The TELEVISION
SALESMAN'S HAND BOOK

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So You See DU MONT TELEVISION AS WELL AS HEAR

AN AID TO A BETTER UNDERSTANDING OF PRESENT DAY TELEVISION

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Introduction

The new art of Television is sure to be accepted with open arms by the entertainment and novelty loving American public. The interest which it has created can only be realized by being in the position of having a thousand and one questions directed at you daily and this is the position in which every Deedel's Salesman will soon find himself. It is with this in mind that Du Mont has prepared this Television Salesman's Handbook, in order that the alert and progressive salesman may bring himself up to date on the developments of television during the past decade or more.
The DU MONT ORGANIZATION

Many organizations have contributed to the perfecting of the art of Television and a discussion of this progress will be given further along in this handbook. When a prospective purchaser of a Television Receiver asks questions they may cover a multitude of angles but the one primary consideration will be the reputation and experience of the manufacturer of the product. Du Mont receivers are manufactured by Allen B. Du Mont Laboratories, Inc. of Passaic, New Jersey, an organization founded eight years ago for the purpose of developing cathode-ray tubes and circuits allied to Television. At the time this company began operations there was no television and little prospect of any immediate return from this field. Mr. Allen B. Du Mont, the president and founder of the company, had much experience in the development of vacuum tubes having been employed in this division of Westinghouse and later held the position of Chief Engineer of the DeForest Company. Mr. Du Mont had gone through the experimenting of mechanical television and realized that the only answer to successful Television was the cathode-ray tube. At that time the cathode-ray tube was not a new discovery but there was a great need for its improvement and general development. Equipped with this knowledge and purpose Mr. Du Mont with the aid of a few well chosen assistants began the task of making the cathode-ray tube commercially practical for Television and laboratory work. With only theory, a few existing cathode-ray tubes, which were only designed to last a maximum of 40 hours of operation, and a wealth of ideas Mr. Du Mont has developed the cathode-ray tube to its present state of perfection. An example of this achievement is the 14 inch cathode-ray tube or "Teletron" used in the Du Mont Models 180, 181 and 182. This tube is guaranteed for 1000 hours of operation and has an anticipated life of 2000 hours or better.

Allen B. Du Mont Laboratories, Inc. have operated a business of manufacturing and marketing cathode-ray tubes, oscillographs and allied equipment to engineering and college laboratories. It is this business which has given Du Mont the necessary experience to design and manufacture dependable Television receivers at quality which will build for it a reputation with the public equal to that for which it is known in the engineering field. With the able assistance of Paramount Pictures Inc. Du Mont holds an enviable position in the Television field today. Du Mont was "first" to place a commercial Television Receiver on the American market and will lead the field through the years of progress in this new industry.

The HISTORY OF TELEVISION

The possibility of seeing events at places remote from the observer has been a dream of humanity for countless centuries. As early as 1880 specific proposals were made as to how this might be accomplished. Only meager results were obtained until around 1925 when Jenkins in America and Baird in England succeeded in transmitting low definition pictures. No major improvements were made by these experimenters, but they made use of numerous technical advances that had taken place. Since that time further advances in technique and design have rendered high definition television a reality.

It might be well at this time to point out some of the more important contributions by various scientists and engineers which made the present system possible.

In tracing the development of television, it must be remembered that every system of electric vision which has been proposed depends fundamentally upon certain physical changes which are produced by light. If the phenomena known as photo-electricity were non-existent all television would be impossible, and the possibility of television, therefore, may be said to date from the original discovery of the electro-chemical effect of light by Becquerel in 1839.

The chemical changes observed by Becquerel could be put to no practical use, and it was not until 1873 that the first photo-electric effect of practical value was observed by a telegraph operator named May who was using some high resistances composed of the metal Selenium. May observed that his instruments behaved erratically whenever the sun shone on the resistances, and the effect was traced to a decrease in the resistance of Selenium when exposed to light.

The announcement of this discovery led within a short time to speculation on the possibility of transmitting pictures and scenes a distance by means of electricity, and within a few years a number of schemes were put forward. For various reasons, however, they were all impracticable at the time.

One of the earliest proposals of which details were published was put forward in 1880 by Ayton and Perry. They proposed to use a transmitter consisting of a large screen made up of small squares of Selenium and to project an image of the scene to be transmitted on to this screen by means of a lens. Each square of Selenium was to be connected by a separate wire to the corresponding point in the receiver where a magnet and light source was located. The magnet operated an aperture which allowed a varying amount of light to be passed thru it depending upon the light received on the Selenium at the transmitter. Hence by having a sufficient number of cells and light sources connected to each other a complete picture could be obtained. To obtain a picture of corresponding detail to the present 411 line picture over 5,000,000 cells, connecting wires and light sources would be necessary so the reason for this scheme’s failure is obvious.

Nipkow’s patent of 1884 disclosed a method of scanning which employed a disc of large diameter near the periphery of which was a series of small holes arranged in the form of a spiral. The transmitter employed a Selenium cell, the only practical form of photo-electric known at the time. His receiver, however, employed an ingenious system...
of light modulation which depended on the property possessed by thin glass of rotating the plane of polarization of light when situated in a magnetic field. Although this system, because of the slowness of selenium and the lack of means of amplification was too insensitive to give practical results, the basic idea of the scanning disc has been used extensively.

The modern cathode-ray tube used in television is a development of the Braun-Wehnelt tube, which was in laboratory use at the beginning of the century. The effect produced by the discharge of electricity thru a vacuum had been investigated since 1889, and the name "cathode ray" was given by Plucker to the discharge of electricity from the cathode of a vacuum tube when a high potential was applied to the anode. It was later shown that this discharge produced fluorescence of the glass walls of the tube, due to bombardment by particles of electricity to which the name "electron" was given by Johnston Stone in 1890.

In the Braun tube of 1897, the electron stream emitted from the cathode when a high potential was applied to the anode was directed thru the tube, and after passing thru an aperture imaged on a zinc screen coated with fluorescent material. The point of impact of the beam was thus made visible, and by applying an external magnetic field the beam could be moved so as to fall on any point on the fluorescent screen.

In 1905 Wehnelt added an important improvement to the Braun tube by using a hot cathode—a strip of platinum coated with oxides and heated electrically to red heat. The increased electron emission obtained with this cathode enabled a much lower potential to be applied to the anode of the tube and gave a fluorescent spot of greater brilliancy, at the same time greatly increasing the deflection sensitivity of the tube.

Up to this time no attempt had been made to reduce the spot on the screen to the smallest dimensions, although the advantage of such a refinement was understood. The early tubes had metal diaphragms which limited the section of the beam, but in 1897 Ryan showed that a magnetic coil surrounding the neck of the tube had a focusing action on the electron beam, and by varying both the position of the coil and the value of current thru it, an exceedingly sharp spot could be obtained.

Another improvement was the insertion of a cylinder or shield surrounding the cathode called a Wehnelt cylinder, which, on applying a suitable negative potential, acted as a pre-concentrator of the electron stream and directed it up the tube in the form of a narrow jet.

In 1907 a patent was granted to Bois Rosing for a system of television in which a cathode ray tube was used as the receiver. Rosing’s transmitting arrangements were similar to many others, and used two mirror drums revolving at right angles to each other at widely different speeds to scan the image. The varying current impulses from the photo-cell were transmitted to the receiver where they were caused to charge two condenser plates in the cathode ray tube. The fluctuating charges on these plates caused the beam of electrons projected from the cathode to be deflected away from an aperture, and the amount of the beam which passed thru the aperture was proportional to the potential of the plates and thus to the degree of light and shade in the original scene. Having passed thru the aperture, the electron beam was caused to scan the surface of a fluorescent screen placed at the far end of the tube and so to reproduce the original image.

Successful results were never obtained with this scheme partly on account of the crude forms of photo-cells and cathode ray tubes then available, and partly on account of the lack of any means of amplification.

Shortly after this, Campbell Swinton proposed a system of television utilizing two cathode ray tubes of appropriate design, one at the transmitter and one at the receiver, and in 1911 he described the system before the Röntgen Society.

It will be noticed that this system has almost no basic difference with the present electronic methods of pickup and viewing.

Campbell Swinton conceived the idea of a mosaic screen of photo-electric elements which were to form a part of a special cathode ray tube. The image of the scene to be transmitted was to be projected on the mosaic screen by means of a lens, and the back of the screen was to be scanned by a beam of cathode rays controlled magnetically by the currents from two alternating current generators. The cathode ray beam in the receiver was synchronized with that in the transmitter by means of deflecting coils connected by wires to the same generators as the transmitter, and a separate conductor carried the photo-electric currents for modulating the receiver beam.

In 1911 the three-electrode amplifying tube of Lee DeForest was practically unknown, and hence this system was never tried. Our present television is only possible with the addition of this vastly important invention.

And so we jump to 1925 when Jenkins in America and Baird in England within a few months of each other actually succeeded for the first time in transmitting crude pictures from a transmitter to a nearby receiver. Each had utilized many of the contributions previously enumerated, which were essential for successful operation, and neither had added any new basic features to make this possible. From this time progress was much more rapid, and although the bulk of the work done was on mechanical systems, definite improvement was shown. Many scanning systems were tried utilizing devices such as the Nipkow disc, mirror disc, lens disc, mirror drum, lens drum, mirror screw, vibrating mirror, rocking prism, sliding prism, prism rings and many others. In spite of all this, in 1933 the picture being transmitted consisted of only 50 lines at a speed of 20 pictures per second which was entirely inadequate as regards detail and flicker. Furthermore, the defects of the mechanical systems had been made only too apparent. Rapidly moving parts caused noise and difficulty of synchronization—bulky and costly apparatus as well as excessive mechanical accuracy caused experimenters to look for other means of accomplishing the transmission of higher definition pictures.

And so we take another jump to the present time when on April 30th, 1939, a regular schedule of telecasting will begin. It is only right that Television should at this time emerge from the laboratory to bring this thrilling new form of incomparable entertainment to the home. The technical aspect of television at this time is such that it can progress but little further without the able assistance of the public, who are the most sincere and constructive critics. It will
be found that the pictures have reached a point of perfection which compares favorably with good 16 mm. home movies which have been so popular during the last few years. We believe that this quality will meet with public favor and that thru the cooperation of the public, with research, Television will grow successfully until it has become as commonplace as present day radio.

The systems now being used are entirely electronic, and no mechanical moving parts are to be found at transmitter or receiver. Again, we can say that this has been accomplished by a gradual improvement in details rather than by any basic new invention. The scanning disc at the transmitter has been replaced by the photoelectric mosaic pickup tube somewhat similar to that originally proposed by Campbell Swinton in 1911 but with many refinements. The reproducing of the picture at the receiver is accomplished by the cathode ray tube, a refinement of the Braun tube of 1897. These two tubes are the basis of our present Electronic Television Systems.

A television program begins in the television camera, which "views" the scene in the studio or through which movie film is run (see chart). The camera is a large box carefully mounted so that it can be swung in all directions to follow the action of the program. The box contains a lens at one end which focusses the scene on a flat plate, mounted in a vacuum within the camera. This plate serves the same purpose as the plate in an ordinary camera — that is, it serves to transfer the image focused upon it into a latent image.

In ordinary photography, the latent image is photochemical in nature and is developed chemically. In television, the latent image is photo-electrical in nature. Actually, the screen surface is a mica sheet on which are deposited millions of tiny drops of silver whose surfaces are sensitive to light. When light is focused on these drops by the lens of the camera, they acquire a positive electric charge. The amount of charge acquired by each drop is in direct proportion to the amount of light falling on it. In consequence, the lights and shadows are transformed into a latent image in electric charge.

The electric charge is then removed from the plate, bit by bit, through the agency of an electron beam which scans the plate in much the same way as the eye scans a page of printed matter. The scanning motion is in a series of fine parallel horizontal lines, which are explored from left to right, one after the other*, in the same manner as each line is read in a column of type.

The electrical "highlights" and shadows of the image — the electrical charges which exist on each silver drop in each line — are removed by the beam in the form of electric charge impulses and impressed on the transmission circuit. The variations in charge are transmitted by the circuit, which must preserve faithfully all the subtleties of electrical "shading." After arriving at the transmitter, the impulses are impressed on an ultra-sion carrier wave and radiated from the antenna.

At the receiver the process is reversed. First, the ultra-sion wave is picked up and amplified by the receiver and then "detected." The detector tube restores the signal to a form which is substantially the same as it was when it left the camera in the studio. This signal controls the image-reproducing tube (cathode-ray tube). This most essential tube is an evacuated, funnel-shaped, glass structure containing a source of electrons which are sprayed, something like water from the nozzle of a hose, on the fluorescent screen that forms the wide end of the funnel. This closed and slightly rounded end of the cathode-ray tube is the screen on which the image actually appears.

When the stream of electrons strikes the screen it creates a spot of light. The brilliance of this spot is controlled by the picture-impulse signal. Furthermore, the direction of the beam is controlled electrically, so that the spot moves across the screen in a series of lines, fluctuating in brilliance as it goes. The motion of the spot causes it to scan the screen surface in exact synchronism with the moving electron beam in the television camera. The moving spot traces out the highlights and shadows of the scene, line by line, until a complete picture is covered. This process consumes 1/30th of a second (see footnote*). Thereupon the spot moves to the top of the screen and traces out another picture in the next 1/30th of a second, and so on.

Some idea of the technical problem present in "photographing" and reproducing the image may be gained from the fact that the electron beam (in the camera and cathode-ray tube) moves across each line in the image at a rate of about 2½ miles per second, and that it changes in intensity (to recreate the detail of the image) every 1/50th of an inch. The image contains about 400 lines (actually 441 lines are used but 40 of these are not active in forming the visible picture).

The sound accompanying the picture is taken care of by a separate transmitter. A microphone in the studio is moved about to follow the action of the program and is kept out of the view of the camera, in the same way as in the filming of movies. The microphone feeds into amplifiers and then into a separate broadcast transmitter.

At the receiver, the sound signal is amplified, detected, and applied to the loudspeaker. The circuits are so arranged that only one tuning dial (or push-button) is required to tune in both sight and sound. Hence it is
impossible to mix the picture from one station with the sound from another.

An ordinary sound radio set contains three controls: one for station selection, one for volume, and one for tone. The television set has these controls, and a minimum of two others for fixing the brightness of the picture and regulating the contrast of range of light between highlights and shadows. Other subsidiary controls to regulate focus, centering, and the width and height of pictures are available, but are usually not adjusted after the installation of the receiver.

A very high voltage (judged by ordinary standards) is required to operate the image-reproducing tube — from 1500 to 7000 volts depending on the size of the tube and required brilliance of the picture. Care is taken to protect the user from this voltage, and it need be no more dangerous than the 15,000-volt hazard associated with spark-plugs in an automobile, if the circuit is properly designed.
A television program begins in the studio with the camera for the visual system and the microphone for the sound system, both functioning separately but synchronously. In the camera, the image which is being "viewed" is focused on a photoelectric plate, where it is scanned by an electron beam and where the picture elements are converted into electrical impulses. These impulses — 6,000,000 every second — move through an amplifier and a transmitter over coaxial cables to the antenna atop a skyscraper where they are broadcast.

At the receiver, sight and sound signals are picked up and amplified. They move then through detectors in which the video signal is restored to the form in which it left the camera. In the cathode-ray tube an electron beam traces the picture on the screen.
The TELEVISION SALES PICTURE

At the beginning of any new industry there is always a certain class of buying public which will buy on novelty value alone or because they are always the first in their particular circle to own any new product or gadget. This type of sale is rather limited, however, and we must look to the real entertainment value of Television for our bulk sales.

Large Pictures

Du Mont’s experience and the surveys which we have made indicate a preference, on the part of the prospective purchaser, for a Television receiver with picture of approximately 8 inches by 10 inches and this prime requisite is supplied in the Du Mont 150 series Television receivers which all employ a 14 inch cathode-ray tube. The usable screen area of this large bulb due to its spherical shape is only 8” by 10” but the design of this bulb insures safety. We must bear in mind that the bulb of a cathode-ray tube is evacuated and therefore the surface of the bulb is under an atmospheric pressure of approximately 14.5 lbs. per square inch. On a bulb as large as the one mentioned it is obvious that the pressure on its surface is in the order of several thousand pounds which might cause collapse. With these facts in mind we realize that the obvious idea of using a rectangular glass blank with a flat window instead of the Du Mont onion shaped bulb is neither safe nor practical.

While we advocate the large size screen Du Mont will also have several models of receivers in the 150 series to employ a nine inch cathode-ray tube which provides a picture approximately 5 inches by 7 inches. These receivers will meet the demand for a less expensive set which will embody the quality features of the more elaborate Du Mont receivers. We believe that these nine inch receivers will eventually make sales for the receivers with larger screens.

Direct Vision

Du Mont believes that direct vision, that is, viewing the screen of the tube directly without the use of mirrors or lenses, is the best method. Less light is lost in this manner and a wider angle of vision is provided. In addition the scenes and subjects appear more life-like and an illusion of the sound coming from the screen is produced. In England many of the first receivers appeared with Mirror Vision, but after two years of experience, due to public demand, the trend has changed to direct vision. The mirror vision units have one feature in their favor and that is that they may be housed in cabinets of more conventional design due to the fact that the cathode-ray tube which is necessarily long may, in this case, be mounted vertically. The Du Mont line, however, provides both the direct and mirror vision types.

Programs

One question which the prospective purchaser is sure to ask is, “What will I see?” This is, of course, a most important question but unfortunately one which is very difficult to answer at this time. It is logical to assume, however, that N.B.C., C.B.S., and Du Mont will be on the
air several hours daily with varied programs. Many of these in the beginning will be television film, news and short subjects. Direct pickup from the studio will be used to some extent and events of interest will, no doubt, be picked up by mobile unit, transmitted to the main transmitter and Telecast.

We have tried to present a picture of the Television sales possibilities as they appear to date. To foresee what the sales volume will be in this Television service area is extremely difficult but the consensus of opinion among the radio manufacturers and the trade papers indicate that between 20,000 and 25,000 receivers will be sold in 1939. To give any set rules as to what sales problems will confront the salesman in his industry in which there has been no sales is not practical. We believe that the material contained in this handbook will provide the progressive salesman with the information which he needs to be sure of his ground when discussing Television with the prospective purchaser. We know that every salesman has been waiting for the time when he would be able to turn his efforts to Television sales and we are confident that the prevailing enthusiasm among these men will insure success for them and the organization they choose to promote. We feel sure in the thought that Du Mont sales are in capable hands and that Television will be sold on the quality of the receiver and the entertainment that it provides.

25 QUESTIONS and ANSWERS

For your convenience, we have listed 25 questions and 25 satisfactory answers. These are the questions which we have found to be most frequently asked and it is for this reason that we stress them at this point even though the answers to the majority of these have been given in the text of this handbook.

Q.—What will a Du Mont receiver do?
A.—Du Mont receivers models 180, 182, 183, 199 and 192 provide television combined sight and sound entertainment. These receivers are capable of receiving 4 and 5 different television stations when they are available.

Q.—Can | receive the regular radio broadcasts in addition to television sight and sound with a Du Mont receiver?
A.—Du Mont models 181 and 191 incorporate all wave radio in addition to the television sight and sound provided in the models 180, 182, 183, 199 and 192.

Q.—How many television stations can | receive?
A.—The only stations which are in operation at this time in the New York Metropolitan area are the WABC station W2XBS, the CBS station W2XAX and the Du Mont station W2XVT. N. B. C. has announced programs beginning April 26th, 1939, and C. B. S. and Du Mont will probably provide programs shortly thereafter.

Q.—How far away can Television be received?
A.—It is possible for television to be received at great distances from the transmitter. But at the present time, up to 40 to 50 miles is the dependable working range of the Televisiol Transmitters. Programs have been received from B. B. C. transmitter in England, as far away as South Africa but this is considered more as an unaccountable phenomena of ultra short wave transmission than as an achievement.

Q.—What type of programs will be broadcast?
A.—It is logical to assume that N. B. C., C. B. S., and Du Mont will be on the air several hours each day with varied programs. Many of these in the beginning will be television film, news and short subjects. Direct pickup from the studio will be used.

Q.—High voltages are used in Television receiving ranging from 1500 to 7000 volts. Is there any danger of being shocked while operating a receiver?
A.—Du Mont receivers are so designed that it is impossible to get at the high voltages without removing the back of the cabinet. As an additional precaution a safety switch automatically turns off the receiver if the back of the cabinet is removed.

Q.—Is it necessary to view Television in the dark?
A.—No, Television may be viewed under a variety of room lighting arrangements. The two primary requirements to keep in mind are that Television pictures can not compete with daylight and light reflections on the screen will destroy the natural contrast of the picture.

Q.—Will a Television receiver soon become obsolete?
A.—Every up-to-date data and Television development is incorporated in Du Mont Television receivers and unless the present Television transmitting system is changed, three receivers should provide satisfactory entertainment for several years.

Q.—How much do Television receivers weigh?
A.—The weight of Television receivers will naturally vary with the size and design of the cabinet but a good average weight for a receiver similar to the Du Mont 182 console would be approximately 325 pounds. Small table models weigh as little as 80 pounds.

Q.—How many and what kind of tubes are used in Du Mont Television receivers?
A.—The number of tubes used in Du Mont receivers vary. The 180 series employs 21 standard receiving type tubes and a type 144-9 T Teleon or Cathode ray tube on which the 9" by 10" picture is formed. The 190 series employs 19 standard receiving type tubes and a 94-14 T Teleon on which the 9" by 10" picture is formed.

Q.—What is the average life of the Teleon or picture tube?
A.—Du Mont Teleons are guaranteed for 1000 hours of operation within a period of one year but the average life is upwards of 2000 hours.

Q.—What do replacement tubes cost?
A.—The 144-9 T Teleon in the Du Mont 180 series Teleon receivers cost $75 and the 94-14 T Teleon used in the 190 series will cost $60 list.
Operating Instructions

DU MONT SERIES 180 TELEVISION RECEIVERS

CONTROLS

Marked CONTRAST — ON-OFF
Actually this is the volume control of the picture signal. It is adjusted by turning the knob marked INTENSITY to give a picture of pleasing contrast to the individual preference. The brightness of the receiver and the amount of signal received from the transmitter will determine the setting of this control. It is also the power switch used for turning the set on and off.

Marked TUNING

Only one control is necessary to properly tune both the sight and sound channels. Simply adjust the control until the best reception of the sound is secured and your picture will be taken care of automatically.

Marked INTENSITY

The intensity or brightness of the picture is controlled by this knob. It should be retained focused (that is, for the first 10 seconds) when the set is turned on. Further instructions concerning this will be found under ROOM ILLUMINATION.

Marked FOCUS

This control is used to sharpen the individual lines of the picture and never should require further adjustment.

Marked VOLUME

This control is used to adjust the volume of the sound received and has no effect whatever on the picture.

ROOM ILLUMINATION

The reflection pictures may be viewed under a variety of conditions where it is not always convenient to darken the room completely. Adjustments made to meet these conditions will not cause damage to the receiver. Viewing the pictures in dim light is not possible; it always an advantage, as it permits the control of the intensity and contrast controls in a manner that will give picture tone and picture contrast related to those actually used in the studio from which the picture is transmitted.

TO OPERATE

Set the SELECTOR switch to the television channel you desire to receive. Then short circuit the INTENSITY control (turn to Hi) and then start the receiver by means of the ON-OFF switch (marked CONTRAST). After the set has been in operation about 10 minutes, advance the INTENSITY control until the screen has its brightness. The sound TUNING control can now be used to tune in the sound channel and the sound VOLUME control adjusted to give the desired volume of sound. With the tuning of the sound channel completed, advance the VOLUME control to give the desired volume of sound. With the tuning of the sound channel completed, advance the VOLUME control to give the desired volume of sound. After the tuning of the sound channel completed, advance the VOLUME control to give the desired volume of sound. Finally a slight adjustment of the FOCUS control should complete the tuning process.

Model 180

DU MONT TELEVISION RECEIVER

DESCRIPTION

Cabinet—Large table model, walnut finish
Dimensions—height 24", width 15", depth 25"
Weight—110 lbs. approximately
Screen Size 8" by 10"
Direct Vision
Television sight and sound
Four channels with hand switch selector
22 Tubes
Superheterodyne
Dynamic Speaker
AC operated 110 volts 60 cycles
Power consumption—250 watts
Price $395.00
**Model 181**

**DU MONT TELEVISION RECEIVER**

**Description**

Cabinet—console, walnut finish
Dimensions—height 48½", width 23", depth 26½"
Weight—150 lbs. approximately
Screen Size 8" by 10"'
Direct Vision
Television sight and sound
Four channels with band switch selector
22 Tubes
Superhetrodine
Dynamic Speaker
AC operated 110 volts 60 cycles
Power consumption—250 watts
Also incorporates all wave radio

**Specifications of All Wave Radio**

Three band superhetrodine
Push button and manual operation
8 Tubes
Dynamic Speaker
AC operated 110 volt 60 cycles
Power consumption—55 watts
Price Complete $340.00

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**Model 182**

**DU MONT TELEVISION RECEIVER**

**Description**

Cabinet—console model, walnut finish
Dimensions—height 49", width 23½", depth 26"
Weight—140 lbs. approximately
Screen Size 8" by 10"
Direct Vision
Television sight and sound
Four channels with band switch selector
22 Tubes
Superhetrodine
Dynamic Speaker
AC operated 110 volts 60 cycles
Power consumption—250 watts
Price $445.00
Model 183
DU MONT TELEVISION RECEIVER

Description
Cabinet—low console, walnut finish
Dimensions—height 38½", width 20", depth 25½"
Weight—130 lbs., approximately
Screen Size 8" by 10"
Direct Vision
Television sight and sound
Four channels with hand switch selector
22 Tubes
Superheterodyne
Dynamic Speaker
AC operated 110 volts 60 cycles
Power consumption—250 watts
Price $.

Model 190
DU MONT TELEVISION RECEIVER

Description
Cabinet—table model, walnut finish
Dimensions—height 15½", width 20½", depth 2½"
Weight—73 lbs., approximately
Screen Size—9½" by 9½"
Direct Vision
Television sight and sound
Five channels with push button selector
20 Tubes
Superheterodyne
Dynamic Speaker
AC operated 110 volts 60 cycles
Power consumption—175 watts
Price $.

Operating Instructions
DU MONT SERIES 190 TELEVISION RECEIVERS

CONTROL
Marked INTENSITY
The intensity or brightness of the picture is controlled by this knob. It should be rotated counterclockwise to the 7th for the first 15 seconds when the set is turned on. Further instructions concerning this will be found under Scene Illumination.

Marked CONTRAST
Actually this is the volume control of the picture signal. It is adjusted to maintain with the intensity to give a picture of pleasing appearance to most individual preference. The location of the receiver and the amount of signal received from the transmitter will determine the setting of this control.

Marked VOLUME
This control adjusts the volume of the sound received and has no effect whatever on the picture.

Marked TUNING
Only one control is necessary to properly tune both the sight and sound channels. Simply adjust this control until the best reception of the sound is secured and your picture will be taken care of automatically.

SELECTOR BUTTONS (Right to Left)

ON—Turn receiver off, any selector button returns receiver on.

A—XBC and DE MTONE 40, 25, 45, 25
B—CBS 55, 25, 11, 25
C—75, 25, 12, 25
D—65, 25, 19, 21
E—65, 25, 19, 21

SCREEN ILLUMINATION
The received picture may be viewed under a variety of conditions when it is not always convenient to darken the room completely. Adjustments made to meet these conditions will not cause damage to the picture. Visiting the picture in a bright room is possible, of course, as it permits the setting of the Intensity and Contrast controls to a minimum that will give picture true whose more or less relating to the picture are transmitted.

