, pentode section of a 6U8, V129A, is driven from a tuned coil capacity coupled to a 3.579-Mc trap in the first video amplifier plate. The burst signal at the grid of the burst amplifier is about 10 volts peak-to-peak. Specifications for L201 and L202 are given in Table I. The burst amplifier cathode is keyed by a partially integrated negative pulse of about 37 volts peak-to-peak derived from horizontal deflection. About 40 volts of partially fixed cathode bias is provided for this stage. The discriminator transformer in the plate circuit of the burst amplifier V129A has a high-impedance primary and a bifilar secondary tightly coupled to the primary. Specifications for this transformer, T122, are given in Table I. The output is approximately 65 volts peak-to-peak of burst signal on either side of the secondary center tap.

The phase detector uses the triode sections of two 6U8's, V129B, V130A, connected as grid-cathode diodes with the plates acting as shields. The phase detector compares the phase of the incoming burst signal with the phase of the locally generated c-w signal. The color-phasing amplifier, V130B, provides 25 to 35 volts peak-to-peak of this signal at the reference voltage input to the phase detector, pin 8 of V130A and pin 9 of V129B. The specifications for the plate transformer of this amplifier, T123, are given in Table I. The output of the phase detector controls the reactance tube. The color-phasing amplifier, pentode section of a 6U8, V130B, serves the additional function of an overall phase control. The phase-control potentiometer associated with this circuit permits manual adjustment of the phase of the local oscillator over 150 degrees.

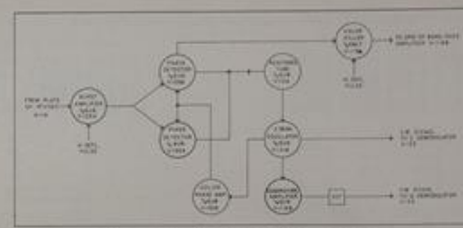


Fig. 8 - Color synchronization channel block diagram.

The reactance tube stage, pentode section of a 6U8, V131A, is of the capacitive type. It has a total equivalent incremental capacity of about 7 uuf over its range. The control sensitivity in the center of its characteristic is about 171 cycles per volt. Specifications for the reactance tube plate coil, L126, are given in Table I.

Operating the oscillator, (triode section of V131B), as a cathode-tuned type eliminates the possibility of spurious oscillations due to the reactance tube plate coil. This occurs because operation of an oscillator as a cathode follower requires the cathode tank to be tuned below 3.579 Mc. It falls between the tuning points of the crystal and the reactance tube plate coil. The oscillator cathode transformer has its secondary tightly coupled to the primary. The low side of the secondary is directly connected to the demodulator bias source, while the high side is connected to the I demodulator number 3 grid through a shielded lead. The I c-w signal required for synchronous detection is taken off directly from this point. Specifications for the cathode transformer, T124, are given in Table I.

The quadrature 3.579-Mc amplifier, triode section of a 6U8, V116B, is driven from the oscillator. A coupled transformer in the plate circuit yields a 3.579-Mc voltage having a 90-degree phase displacement with respect to the phase of the oscillator voltage. This is the Q c-w signal required for synchronous detection. Both signals are of 25 to 30 volts peak-to-peak amplitude at the demodulators.

Color Sync Alignment

The color synchronization circuits may be aligned as follows:

1. Tune the oscillator cathode transformer T124 for maximum drive to the grid pin 2, V130B, of the color phasing amplifier, then increase its inductance until this drive drops to about 5 volts peak-to-peak.

2. With the control grid, pin 2, V129A, of the burst amplifier shorted to ground, tune the primary and secondary of T122 for maximum negative voltage at the grid, pin 9 of V130A. The secondary of T122 should then be adjusted for minimum output voltage variation (indicated by the d-c voltage at pin 9 of V130A) over the range of the phasing control R327.

3. With the d-c return of the grid of the reactance tube V131A shorted to ground by shorting C239, adjust L126 for the correct crystal oscillator frequency. The correct frequency is indicated by observing color synchronism of the color bars on the kinescope or at the output of either the I or Q demodulators by use of an oscilloscope.

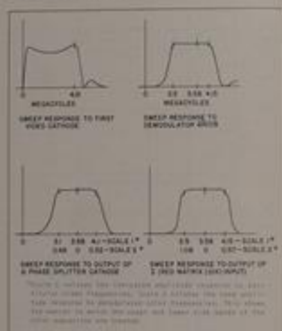


Fig. 6 — Overall chrominance sweep responses.

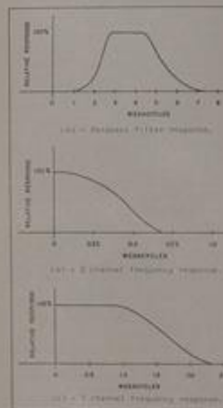


Fig. 7 — Chrominance channel responses.

Matrix Section

Kinescope and Video Adjustments

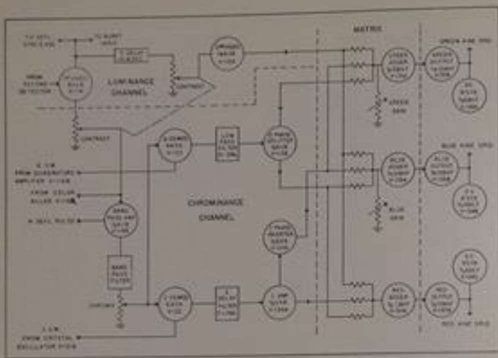


Fig. 5 – Video section block diagram.

Further amplification of the luminance signal in the second video amplifier stage, pentode section of a 6U8, V115A, brings the signal to a level suitable for application to the matrix. The frequency response at this point is essentially similar to that encountered in standard monochrome receivers with some additional attenuation at the subcarrier frequency.

The video second detector operates at a signal level of about 5 volts peak-to-peak. With this signal amplitude at the grid of V114, the first video amplifier, a signal of approximately 8 volts peak-to-peak is developed across R153, the terminating resistor of the delay line, L112. Under average operating conditions the master contrast control is generally set to give about 20 volts peak-to-peak signal at the plate of V115A, which is the luminance signal input to the three resistive matrix networks. When the appropriate color difference signals are added to the luminance signal in the matrix networks, three simultaneous primary-color signals are obtained. These are amplified in the three feedback amplifiers, V131, V136 and V137. The amplitudes of the signals at the outputs of these amplifiers, which are applied to the tricolor kinescope grids, are about 70 volts peak-to-peak for the blue and green guns and about 100 volts peak-to-peak for the red gun.

The data on the 4.5-Mc trap and L201 and L202, all associated with V114, are shown in Table I.

Chrominance Channel

The chrominance signal from the cathode of the first video amplifier is fed to the bandpass amplifier, pentode section of a 6U8, V120B. The plate circuit of this stage contains the bandpass filter which passes the color subcarrier and its sidebands. This filter has a bandwidth of approximately 2.4 to 5.0 Mc and is terminated by a potentiometer which serves as the chroma control.

During each burst interval the bandpass amplifier is keyed off by applying a negative

Table I

VIDEO SECTION COIL DATA

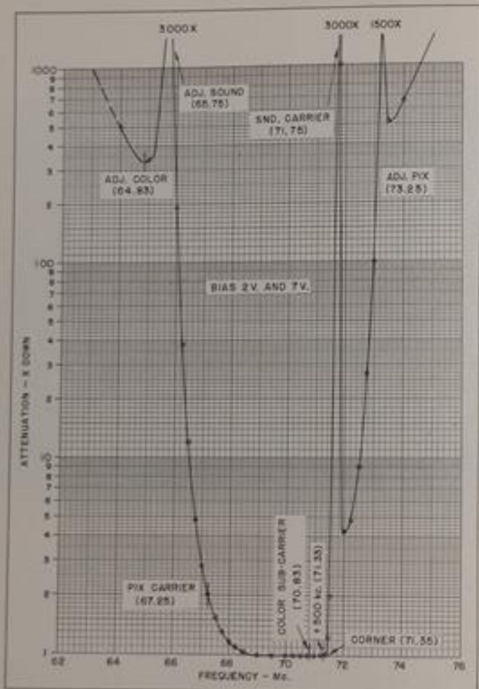
NUMBER	NOMINAL OR CENTER VALUE INDUCTANCE	Q	DISTR. CAP.	REMARKS
L112	[illegible]	[illegible]		Center tapped, slug tuned.
[illegible]	[illegible]	[illegible]		Single layer solenoid, [illegible] slug tuned.
[illegible]	[illegible]			[illegible] fixed slug.
[illegible]	[illegible]			
[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]		[illegible]	[illegible]
[illegible]	[illegible]		[illegible]	[illegible]
[illegible]	[illegible]			[illegible]
[illegible]	[illegible]			[illegible]

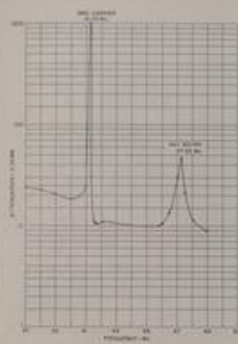
COLOR SYNC TRANSFORMER DATA

NUMBER	PRIMARY		SECONDARY		REMARKS
	Turns	Wire	Turns	Wire	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

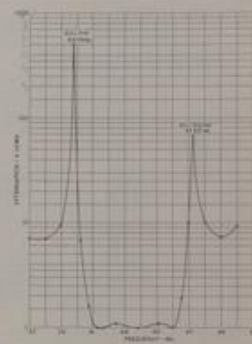
BAND PASS FILTER

NUMBER	REMARKS
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

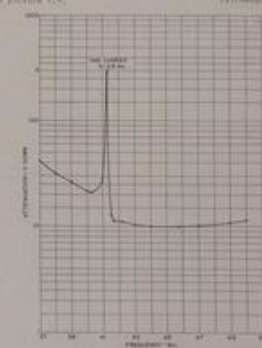




(a)-Response, fifth picture i.f.



(b)-Response, first picture i.f.



(c)-Response, first i-f input.

Fig. 4 - IF response.

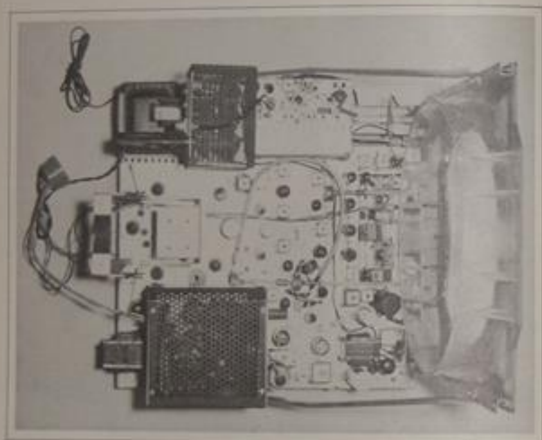


Fig. 2A - Photograph of top of the receiver chassis.

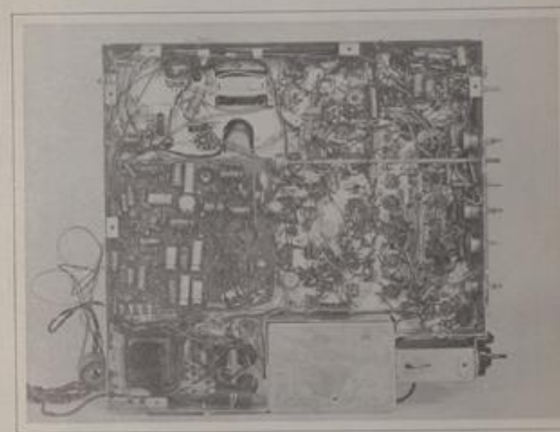


Fig. 2B - Photograph of bottom of the receiver chassis.

is adjusted to shape the high-frequency corner to conform to the amplified response.

Sound IF and Audio

In most monochrome intercarrier sound receivers the sound take-off follows the second detector. In order to minimize the possibility of a 920-kc beat between sound carrier and color subcarrier it is desirable to have relatively high attenuation of the sound carrier at the second detector. To obtain maximum sound gain it is desirable to take off sound information as late as possible in the i-f system; in this case the plate of the fifth picture i-f tube. The additionally needed sound rejection for video is then obtained by bridging the m-derived, bandpass circuit for maximum sound rejection.

The 4.5-Mc intercarrier sound information taken off at the plate of the fifth picture i-f amplifier is detected by a [illegible] crystal diode feeding a single-tuned circuit in the grid of the sound i-f amplifier ([illegible]). The output circuit is a high-impedance, double-tuned, bandpass transformer. Following is the driver ([illegible]) for the ratio detector, which is operated with low screen voltage and grid-leak bias in order to improve AM rejection. The ratio detector circuit uses a [illegible], the triode half of which serves as the first audio amplifier. In order to achieve maximum AM rejection in the ratio detector a variable resistance is placed in series with one of the diodes.

The audio channel is single ended with two-tap compensation on the volume control. The audio output stage is a [illegible] and feeds an 8-inch PM speaker. The maximum audio power output is approximately [illegible] watts.

Video Section

The video system contains a luminance channel, a chrominance channel, and the matrix.

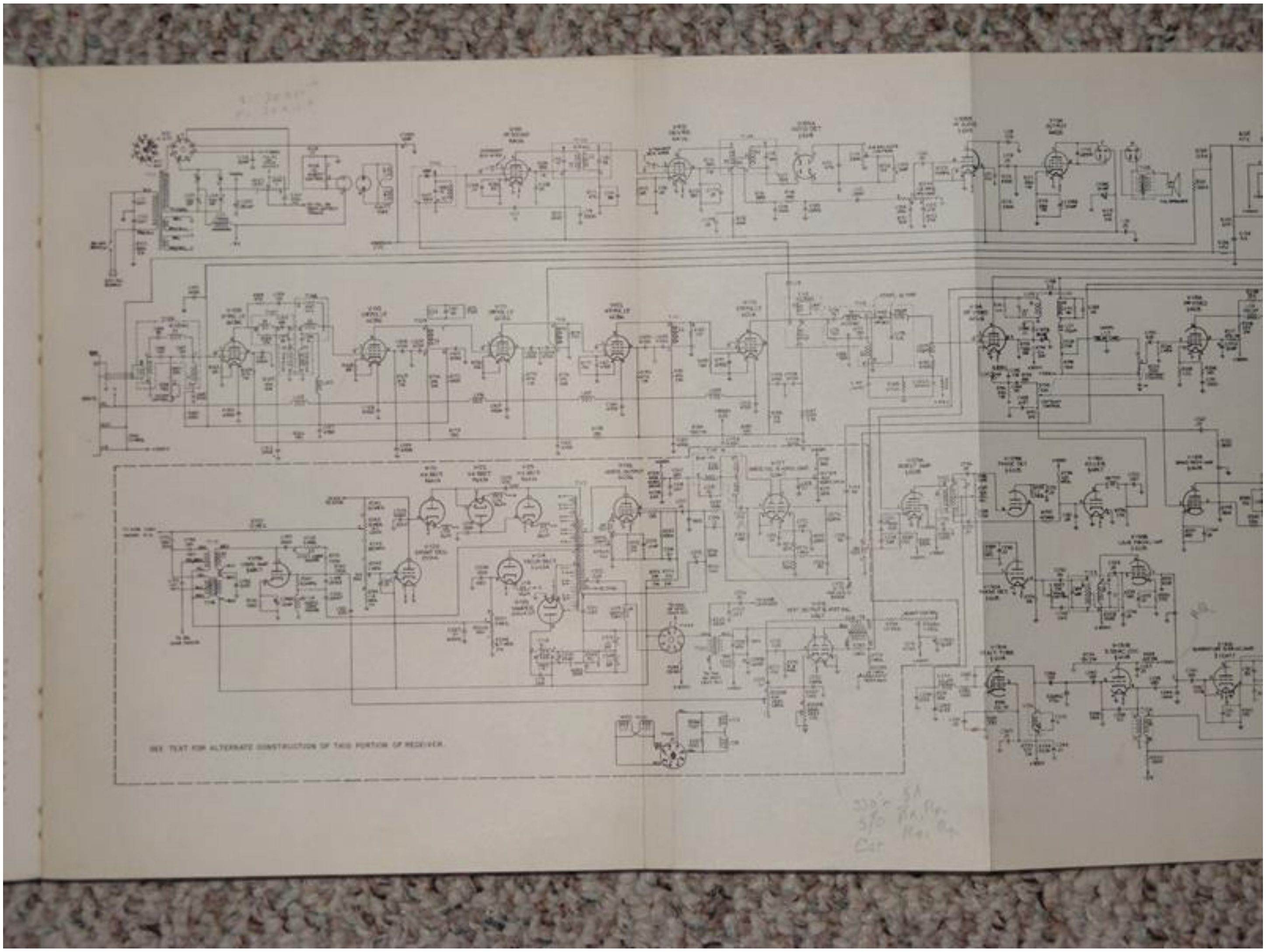
The luminance channel serves a purpose substantially similar to that performed in standard monochrome receivers, that of amplifying the luminance information to a level satisfactory for application to the kinescope.

The chrominance channel serves to recover the color difference information contained in the color subcarrier and its accompanying side bands. By the process of synchronous detection in phase quadrature two independent signals are recovered from the color subcarrier. These signals are called I and Q. Both the I and Q channels are band limited. The Q channel passes information up to approximately 0.5 Mc and the I channel to approximately 1.5 Mc. While band limiting of these channels prevents cross talk, it necessitates equalization of signal delay time since the channels have different bandwidth characteristics. Similar equalization is also required in the luminance channel.

The tricolor kinescope requires simultaneous excitation with red, blue and green signals as derived from the composite signal. The matrix combines the chrominance and luminance signals in the proper proportions to obtain the simultaneous red, blue and green signals. A block diagram of the video section is shown in Fig. 5.

Luminance Channel

The first video amplifier stage, a [illegible], [illegible], provides both polarities of the composite wideband video signal. Positive video at the plate provides the luminance channel signal as well as the sync, [illegible], and burst signals. The luminance signal is fed to the Y delay line which provides a time delay of approximately [illegible] microsecond, thereby effecting time coincidence with the chrominance signals arriving at the matrix input. The Y delay line is electrically terminated by a potentiometer which is one section of a two-section contrast control. The other potentiometer is in the cathode of [illegible] and controls the amount of video fed to the chrominance channel. These two potentiometers comprise the contrast control and have their shafts mechanically ganged. Thus proper relationship between the luminance channel and chrominance channel signals for all contrast settings is maintained.


SEE TEXT FOR ALTERNATE CONSTRUCTION OF THIS PORTION OF RECEIVER.

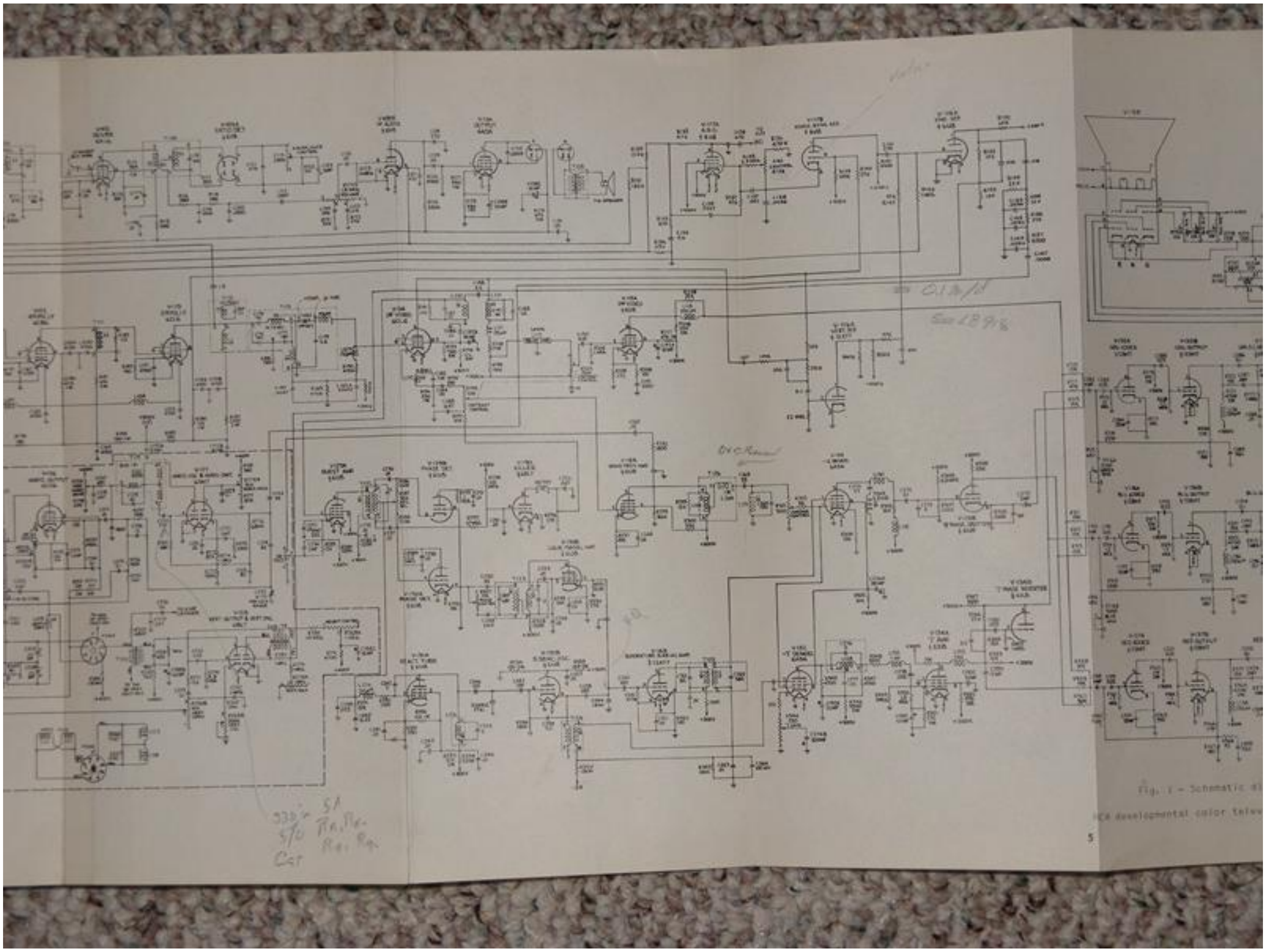


Fig. 1 - Schematic di

RCA developmental color telev

5

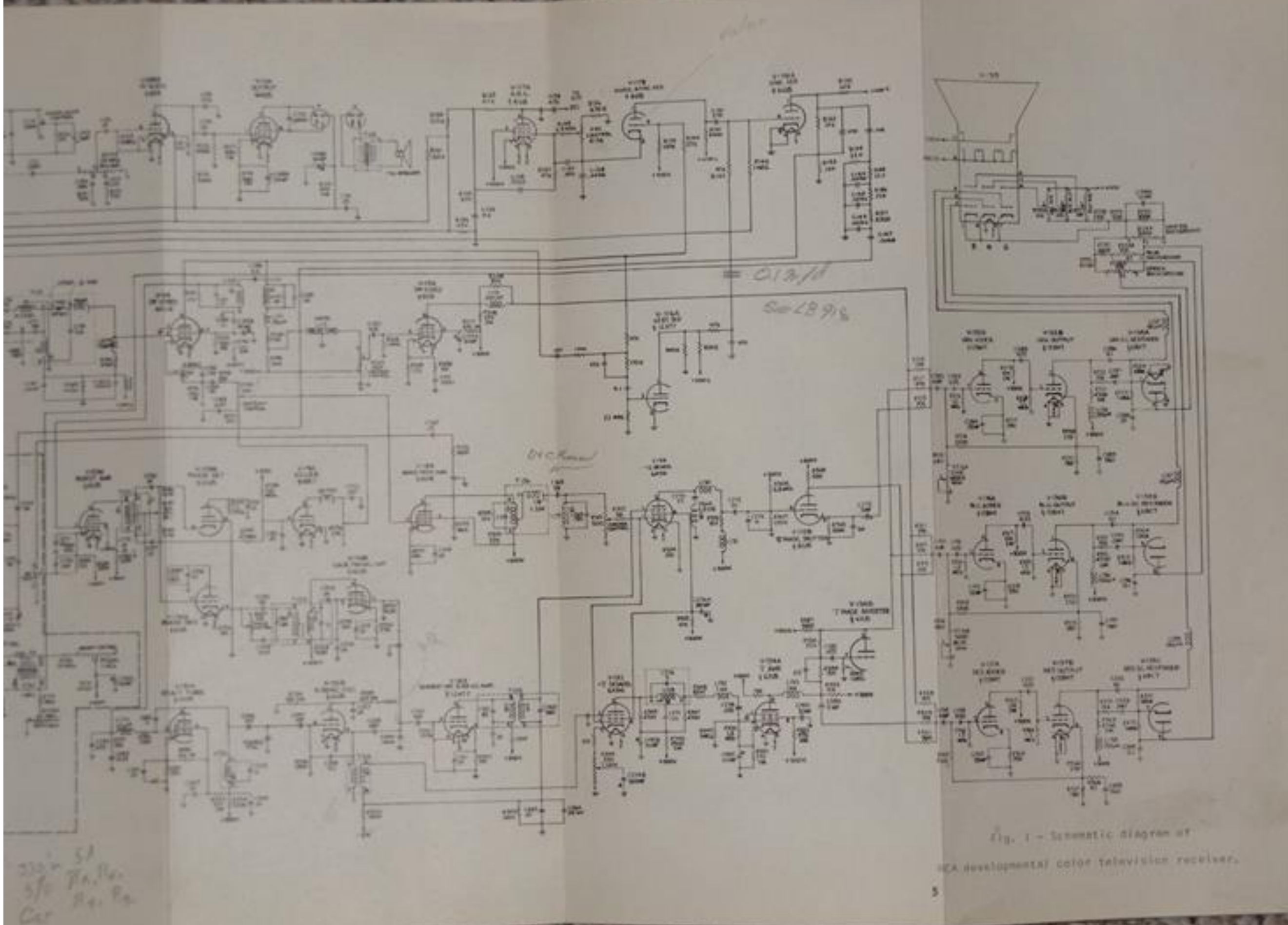


Fig. 1 - Schematic diagram of RCA developmental color television receiver.

Picture IF Amplifier

A. General

The picture i-f amplifier is designed for a 45.75-Mc picture carrier, 42.17-Mc color subcarrier, and a 41.25-Mc sound carrier. The amplifier consists of six stages, using one stage which is included in the tuner, four [illegible] stages, and one [illegible] stage. The second detector uses a [illegible] crystal and is operated at [illegible] volts peak output level in the interests of linearity. Fig. [illegible] shows the overall i-f response characteristic for channel [illegible].

B. Individual IF Stages

Tuner:

The noise factor of the tuner on UHF depends primarily on the noise contributed by the first i-f amplifier and the conversion loss in the crystal mixer circuit. Therefore, a low-noise stage is used for the i-f amplifier. It is fed from the crystal mixer by means of a single-tuned circuit. The output network is a link-coupled, bridged-T, circuit with a trap tuned for rejection of the accompanying sound frequency (41.25 Mc). In order to reduce cross modulation, the sound carrier is attenuated as soon as possible in the i-f amplifier.

First IF:

The first picture i.f. ([illegible]) employs a bridged-T, m-derived, bandpass circuit with the rejection traps tuned for adjacent picture (39.75 Mc) and adjacent sound (47.25 Mc).

Second, Third, and Fourth IF:

The second ([illegible]), third ([illegible]), and fourth ([illegible]) picture i-f stages form a staggered triple with the second and third stages tuned, respectively, to the high and low frequency side of the pass band.

The staggered triple provides a means of compensating for production variations in the overall amplifier, since each stage will affect a different portion of the pass band.

The fourth stage is tuned to approximately the center of the band. A low "Q" absorption trap is loosely coupled to the second stage to shape the high-frequency corner of the m-derived circuit in the first picture i-f stage.

Fifth IF:

The fifth picture i.f. ([illegible]) uses a bridged-T, m-derived, bandpass circuit and a mutually coupled absorption trap. The bridged trap is tuned to the accompanying sound frequency (41.25 Mc), and the absorption trap to the adjacent sound frequency (47.25 Mc).

C. Alignment

The alignment of the picture i-f amplifier should be done with approximately 3 volts of bias on the a-gc bus and 2 volts of detected output across the second detector load resistor, R[illegible].

The general alignment procedure requires the individual adjustment of the fifth i-f plate circuit T[illegible] and T[illegible], the first i-f plate circuit T[illegible] and T[illegible] and the first i-f grid circuit T[illegible]. The overall response of Fig. [illegible] is then produced by adjustment of the staggered triple comprising the second, third and fourth i-f stages.

The adjustment of the fifth i-f plate circuit and the first i-f plate circuit requires initial alignment of the traps to their specified frequencies and then adjustment of the primary and secondary coils for the respective responses of Fig. [illegible] for the fifth i.f. and Fig. [illegible] for the first.

The alignment of the first i-f grid circuit requires adjustment of the sound trap and sound control for maximum attenuation at the sound carrier frequency, 41.25 Mc. The alignment of the grid coil to produce the response of Fig. [illegible] is then done. Following this adjustment the sound control R[illegible] is rotated so as to increase its resistance, to reduce the sound carrier attenuation of this circuit to 50 to 1 with respect to its response at the picture carrier frequency.

The overall response of Fig. [illegible] is obtained by adjusting the staggered triple. The second i.f. is tuned in the vicinity of the picture carrier (45.75 Mc) with the trap slug set such that the trap is tuned to its highest frequency. The third i.f. is tuned to approximately [illegible] Mc, and the fourth to the center of the pass band. The adjustment of the second i.f. determines the high-frequency portion of the pass band, the third i.f. the low-frequency portion and the fourth i.f. the tilt of the amplitude response. The trap on the second i.f.

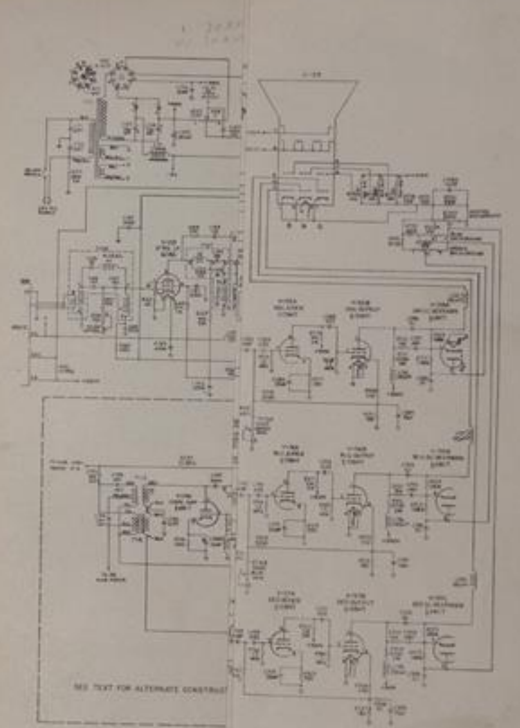


Fig. 1 - Schematic diagram of

[illegible] developmental color television receiver.

Contents

This bulletin contains the following three sections:

Introduction

[illegible]

General Receiver Features

[illegible]

RF Tuner

[illegible]


2 3 4 5 6 7 8 9 10 11 12 13
DALTO
DALTO
DALTO


RED
GREEN
BLUE
R G B
NORMAL
COMPOSITE
VIDEO / SYNC


TV Eye


RCA HC-1
"TV Eye"
Vidicon Camera
In the mid 50s the vidicon was developed, making possible low cost cameras for industrial use. This camera and associated CCU was the first one made by RCA. It has an internal mod-ulator.


alliance
tenna-rotor


Astatic Booster
In the late 40s there wer
no TV stations in many
parts of the country.
Boosters were used t
pull in distant station
INCREASE
GAIN
OFF
2-6
7-13
CHANNELS
Astatic
TUNING
TUNING


Automatic
National


Automatic TVP490
National TV-7M


alliance
tenna-rotor


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


General Electric 901


14
20
30


Raytheon
Rectron R27TV Neon
From Fracarro Receiver
Bayonette Base Neon
From Baird Televisor
Small Neons for
Experimenters
Raytheon Kinolamp
Used in many American Sets
Hollis Baird Receiver
The Shortwave and Television
of Boston made this receiver.


Small Neons for Experimenters
Raytheon Kinolamp Used in many American Sets
Hollis Baird Receiver
The Shortwave and Television Corp. of Boston made this receiver. It contains a model R-7-T AM receiver, with a model C-3-5 television adaptor chassis. It could receive transmissions from both the AM radio and 2-3 mHz television bands.
The scanning disk is for the 60 line standard, and has a synchronizing mechanism.


Hollis Baird Receiver
The Shortwave and Television Corp. of Boston made this receiver. It contains a model R-7-T AM receiver, with a model C-3-5 television adaptor chassis. It could receive transmissions from both the AM radio and 2-3 mHz television bands.
The scanning disk is for the 60 line standard, and has a synchronizing mechanism.


Magnifying
Lens
Motor
Motor Speed
Control
Viewing


Baird Kit Copy
This half scale copy of the Baird Televisor Kit was probably made in the 50s. It is a working model, and uses a "nixie" tube (a numeric display tube used in scientific equipment) in place of a neon bulb.
Picture size ½ by 1 inch
Scanning Lines 30
Year Made 1950s (?)
Quantity Manufactured 1
Original Cost Unknown
Number Still in Existence 1
Electronic Restoration Restored
Radio-Craft
THE RADIO SET OF 1950
Motor
Magnifying Lens
Motor Speed Control


TELEVISION
Hollis Baird Model 25
Baird Televisor
BAIRD TELEVISOR


Bell Labs Mirror Screws
These mirror screws were made by Bell Labs in New York in the early 30s, and were possibly used in picturephone expeiments (one for the camera, one for the viewer). They were donated by the estate of Robert Eilenberger, a Bell Labs Engineer
Mervyn Mirror Drum
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.


Mervyn Mirror Drum
Jenkins Model 100
Popular Radio & Television Shortwave Converter
It Works!
Popular Radio
Fraccaro 30 Line


THE
MERCIER
CO.
Mercier Sets


20
30
40
50
ULTRAVERTER
OFF


Home Made 1949 Set
Recent
Acquisitons

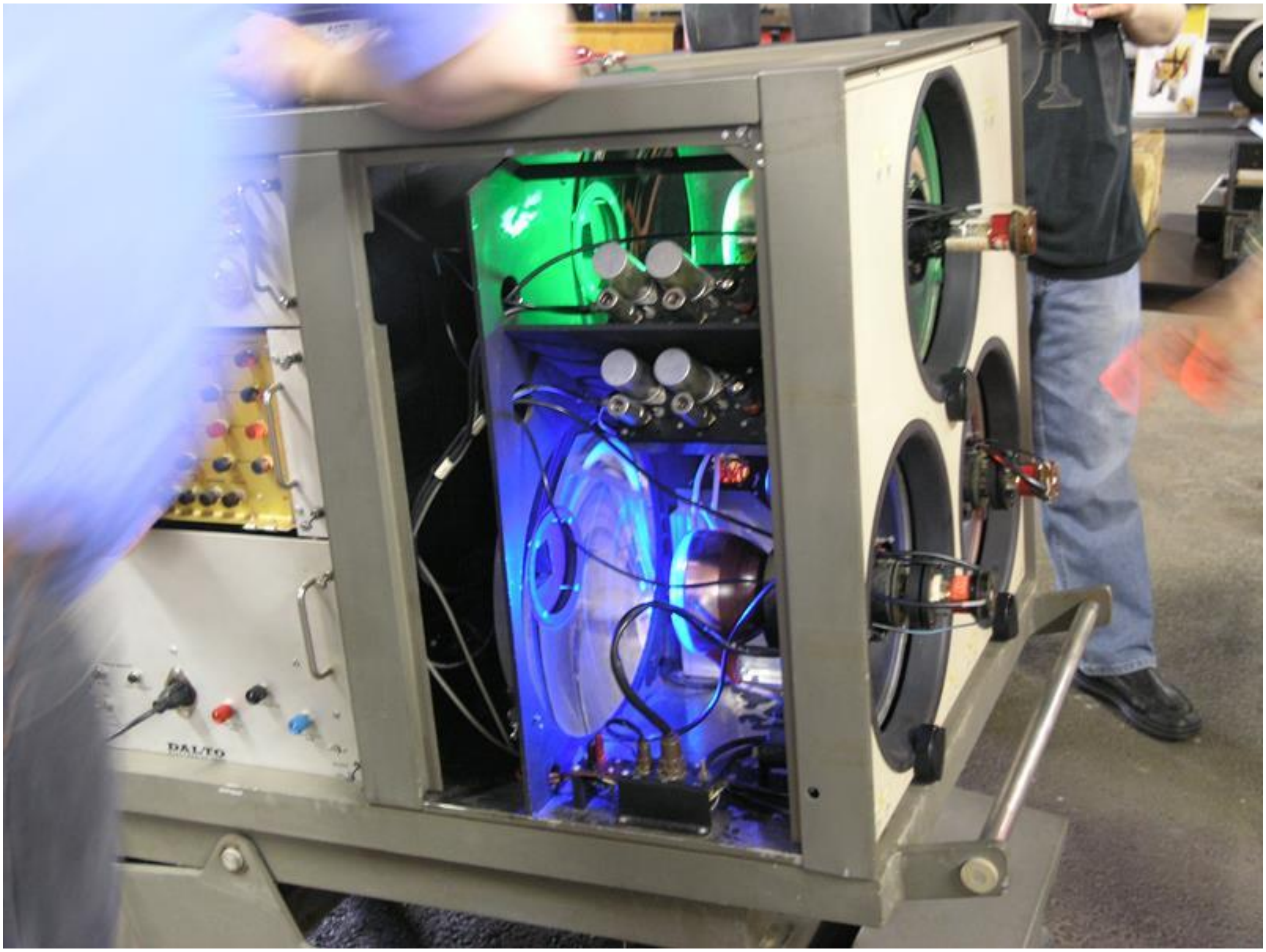

Budget
Glass


ARI Monoscope Rack
American Radio Institute


DALTO
DALTO


DALTO
2 3 4 5 6 7 8 9 10 11 12 13
DALTO


DALTO


DALTO


XEROX
this side up
fragile
Rare Earth


SYLVANIA
OFF ON VOL
FINE TUNE


64100
12/8ct
64100
Eggo
FROZEN WAFFLES
COLOR


NBC

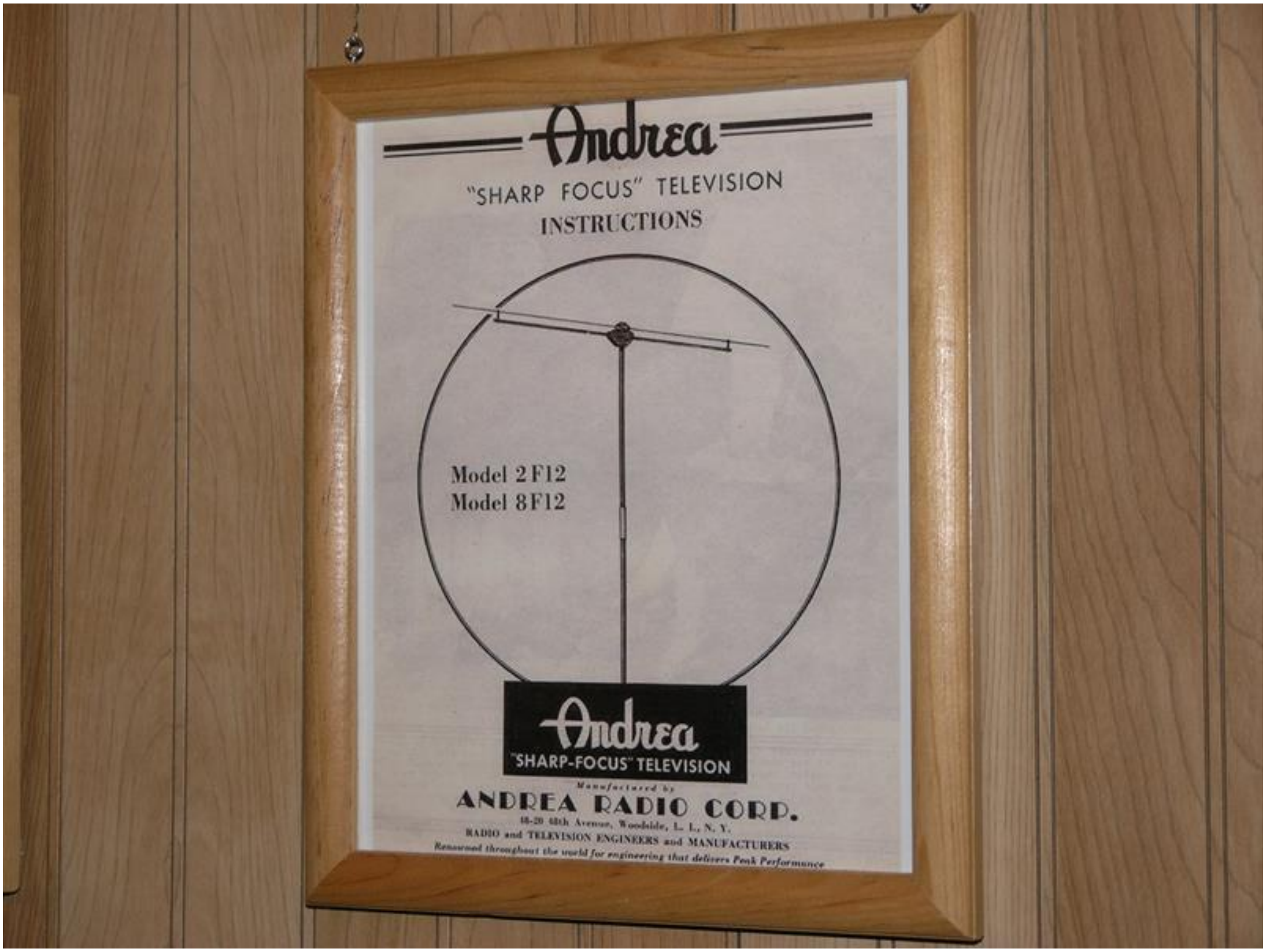

NBC

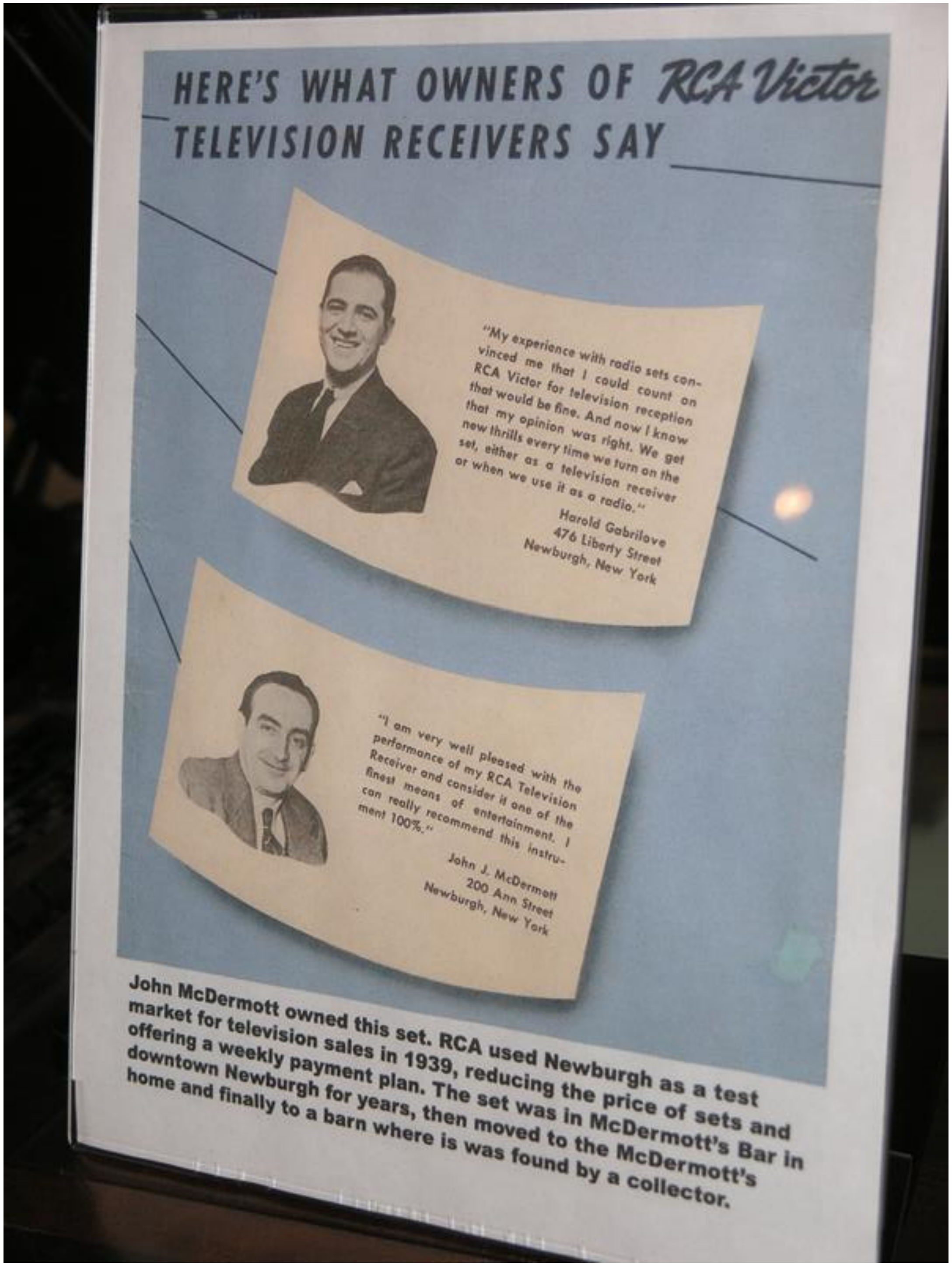

NBC


РАЗМЕР
ВЕР ЦЕНТР
ЧАСТОТА

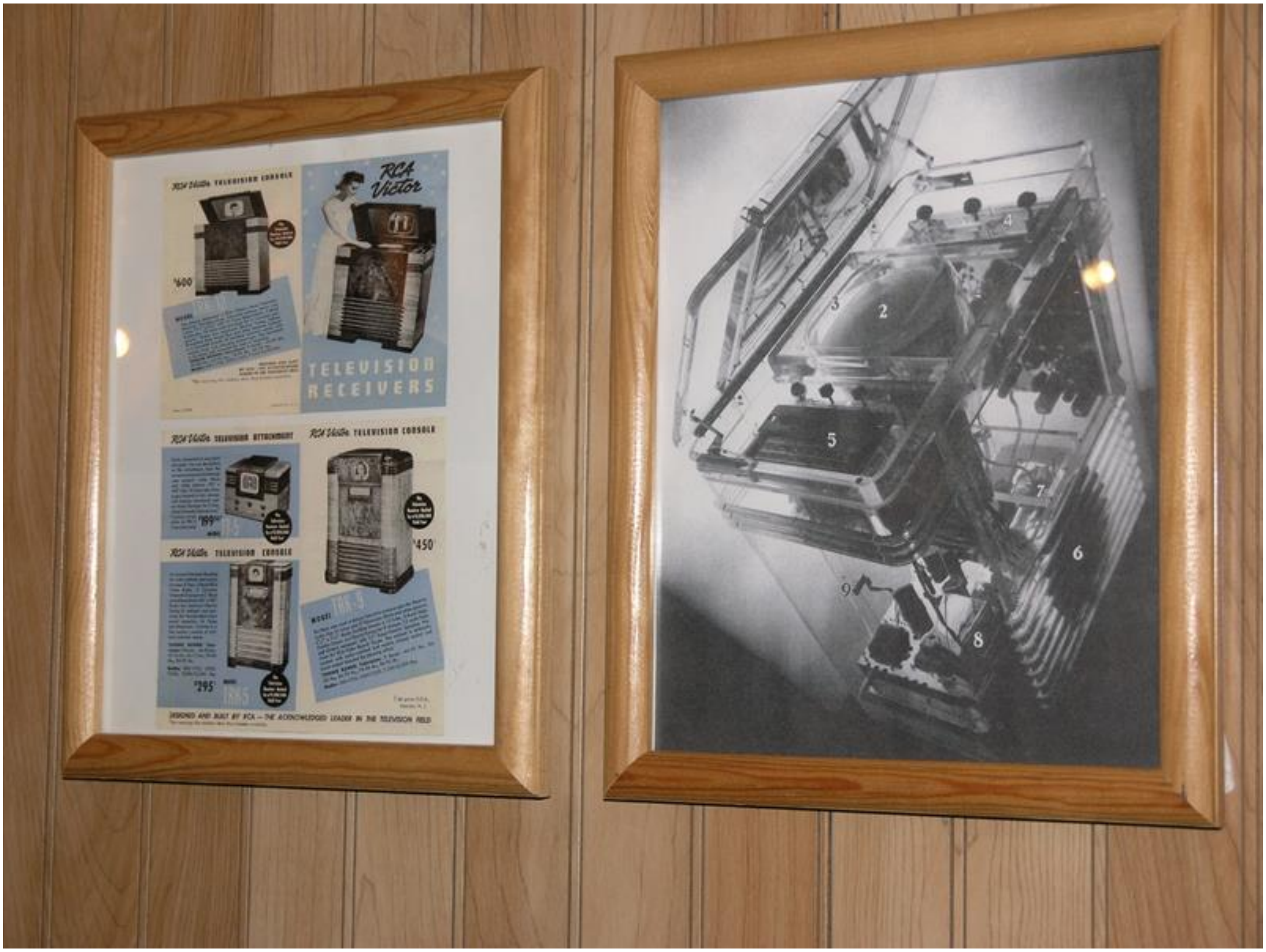

ГЛАВНОЕ УПРАВЛЕНИЕ
ЭЛЕКТРОСЛАБОТОЧНОЙ
ПРОМЫШЛЕННОСТИ


TELEVISION


Andrea
"SHARP FOCUS" TELEVISION
INSTRUCTIONS
Model 2F12
Model 8F12
Andrea
"SHARP-FOCUS" TELEVISION
Manufactured by
ANDREA RADIO CORP.
48-20 48th Avenue, Woodside, L. I., N. Y.
RADIO and TELEVISION ENGINEERS and MANUFACTURERS
Renowned throughout the world for engineering that delivers Peak Performance


HERE'S WHAT OWNERS OF RCA Victor
TELEVISION RECEIVERS SAY
"My experience with radio sets convinced me that I could count on RCA Victor for television reception that would be fine. And now I know that my opinion was right. We get new thrills every time we turn on the set, either as a television receiver or when we use it as a radio."
Harold Gabrilove
476 Liberty Street
Newburgh, New York
"I am very well pleased with the performance of my RCA Television Receiver and consider it one of the finest means of entertainment. I can really recommend this instrument 100%."
John J. McDermott
200 Ann Street
Newburgh, New York
John McDermott owned this set. RCA used Newburgh as a test market for television sales in 1939, reducing the price of sets and offering a weekly payment plan. The set was in McDermott's Bar in downtown Newburgh for years, then moved to the McDermott's home and finally to a barn where is was found by a collector.


HERE'S WHAT OWNERS OF RCA Victor
TELEVISION RECEIVERS SAY


RCA Victor TELEVISION CONSOLE
RCA Victor
TELEVISION RECEIVERS
$600
RCA Victor TELEVISION ATTACHMENT
RCA Victor TELEVISION CONSOLE
$450
RCA Victor TELEVISION CONSOLE
$295
DESIGNED AND BUILT BY RCA — THE ACKNOWLEDGED LEADER IN THE TELEVISION FIELD
1
2
3
4
5
6
7
8
9


LOOK TO G-E IN TELEVISION!
IN TELEVISION LOOK TO G-E!
CONSOLE MODEL HM-275
CONSOLE MODEL HM-225
GENERAL ELECTRIC

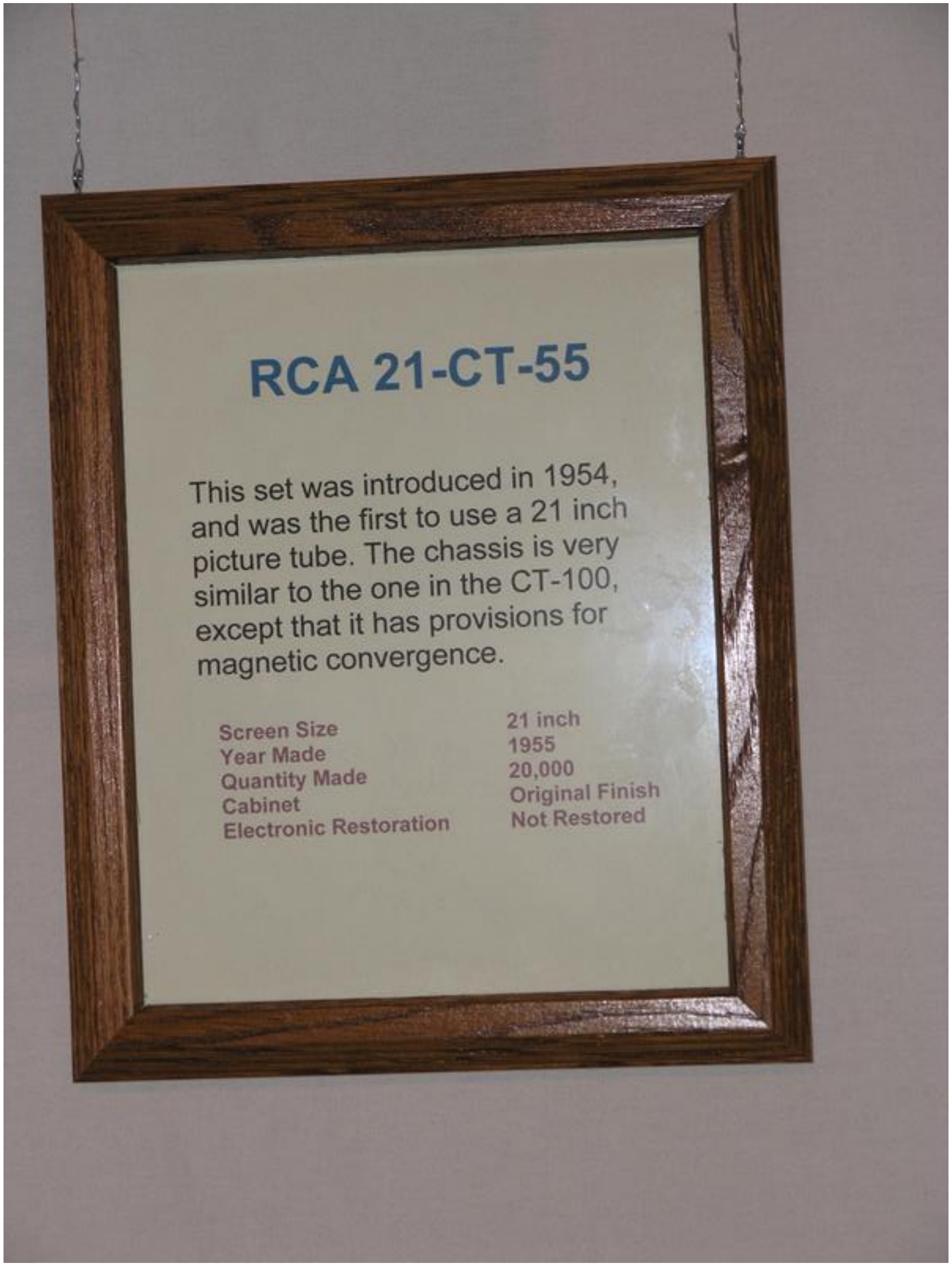

SYLVANIA

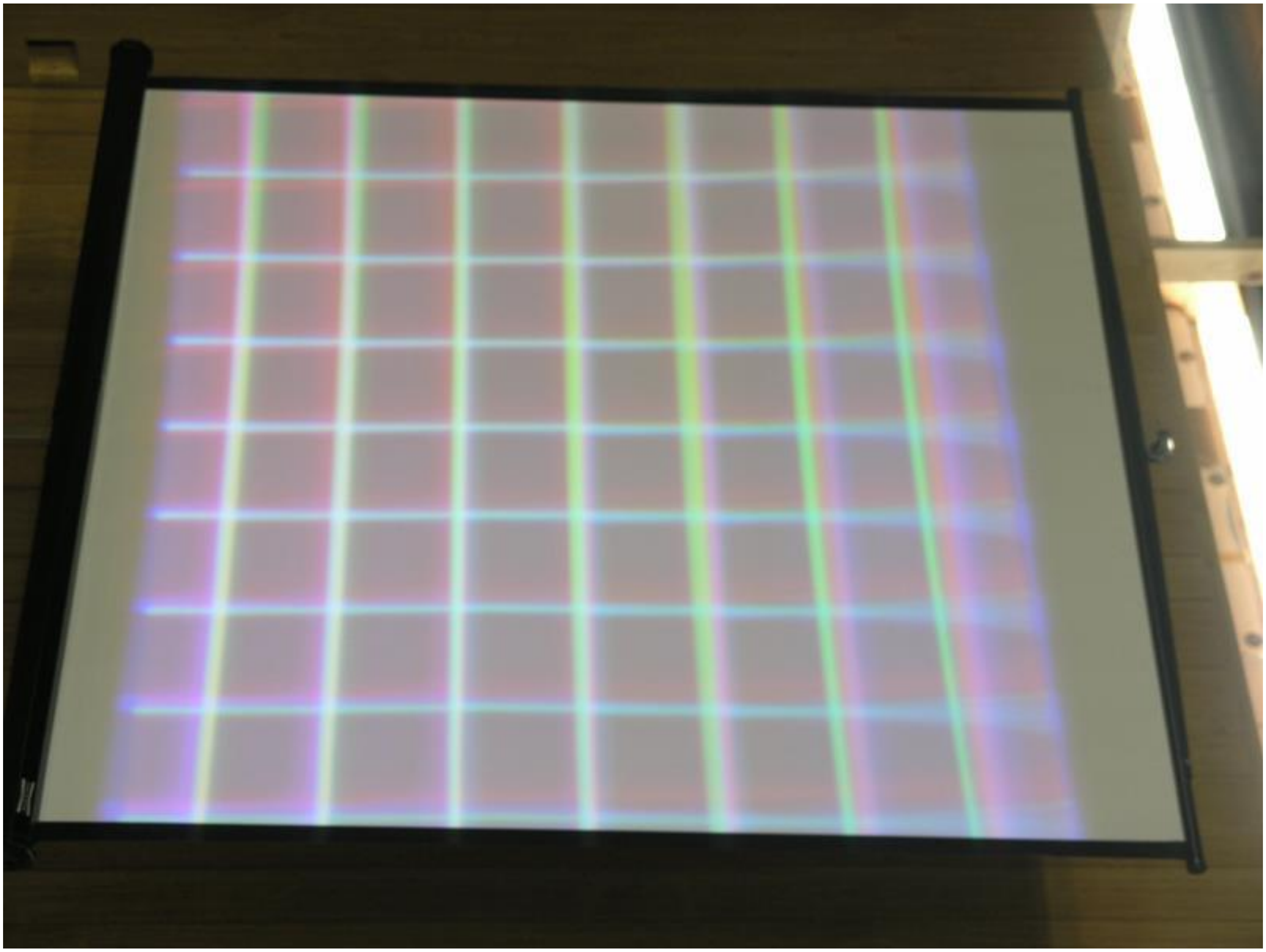

General Electric
15CL100


General Electric
15CL100
This is General Electric's first production color set, made in 1954. A very small quantity were made, using the 15GP22 CRT.

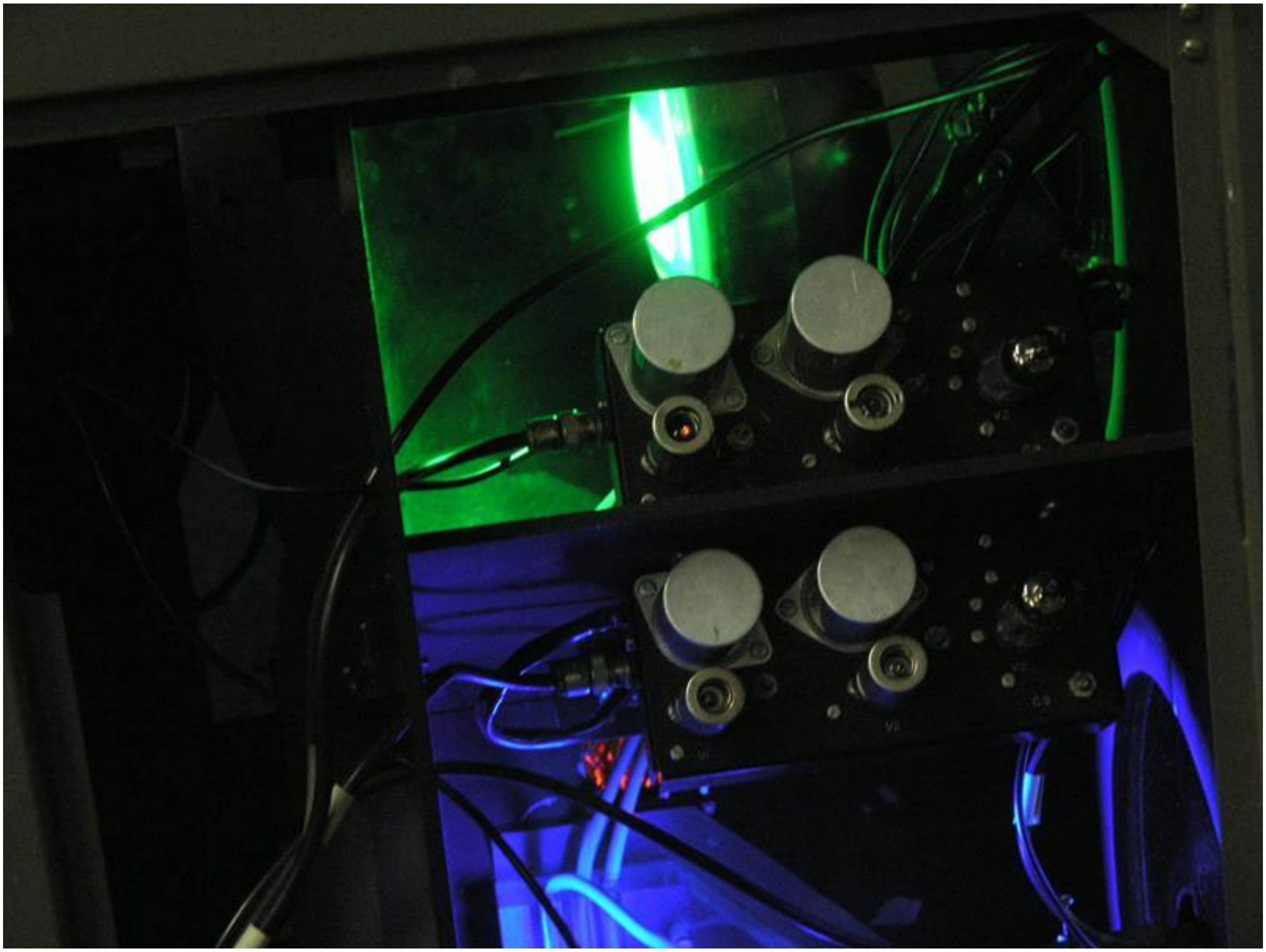

Sparton 16A211
This is Sparton's first production color set, made in 1954. A prototype version was made in 1953, using a 16 inch experimental CRT. A very small quantity of this set were made, using the 15GP22 CRT.
Screen Size
Year Made
Quantity Manufactured
Original Cost
Number Still in Existence
Cabinet
Electronic Restoration

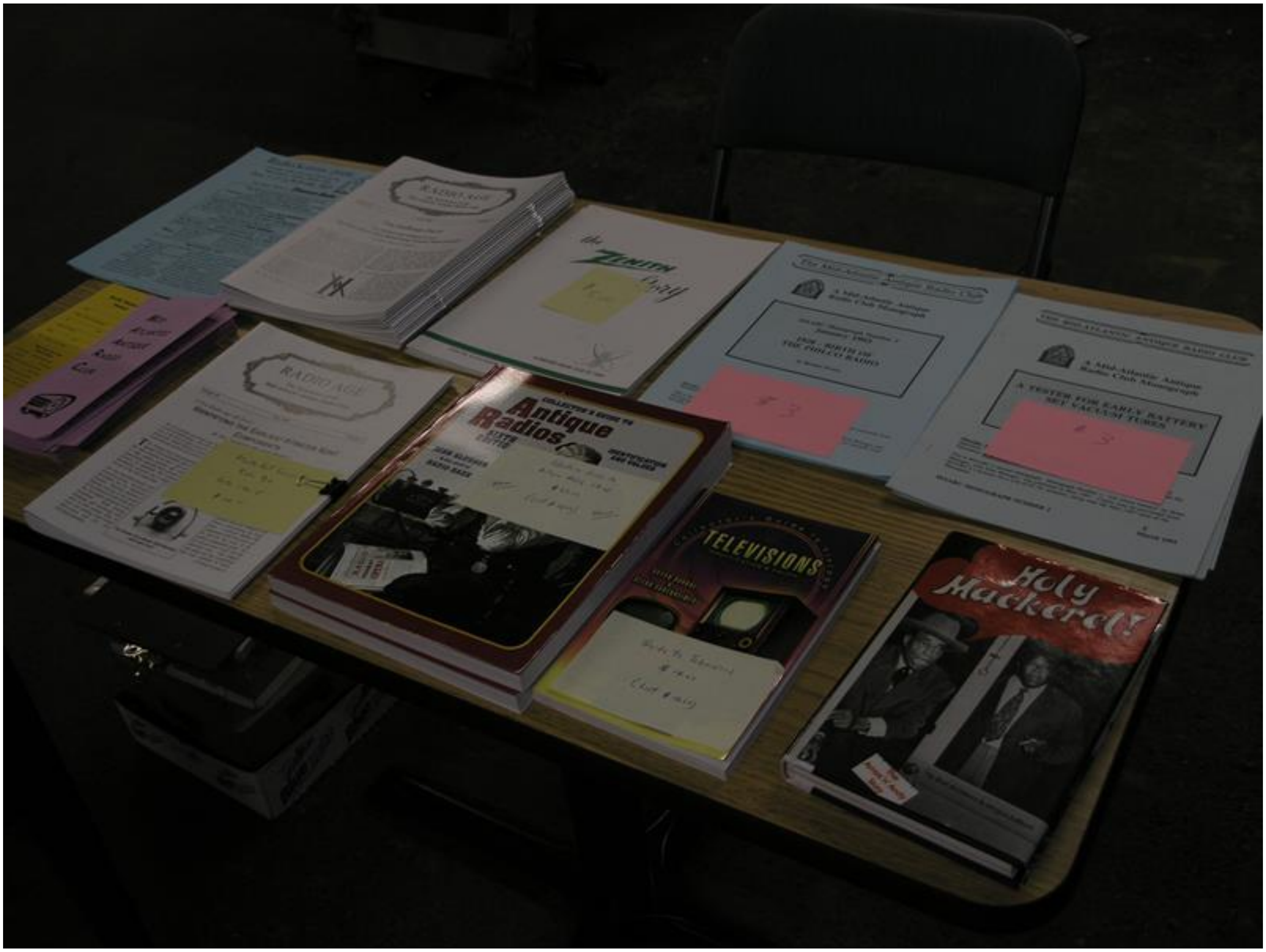
RCA 21-CT-55


RCA 21-CT-55
This set was introduced in 1954, and was the first to use a 21 inch picture tube. The chassis is very similar to the one in the CT-100, except that it has provisions for magnetic convergence.
Screen Size 21 inch
Year Made 1955
Quantity Made 20,000
Cabinet Original Finish
Electronic Restoration Not Restored




DALTO
DALTO
DALTO





RADIO AGE
ZENITH
A Mid-Atlantic Antique Radio Club Monograph
A TESTER FOR EARLY BATTERY SET VACUUM TUBES
Antique Radios
TELEVISIONS
Holy Mackerel!


Make Replacement Plugs TV/Radio
USED
RCA
tube
SYLVANIA

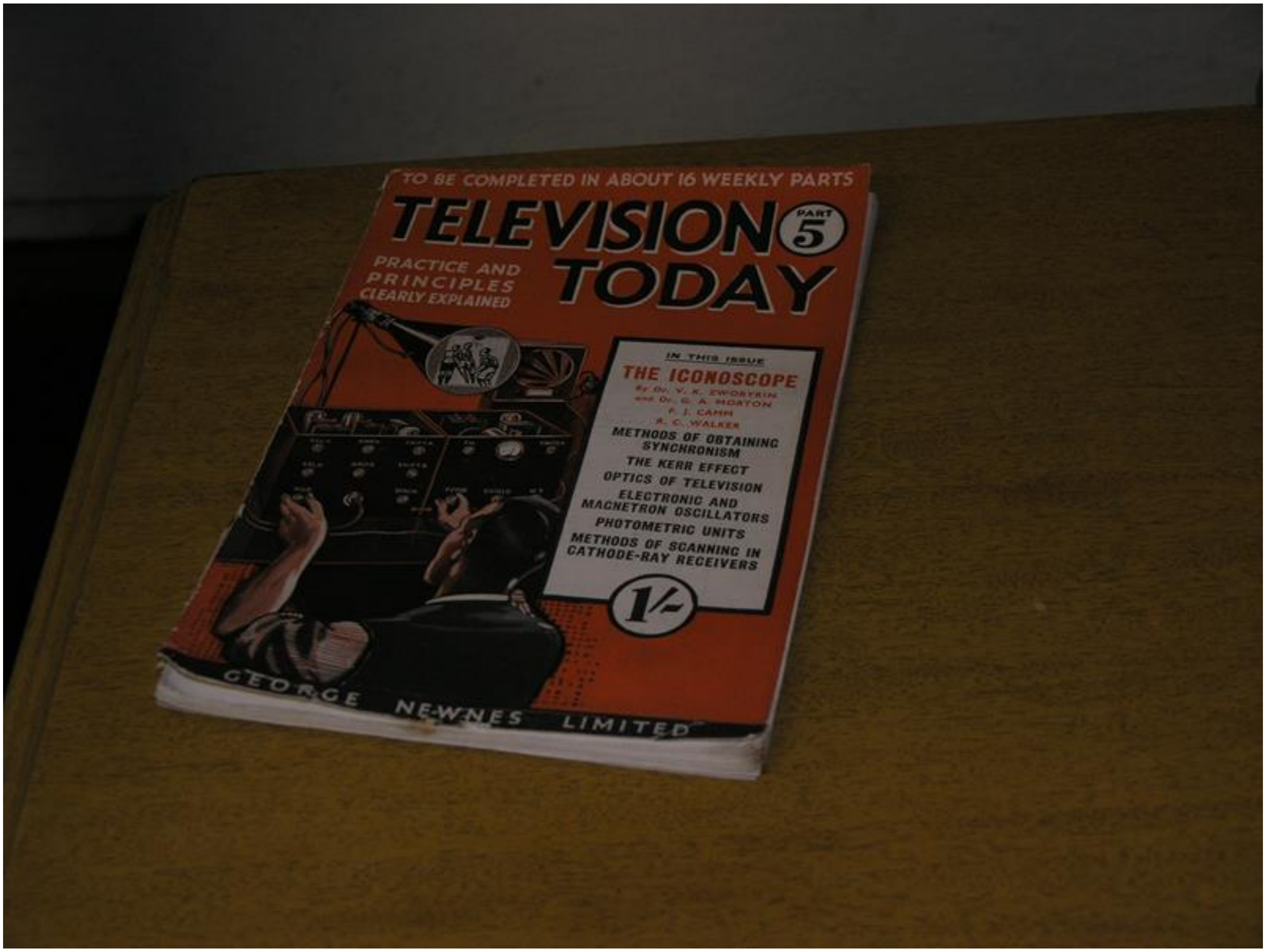

RCA


Lubriderm
SENSITIVE SKIN THERAPY
RADIO TV REPAIRS
SERVICING TV RECEIVERS
SERVICING TV RECEIVERS


RCA


Glass Cleaner
Original


TELEVISION TODAY


TO BE COMPLETED IN ABOUT 16 WEEKLY PARTS
TELEVISION TODAY
PART 5
PRACTICE AND PRINCIPLES CLEARLY EXPLAINED
IN THIS ISSUE
THE ICONOSCOPE
METHODS OF OBTAINING SYNCHRONISM
THE KERR EFFECT
OPTICS OF TELEVISION
ELECTRONIC AND MAGNETRON OSCILLATORS
PHOTOMETRIC UNITS
METHODS OF SCANNING IN CATHODE-RAY RECEIVERS
1/-
GEORGE NEWNES LIMITED


COLORSOURCE

565-0976

Life

The Columbus Dispatch

B

FIRST PERSON

Lifelong search for morels binds family to earth

BRIAN CLARK

A family's dream cast

Star of touring musical never far from his wife and sons

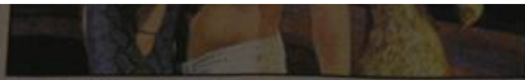
DAYTIME EMMY AWARDS

'General Hospital' extends its record

CONVENTION

Decoded discs show earliest TV images

ny of
ren for
shows.
ow, going



Cassidy with his wife, Melissa Hurley, as Mrs. Potiphar

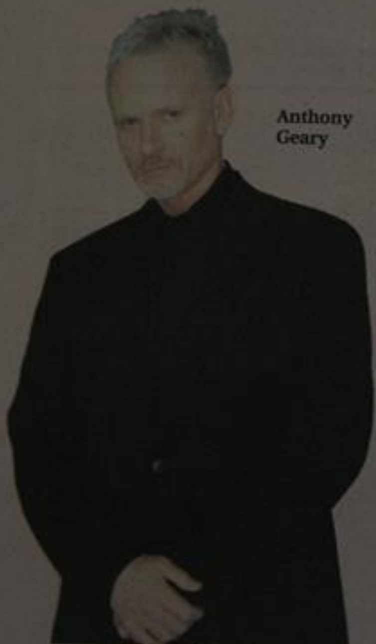
and Ticketmaster outlets (614-431-3600).

al'
'd

home of the Academy Awards.

Anthony Geary of *General Hospital* took home his fifth Emmy as lead actor, having won his first in 1982.

Guiding ...h for a ...her charac- ...menopause. ...he had ...she ...elf to be



Anthony Geary

CONVENTION

Decoded discs show earliest TV images

By Dean Narciso
THE COLUMBUS DISPATCH

The Early Television Museum in Hilliard has ancient examples of TV sets — some with spinning wheels, others with tiny fisheye screens.

Nothing there, however, is as old as the images that Don McLean, visiting from England, will show today during the Early Television Convention.

McLean found a way to convert images recorded on wax discs by a BBC engineer in the 1920s — images that no one had viewed since the day they were made.

Not even the scientist and inventor who recorded them was sure he had captured them.

With a computer, McLean translated them into moving pictures of a man

See **DISCS** Page **B4**

dark woods. Yet I hesitated to drag them out until I thought I had something worth teaching them, something to show them.

Last year, sure that I had at long last found the perfect woods, I monitored conditions closely and spent hours alone scouting.

I would rise at 5 a.m. and head into the woods each morning before work.

One beautiful Saturday morning, I felt certain that my grandmother was there with me, planning to lead me to a dream patch of mushrooms.

For hours I frantically followed anything resembling a sign, but — exhausted and crestfallen — I finally surrendered and headed home.

Empty-handed and dejected, I needed to do something productive. So I rounded up the kids to help me clear fallen limbs in the backyard.

As I reached down to grab a branch, I couldn't believe my eyes: a single, solitary sponge in a spot that defied the morel's preferred habitat.

I yelled for the girls — and bored them for the next 10 minutes, explaining all that I know about morels.

And then I realized that the moment of connection was one I'd desperately sought.

Obviously, Grandma had been with me that day after all.

She was trying to show me that I still struggle to find things even when they're right under my nose.

Brian Clark, 43, of Granville will drag his daughters out this weekend in search of morels.

JAMES D. DeCAMP | DISPATCH

Don McLean — with a "Televisor" mechanical TV set, circa 1930, produced in the United Kingdom — at the Early Television Museum in Hilliard

DISCS

FROM PAGE B1

wearing a derby and a woman thought to be holding a cigarette.

The physics graduate of the University of Glasgow in Scotland left school with a raging curiosity about electronics.

At a library in 1982, he found an LP of the sound from a video recording by John Logie Baird.

The recording had been done in 1926 on a wax disc in a London flat, using an apparatus resembling something out of Frankenstein's lab.

It was handmade of wood, with 30 lenses attached to a 5-foot wheel.

Baird lacked a machine on which to play the images he thought he had made.

So, until McLean used a computer to decode the discs, no one had actually seen them.

"It was considered a failed experiment," McLean said.

After his decoding, he realized he had watched some of the first recorded TV images.

McLean shared his news.

Soon, other people with a love of history and television offered him other wax discs.

He converted each one — including a burlesque dance line — into a three-minute video.

Today, McLean watches the BBC and other European television with a different focus.

"When people think of TV, they look at the content," he said. "I look at the quality of the picture.

"It just fascinated me that you could get, via electricity, pictures transmitted from one place to another. And I've never lost that fascination."

dnarciso@dispatch.com

▸ The Early Television Convention will take place through Sunday at the Early Television Museum, 5396 Franklin St., Hilliard. Tickets cost $25. To see clips of the earliest-known TV recordings, visit tvdawn.com.

EMMYS

FROM PAGE B1

nominated again after 10 nods.

Backstage, though, she changed her mind, saying she would withdraw her name only if other Guiding Light actresses took her place in the lead category.

"I'm at the end of my contract," Zimmer said. "Maybe the gods are intervening and saying, 'You can't leave now.' We'll see what happens."

In the category of younger actress, for performers younger than 25, Jennifer Landon of *As the World Turns* triumphed.

"Oh, boy, I have heartburn," said Landon, daughter of the late Michael Landon, who never won an Emmy.

"To my papa, thank you," she added.

A partial list of winners:

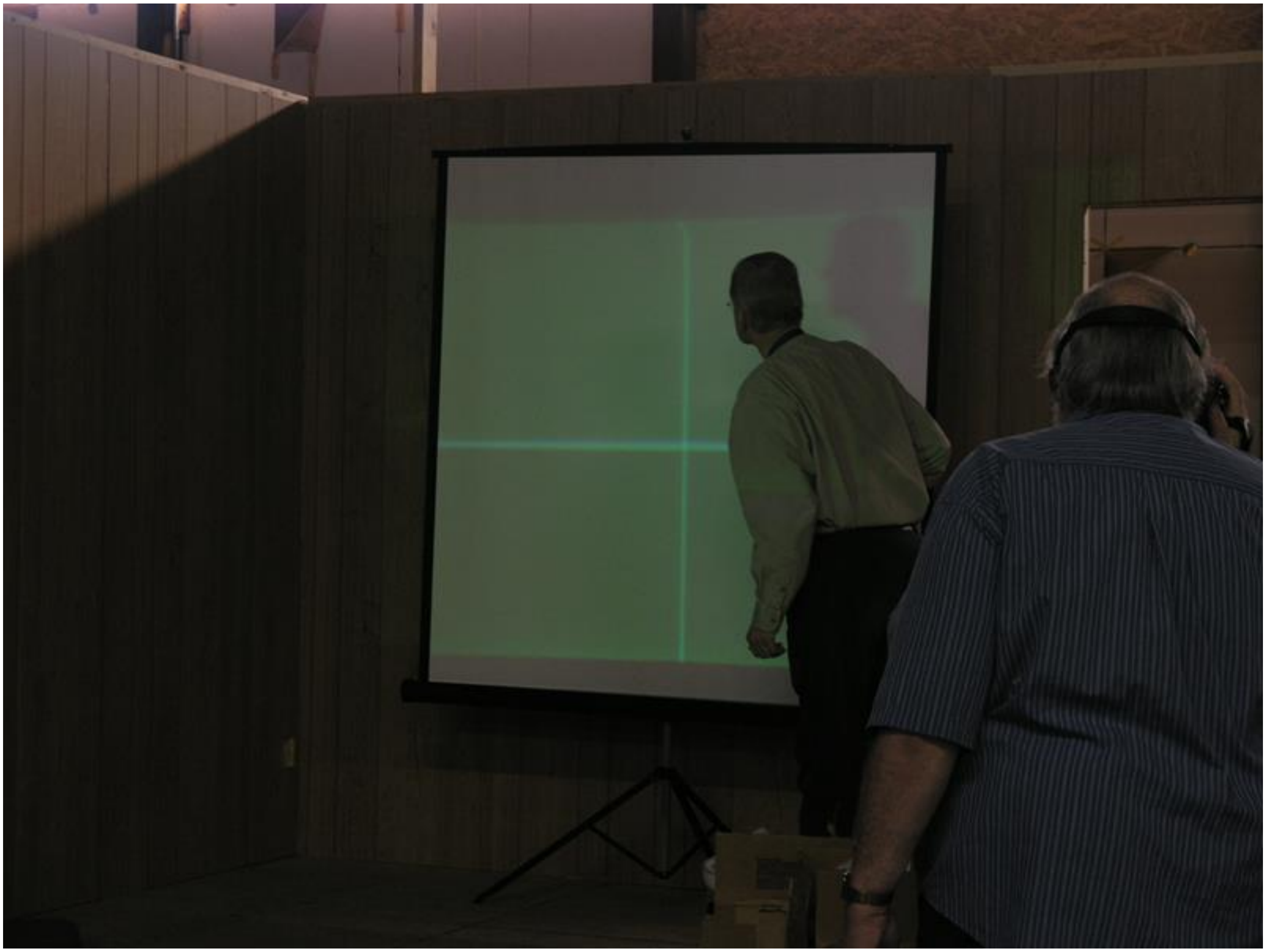
- **Drama series:** General Hospital
- **Actor:** Anthony Geary, General Hospital
- **Actress:** Kim Zimmer, Guiding Light
- **Supporting actor:** Jordan Clarke, Guiding Light.

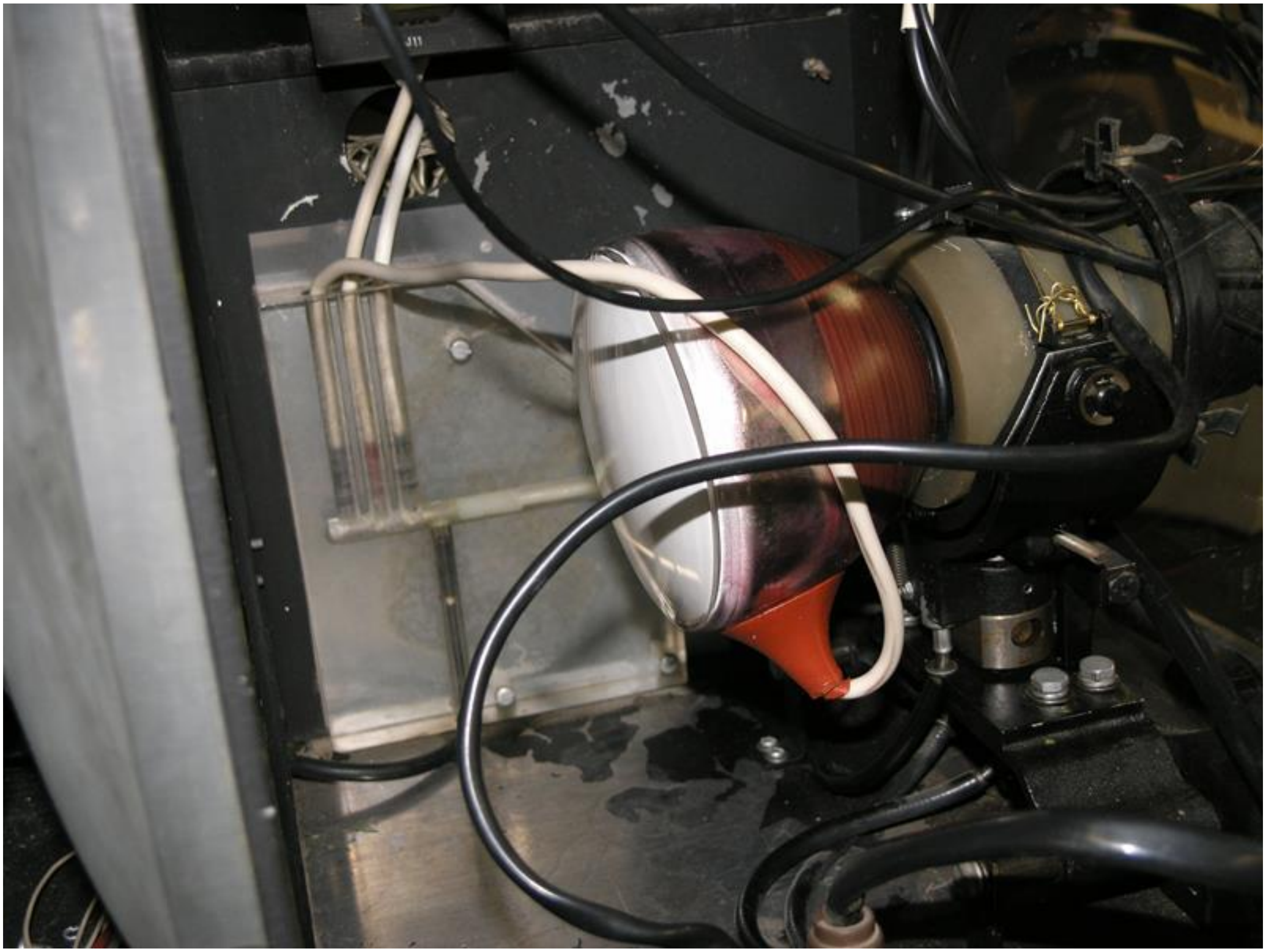
MUSIC

Dolls plan Blues Station celebration

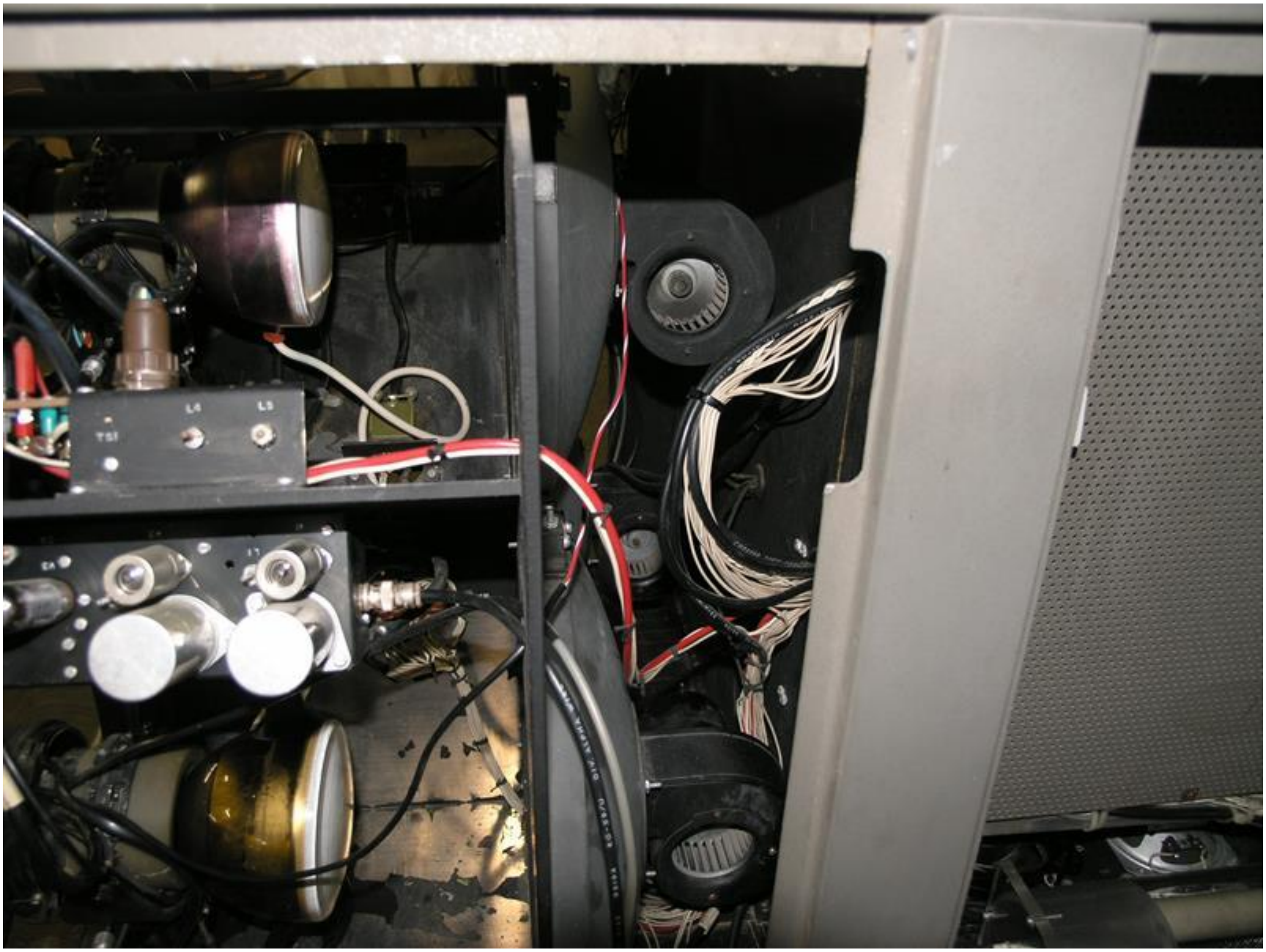
The Goo Goo Dolls are thrilled about their new album — so much so that they are partying with radio-contest winners in 21 cities.

To celebrate the release of




J11


J11



L4
L5
TS1


NOCONA BOOTS
GLASS
Glass
CATHODE RAY TUBE


4
TV 13


HERITAGE
RAIL • TRAIL


HERITAGE
RAIL • TRAIL
BIKE ROUTE

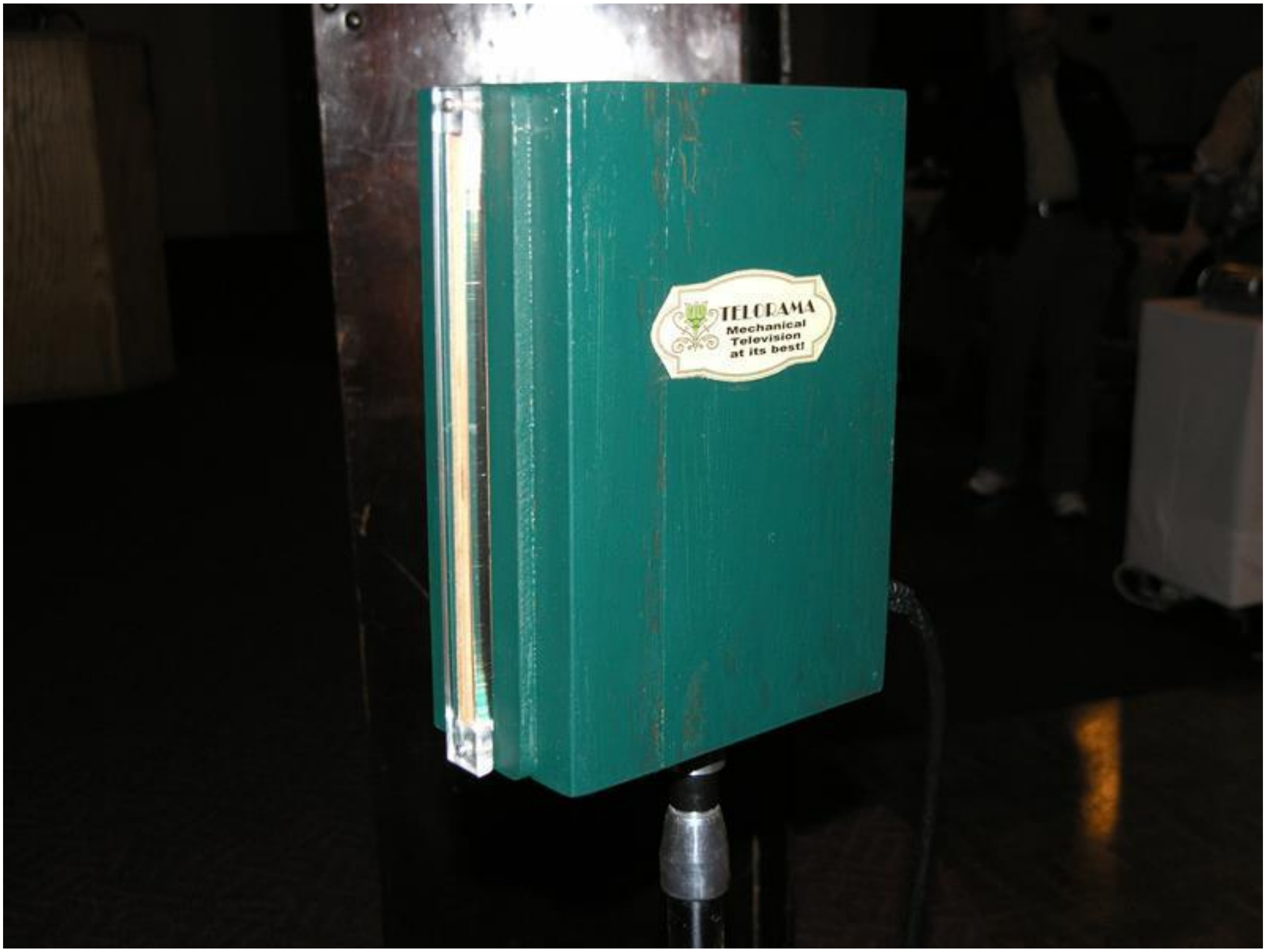

HERITAGE
RAIL • TRAIL
BIKE ROUTE

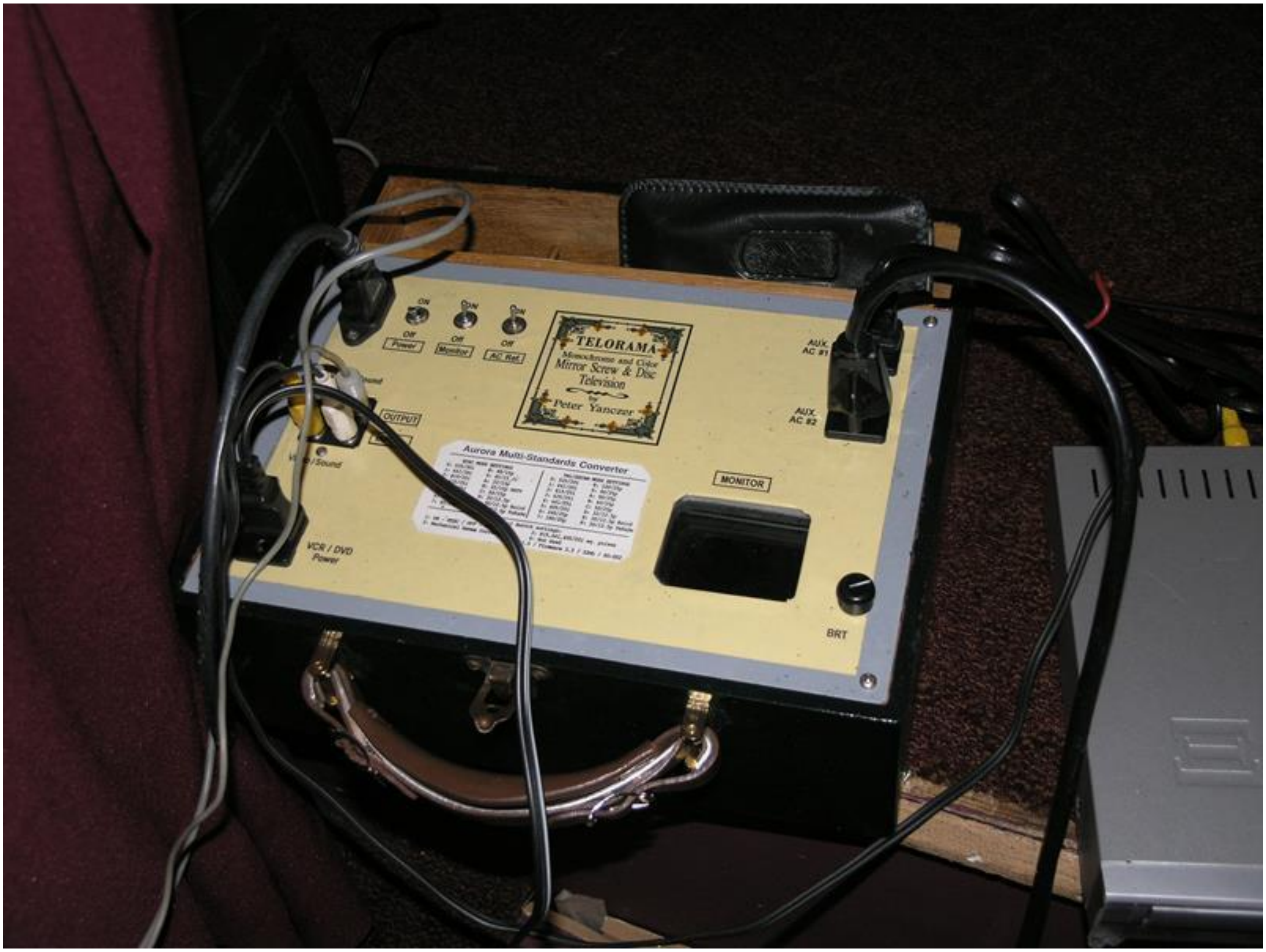
Makoy
CENTER
DROP OFFS
Burgundy
Early TV Convention
Emerald
Mezzanine
Offices
Sharp Tax & Financial

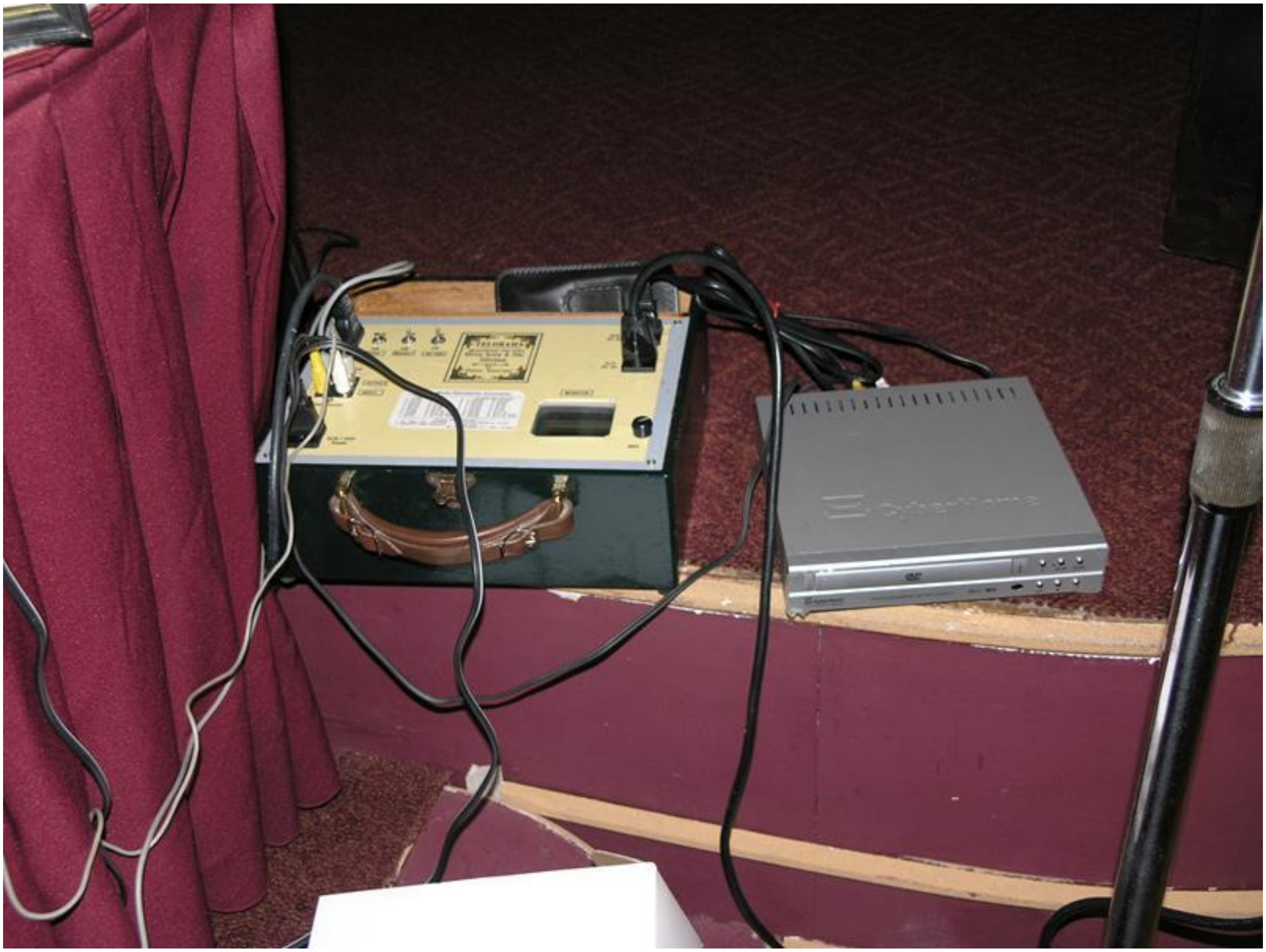

SONY
Television


Television


TELORAMA
Achtung !
ALLES TOURISTEN ODER NON-TECHNISCHEN LOOKENPEEPERS UND RADIONUTZEN. DAS MACHINE OPERATION IST OK FOR ANY DUMMKOPFEN SO USEN DER NOODEL, RELAXEN UND KEEPEN DER COTTONPICKEN HANDS IN DER POCKETS. CHUST WATCHEN DER SCANNERDISKEN, DAS SPIEGEL SCREW UND DAS FLICKEN BLINKENLIGHTS.
VEN ALLES GOES GERFLOOEY, DAS MACHINE CONTROL IST NICHT FUR GERFINGER GAPOKEN UND MITTENUNGRABBEN. ODERVISE IS EASY TO SCHNAPPEN DER SPRINGENWERK, BLOWEN DERFUSEN UND POPPEN DAS CORKEN, MIT SPITZENSPARKEN. DER MACHINE KICKEN UND SWEARENATTEN IS BY EXPERTEN ONLY. IF DER BILDEN IS NICHT GERWORKEN OR ALLES GOES GERSMOKEN OR KAPUTT, CALLEN DER MASTERTECHNISCHEN FRAULEIN. DANKE!


TELORAMA
Mechanical
Television
at its best!

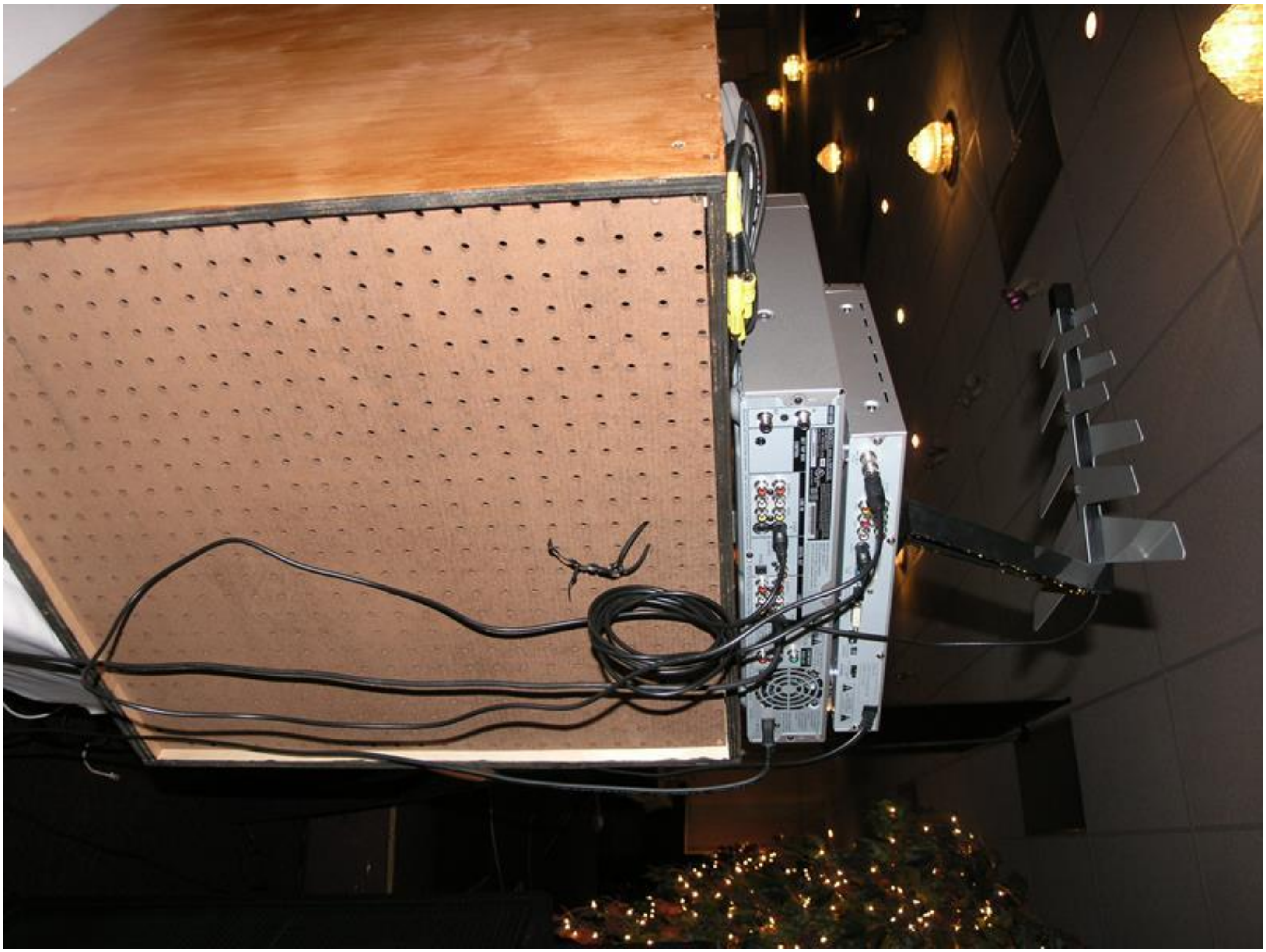

TELORAMA
Monochrome and Color
Mirror Screw & Disc
Television
by
Peter Yanczer
ON
Off
Power
Monitor
AC Ref.
OUTPUT
AUX.
AC #1
AUX.
AC #2
Aurora Multi-Standards Converter
MONITOR
VCR / DVD
Power
BRT




TELORAMA
32 Line Mechanical
Television at its best!
ALLES TOURISTEN ODER
LOOKENPEEPERS UND
MACHINE OPERATION IST
DUMMKOPFEN SO USEN DER
UND KEEPEN DER
DER POCKETS. CHUST
SCANNERDISKEN, DAS
DAS FLICKEN BLINKENLIGHT
VEN ALLES GOES
CONTROL IST NICHT FUR
UND MITTENUNGRABBEN.
TO SCHNAPPEN DER
DERFUSEN UND POPPEN
SPITZENSPARKEN. DER
SWEARENATTEN IS BY
DER BILDEN IS NICHT
GOES GERSMOKEN OR
MASTERTECHNISCHEN


SONY
Video Cassette Recor
Guest Book

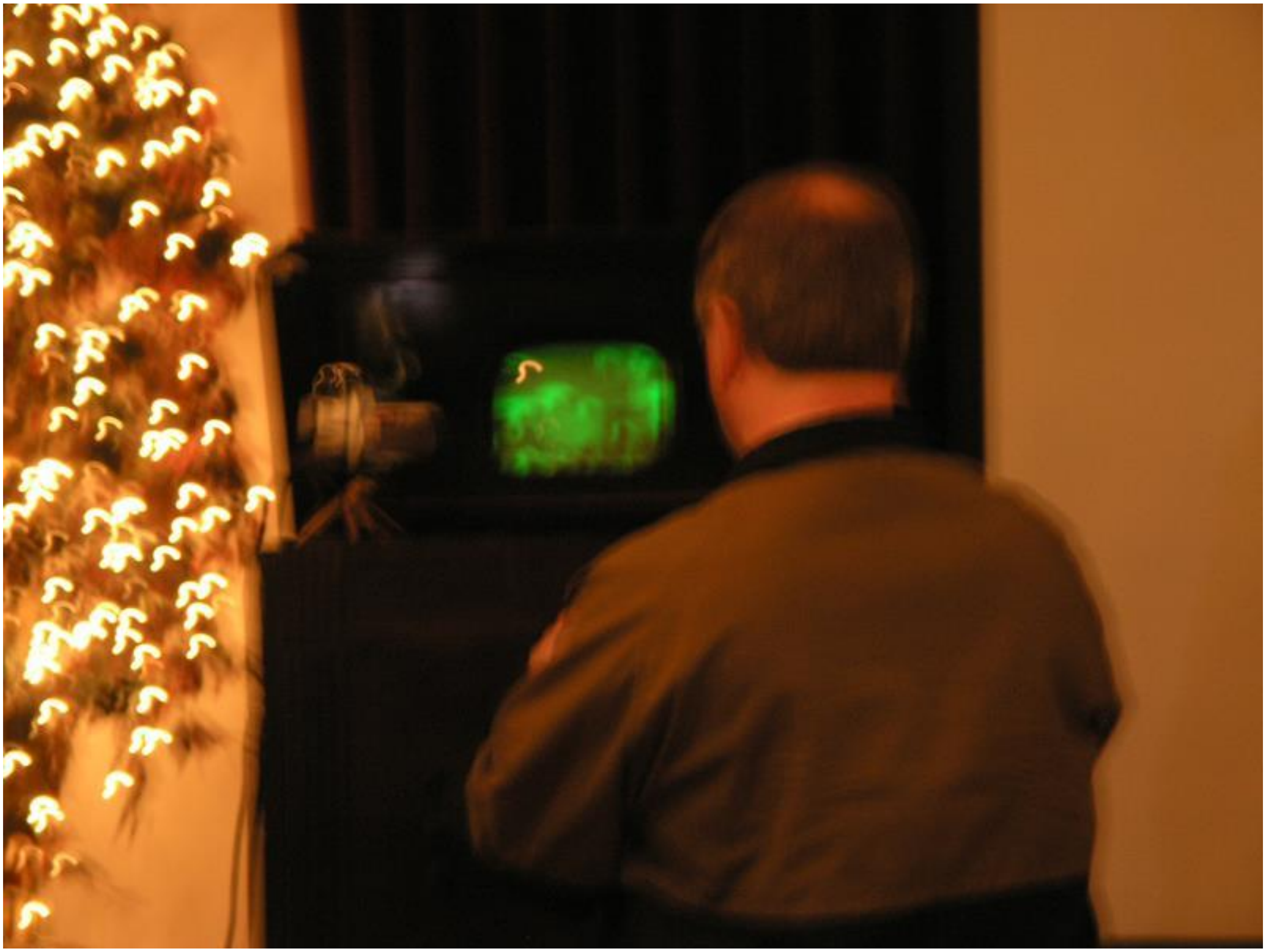

SONY
A 32 line Mirror Screw
Guest Book




The David Sarnoff Library
BROADCAST
NBC
and the Innovation of Electronic Television, 1923-1945
Patent Disclosure Book


Makoy
CENTER


Makoy



LP
1:33:09
END

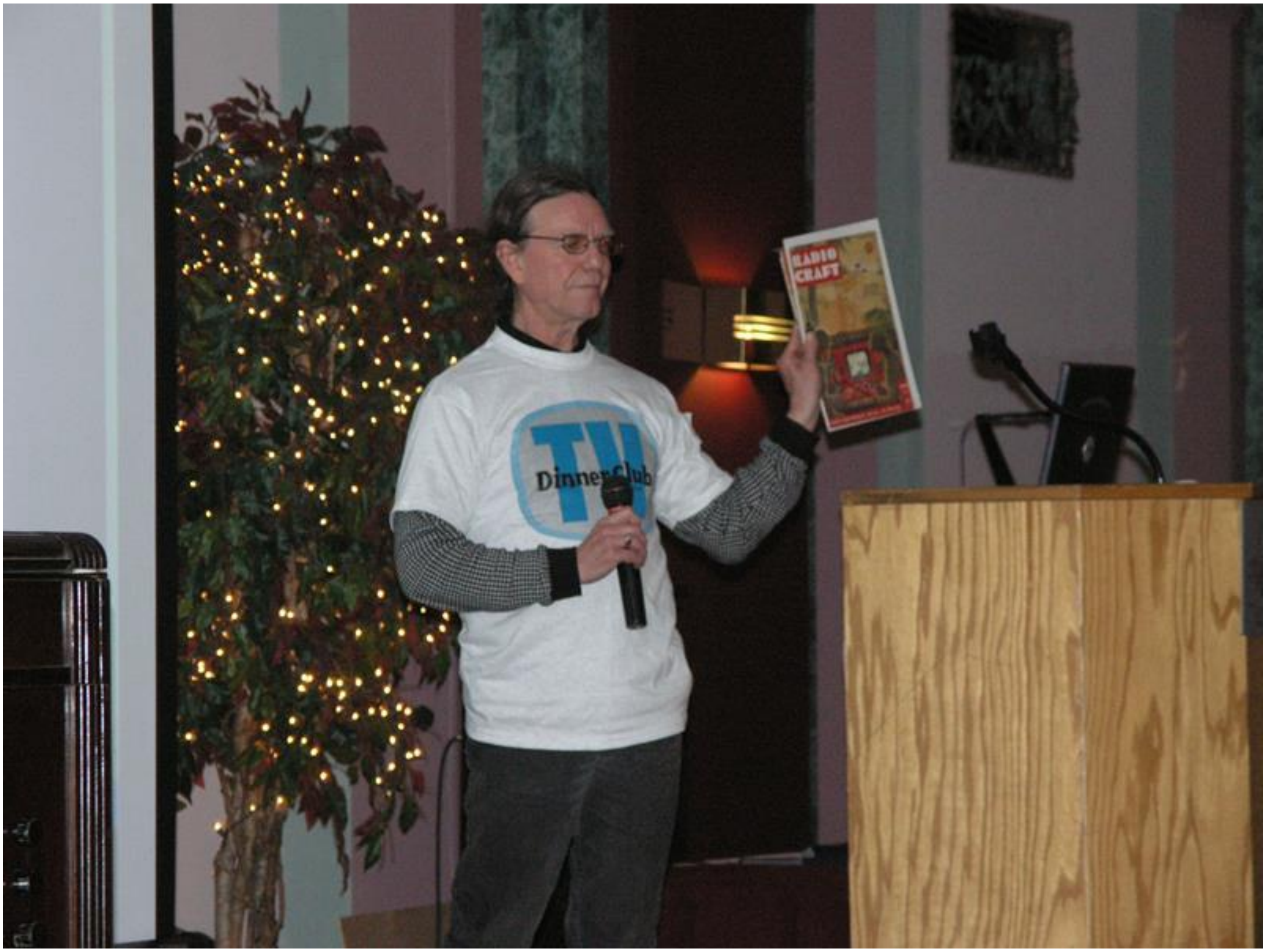

1:33:09
END


END


TV
Dinner


TV
Dinner Club


TV
Dinner Club


RADIO CRAFT
TV
Dinner Club

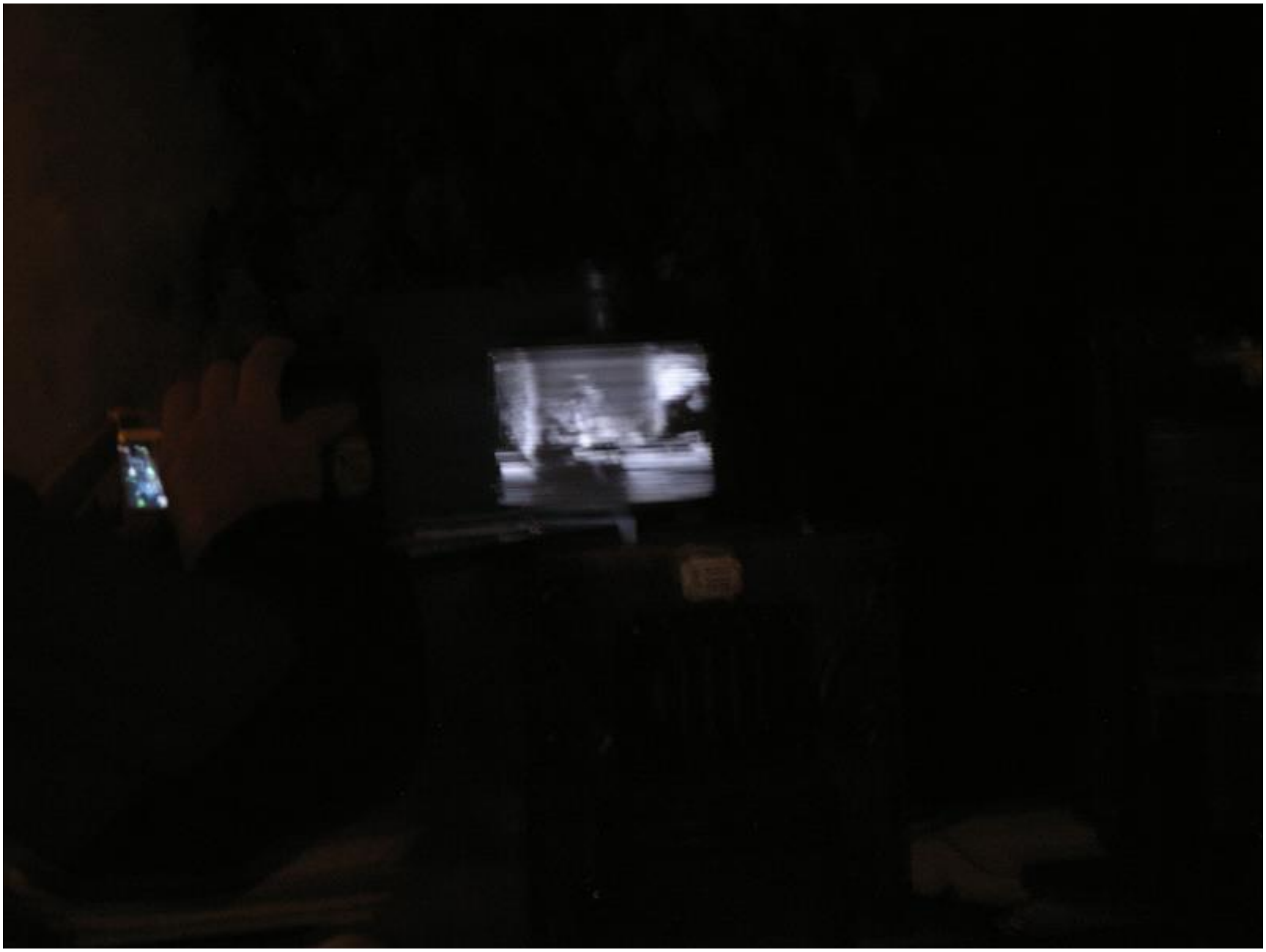

FOR FUN AND GAMES!

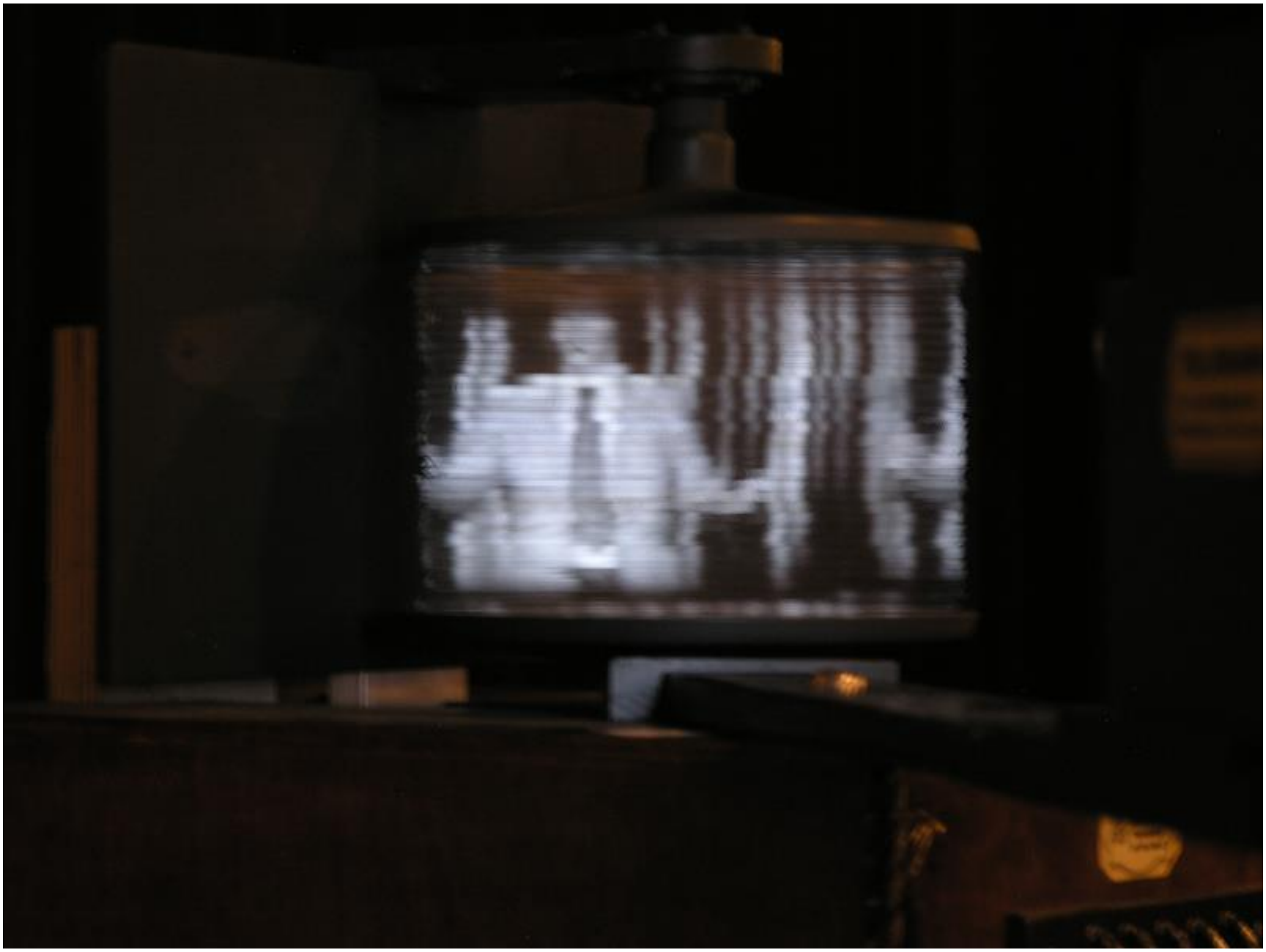

Dave Blewette
Akron, OH

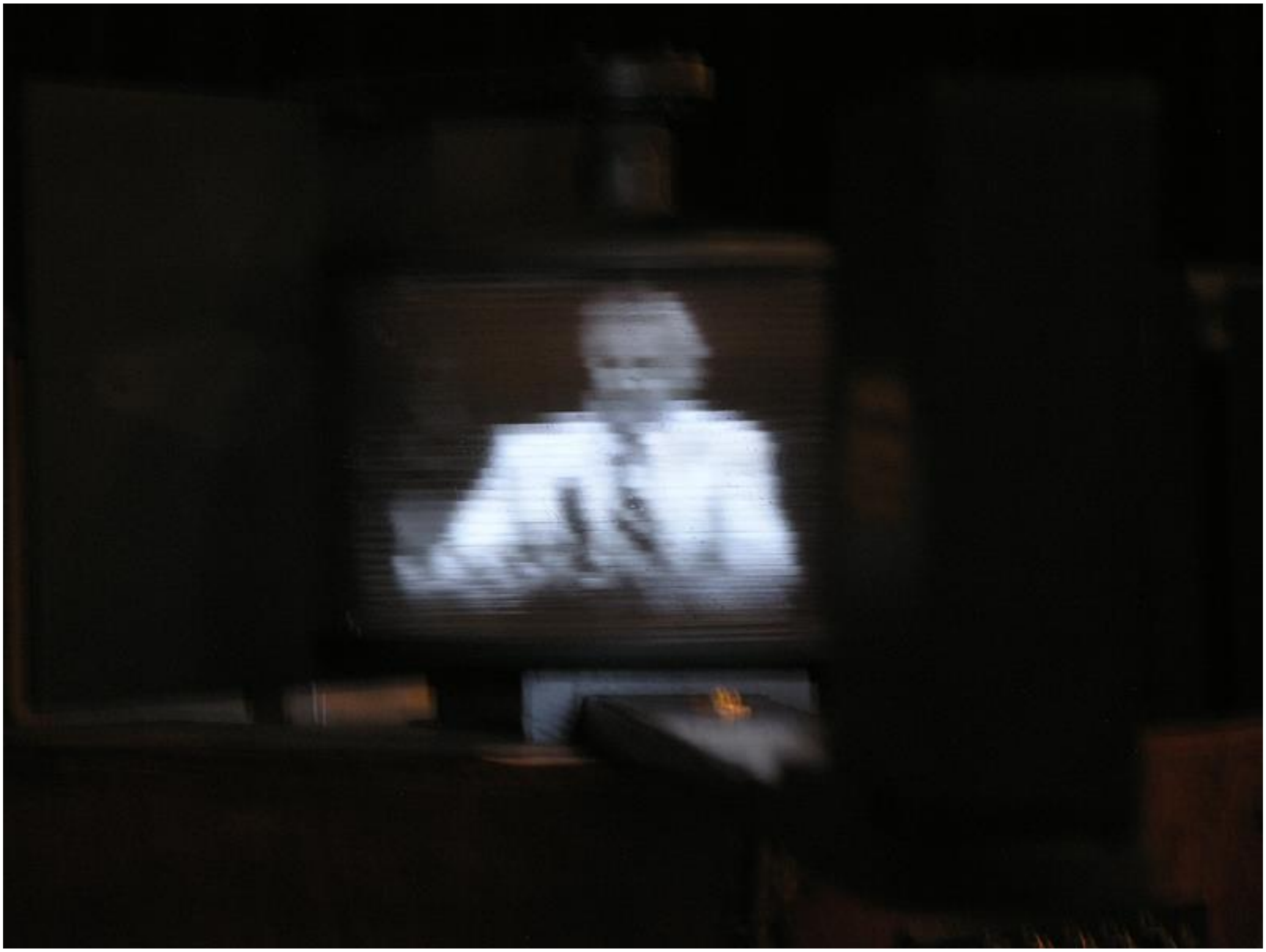

RELAX WITH
Tele-Vue
FOR FUN AND GAMES!

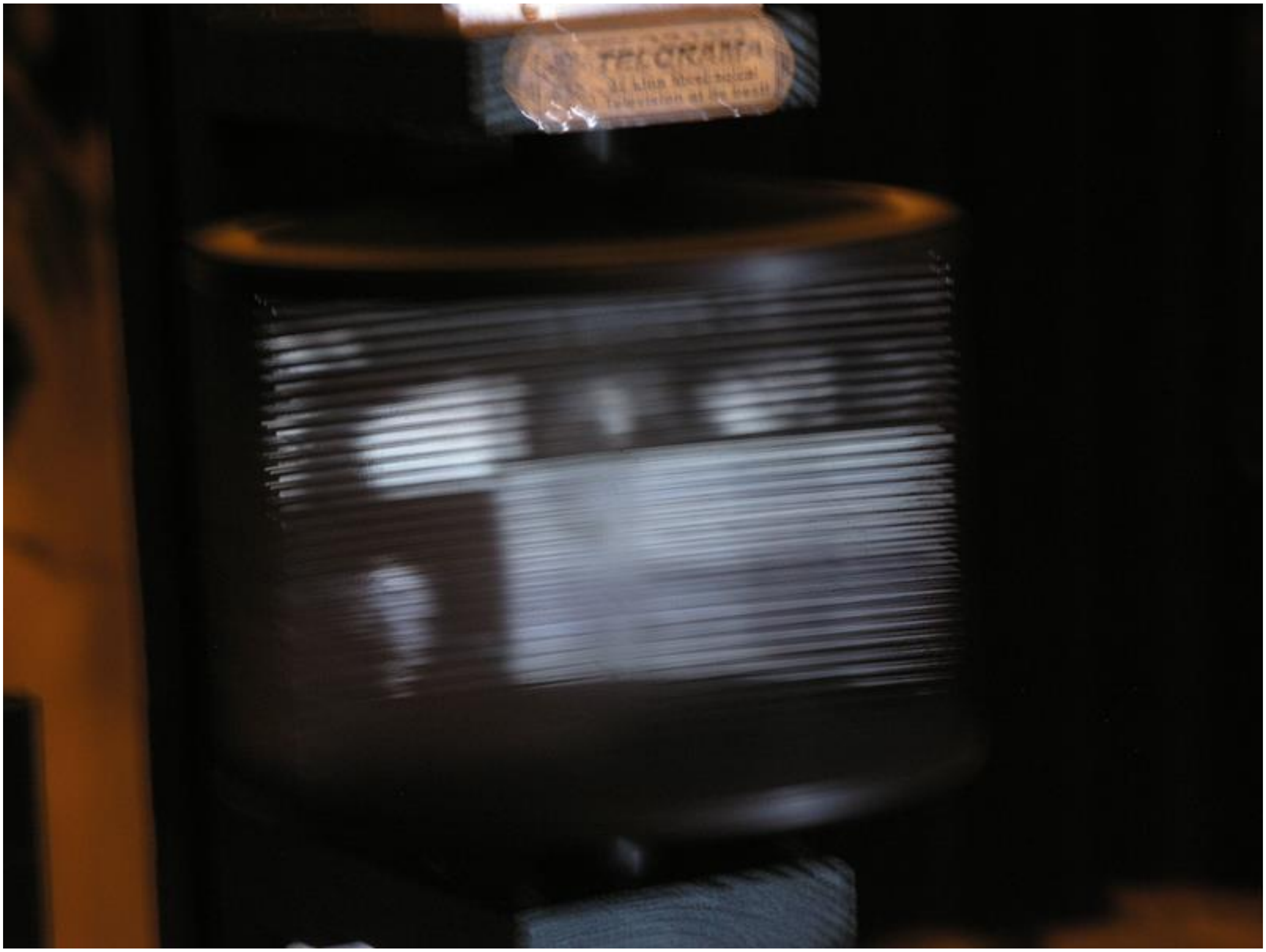

WATCH TV...
AND THE REST OF THE WORL
-WHILE LYING DOWN!
Tele-Vue
Tele-Vue
FOR FUN AND GAMES!


Achtung !



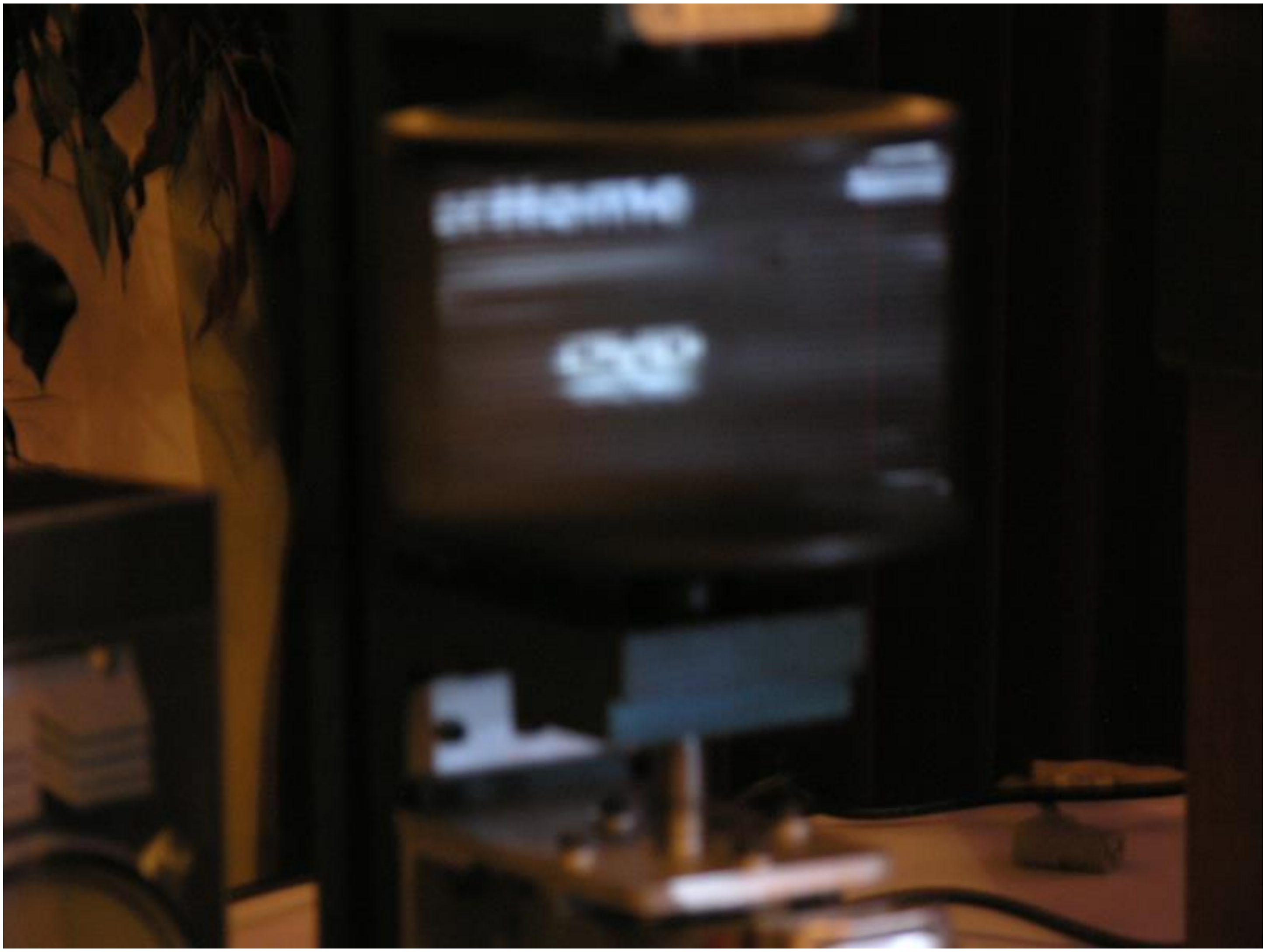




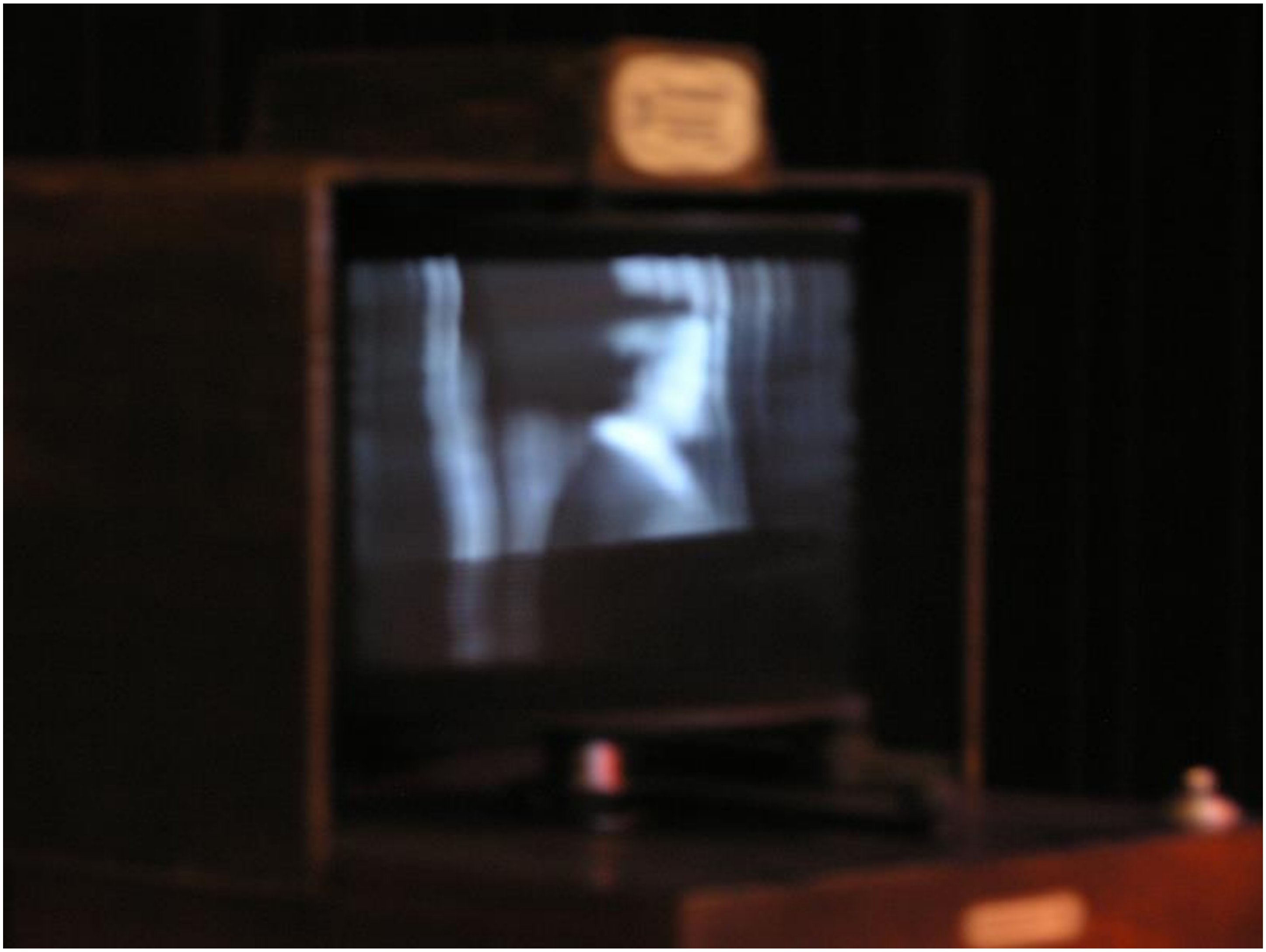



TELORAMA
32 Line Mechanical
Television at its best!

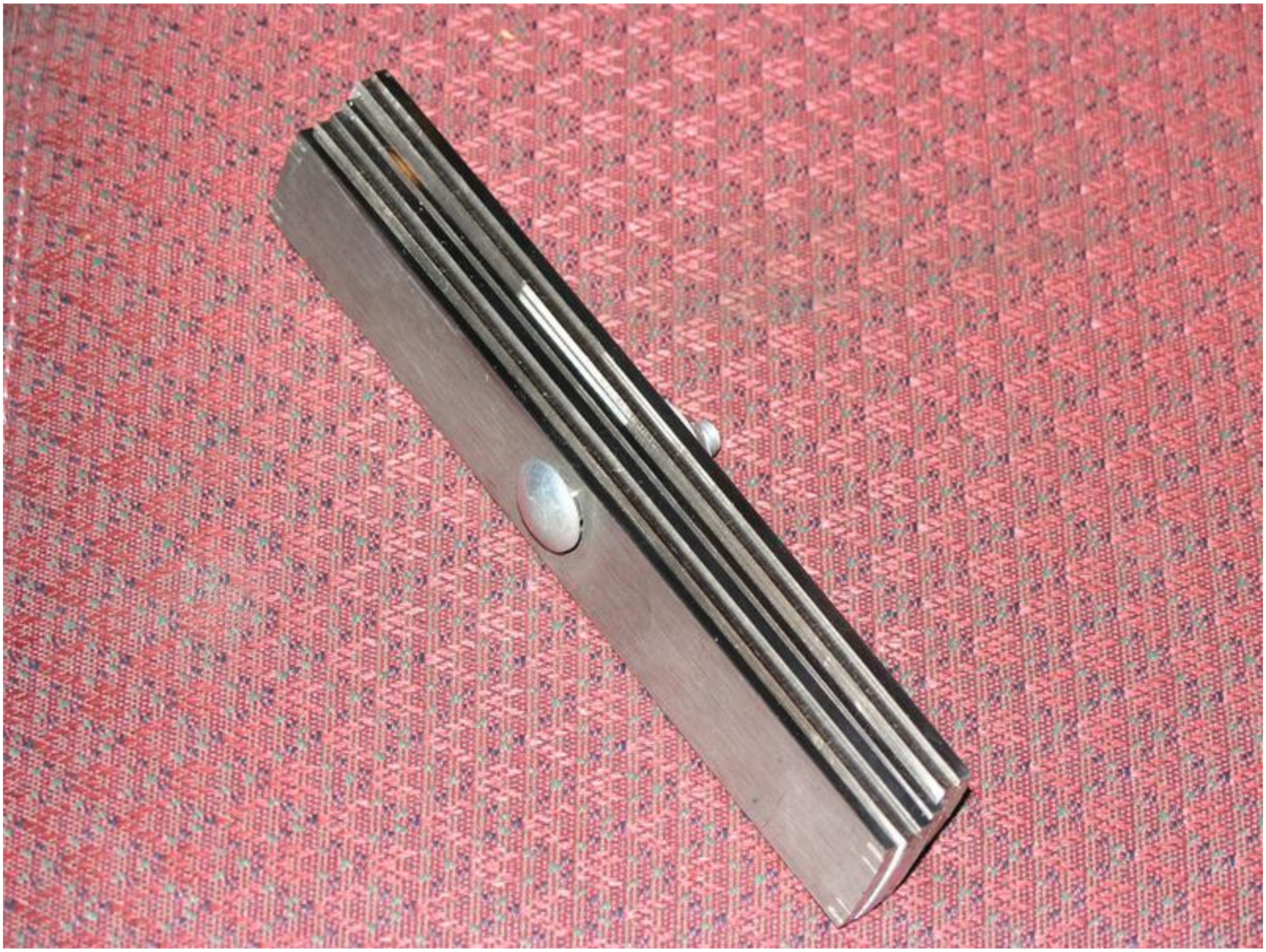

TELORAMA




TELORAMA




TELORAMA



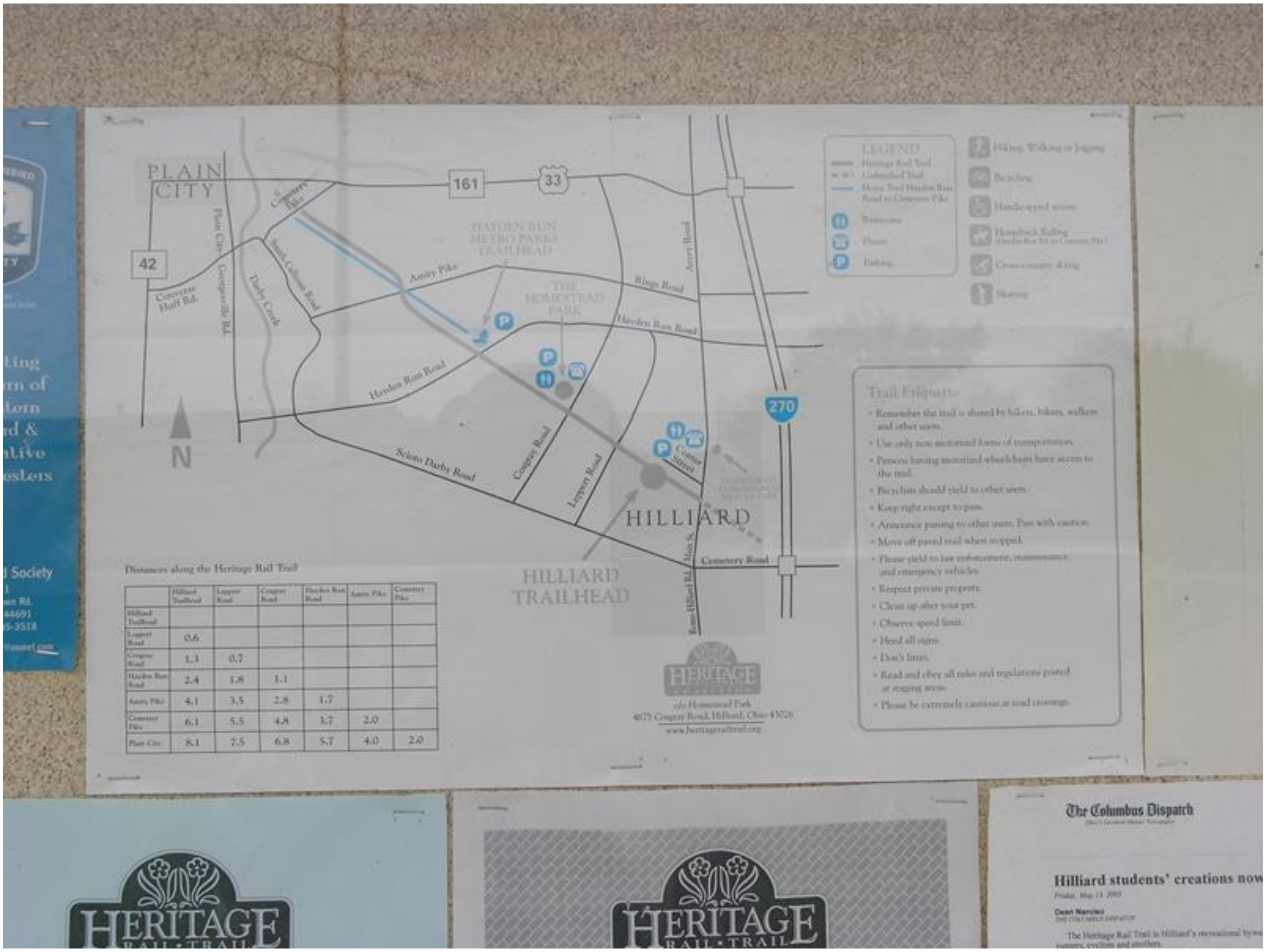

TELORAMA
Mechanical
Television
at its best!
Peter Yanczer
Presents !
Telorama
Mechanical Television
at its Best!
Contrast
Background
Off
Video Input


MAKOY
Burgundy Room
Mezzanine
Emerald Room


Burgundy
ROOM


DEDICATED THIS
19TH DAY OF AUGUST, 2000
TO THE MEMORY OF
WEBSTER D. JUNK
CHARTER MEMBER
HERITAGE
RAIL TRAIL COALITION


DEDICATED THIS
19TH DAY OF AUGUST, 2000
TO THE MEMORY OF
WEBSTER D. JUNK
CHARTER MEMBER


PLAIN CITY
161
33
42
270
HAYDEN RUN METRO PARKS TRAILHEAD
THE HOMESTEAD PARK
Amity Pike
Rings Road
Hayden Run Road
Avery Road
Scioto Darby Road
Cosgray Road
Leppert Road
Cemetery Road
Center Street
Converse Huff Rd.
Plain City Georgesville Rd.
Darby Creek
Smith-Calhoun Road
Cemetery Pike
N
HILLIARD
HILLIARD TRAILHEAD
LEGEND
Trail Etiquette
Distances along the Heritage Rail Trail
Hilliard Trailhead
Leppert Road 0.6
Cosgray Road 1.3 0.7
Hayden Run Road 2.4 1.8 1.1
Amity Pike 4.1 3.5 2.8 1.7
Cemetery Pike 6.1 5.5 4.8 3.7 2.0
Plain City 8.1 7.5 6.8 5.7 4.0 2.0
HERITAGE
The Columbus Dispatch
Hilliard students' creations now

it to appear, and return it with your $100 check to: Heritage Rail-Trail Coalition, c/o Homestead Park, 4675 Cosgray Road, Amlin, Ohio, 43002.

Student sculptures will adorn Rail Trail

■ *Un unveiling ceremony will be held Friday night.*

By MANDY YOST

Hilliard Northwest News Reporter

Mother Nature will no longer be the only artist to decorate the Heritage Rail Trail.

Hilliard Darby and Davidson high school students have spent months creating permanent art installations for the 6.1-mile trail, which stretches from Hilliard to Plain City. The works will be unveiled in a ceremony led by Mayor Don Schonhardt at 7 p.m. Friday at the trailhead off Center Street.

The most recent 11-member Leadership Hilliard class came up with the idea to have students create the sculptures, class member Colette Chandler said.

"Nothing's ever been done this big with art in Hilliard before," she said.

Chandler said Leadership Hilliard is a nonprofit group of community and business leaders that encourages leadership and civic involvement.

Darby art teacher Dara Maul said 18 students in her two sculpture classes created five wooden figures inspired by the art of Pablo Picasso. Students posed for the life-size figures, traced the shapes onto two pieces of wood and mounted each pair on a wooden post.

After treating the wood, they painted curves, stripes and angular blocks of bold reds, oranges, golds, greens and blues in a style Picasso made famous.

"They took a full week deciding what we wanted to do and what materials to use and everything," she said. "They were very thoughtful of who would be viewing the artwork. They wanted something not for them, but for the community. The kids thought (Picasso) would appeal to everyone."

Maul said the combined classes have met daily since late February to work on the pieces.

See STUDENT, *Page 2A*

Hilliard Davidson junior Dayra Vasquez (right) shows off one of the sculptures she and other Davidson and Darby art students created for the Heritage Rail Trail. Admiring it is Davidson junior Leah Foreman (left), who takes a ceramics class but didn't work on the project.

STUDENT

Continued from Page 1A

"The kids were thrilled about having their work displayed in an outdoor space," she said. "I had kids coming in this past Saturday, which was their prom day, to work on them."

Any Darby-Davidson rivalries were put aside to work on the project, said Maul and Davidson art teacher Jon Horn.

Horn's 12 students were inspired by Vincent Van Gogh's depictions of cypress trees. They sculpted clay into five coiled cone shapes ranging from 4½ feet to 6 feet 3 inches tall.

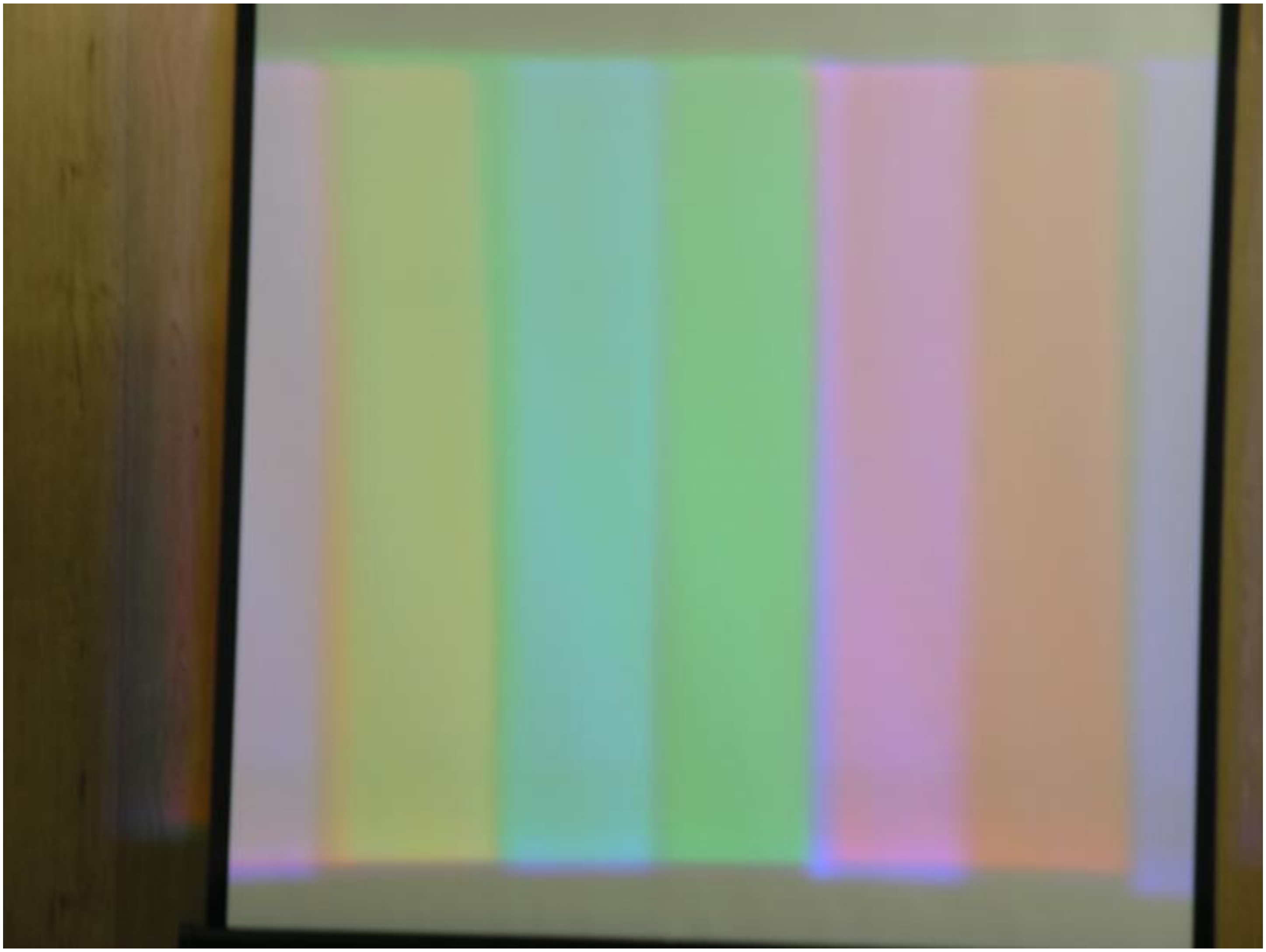
Students finished the pieces by painting them in subtle, multilayered shades of orange, blue, pink and green.

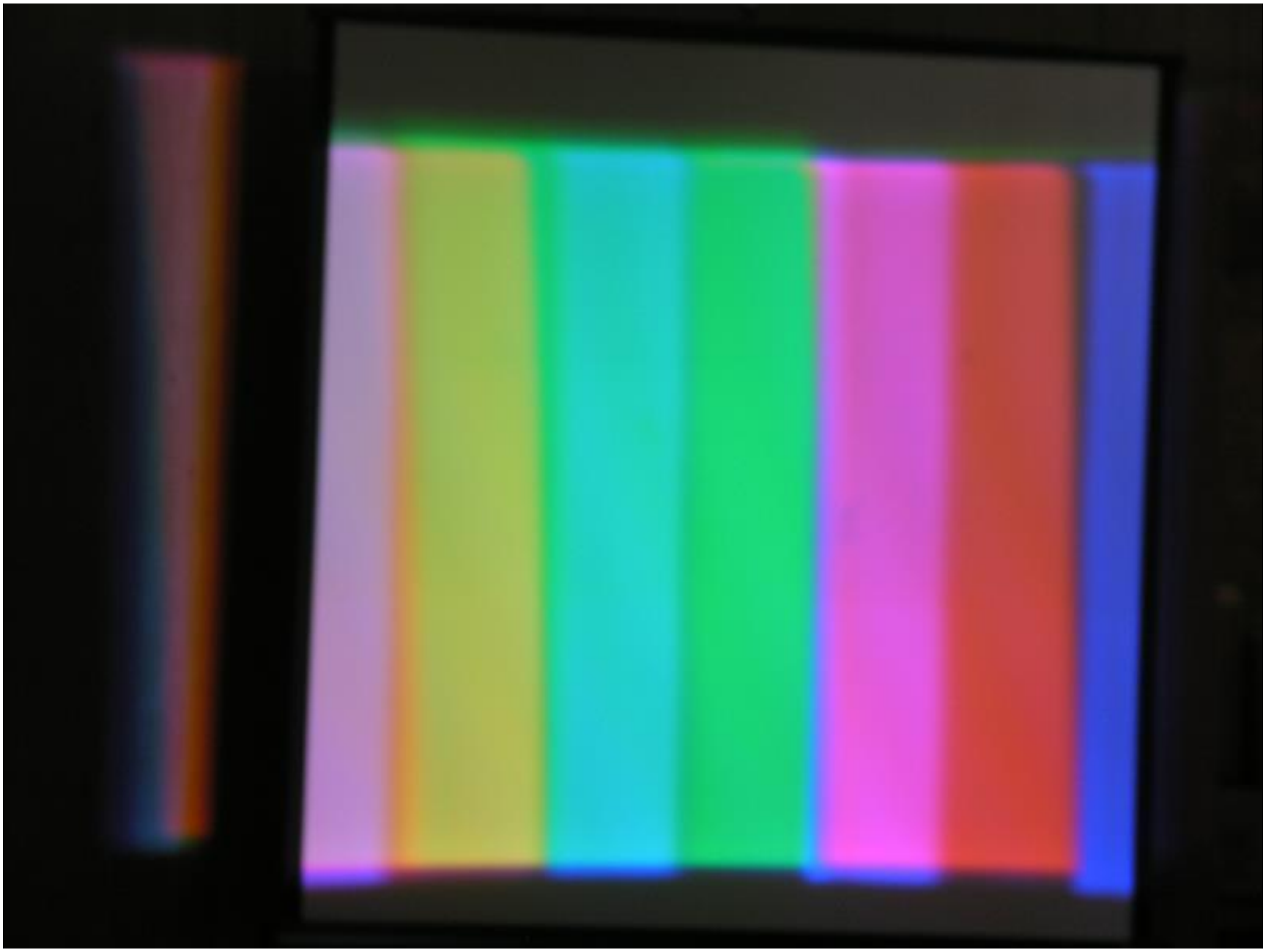
"I really feel this is one of the first times we, as a district, have given back to the community with something permanent like this," Horn said.

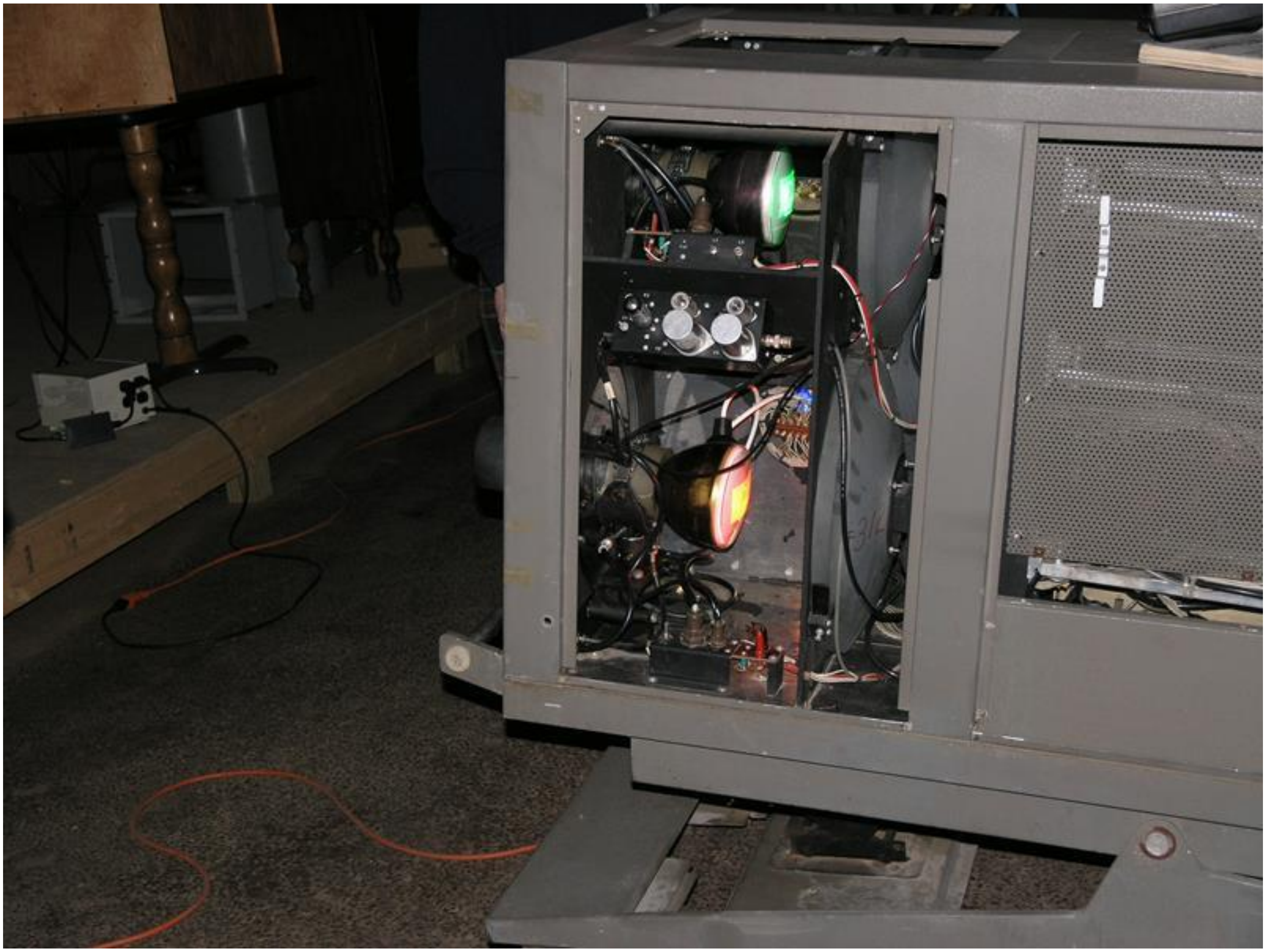
Maul and Horn shared pictures of each school's progress with their classes, but the students did not see the others' work in person until the pieces were placed at the site Monday. Both teachers said their students feared the others' creations would be better, but they ended up complimenting each other when they saw the works.

Friday's unveiling ceremony is open to the public. The Makoy Center, 5462 Center St., will offer food, and the Piano Gallery will provide music.


MAKOY
DROP OFFS
Burgundy
Higher Ground
Assembly Dinner
Emerald
Jonathan
Alder Prom
Mezzanine
Offices
Early TV
Convention



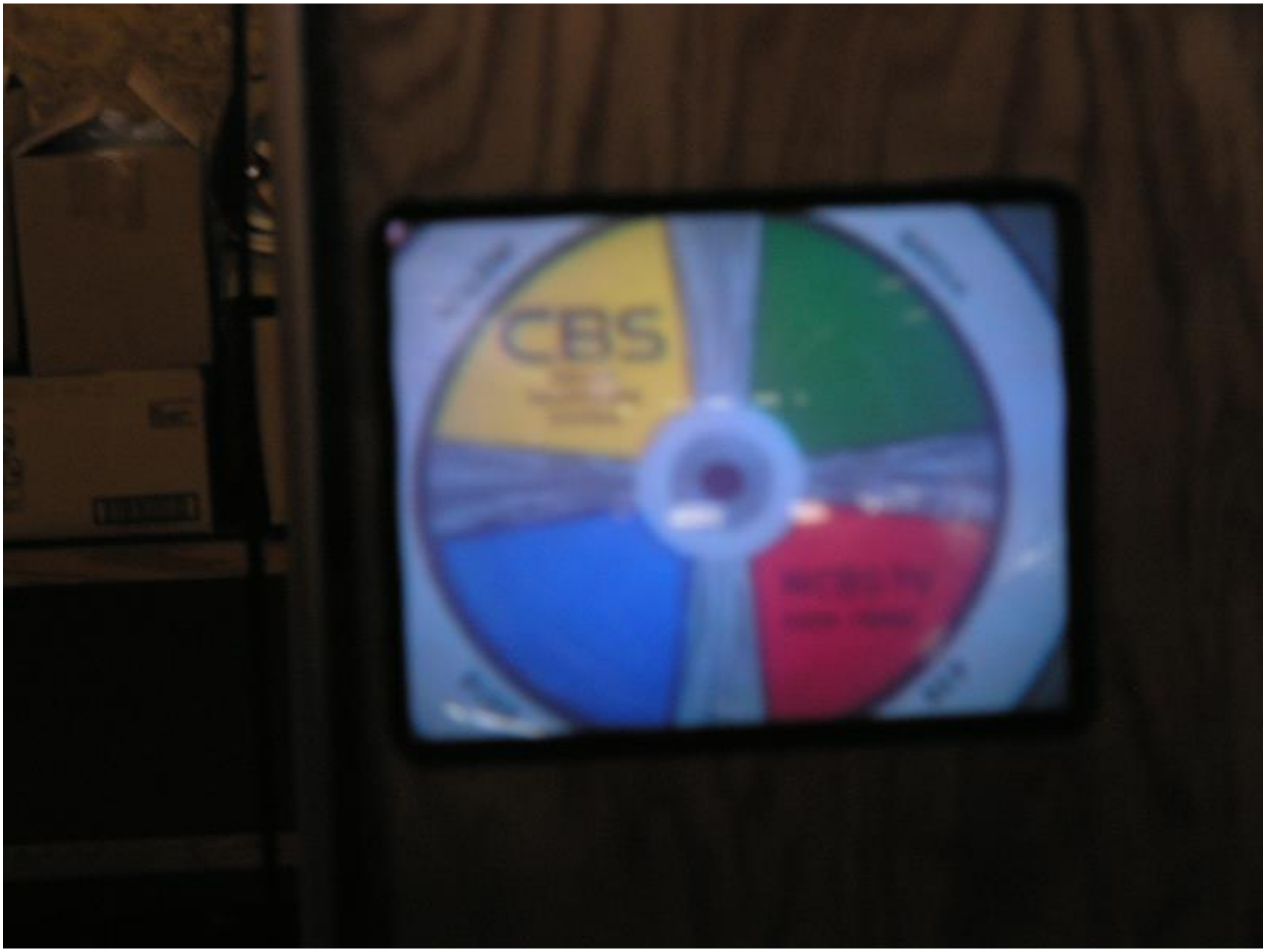


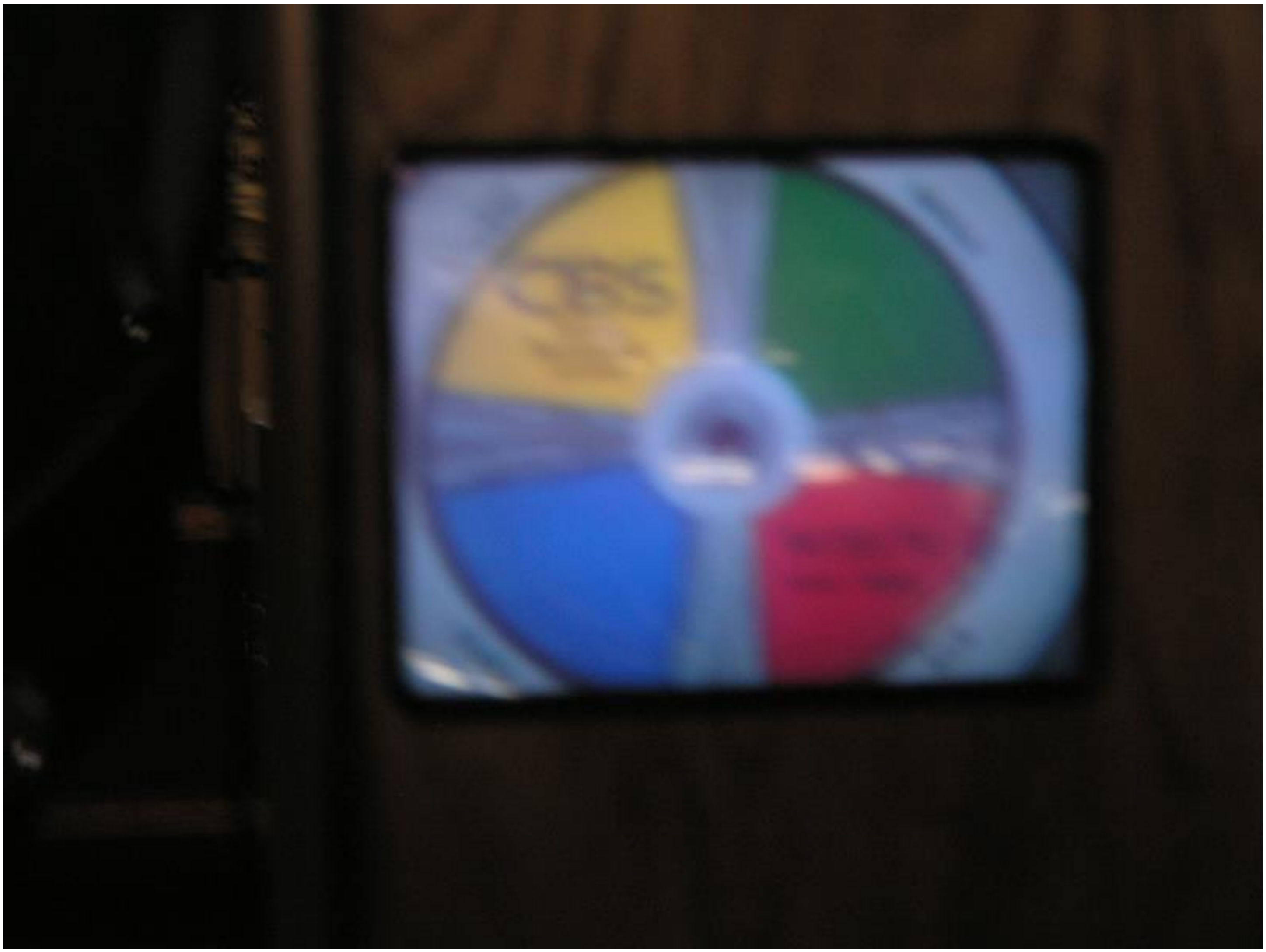


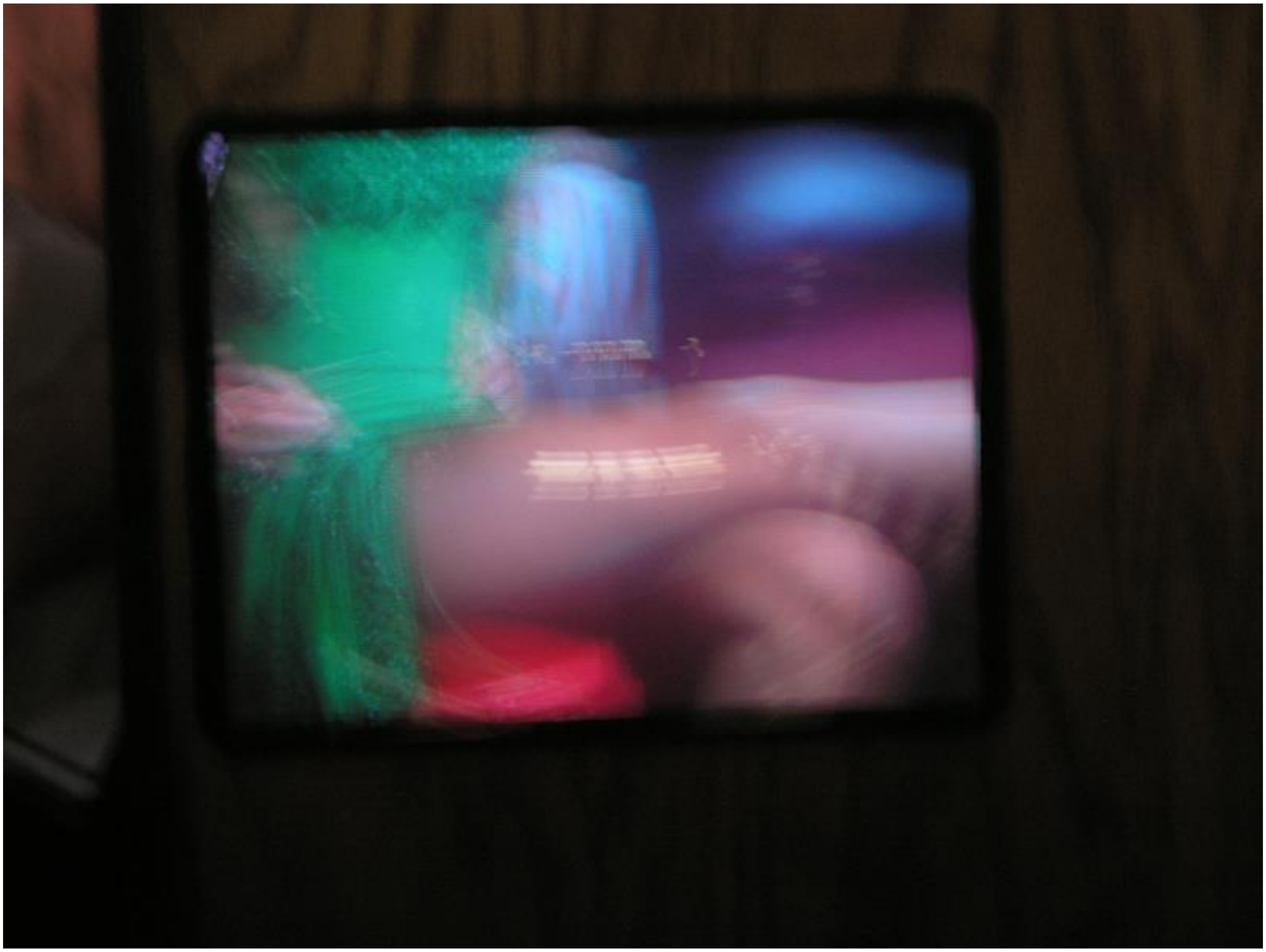

Amplicon 600

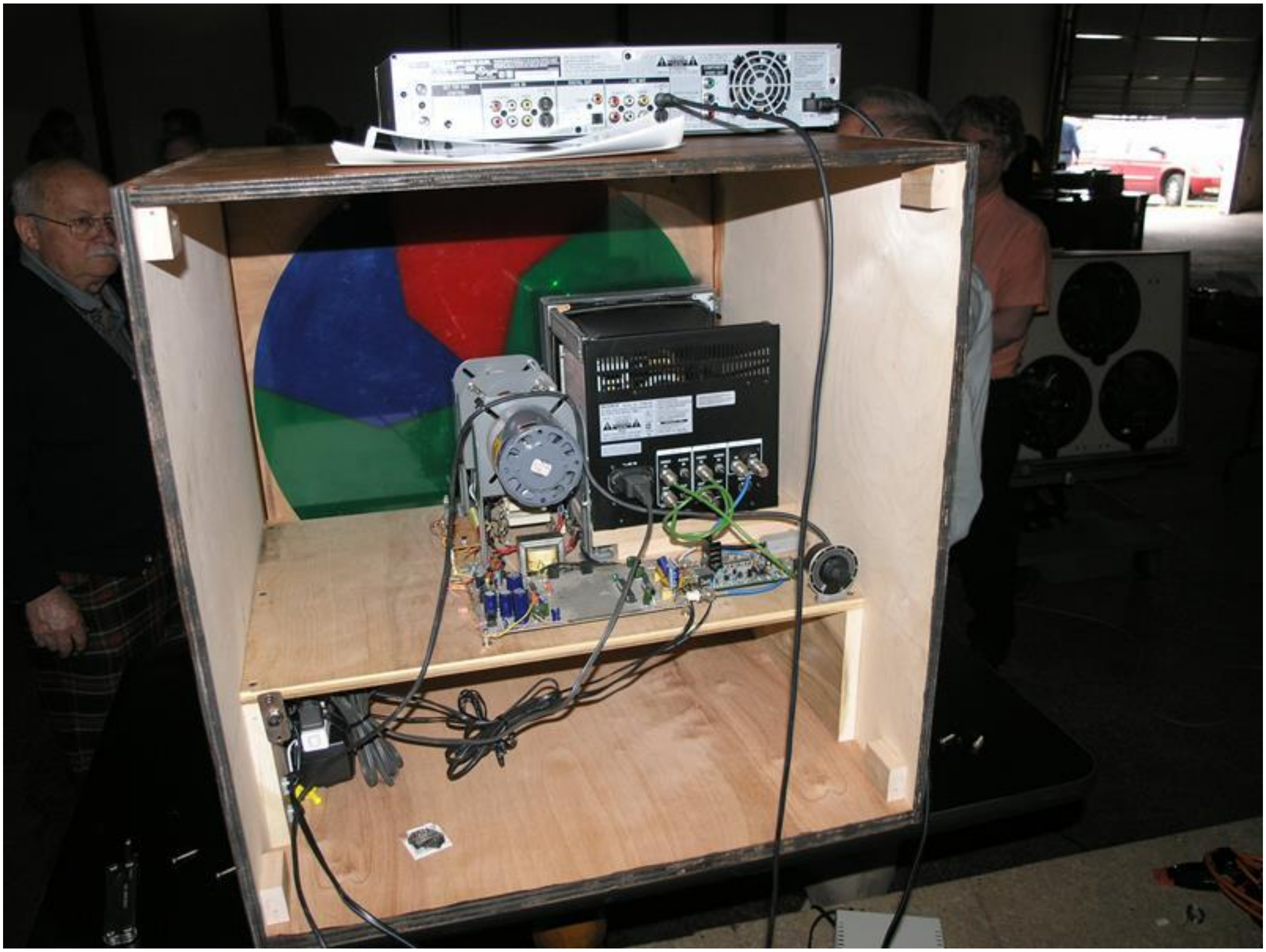

CBS

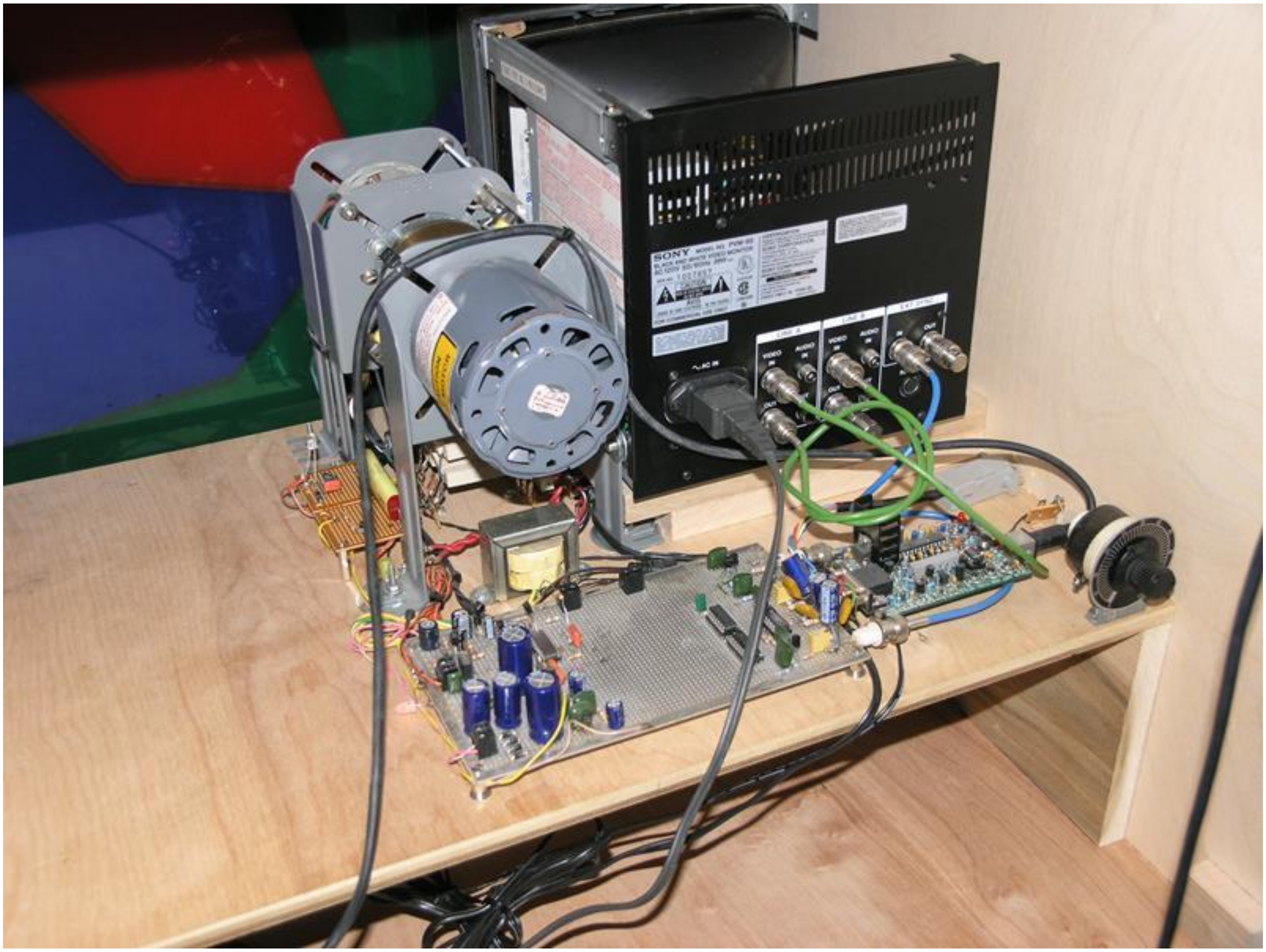

CBS

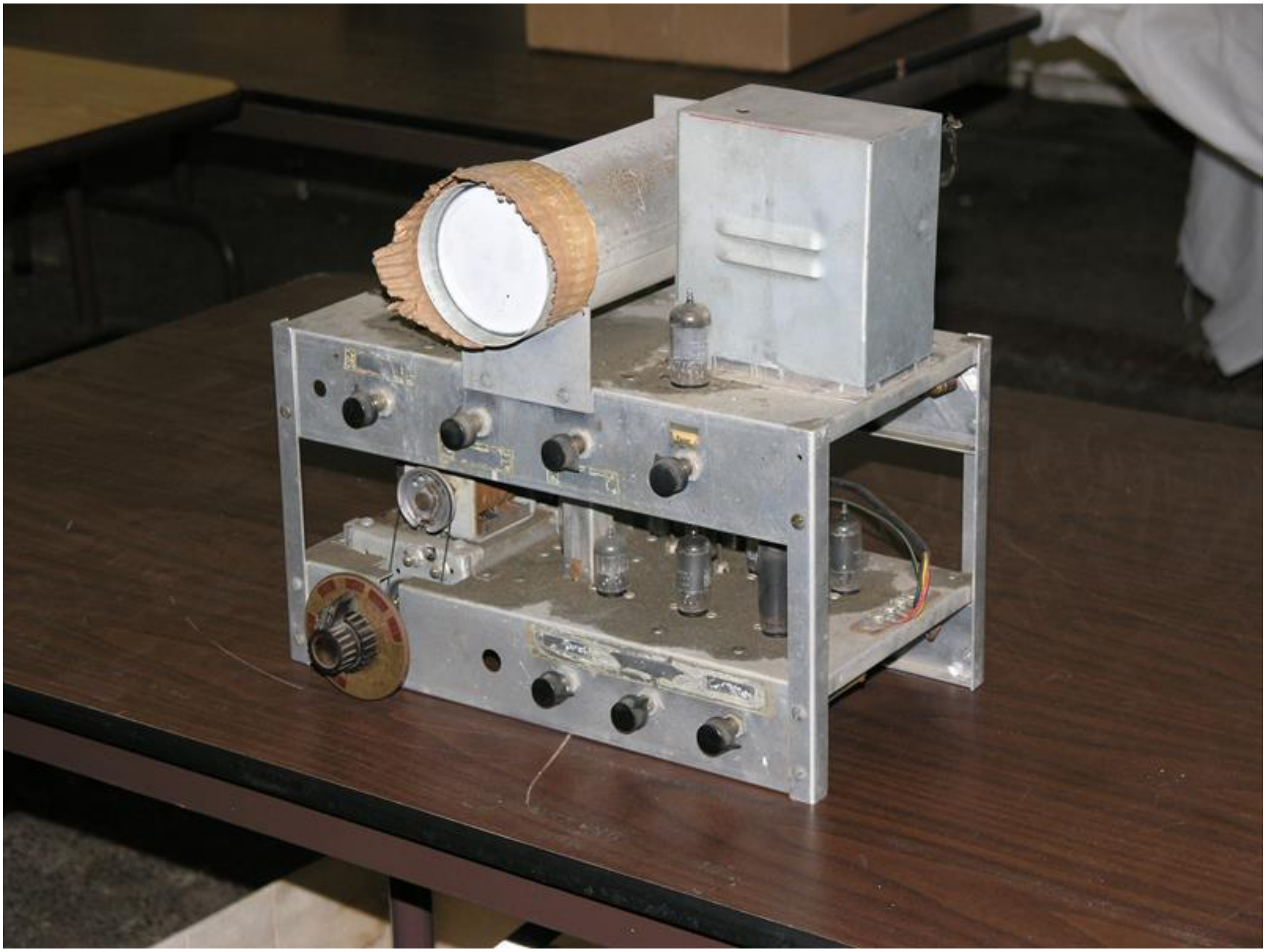

CBS

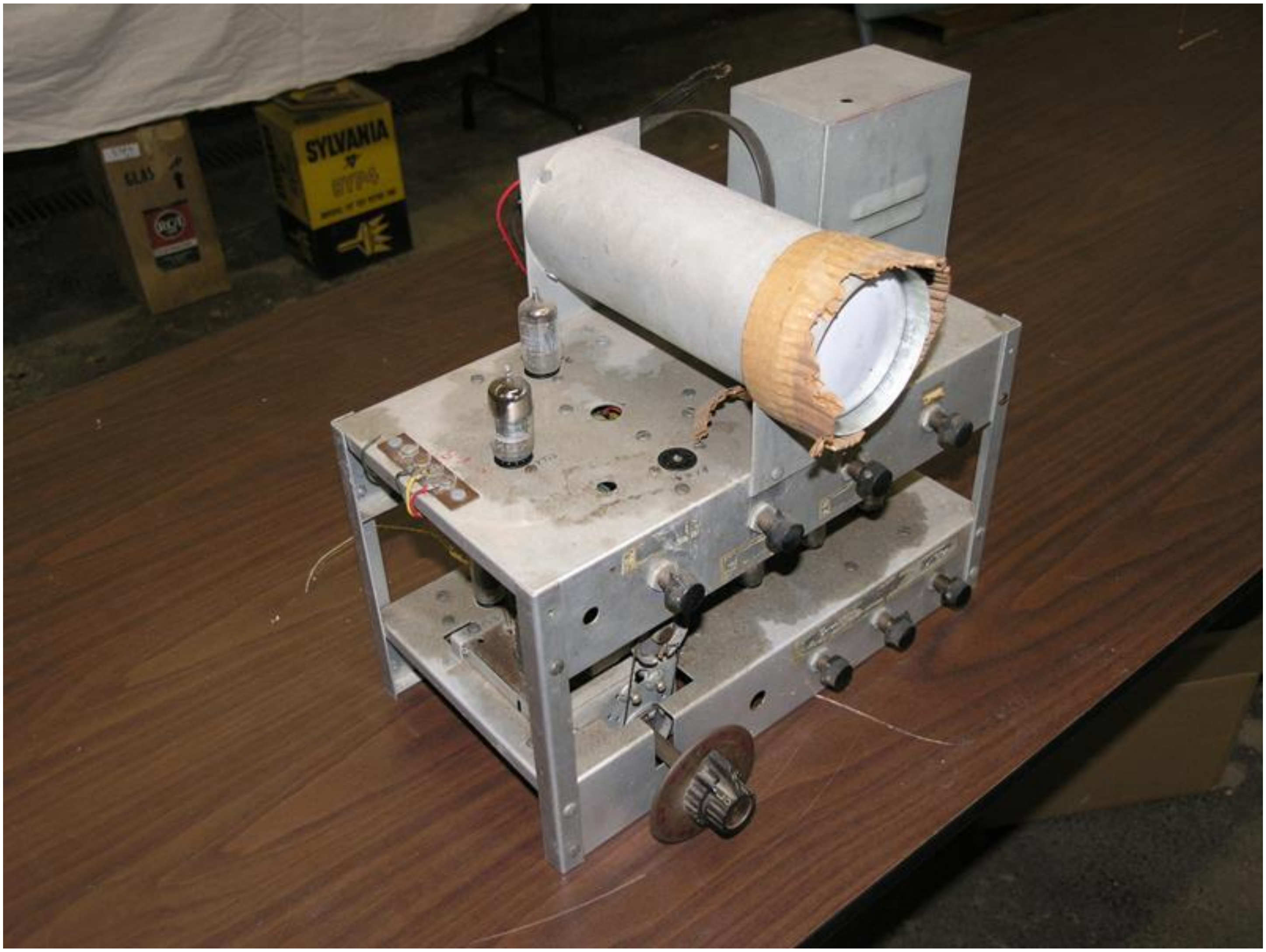

CBS

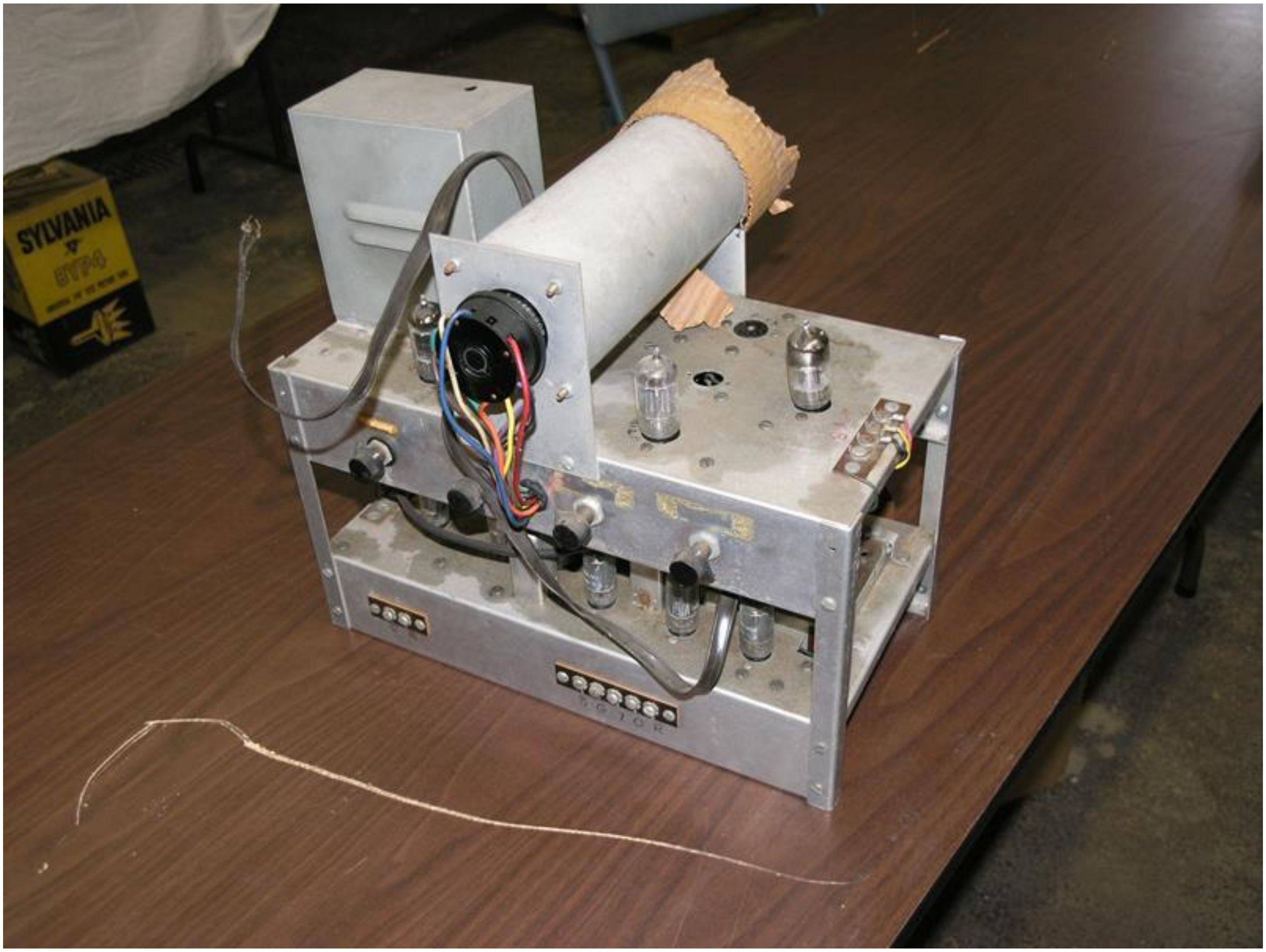


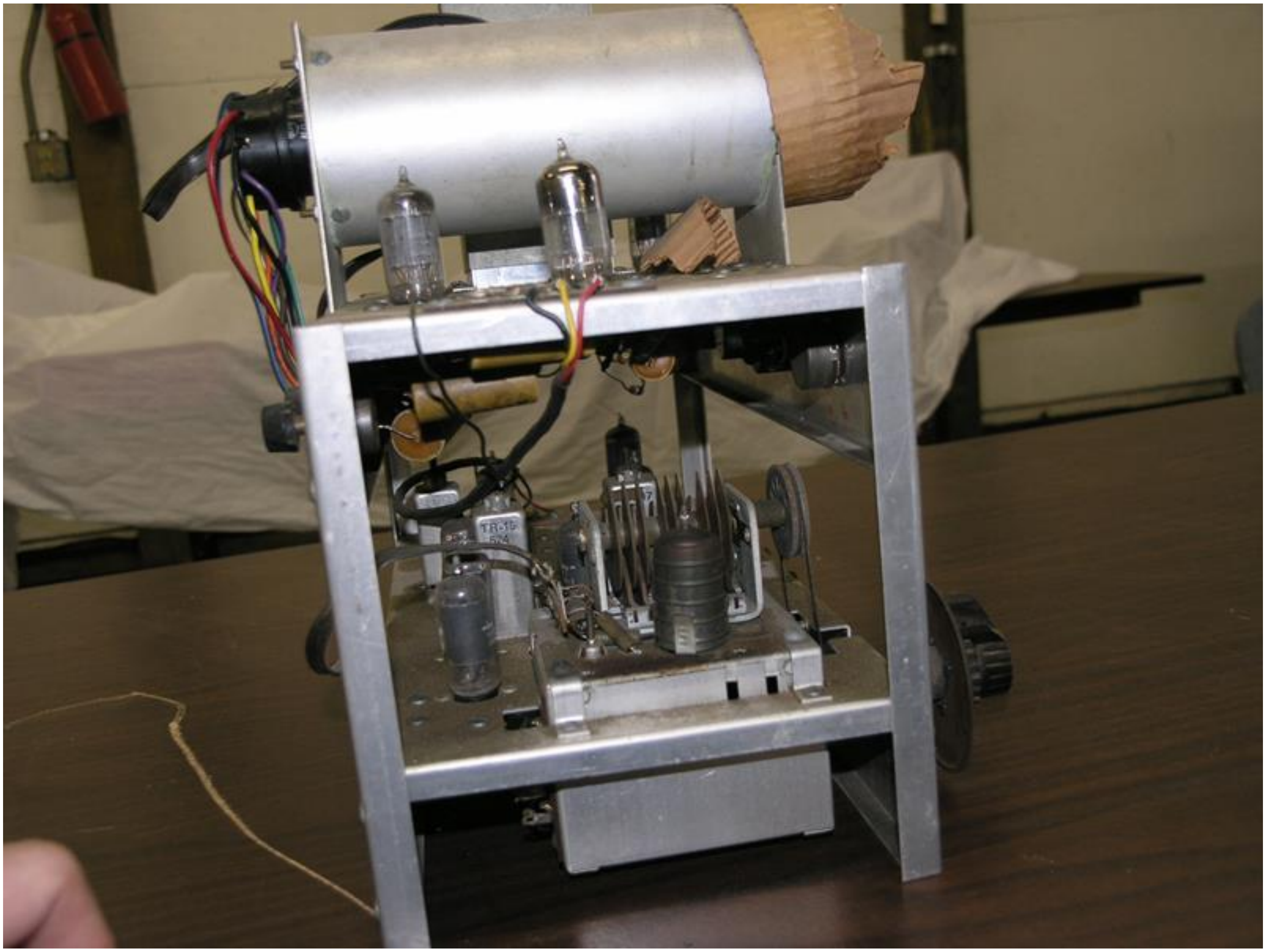


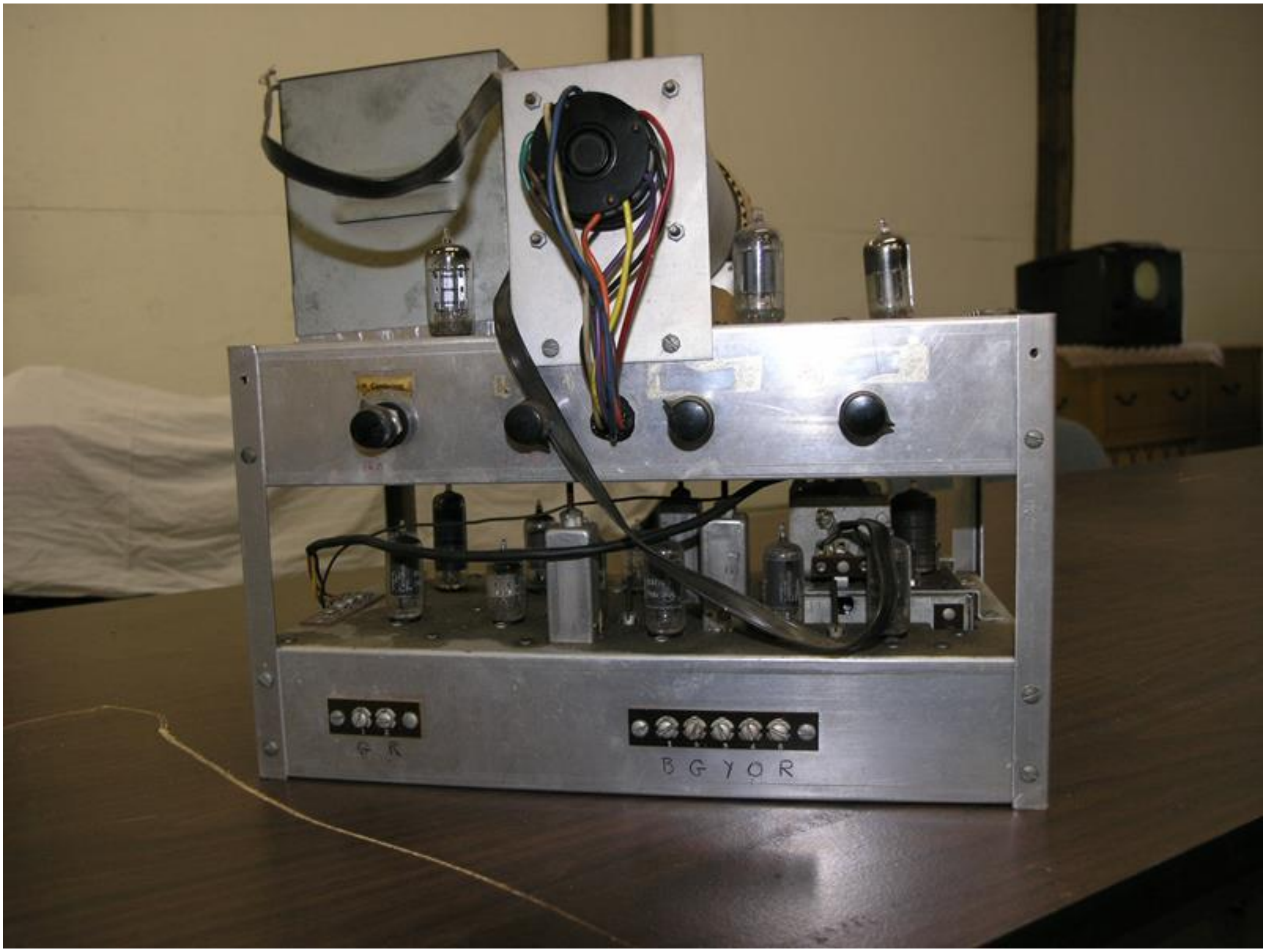

SONY
VIDEO
IN
AUDIO
IN
OUT
IN
OUT




SYLVANIA


SYLVANIA


TR-15


G R
B G Y O R

Tabletop Radios
HEATHKIT
A Guide to the Amateur Radio Products


GLASS
CATHODE-RAY TUBE
RCA

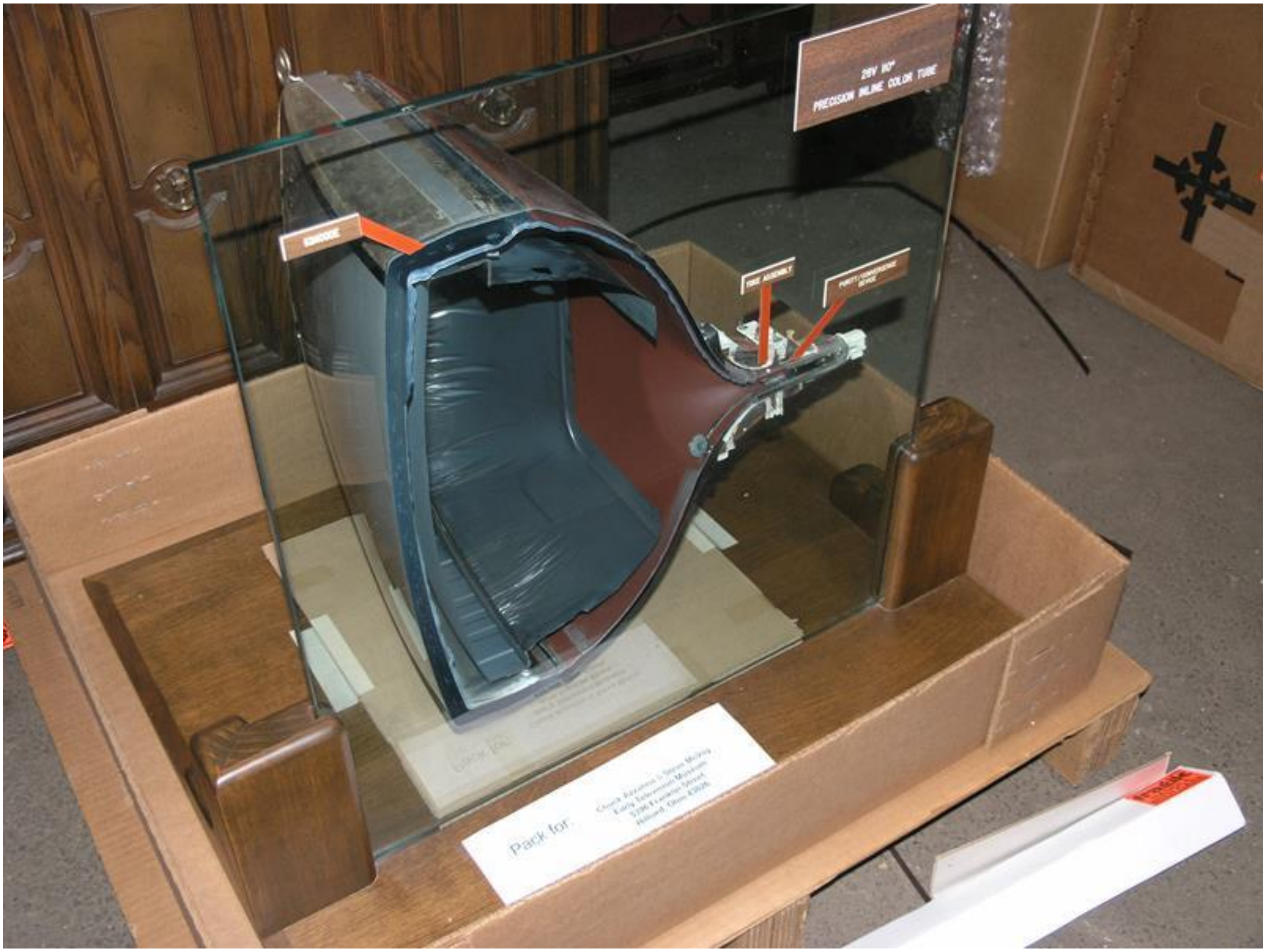

TELEVISION
PICTURE TUBE
15GP22
443
RADIO CORPORATION
OF AMERICA
Harrison, N. J.
*Trade-Marks Registered
Marcas Registradas
Printed in U. S. A.


RCA

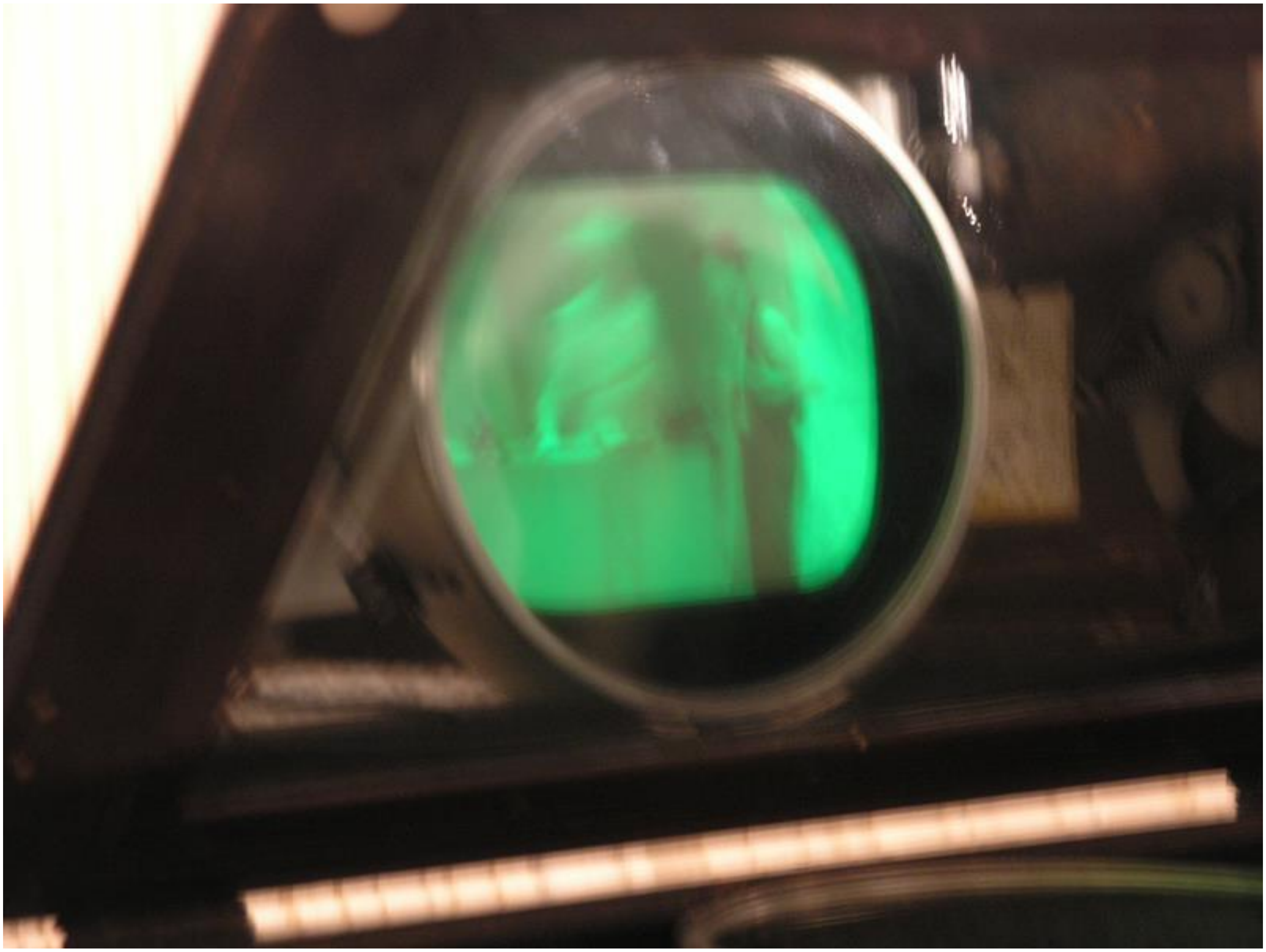

BELTRON
system
PICTURE TUBE RESTORER
EDTRON INSTRUMENTS, INC.
SHORT LIGHT
POS. NO.3 RESTORING
POS. NO.2 CLEANING
GUN SELECTOR
INTERRUPT SWITCH
VOLTAGE CONTROL
MAX.
MIN.
RED
GREEN
BLUE
CLEANING
LIGHTS
RESTORING CURRENT
BLUE GUN TEST
GREEN GUN TEST
RED GUN TEST
HEATER VOLTAGE
RESTORING INDICATORS
ON
OFF

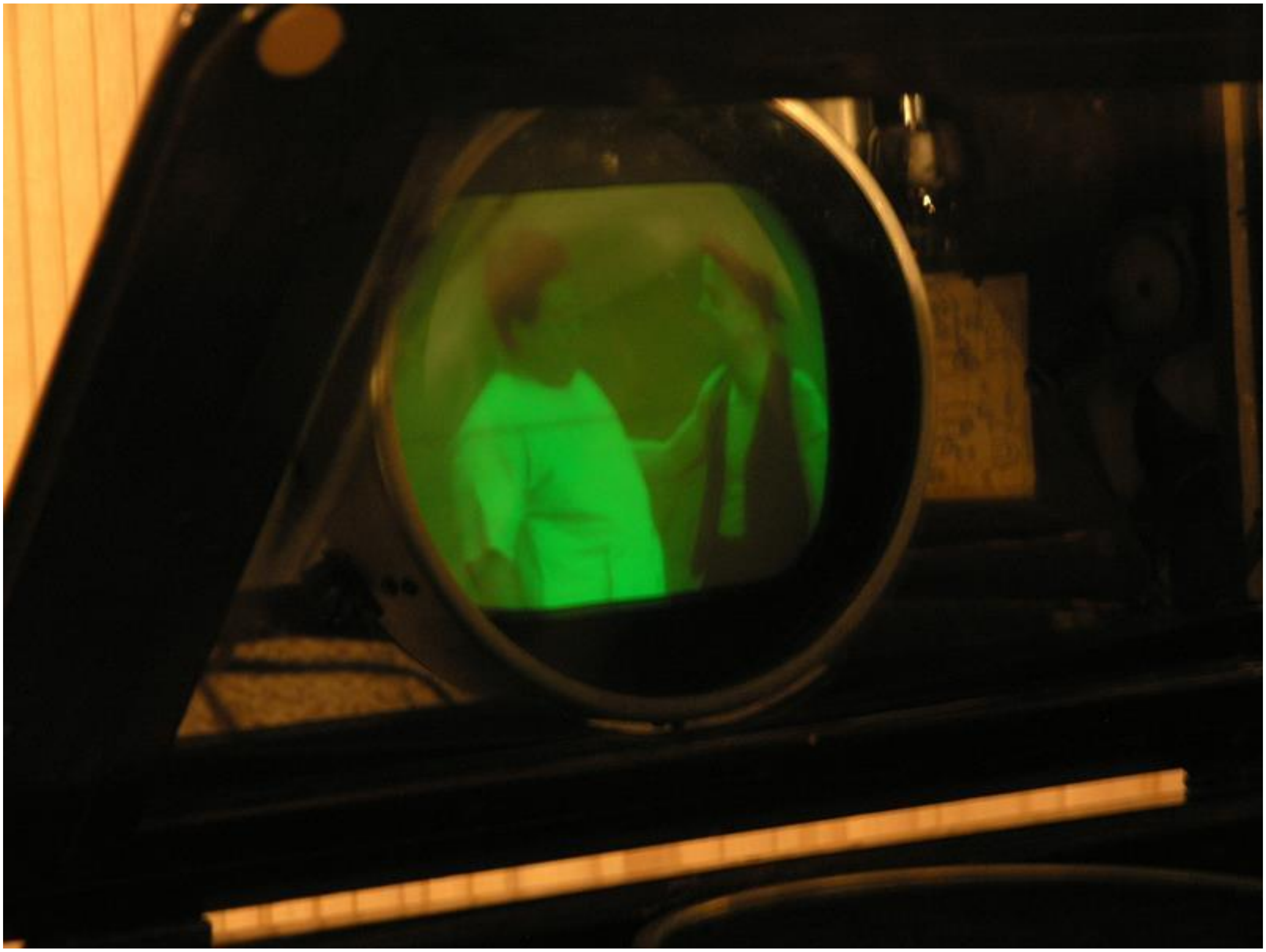

PRECISION INLINE COLOR TUBE
Pack for:


26V 110°
PRECISION INLINE COLOR TUBE
YOKE ASSEMBLY
PURITY/CONVERGENCE
DEVICE


PRECISION INLINE COLOR TUBE
Pack for:


RAYTHEON





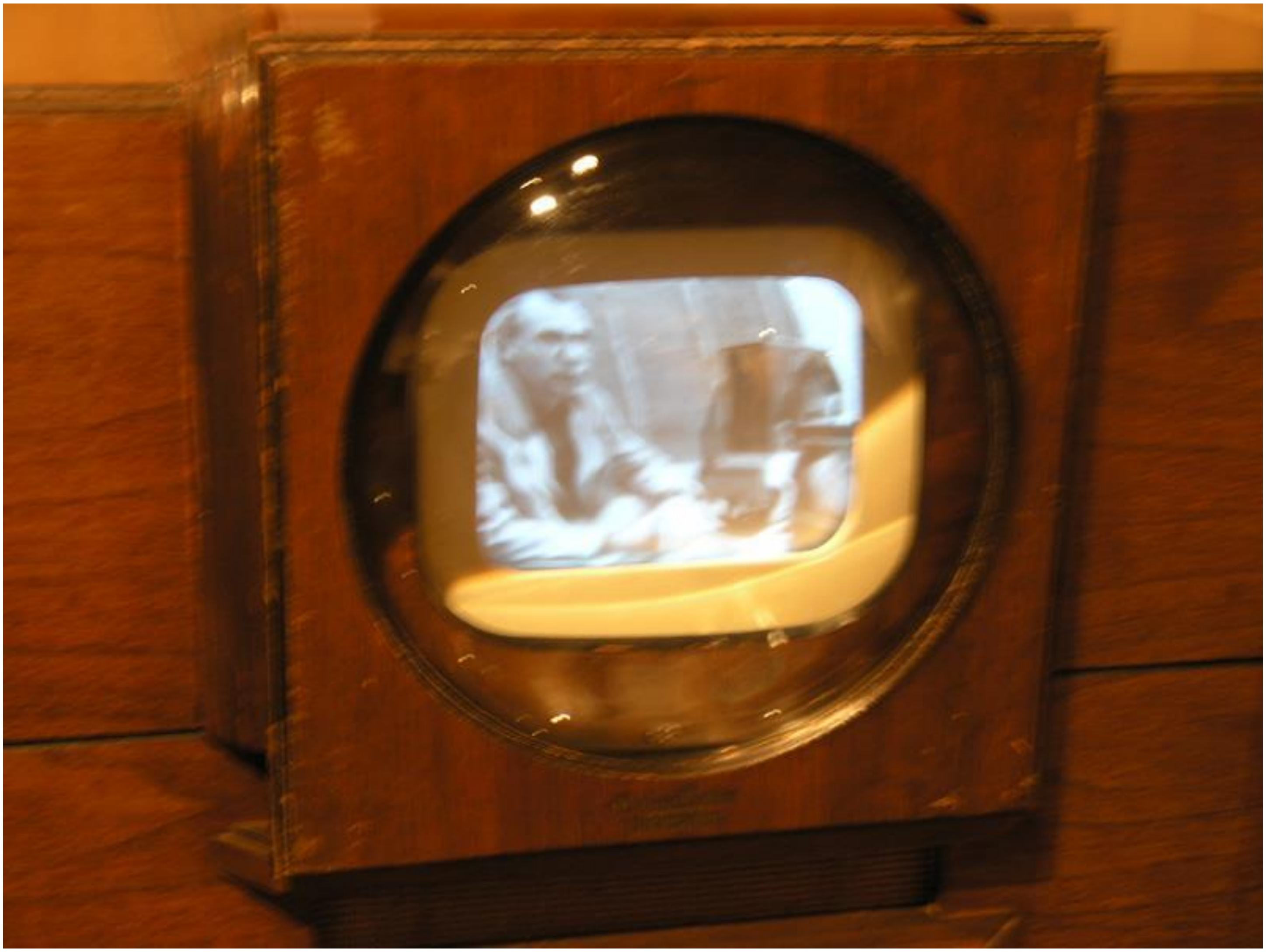

BAIRD
TELEVISOR
Jenkins Model 100

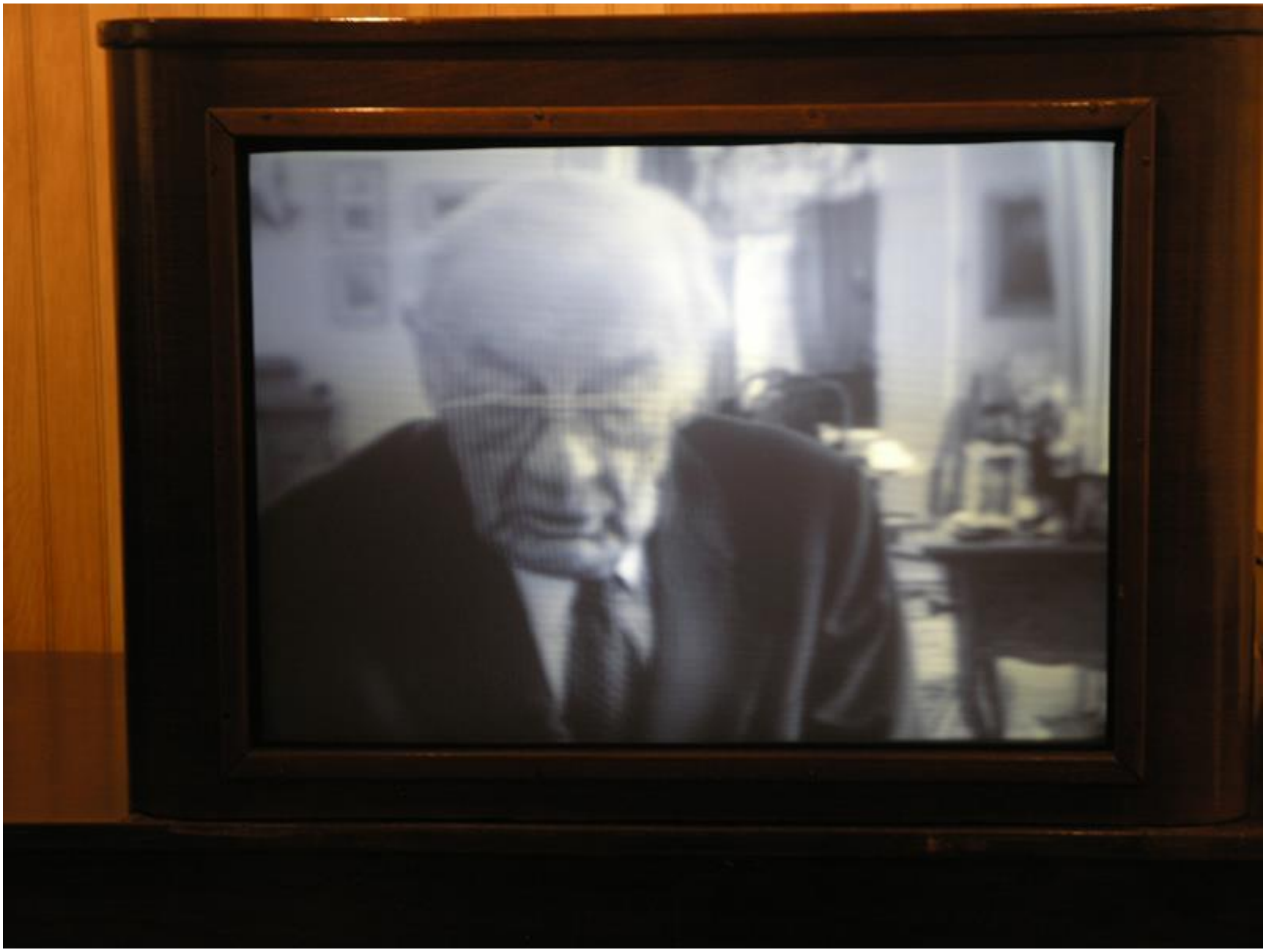

It Works!


It Works!

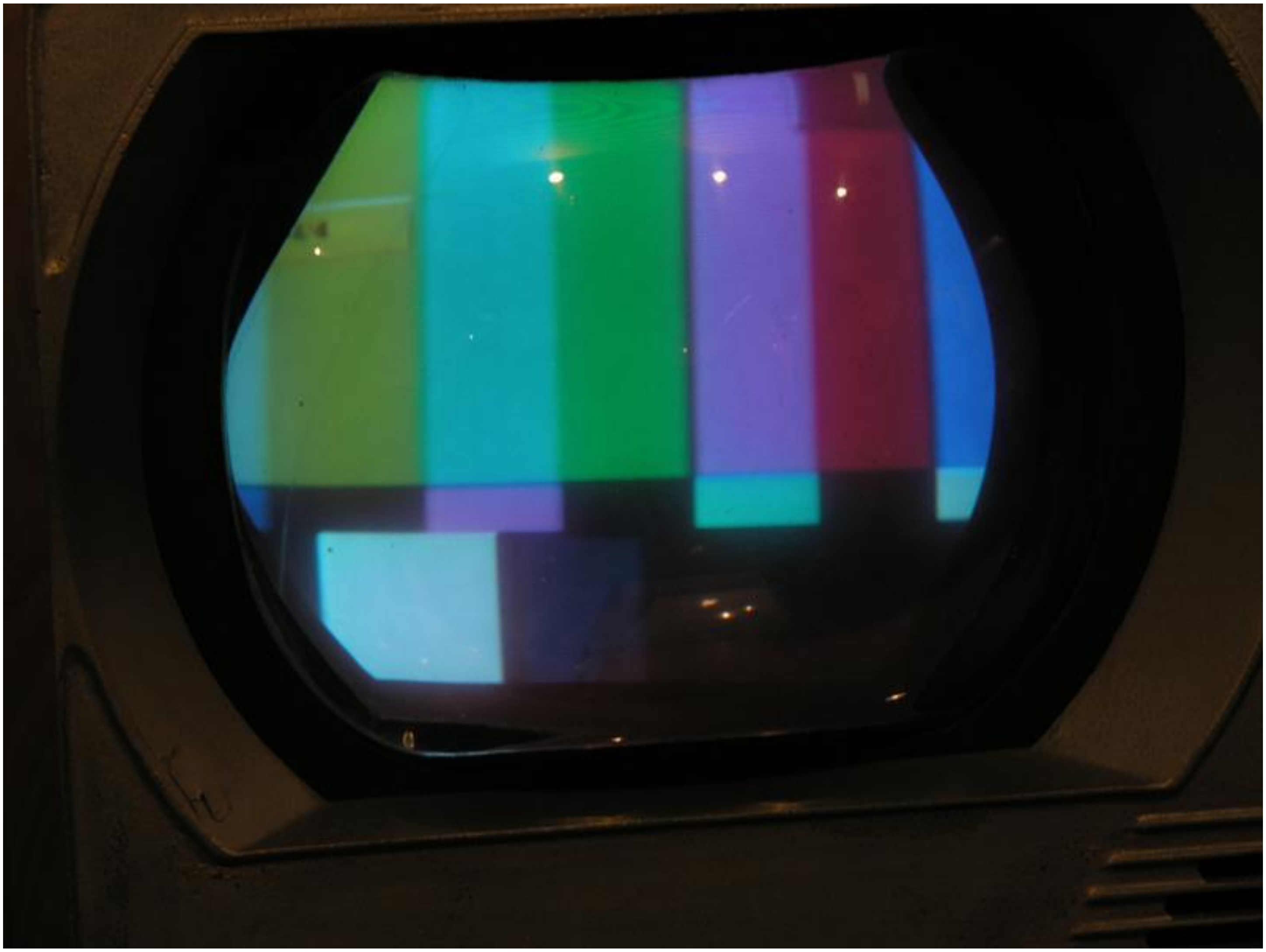

Fraccaro 30 Line
This is one of the most unusual mechanical sets ever made. It was made in Italy sometime between 1930 and 1932. The styling is from the German Bauhaus movement, which started in the mid 20s and continued until Hitler took power.
It is for the German 30 line stan-dard, which was broadcast from Germany and France. Unlike the Baird system of the same era, The scanning is horizontal, with an aspect ratio of 4:3.
Screen Size 1 3/4 x 1 3/8"
Year Made 1930-32
Cabinet Original Finish
Electronic Restoration Not Restored

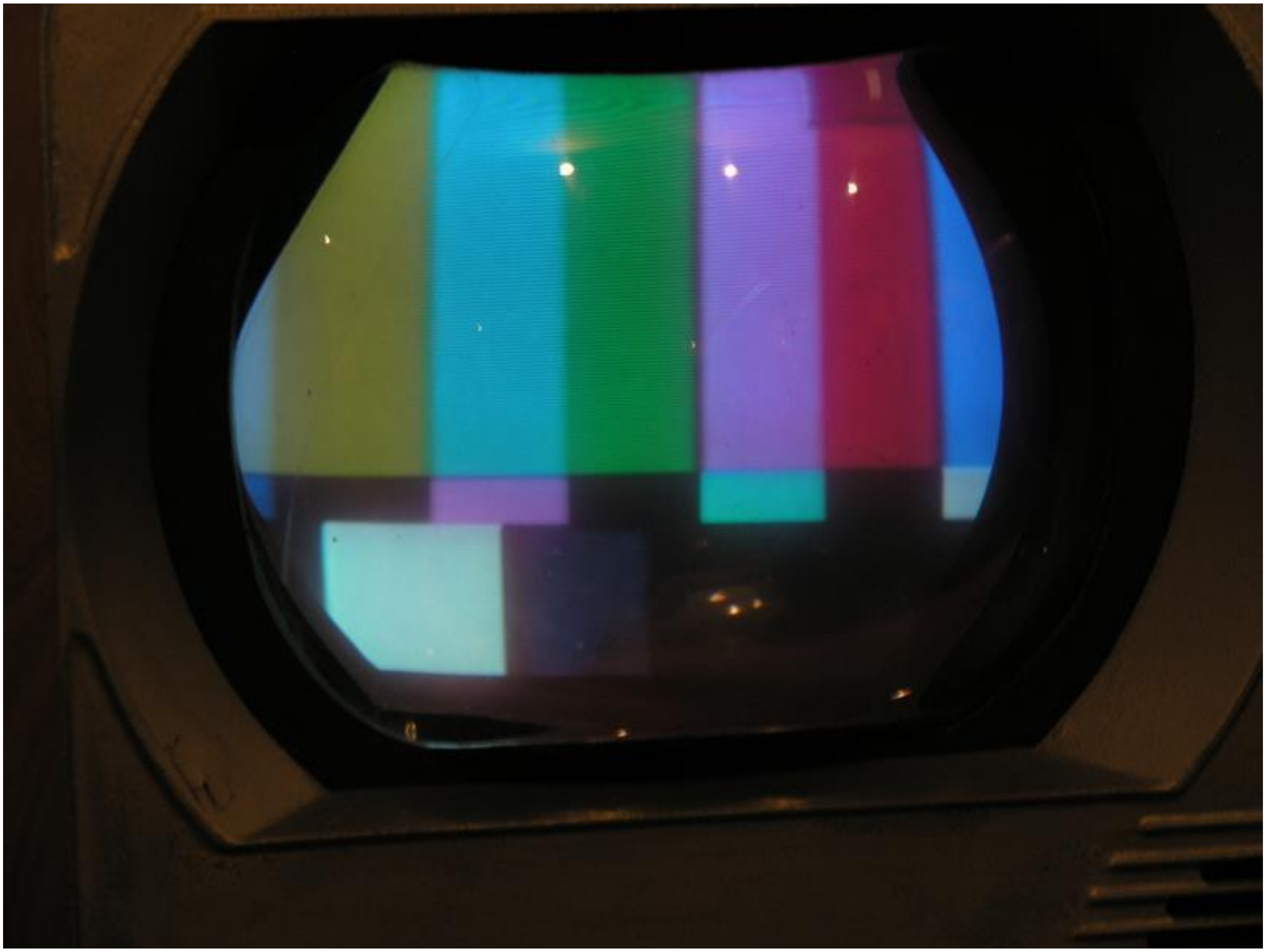

RCA Victor
TELEVISION
TELEVISION

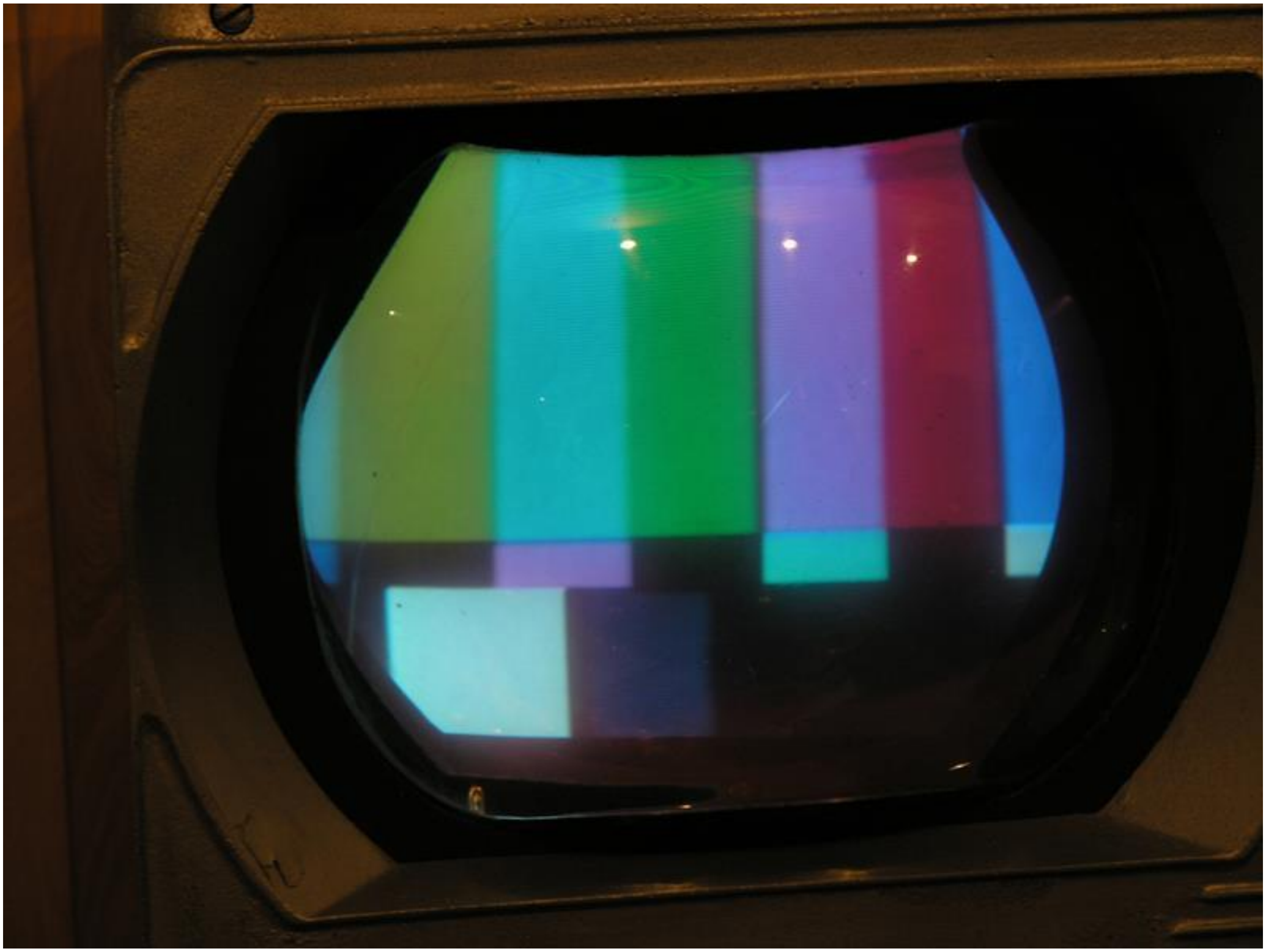


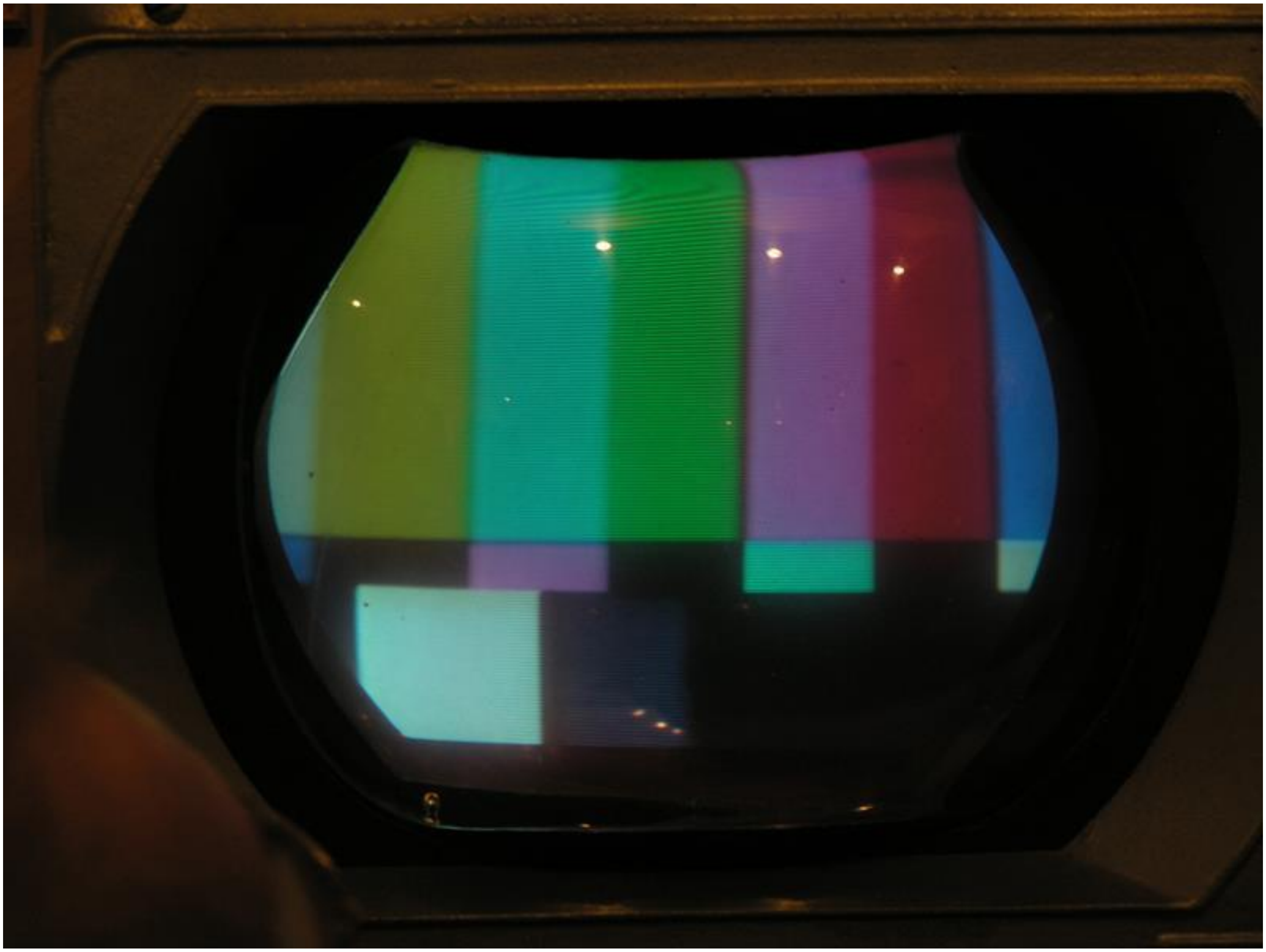


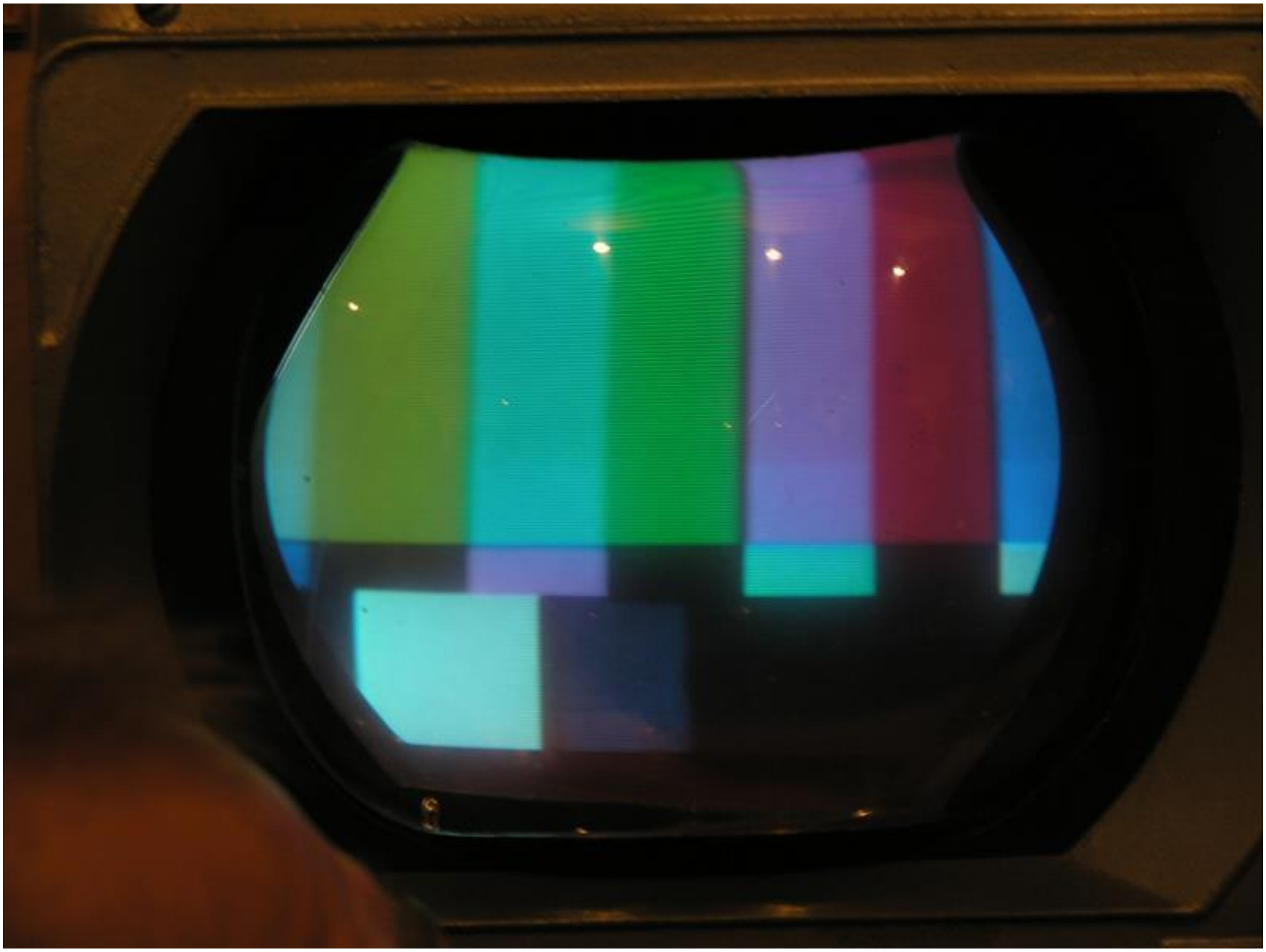

CBS
WCBS-TV

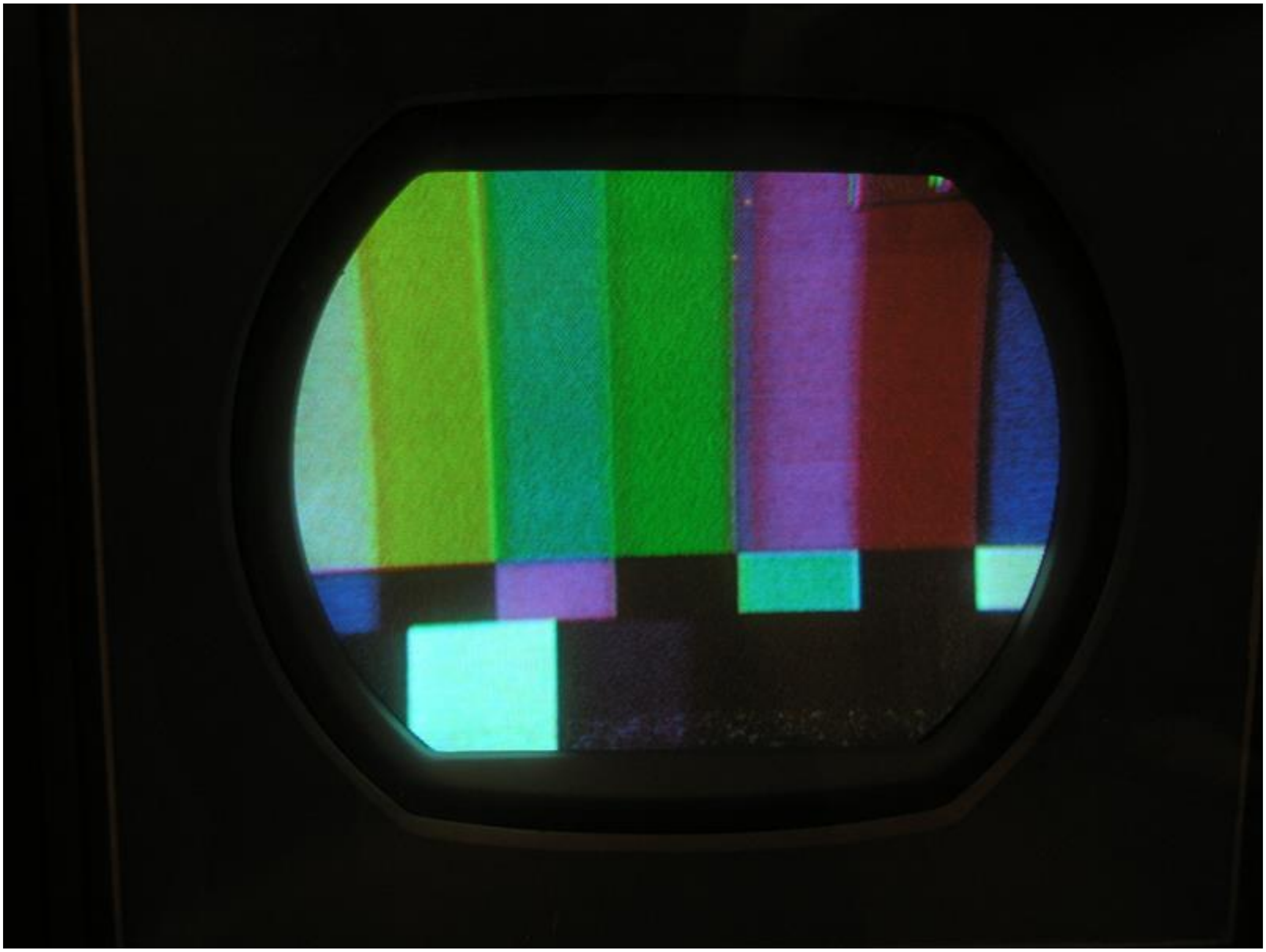


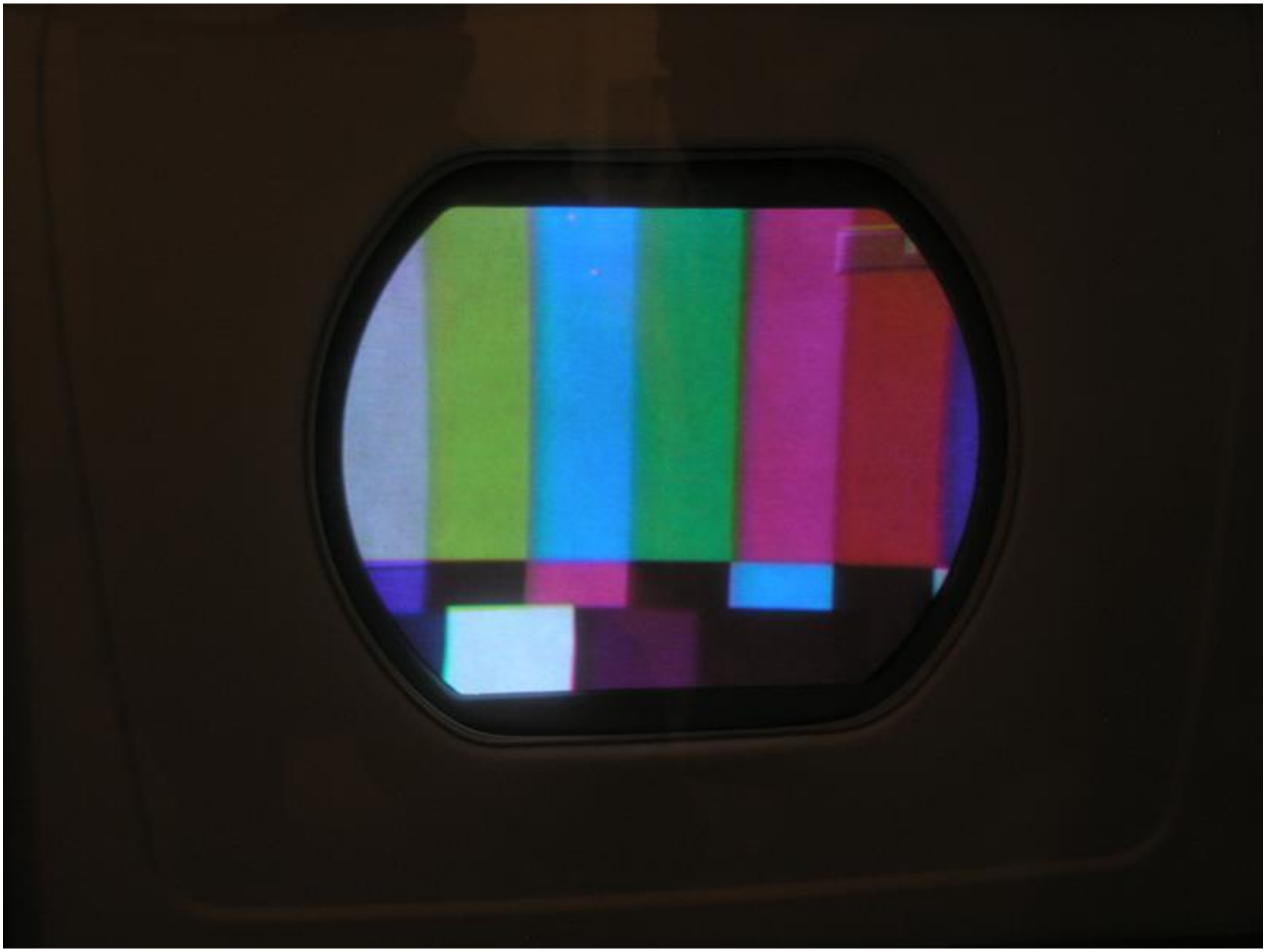


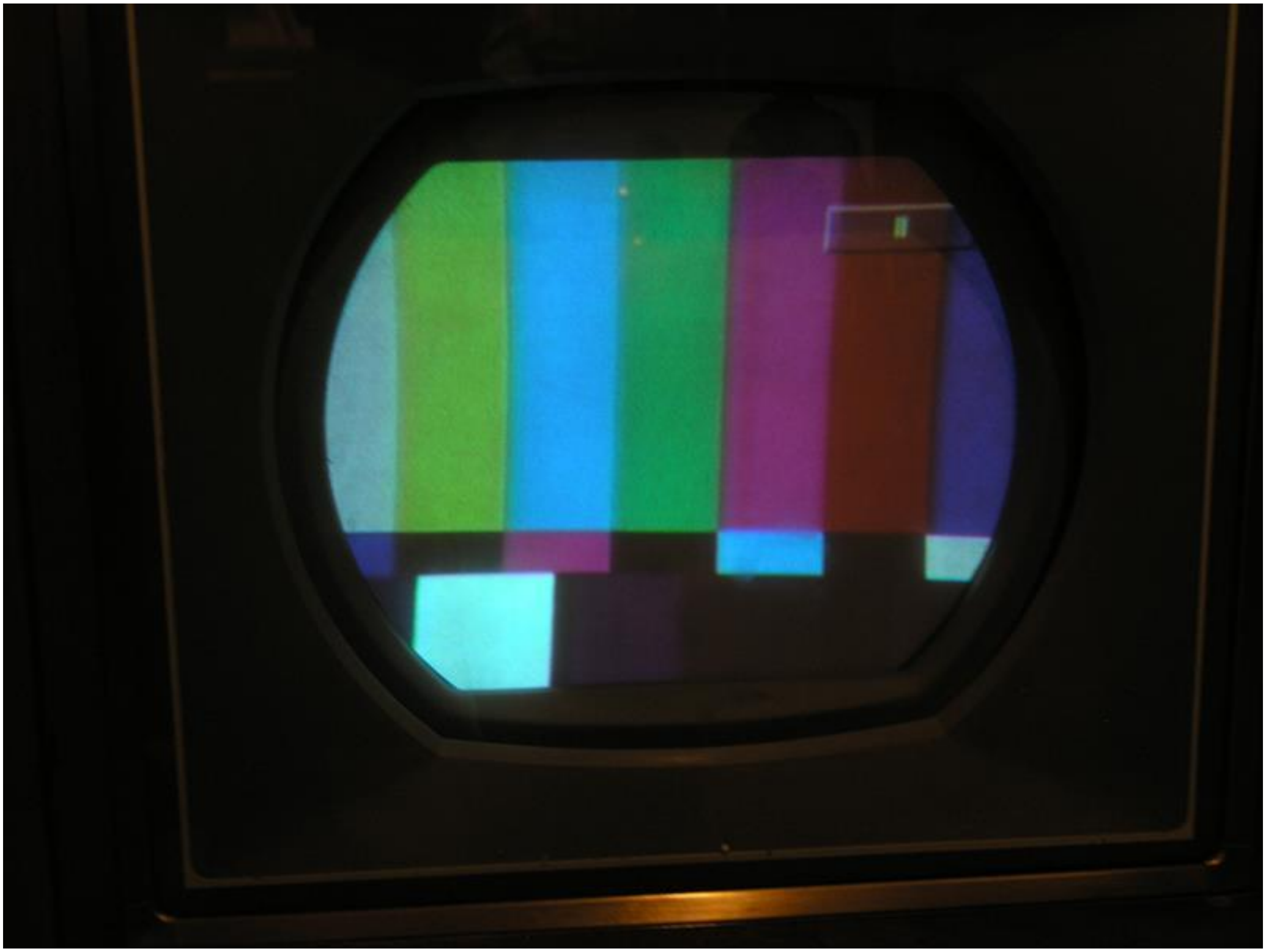


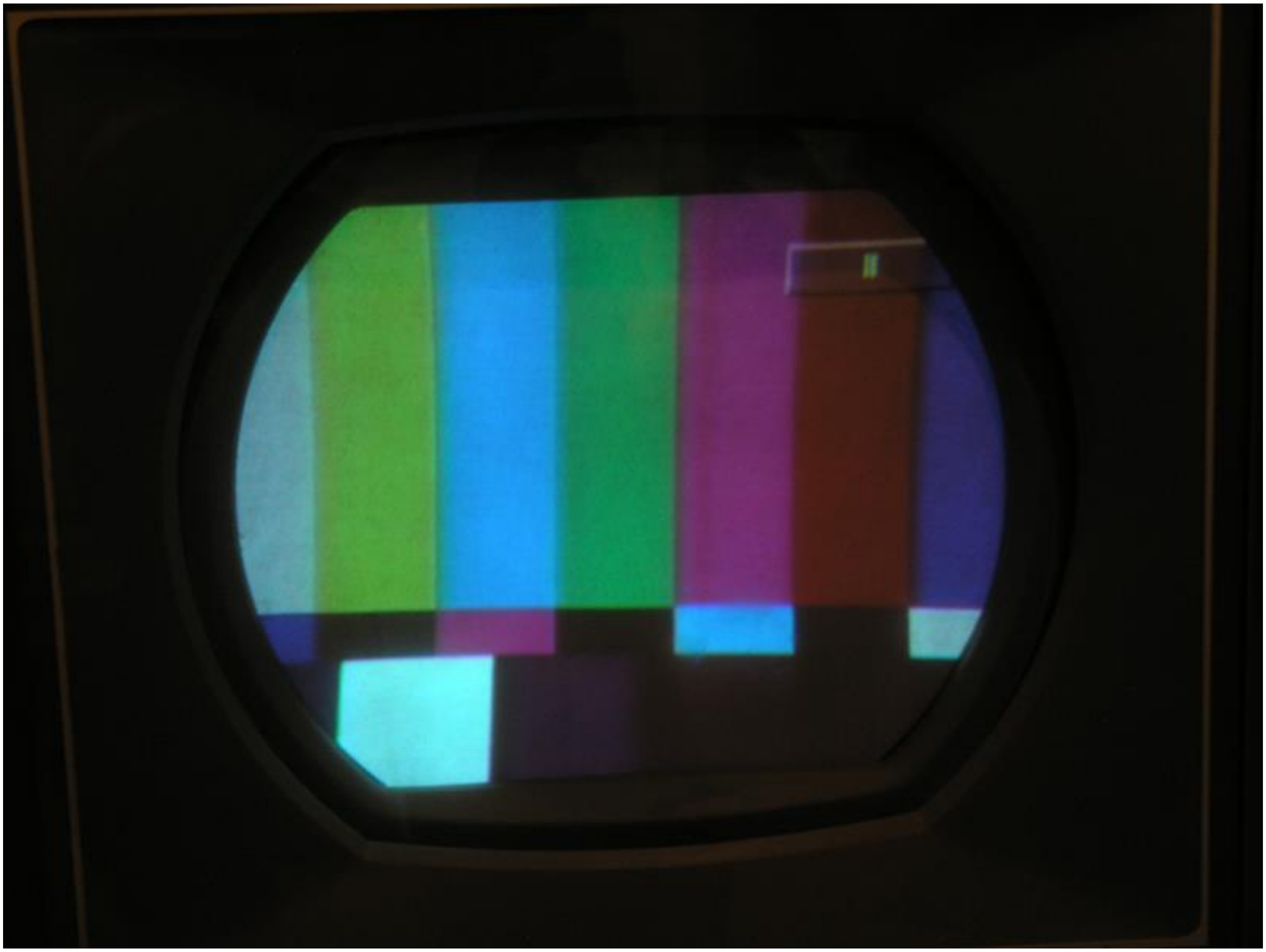


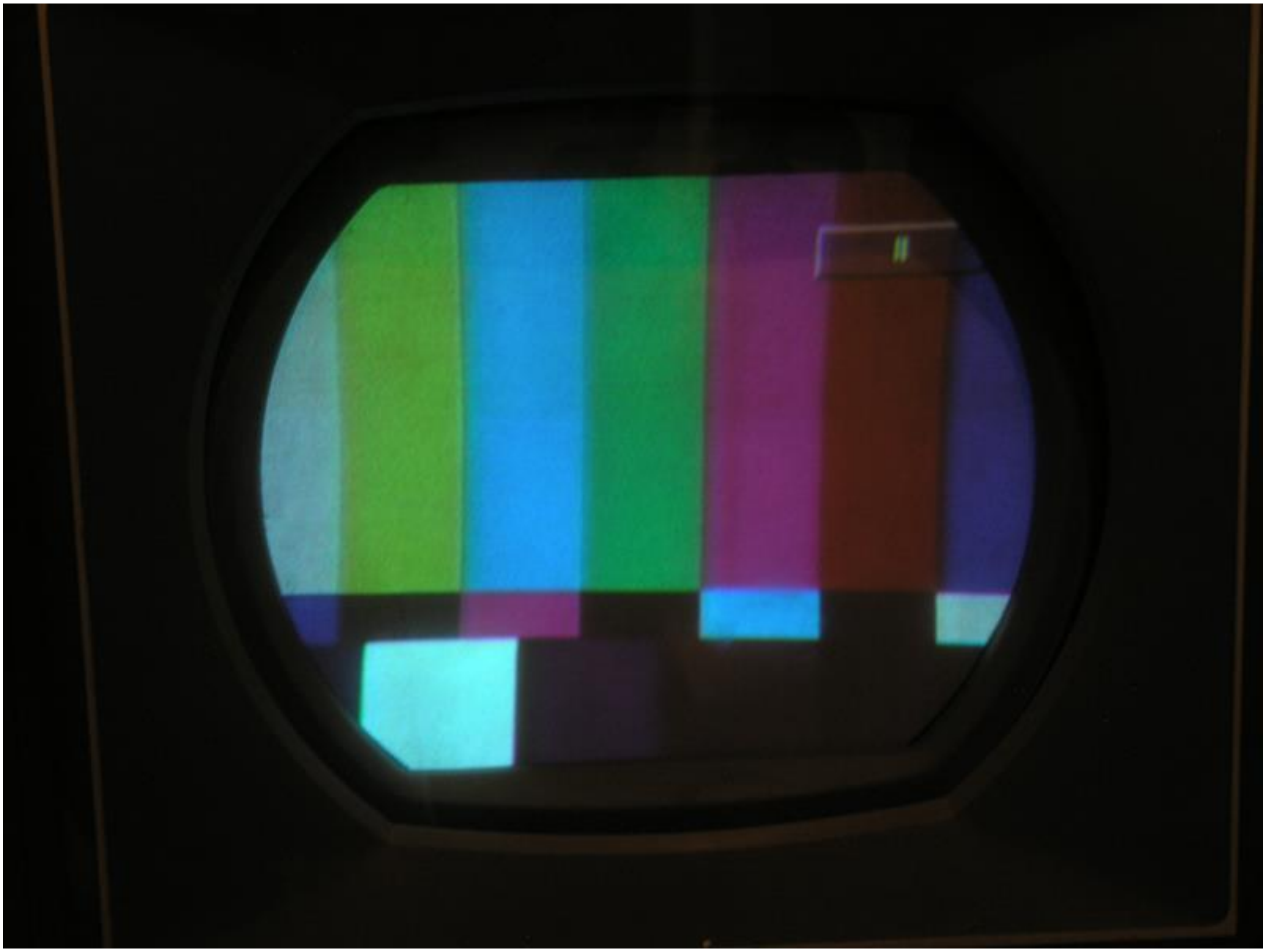


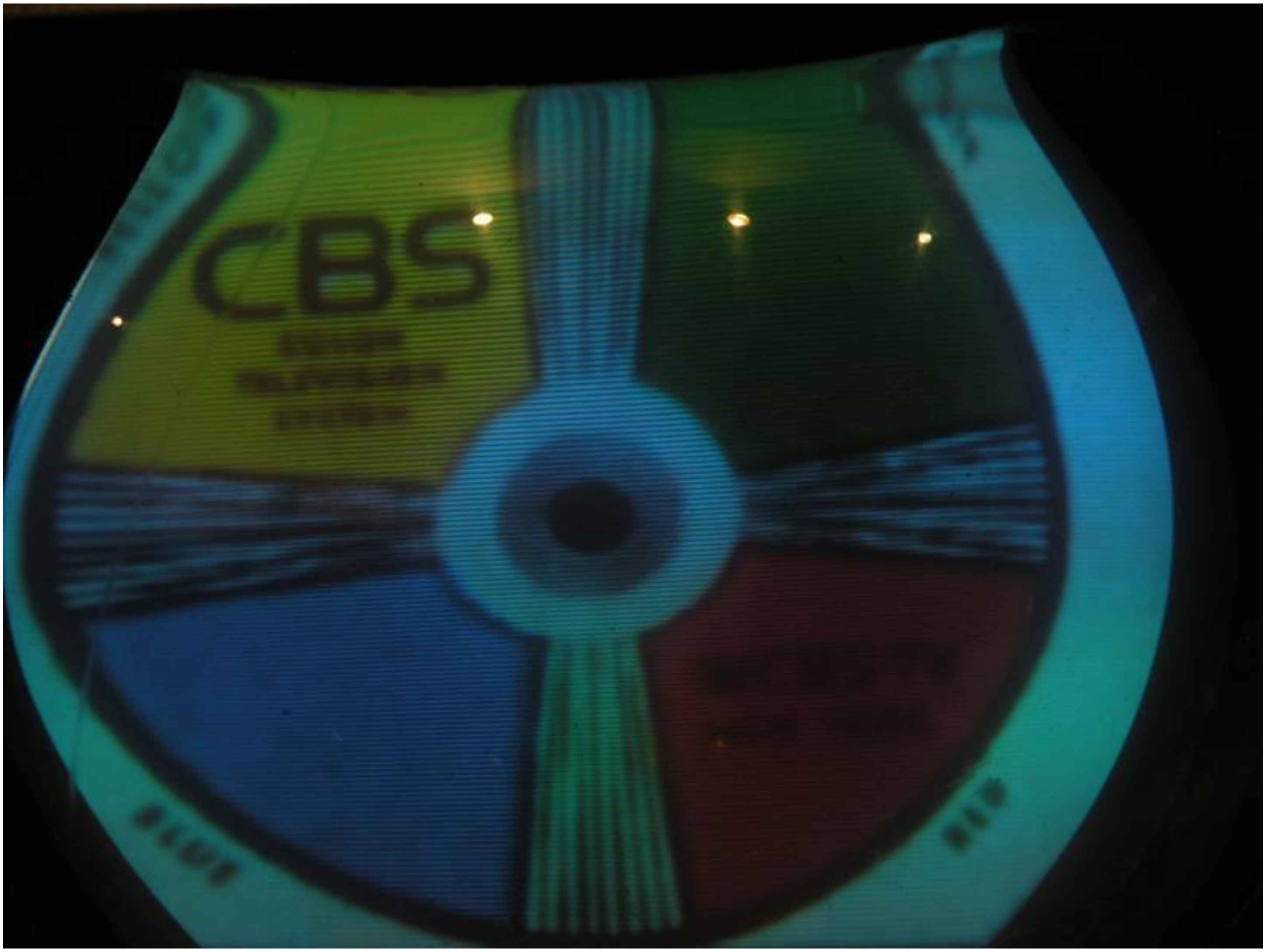


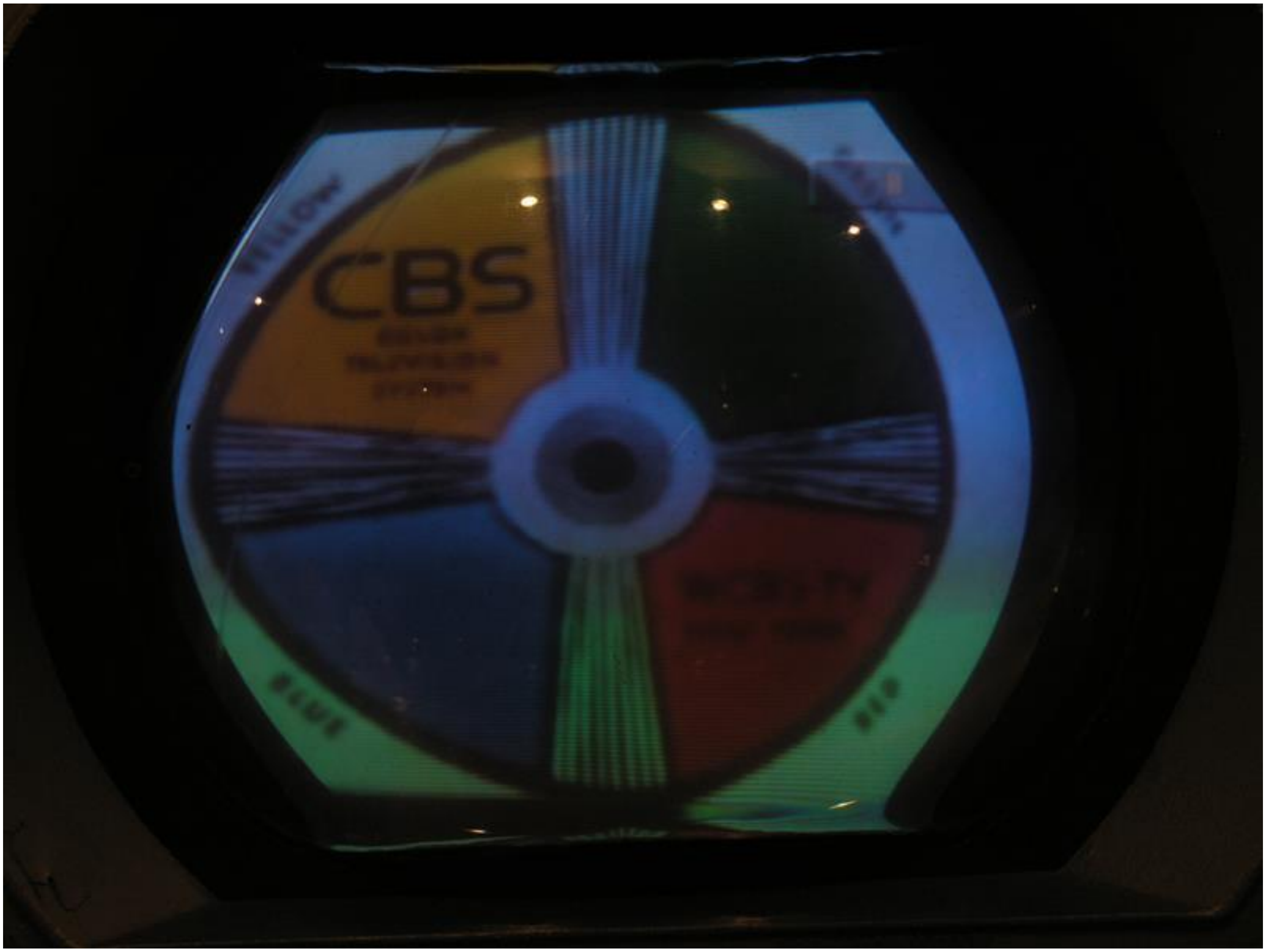


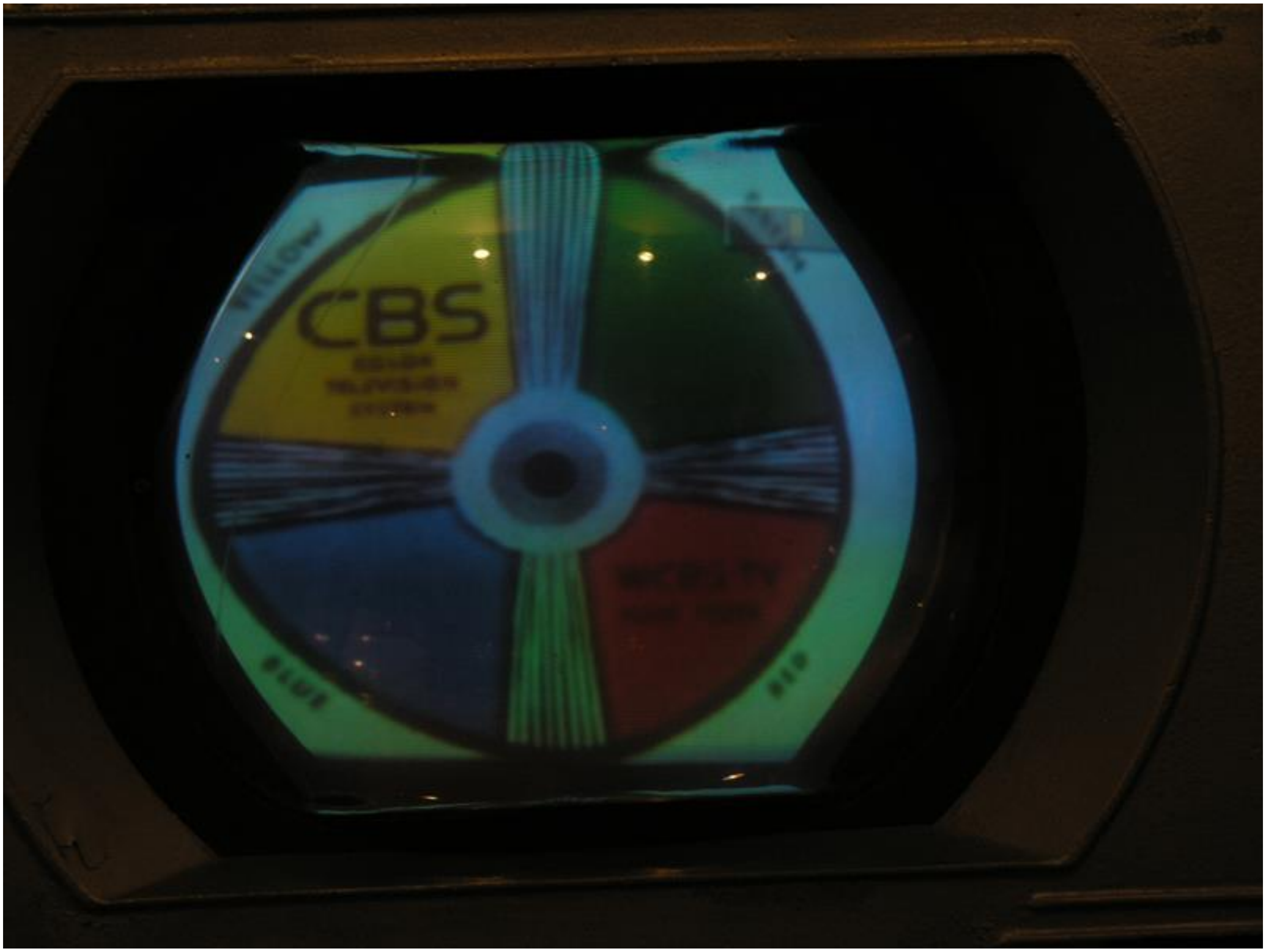




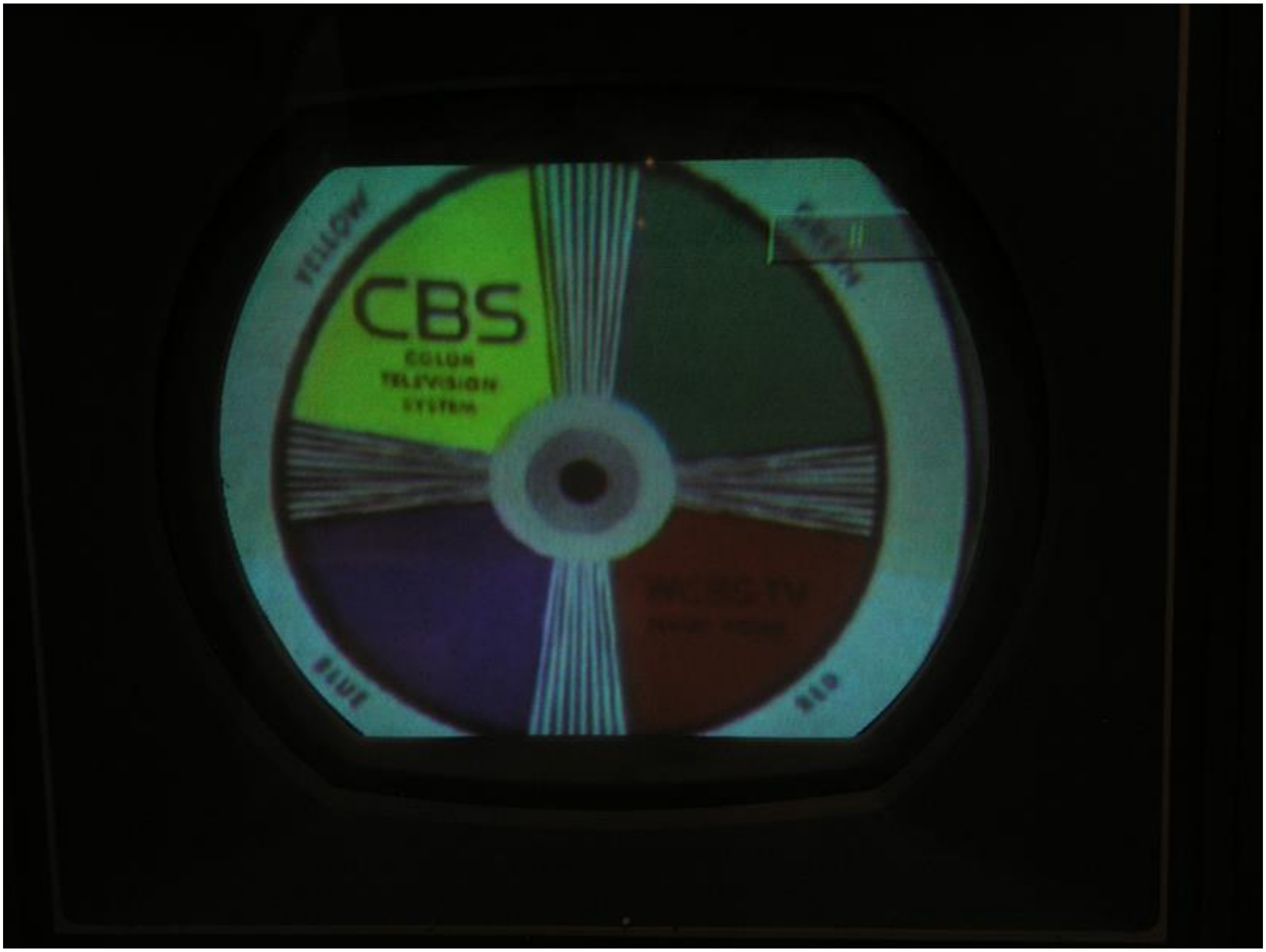



CBS

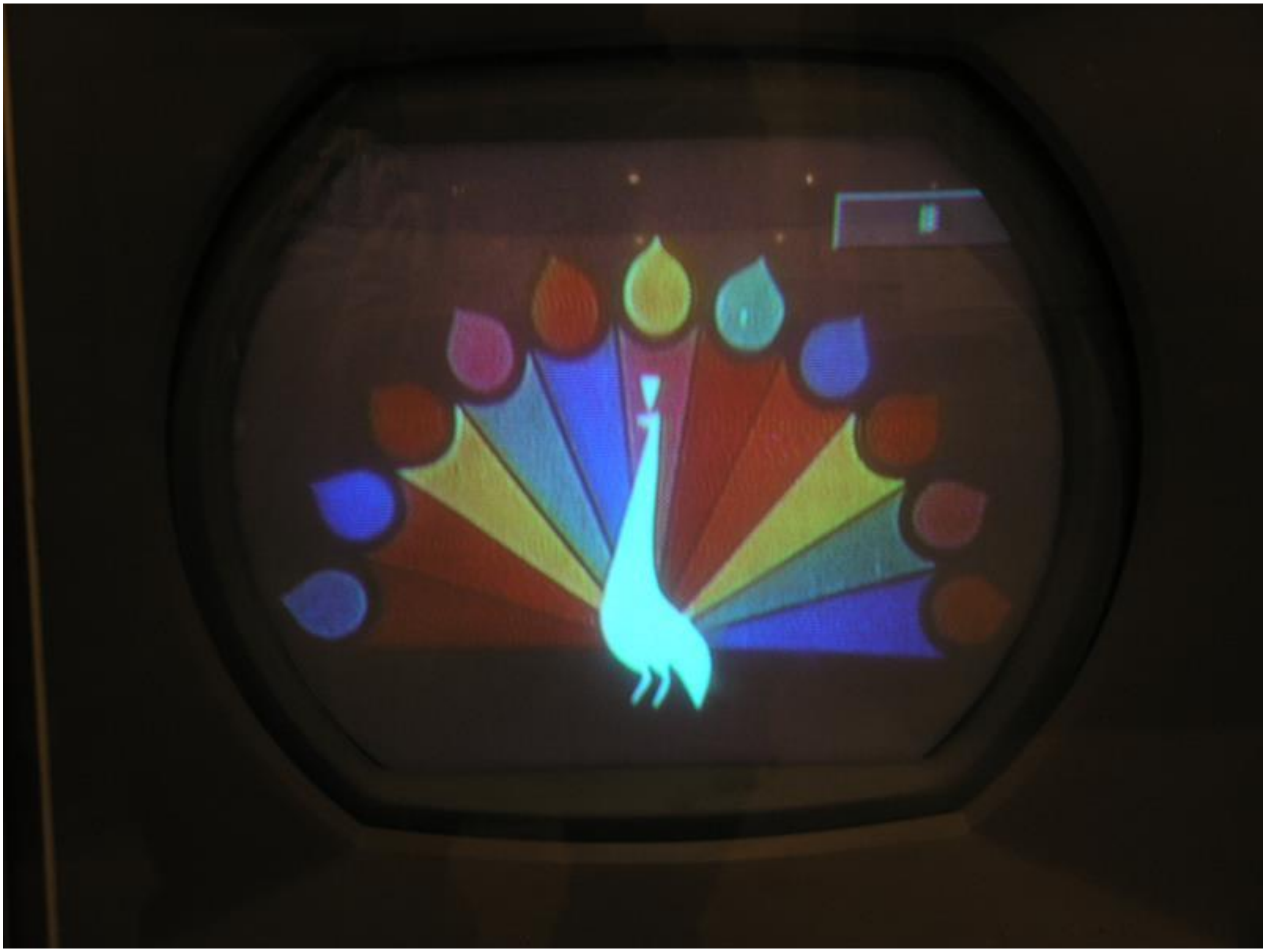

YELLOW
CBS
BLUE
RED


YELLOW
CBS
BLUE
RED


CBS
COLOR
TELEVISION
SYSTEM


YELLOW
CBS
COLOR
TELEVISION
SYSTEM
BLUE
RED


CBS
COLOR
TELEVISION
SYSTEM

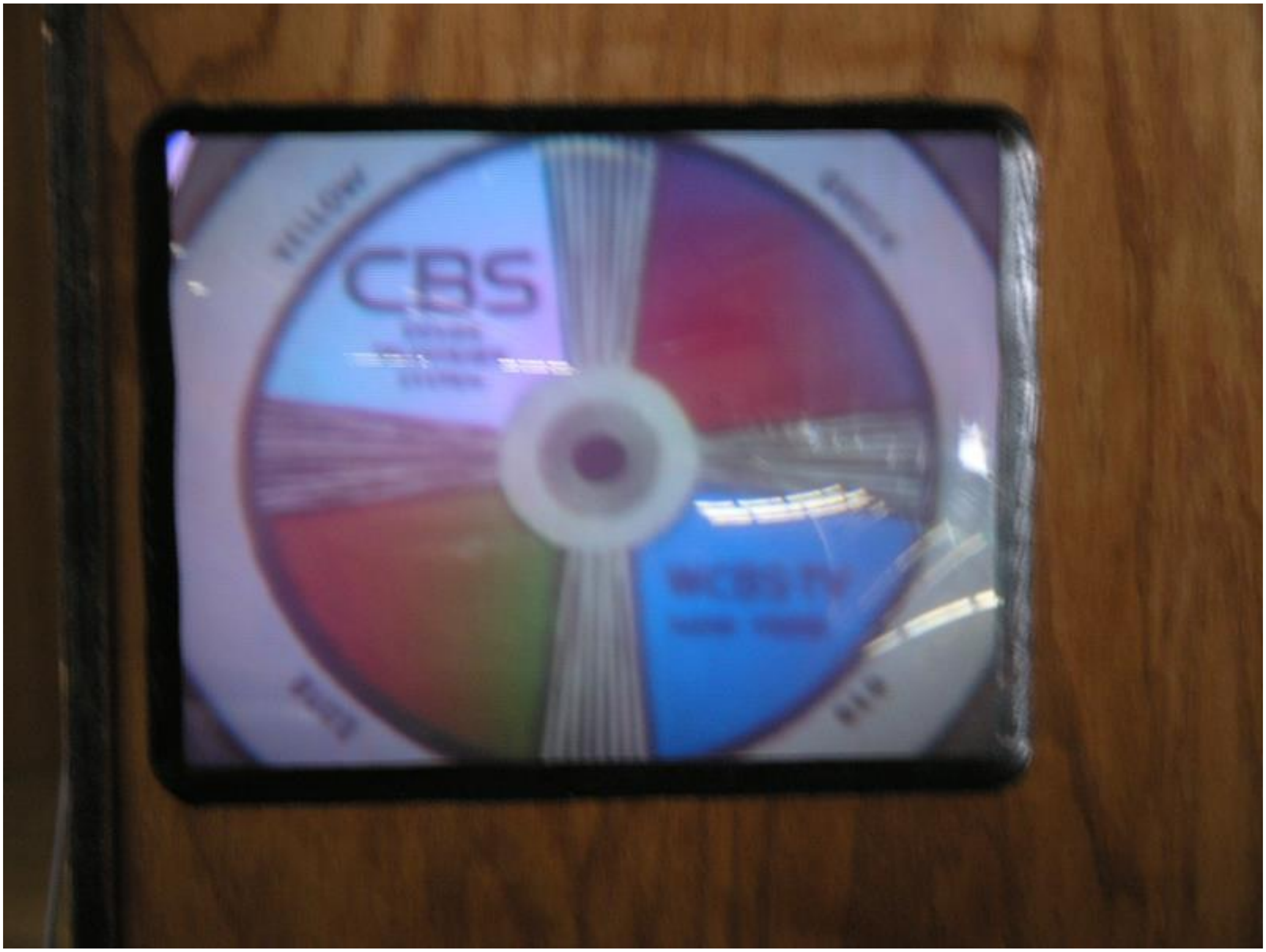



COLOR TV


COLOR TV


CBS Color Converter

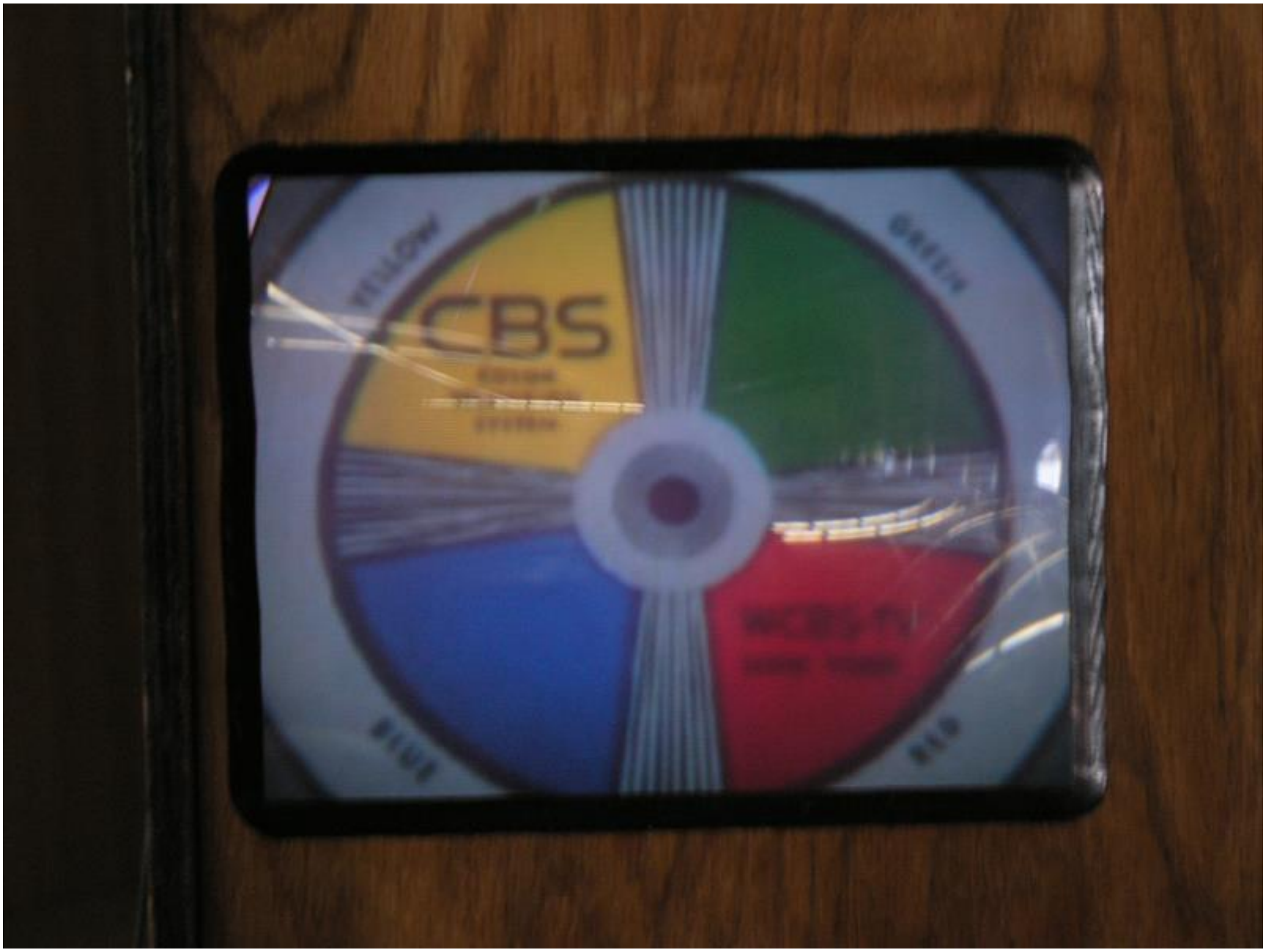

CBS
WCBS-TV

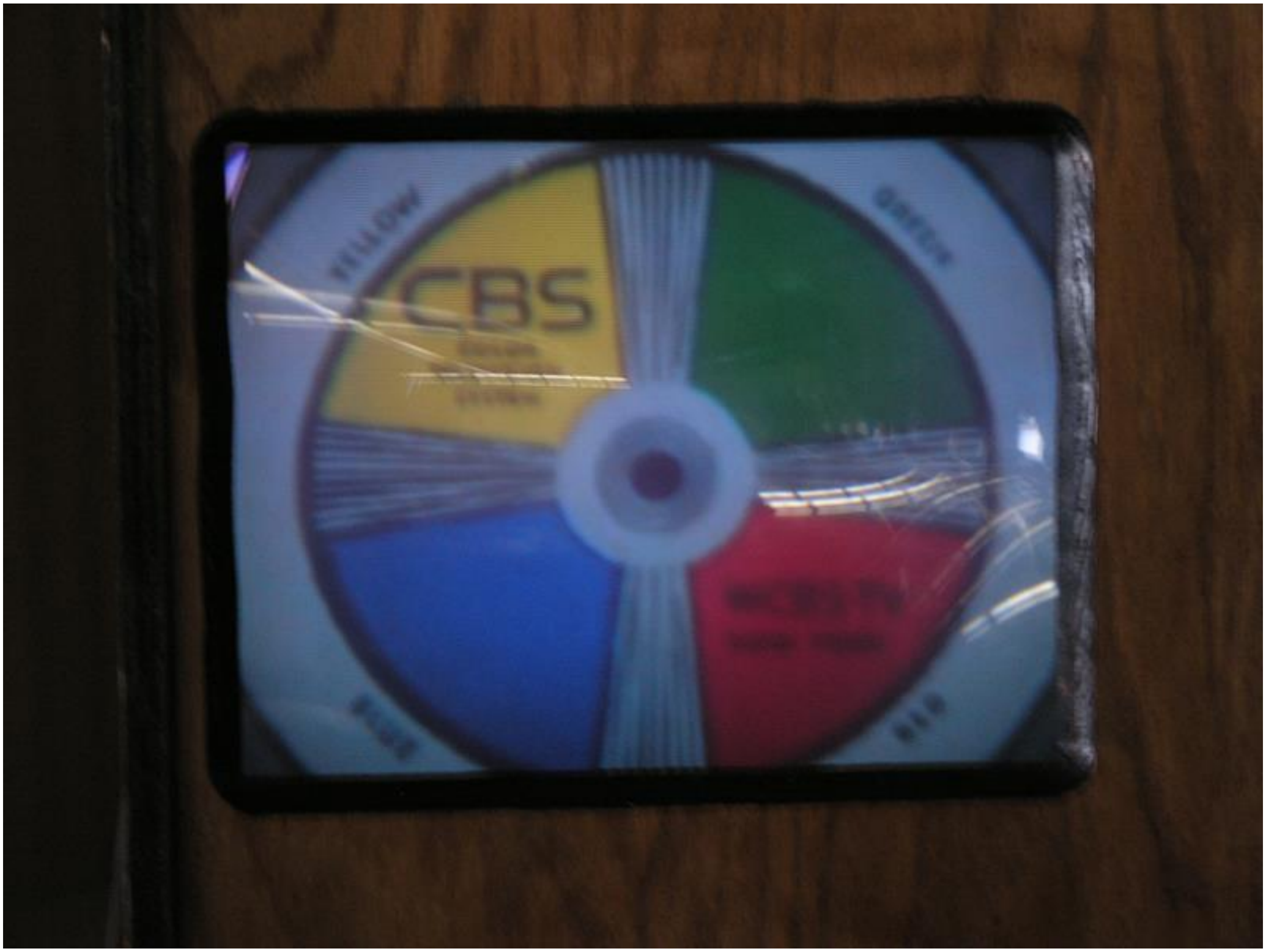

CBS
WCBS TV

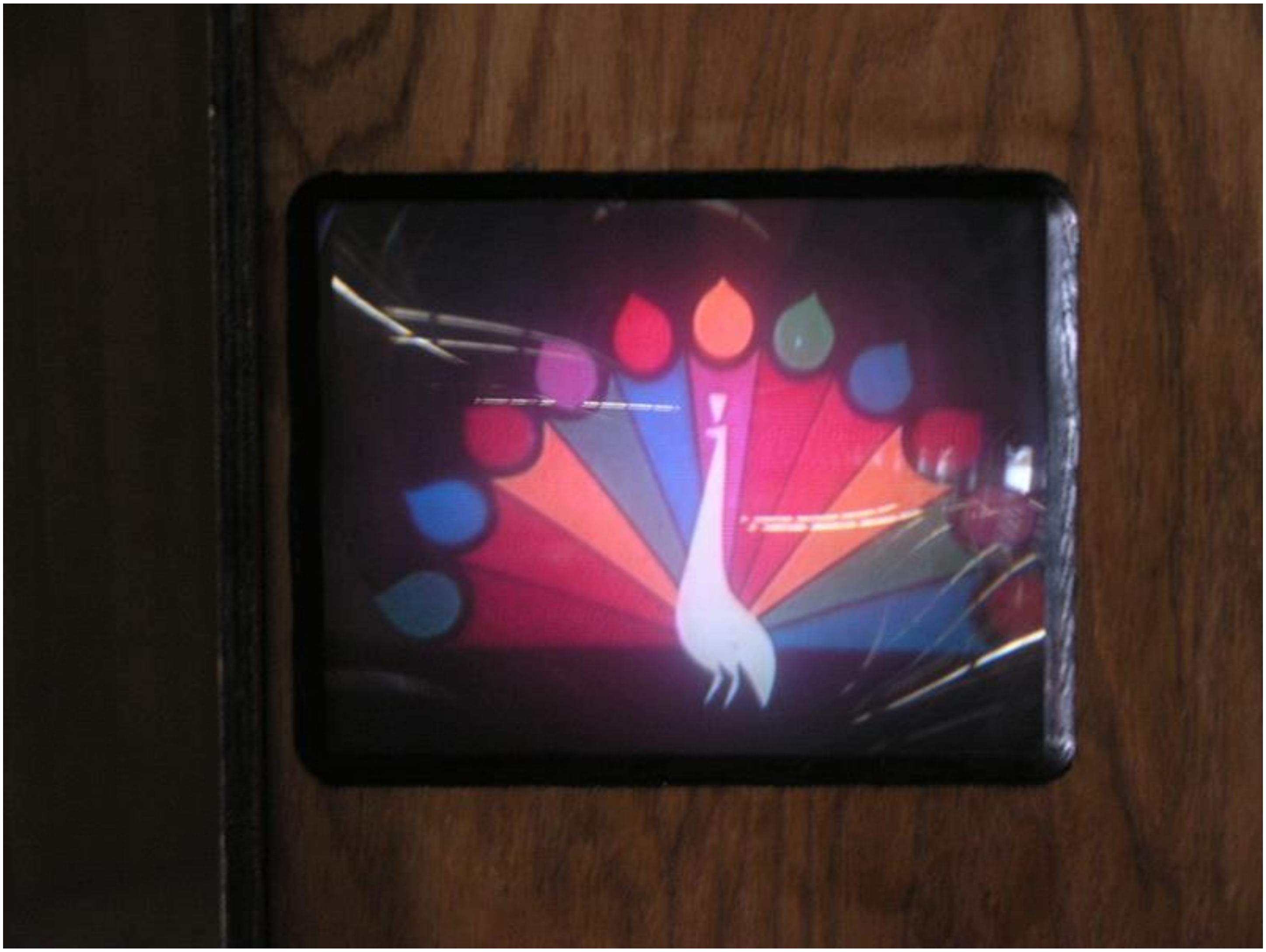

CBS

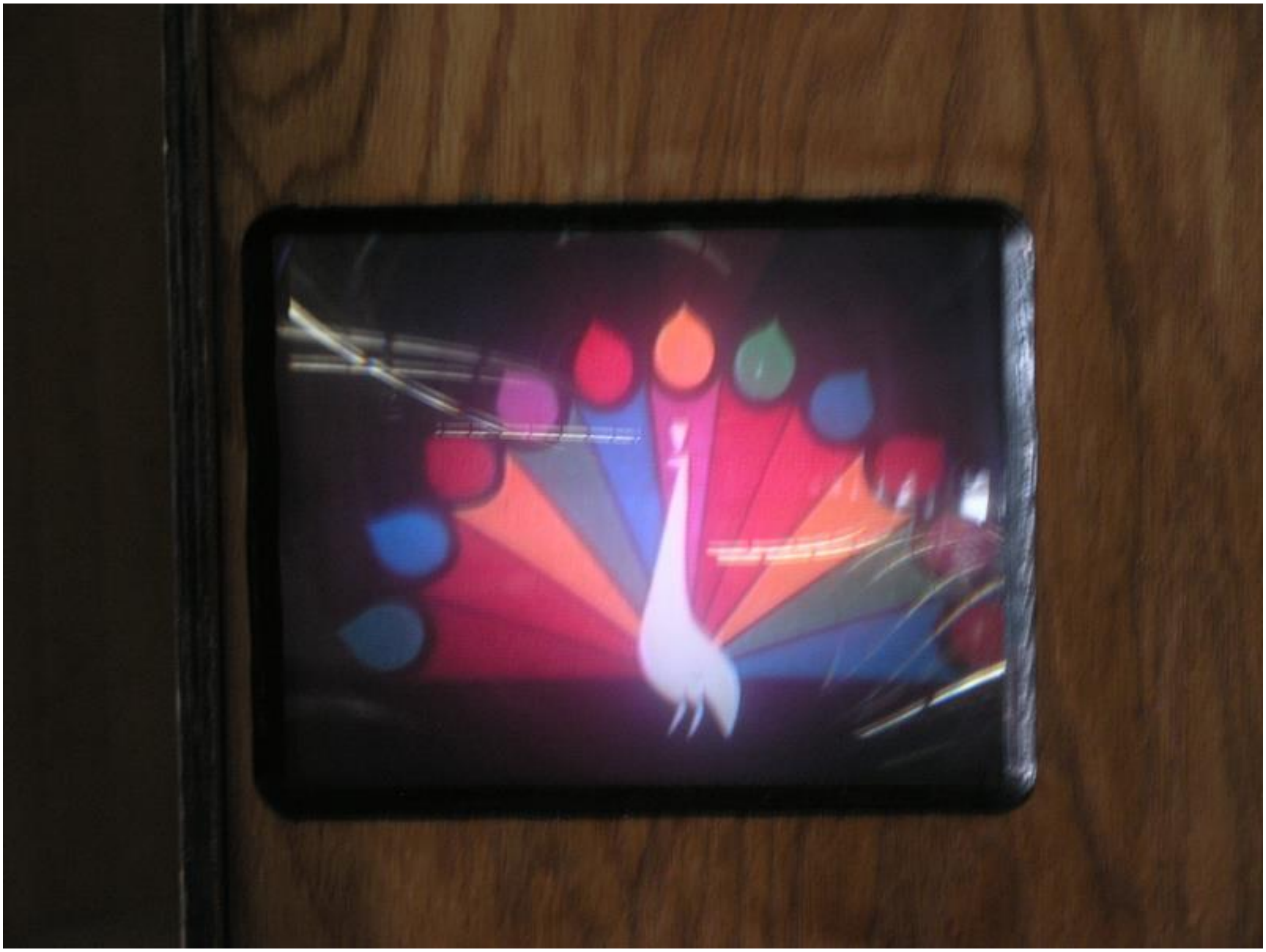

YELLOW
CBS
WCBS TV

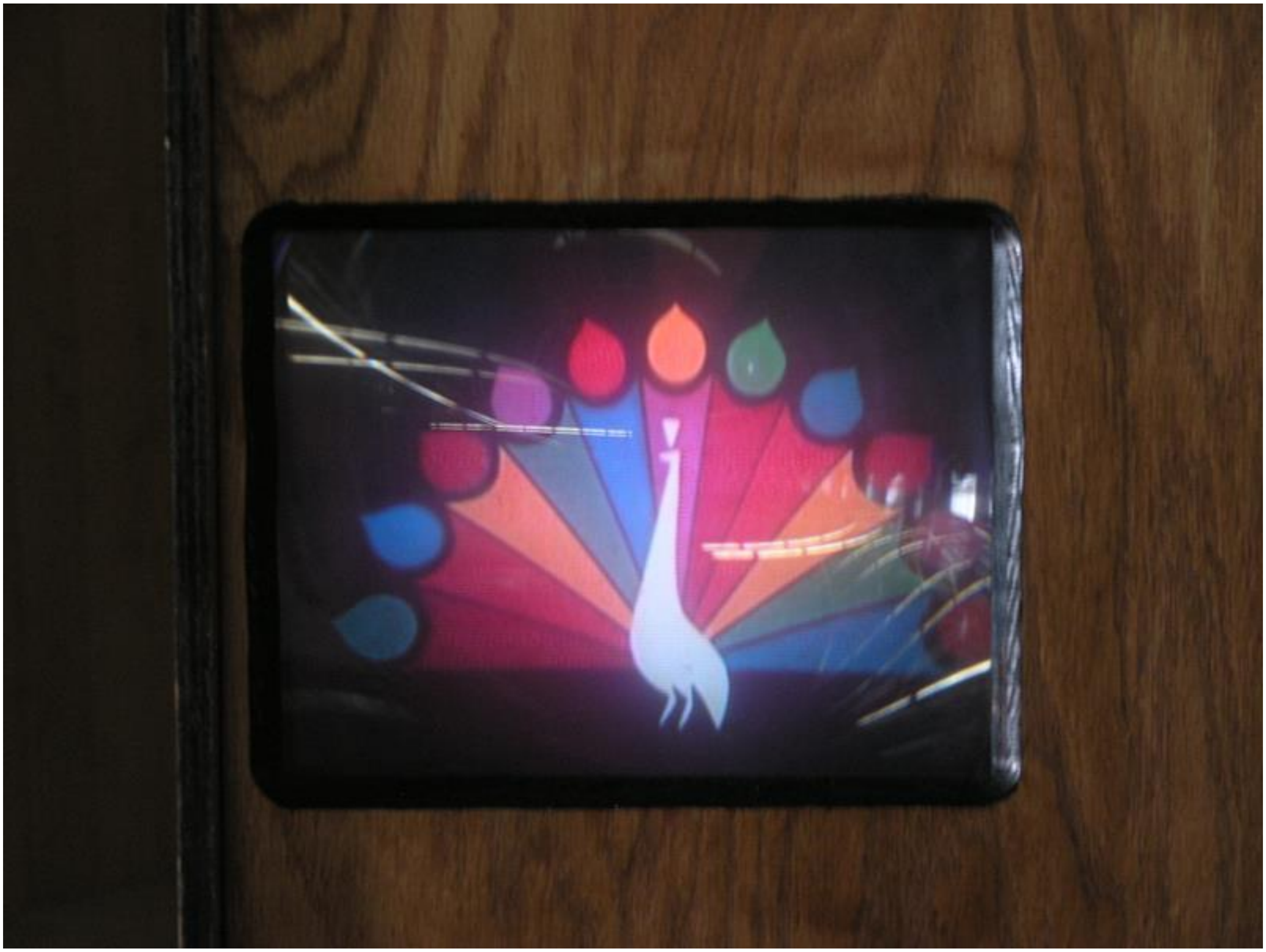

CBS
WCBS-TV

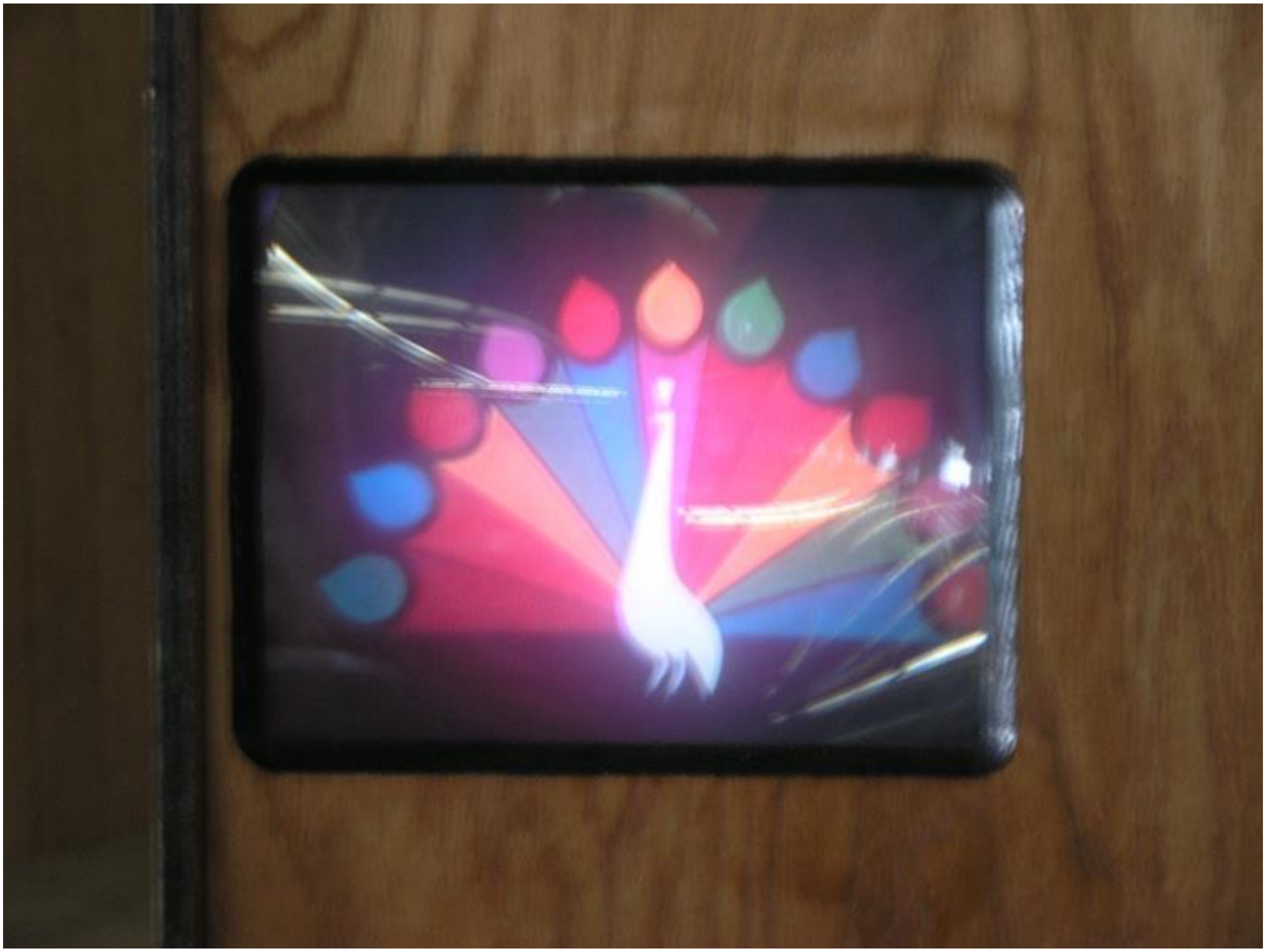

YELLOW
GREEN
CBS
WCBS-TV

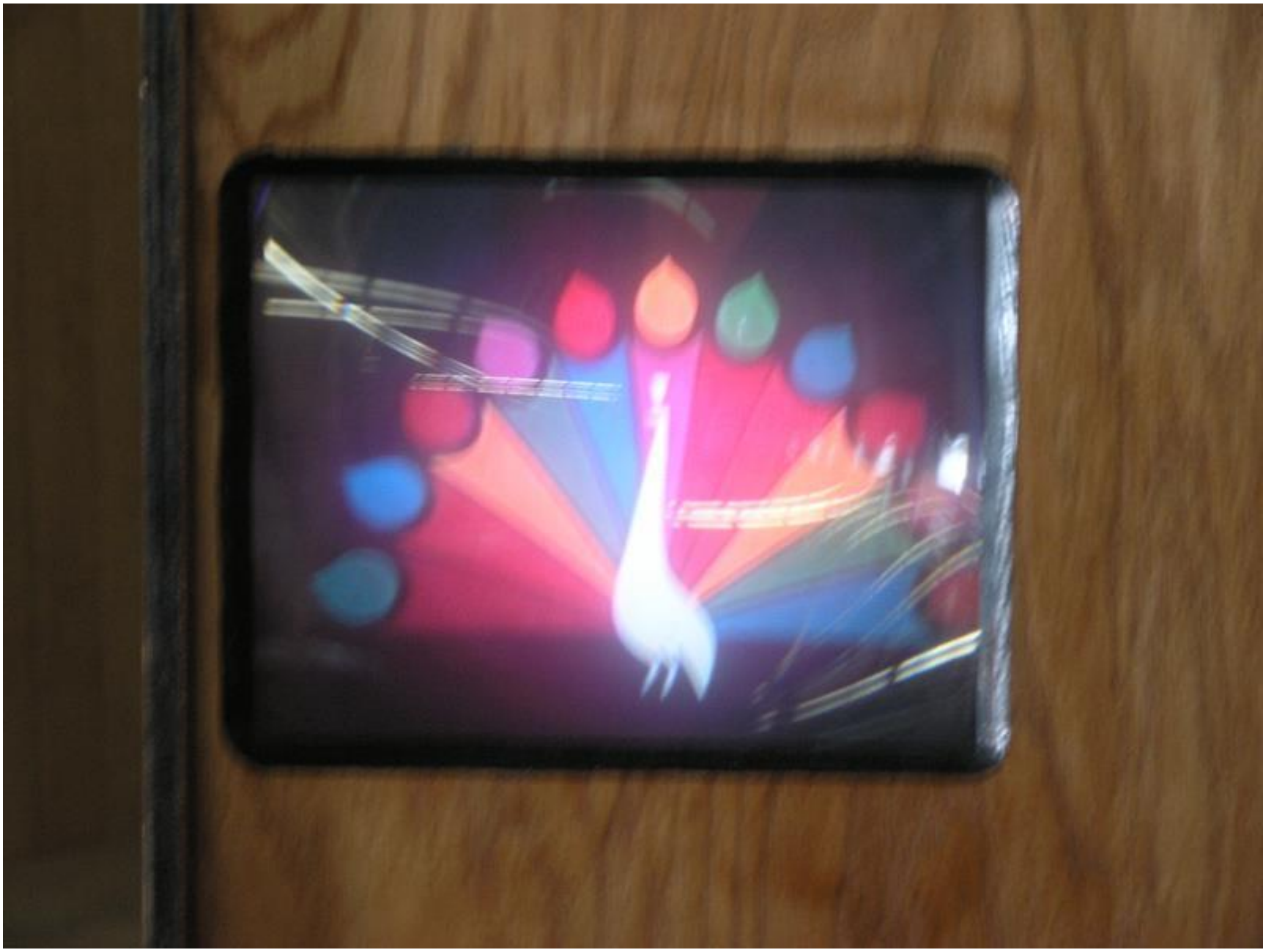

YELLOW
GREEN
CBS

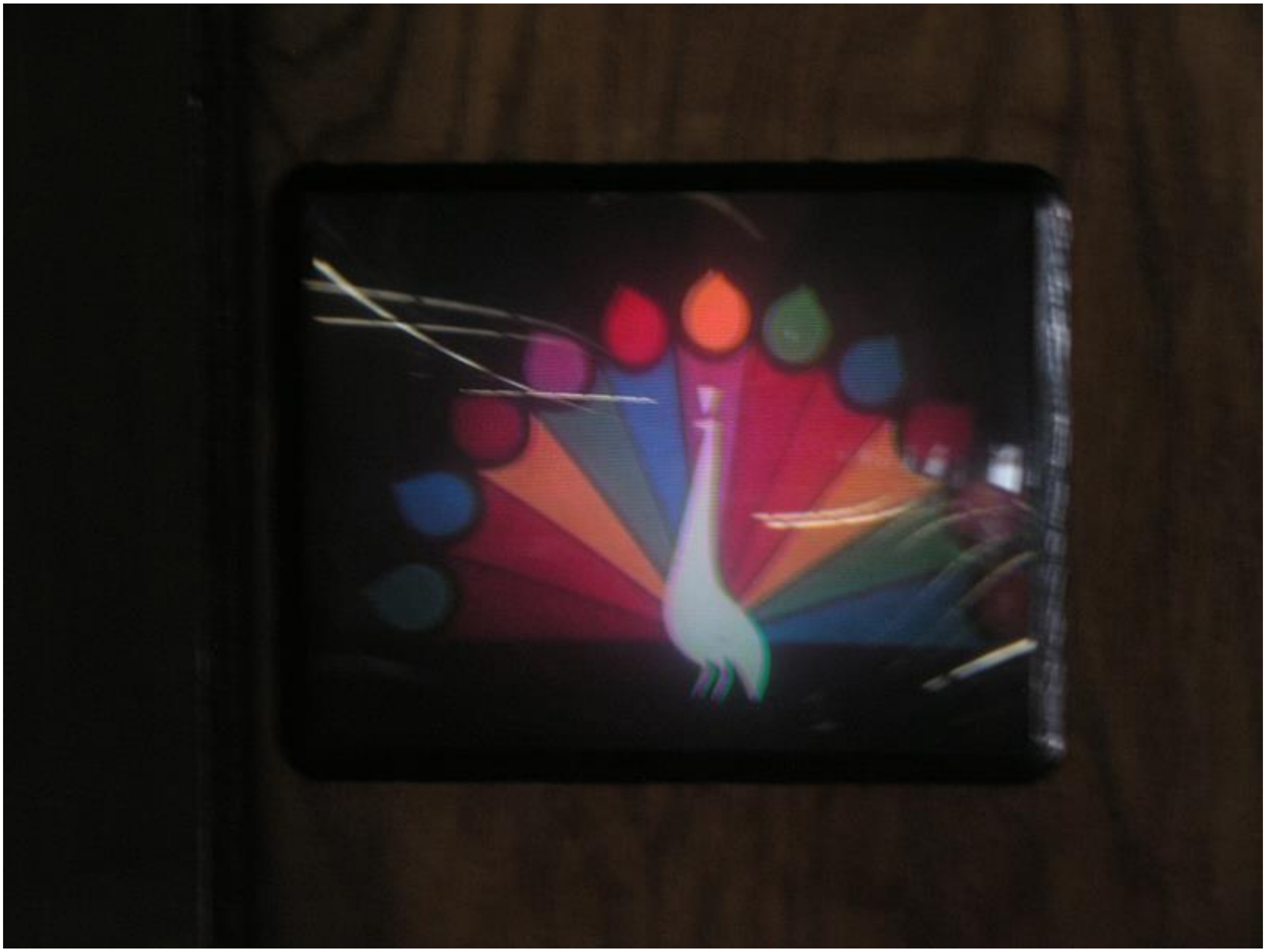






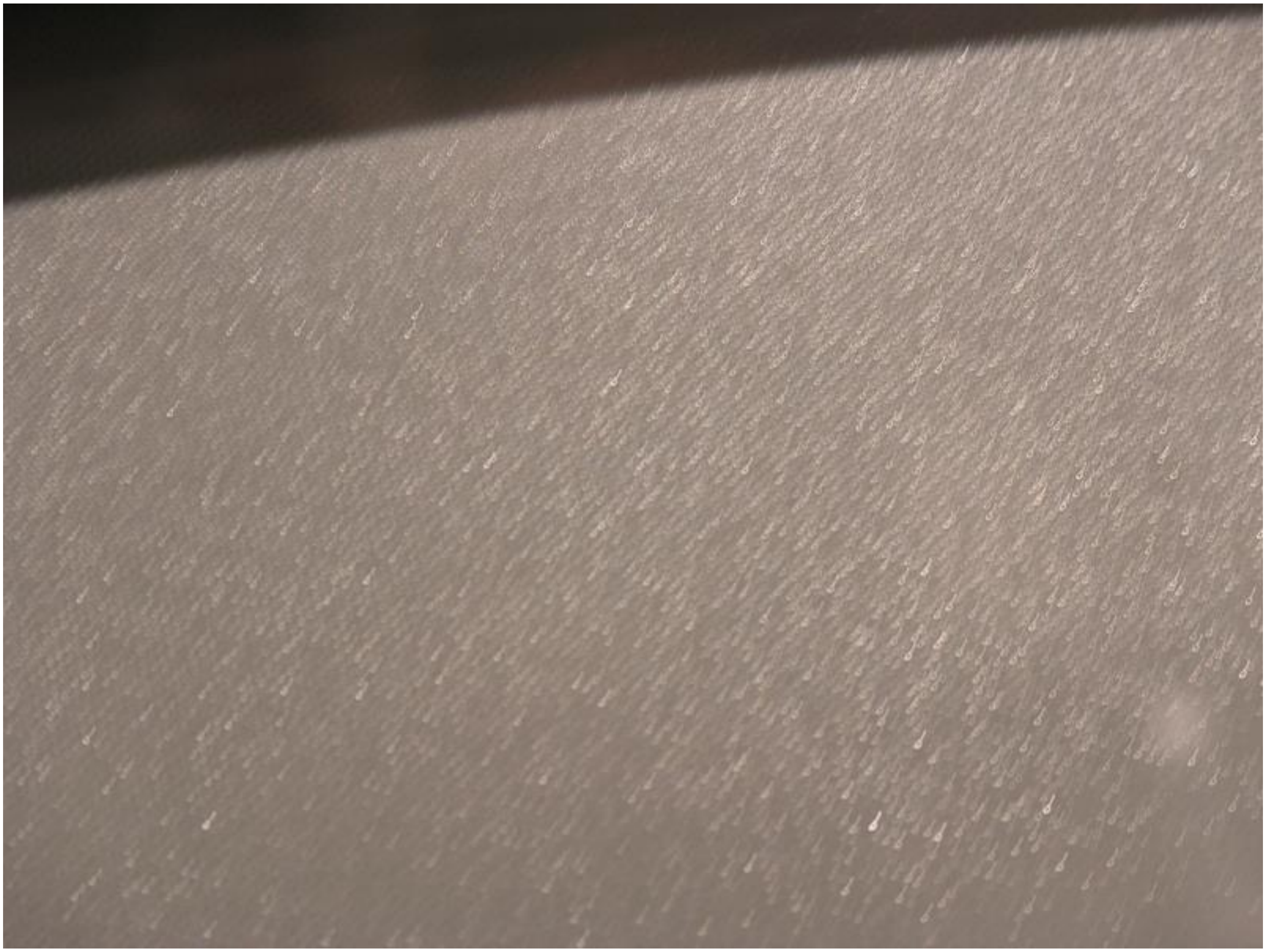






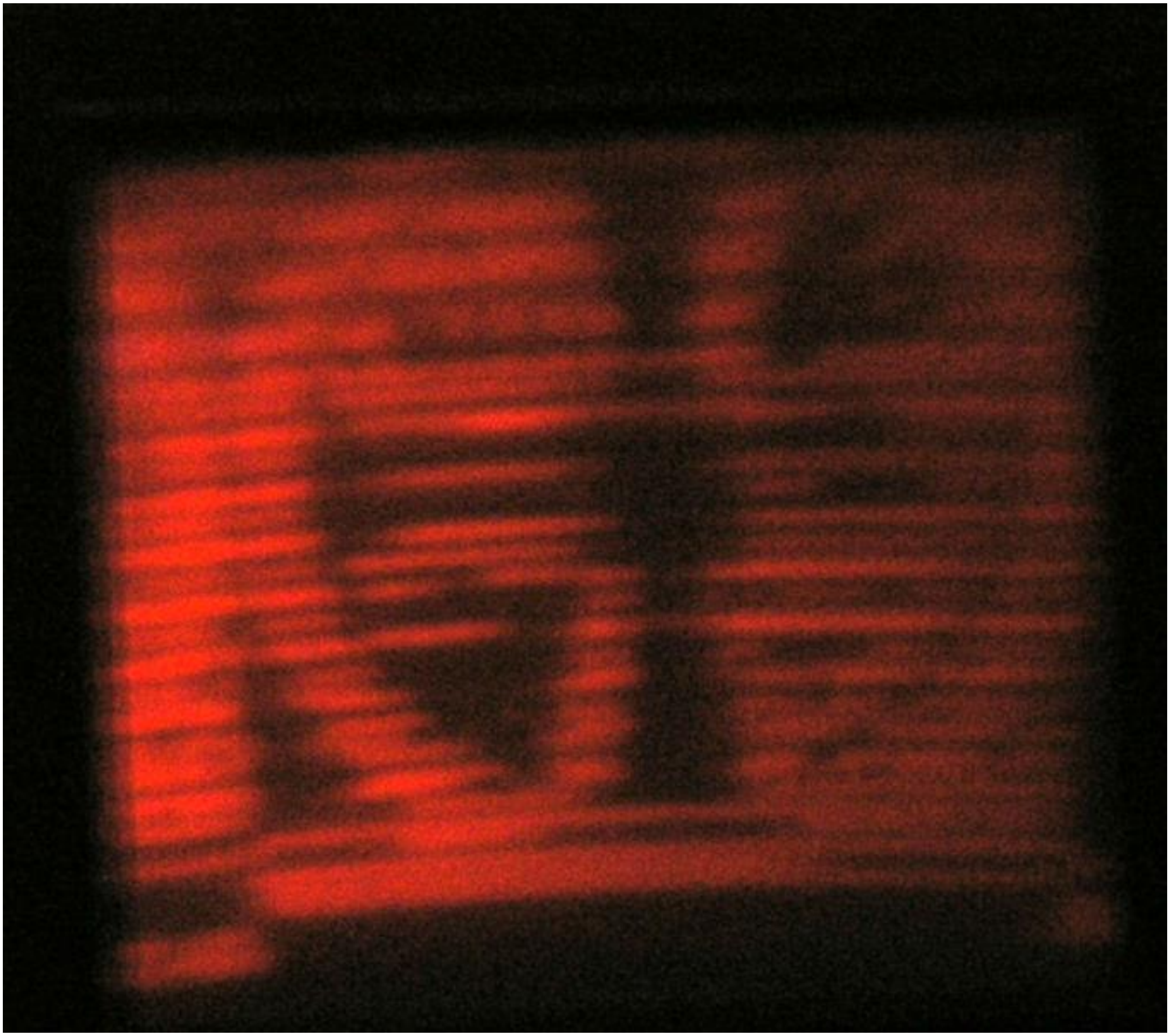

CBS Color Adapter
This adapter is used to connect the color converter to a RCA 9-T-246 receiver. It had a cable (missing) with connectors to put underneath tubes in the RCA set. A switch on the front selects color or black and white operation. The other control is for horizontal and vertical hold.
We plan to restore this adapter and modify a 9-T-246 receiver.


CBS Colortron
265
19VP22
This tube was made by CBS in 1954, and was used by CBS and Motorola in early color sets.




4
TV 13


Diamond




Achtung !