

Manufacturers of Television
Receivers and Kits

Television Transmitters
Built and Installed

WESTERN TELEVISION CORP.

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CHICAGO, ILL.

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Western Television Receivers Now Available in Kit-Form

(Patents Applied for)



Looking Into the Visionette.

NEVER before has the radio experimenter been offered a field so vitally interesting and rich in profitable experience. Thrills undreamed of await the experimenter equipped to receive pictures from the air. Almost every field of science has been tapped to bring the achievement of television to its present state. The opportunities for further experiment are innumerable. Experiment in radio, in optics, in electrical engineering, in mechanics, is open to the same group which has helped to bring about the improvements in Radio with such bewil-

dering speed. The pleasure and thrill in devising new Radio circuits, new Optical combinations, new Mechanical devices, and new Electrical devices is unlimited in Television.

Several well known Radio Broadcast Stations are already equipped with the WESTERN TELEVISION TRANSMITTING SYSTEMS and are broadcasting daily in conjunction with many of their regular studio programs. The experimenter who has the necessary apparatus to receive these programs is a privileged person indeed. Few persons have seen their favorite Announcers and Artists, but the Television fan is in a position to enjoy the performance to the utmost.

What a Television Receiver Should Do

The apparatus for receiving a complete Television and sound program is not elaborate, but must be of the finest quality and design. For Television, a high grade short wave radio receiver operating a GLOW lamp must be used as a complementary unit with the scanning mechanism of proper design.

The images transmitted by the Western Television System are not in black and white silhouette, but are perfect reproductions of the shadings and details of the subject.

Special Motor Designed

The Engineers of the WESTERN TELEVISION CORPORATION have developed several fundamental principles on which their Television Receiver is based. Mechanical and Electrical parts of the machine operate smoothly and positively without hunting and vibration which would tend to blur the picture. A special synchronous motor has been developed which maintains absolute, automatic synchronism with the Transmitter within the power net work. This motor is designed for the usual 60

cycle, house lighting current, and is far superior to the hand-controlled variable speed motors previously offered by motor manufacturers for Television use.

Receivers operated at a considerable distance from the transmitter have kept perfect synchronism for hours with no attention. So long as the power network, however large or small it may be, suffers no serious frequency change the receiver motor must maintain synchronism with the transmitter.

Easy to Frame the Picture

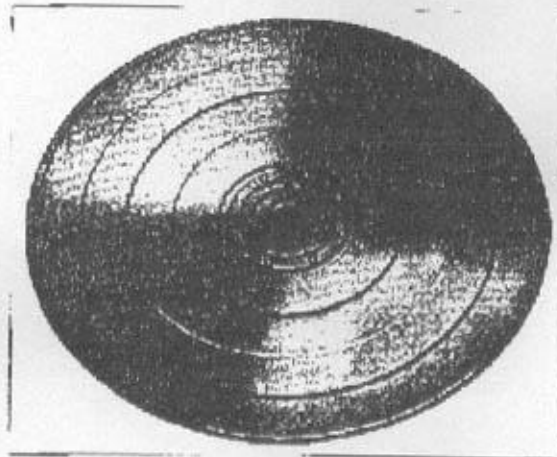
Although the motor on the transmitter and the motor on the receiver must run continuously in perfect synchronism, the phase of the receiver scanning disk may not coincide with that of the transmitter. The displacement is evidenced by the incorrect relation of the sections of the picture. In motion picture projection the framing of the picture, as the adjustment of the phase relation is called, is accomplished by the movement of a hand lever. In the WESTERN TELEVISION RECEIVER this adjustment is made by rotating the entire motor in bearings provided for this purpose.

Principles of Multiple Spiral Scanning

The scanning device developed by the WESTERN TELEVISION CORPORATION is of a type new in the art of Television. It achieves a remarkable clarity of reproduction and imperceptible flicker when operated at comparatively low speeds. The usual scanning disk has a single spiral of holes, rotates at high speeds and scans the subject once, completely from top to bottom in one revolution. When this single spiral of disk is rotated at low speeds, the eye is unable to retain the impression of the complete picture sufficiently long to maintain the illusion of the continuous existence of the image.



Will Hay of Television Station W9XAP Being Televised.



The Spiral Scanning Disk.

The multiple spiral disk (illustrated above) which has been developed in the laboratories of the WESTERN TELEVISION CORPORATION completes in the course of one revolution, a multiple number of partial scans of the subject. The eye builds from these partial scans a remarkably clear and steady image, while rotating at a relatively low speed, thus moving objects are reproduced with greater fidelity and detail. The television broadcast of a boxing bout is received very satisfactorily with the multiple spiral disk.