TO OPERATE
Behind the INTENSITY control (Turn to 40). Press button for the television channel you desire to receive which will automatically turn on the receiver. When the set has been in operation about fifteen minutes, advance the INTENSITY control until the screen begins to brighten. Turn in the sound channel with the SOUND TUNING control and adjust the VOLUME control for the desired volume of sound. With the tuning of the sound the picture channel will be correctly adjusted and the screen contrast and brightness may be obtained by adjusting the CONTRAST and INTENSITY controls.
Model 192
DU MONT TELEVISION RECEIVER

Description
Cabinet—console, walnut finish
Dimensions—height 33", width 30", depth 18 1/2"
Weight—95 lbs. approximately
Screen Size—5 1/4" by 7 1/2"
Mirror Vision
Television sight and sound
Five channels with push button selector
20 Tubes
Superheterodyne
Dynamic Speaker
AC operated 110 volts 60 cycles
Power consumption—175 watts
Price $______
Also available with all wave radio
Price $______ Model 193

A Glossary of TELEVISION TERMS

AMPLITUDE—A term synonymous with gain or size.
AUDIO (Latin, 'I hear')— Pertaining to the transmission of sound.
BLIZZARD HEAT—A blonde actress, studio technicians who have to worry about proper lighting for her hair to avoid flares.
BROAD—A general illumination unit used in lighting the set.
BUSINESS—Anything in television for which a technical designation is lacking or forgotten by the speaker. Badly over-cooked.
CATHODE-RAY TUBE—Evacuated glass bulb containing the screen on which the picture is reproduced in the receiver.
CONTRAST CONTROL—A knob on the receiver for adjusting the range of brightness between highlights and shadows in a picture.
COAXIAL CABLE—Special telephone cable suitable for conveying television signals.
DEFLECTION (ELECTOSTATIC)—A system wherein the motion of the spot in producing the picture is controlled by the static action of the deflection plates.
DEFLECTION (MAGNETIC)—A system wherein the motion of the spot in producing the picture is controlled by magnetic fields.
DIPOLE—An aerial comprised of two separate rods.
FIELD—In the RCA Television System there are two fields to each frame. In other words each picture is comprised of two fields, scanning alternate lines.
FOCUSING CONTROL—A knob on the receiver for bringing the picture into sharpest definition.
FRAMING CONTROL—A knob or knobs on the receiver for centering and adjusting the height and width of figures.
FRAME—One complete picture. Thirty of these are shown in one second on a television screen.
GHOST—An unwanted image appearing in a television picture as a result of signal reflection.

The Dipole Antenna

The Dipole form of aerial is generally satisfactory; it consists of two metal rods, each approximately five feet long and placed on a line with each other. Extreme accuracy in the length of these rods is usually not necessary and if the receiver is located very close to the transmitting station it may be found advisable to cut down the length of each rod. The simple dipole aerial is shown in Fig. No. 3.
GOBO—A light-deflecting device used to direct light in the studio and protect the camera lens from glare.

HOT LIGHT—A concentrated light used in the studio for emphasizing features and bringing out contours.

ICONOSCOPE—A type of television camera tube.

IMAGE DISSECTOR—A type of camera tube developed by Parnavas.

INTERLACING—A technique of dividing each picture into two sets of lines to eliminate flicker.

LINE—A single line across a picture, containing highlights, shadows, and half-tones; 441 lines make a complete picture.

LIFE TALENT—Participation in a program picked up directly in the studio, as distinguished from kines presentations.

PINNER—A horizontal sweep of the camera. (From "panorama").

REFLECTORS—Additional rods or rods placed near the antenna to reinforce signals.

SAWTOOTH—A wave of electric current or voltage employed in scanning.

SCANNING—The action of the electron beam in explore (ing) the camera tube or reproducing in the cathode-ray tube the halftones in a picture.

SCOOPS—Multiple lighting units in the studio.

SPOT—The visible spot of light formed by the impact of the electron beam on the screen as it scans the picture.

TELECAST—A television broadcast.

TELEPHONE—A receiving cathode-ray tube developed by Dr. Mons.

TELEVISION—The transmission and reproduction of transient visual images by radio.

TELEVISION—A vertical sweep of the camera.

SYNCHRONIZATION—The process of maintaining synchronization between the scanning motions of the electron beams in the camera tube and the cathode-ray tube in the receiver.

VIDEO (Latin, "I see")—Pertaining to the transmission of transient visual images (cf. "audio").

WINDSHIELD—A perforated metal cover which fits over the microphone protects it from drafts caused by the powerful air conditioning system used to remove heat caused by the lights in the studio.

WOMP—A sudden surge in the signal strength resulting in a flare-up of light in the picture.
So you see Du Mont
TELEVISION
AS WELL AS HEAR