Precision Apparatus Developed

The need for extreme accuracy in locating the apertures in the scanning disk has necessitated the expenditure of thousands of dollars for the construction of accurate tools and dies. Expert die and tool makers supervise the production of the scanning disks, and an accuracy of less than a thousandth of an inch is maintained rigidly.

The disk must be rigid and yet light in weight. To accomplish this the WESTERN TELEVISION ENGINEERS have developed forming dies which rib the thin material of the disk in such a way that it becomes strong enough to withstand the strain of rotation without deforming.

Glowing Plate Lamps Used

In keeping with our policy of simplicity, the neon lamp of the glowing plate type has been chosen. The lamp is operated by the output stage of the short wave radio receiver. The faithful reproduction of a halftone picture requires sensitive light response to even minute changes in the receiver output current. Much care has been exercised in choosing a lamp for this purpose.

Efficient Optical System Designed

The modulated light from the neon lamp passes through the apertures of the rotating scanning disk and is then viewed through a magnifying lens placed at a carefully chosen distance from the disk, so that

the image, built up by the scanning disk, is magnified and made visible to a group of persons at the same time.

Motor Framer and Motor Mounting Brackets

The synchronous motor supplied in the WESTERN TELEVISION kit is a single phase motor of the induction type and runs at a speed of 900 revolutions per minute. It operates on the regular 110 volt 60 cycle house lighting current. It is mounted in a rigid cast aluminum hanger with auxiliary bearings to allow the rotation of the motor by the hand wheel, for framing the picture.

A means of adjusting the friction of the auxiliary bearings is included in the motor hanger brackets. The friction may be made so positive that the motor will not slip after it has been framed and yet allow a smooth adjustment to be made during the framing operation. Rotation of the motor for framing is accomplished by turning a small handwheel extending through the front of the cabinet.

As the motor is not self starting, a crank wheel concentric with the framing control operates a spring clutch mechanism so designed that the motor can be rotated in one direction only, assuring the proper directional relation between the transmitter and receiver. The motor need only be set into motion and the current turned on. It will then pull itself up to a speed of 900 revolutions per minute without further aid and will maintain that speed as long as the frequency of the power line does not change.

The motor is fitted with slip rings and brushes that make positive electrical contact, guaranteeing freedom from electrical disturbances in the radio receiver. The slip rings allow the motor field to be rotated during the framing operation without the nuisance of a dangling cord limiting the rotation to a small arc.

The bearings of the motor are of hardened and ground steel. A special large diameter tapered shaft extending from the motor insures accurate mounting of the special multiple spiral scanning disk.

The entire motor assembly is mounted in specially designed blocks of live rubber, to minimize the transmission of motor vibration to the cabinet. This is done so effectively that the mechanism is practically noiseless when the cabinet is closed.

Connection is made to the brushes by a small standard separable plug, allowing the complete removal of the motor chassis, from the cabinet, for inspection and experiment, without the necessity of unsoldering or cutting permanent connections to the toggle switch, mounted on the front panel of the cabinet.

Multiple Spiral Scanning Disk

The forty-five aperture three spiral scanning disk, using the multiple spiral principle, is made of thin aluminum, specially ribbed to insure sufficient stiffness to withstand the rotation. It is mounted accurately on a die cast hub with a bushing tapered to fit the tapered shaft of the motor. The hub has two threaded holes to allow the convenient removal of



Another View of the Visionette.

the disk from the motor shaft, and is retained in its place on the shaft by a large nut. **CAUTION: NEVER REMOVE THE MACHINE SCREWS HOLDING THE ALUMINUM DISK TO THE HUB.** The disk is mounted on the hub in a special tool which insures it being correctly centered. Should you remove these screws it is very doubtful if you could correctly center the disk on the hub in its original position.

The apertures in the disk are pierced on a very special and elaborate die, developed by the WESTERN TELEVISION CORPORATION, and are located accurately to a fraction of a thousandth of an inch.

Glow Lamp Bracket and Shield

A pressed steel frame shields the light from the neon lamp, from all parts of the scanning disk except that part which is building up the proper picture. A special four prong tube socket, that allows the reversal of the double plate lamp is attached to the shield, a feature alone which doubles the life of the neon lamp. When the lamp is blackened on one side, it is simply removed from the socket and reinserted with the clear side toward the disk.

Connection to the socket is made through a small standard connector plug which allows the convenient reversal of the polarity of the lamp terminals so that the connections to the output of the short wave receiving set may be made without regard to polarity. The entire assembly of the shield and socket is mounted firmly to the aluminum motor hanger: