The Jenkins "Radio-Movie" Reception Methods

Some Operating Hints Which Will Be Valuable to Television Experimenters in Constructing Their Receiving Apparatus

Regular schedules of radio movies have been established by the Jenkins Laboratories, 1619 Connecticut Avenue, Washington, on 45.72 meters (4,420 kilocycles) with 48-line pictures. They run from 8:00 to 9:00 p.m. E. S. T., on Monday, Wednesday, and Friday nights (or 0:00 to 0:30 GMT on Tuesday, Thursday, and Saturday mornings). When the frequency has been found, the broadcasts will be made nightly. Preliminary announcements are made from the station, whose call is WJX, in both code and phone. At the end of each picture the letters END are shown, to indicate that it is time to return to reception by ear.

The transmitting system, which was described in Radio News for August ("Radio Movies and Television for the home," page 116) operates to send silent movies, which are printed on standard moving-picture film. Scanning these with a very small beam of intense light gives an image much sharper than that obtained in projecting faces, clothing, etc., by reflected light. The images are sent at the rate of 15 a second, or 900 per minute.

While the Jenkins laboratory-model receiver, described in the article above mentioned, is of very high-grade workmanship, and too complicated for home construction, the television experimenter will find it possible to receive the radio movies on a 48-hole disc running at 900 revolutions per minute. Later, it is promised, "half-tone" or sectional motion pictures will be sent, when it is to be expected that the technique of the receiving amateurs has improved. For the present, a gradual progression in the complexity of the images is being attempted; the earliest film transmitted was only that of a dancing figure, comparable with the "autoplace" toys, which were the forerunners of the moving pictures. Later subjects and later actual stories followed. The broadcasting has been in charge of Stuart Jenkins and Paul Tomes.

"We have discovered," says Mr. Jenkins' announcement, "that stories in silhouette are as entertaining as moving pictures in the theater; plus, also, the appeal of the mystery of movies by radio.

BEGINNING A NEW INDUSTRY

"Picture subjects and picture stories in silhouette are easier for the amateur to pick up at first, and obviously the width of the picture-frequency band is very much less, and, therefore, greater latitude is available.

"Our immediate interest in the broadcasting of radio movies is to enable the amateurs of America and Canada to become familiar with the principles involved, in the belief that they will assist in this development. The American radio amateur has shown remarkable enterprise in the development of 'worthless frequencies' below the 290-meter band, and is now generally and officially acknowledged. I expect as great a surprise when the amateur takes up this new work.

"This is the beginning of a new industry—a new form of radio entertainment. With these motion-picture broadcasts we are hoping to contribute to its rapid development. Your reports on our signal strength, fading, echo images, and quality of picture reception will greatly help.

"Ultimately, this pantomime story-teller will come to all our fireplaces as a fascinating teacher and entertainer, without language, literacy, or age limitation; a visitor to the homestead with photoplays, the opera, and a direct vision of world activities, without the hindrance of muddy roads, or snow blockades."

While the radio movies are vision only at second-hand, in contrast to the true television, the mechanism reproducing them is the same as that required for television, and it is quite possible that they will find places in television schedules even after the perfection of television, even more so than mechanically-reproduced music does in the radio broadcast schedules of the world today. For instance, many events of great interest in the world take place at hours when the inhabitants of distant lands are busy or sleeping, and their repetition by the radio movies a few hours later, with or without an accompanying sound broadcast, will be a desirable news service.

(Continued on page 402)
Cut out squeaks and squawks with Wirt Static Filter

Only $2.25. Guaranteed to finish practically all usual static noises—or your money back. Sharpens selectivity, sweetens tones, including high soprano. No distortion; volume stays the same. Fits any A-C or battery set, anywhere. Easy to install and adjust. Get one!

Save Your Tubes

with Wirt Voltage Regulator. A-C tubes and sets do best on 110 volts. Normal voltages are higher and there are frequent current "surges." Wirt Regulator admits only an even, constant flow into the set. Saves tubes and set from being burned out. Suppresses line noises, too. Only $2.25.

Lightning Protection

Wirt Lightning Arresters safeguard not only the radio set, but all its parts, too—and in any weather. Gives peace of mind during electrical storms. Easy to put in place. Stays rigid. Good looking. Only $1.00.

Any radio dealer can get you Static Filter, Regulator, and Lightning Arresters. Or send check—we'll ship promptly by return mail.

Wirt Company


Manufacturers of "Dim-a-lite" and "Dim-a-Lamp"

Reception of the Jenkins "Radio Movies"

(Continued from page 429)

Simple Synchronizing Device

A very simple and practicable method of adjusting the speed of the scanning disc of a television receiver is suggested by the Jenkins Laboratories in a recent bulletin which they have issued to radio experimenters. The idea is to support the disc on any suitable set of bearings, and to drive it by the friction of a small wheel (attached to the shaft of a motor) pressed against its surface. By varying the distance between the friction wheel and the center of the disc, the experimenter can find a setting at which the disc turns at exactly the same rate of speed as the transmitting disc. At different positions on the radius of the disc, the circumference of the friction wheel bears different "reduction-ratios" to the circle of active contact, and it drives the disc at different speeds. (See page 420.)

In this arrangement, the driving motor should be run at its natural speed, without being controlled externally by a chronostat. Once the correct position has been found, the motor should be decoupled, in place, or at least the position noted accurately so that the proper setting can be made quickly. Using a 48-hole disc, a television experimenter can find two positions of the motor, for 900 and 600 revolutions per minute (the former will be at half the distance from the center, except for slippage), and then will be able to receive either the Jenkins or the WIREY broadcasts, respectively, without other change. This scheme is considerably cheaper and more flexible than one involving the use of gears, which require accurate mounting and alignment.

If you already have a scanning disc mounted on a motor, use the latter merely as a support for the disc and drive the disc itself with another small motor of 1/20- or 1/10-horsepower, say. A suitable mechanical arrangement of all the parts used in a complete television receiver is shown in the Illustration on page 429. The details are all obvious; the actual dimensions of the wooden members supporting the motors and the glow lamp will depend, of course, on the particular apparatus the individual experimenter has on hand.

Careful Adjustment Desirable

The friction wheel may be made of two discs of rubber cut from an old inner tube. They should be about 2½ inches in diameter, and will work best if clamped between two brass or iron flanges, one of which fits over the motor shaft. The flanges be obtained suitable photoelectric cells, he had a complete transmitter and test receiver working in the Pilot Laboratories in Brooklyn, and the first time he turned the apparatus on, a crude but recognizable image appeared in the receiver.

With a regular television service now under way at WRRN, Mr. Gebloa is perfecting numerous details of the system, such as automatic synchronization, proper control and mixing of the outputs of the photoelectric cells, the design of a small motor for the receiving disc, etc. Further news of his accomplishments will be published in forthcoming numbers of Radio News.

CARE SHOULD BE TAKEN IN CHOOSING LOUD SPEAKER

Acoustic Engineers Recommend Use of Book by Well-known Authority for Instruction

The necessity for care in choosing a loud speaker cannot be overemphasized, say acoustic engineers. A radio is but the vehicle used to bring in broadcast entertainment, the true reproduction of sound depends almost entirely on the speaker. It follows, if the loud speaker does not meet the requirements of the receiver, reception will not be at maximum. Consequently the entertainment of the listener is often unwittingly spoiled by failure to recognize the importance of a good speaker in getting maximum results from his set.

Education of the public in speaker construction and design is necessary according to these experts. They recommend "HOW TO BUILD MODERN LOUD SPEAKERS," written by Clyde J. Fitch, as being the most efficient source from which this information may be obtained. The book is written in a style that is not only tremendously interesting but also distinctly easy to read. "HOW TO BUILD MODERN LOUD SPEAKERS" is the most complete treatise of its kind available. It thoroughly explains every known type of speaker and gives full instructions for building. It is well to remember that if the proper speaker is not used the enthusiast leaves himself open to all manner of distorted reception. Crackling noises, frys, whistles and squeals—these disturbances, often loud to the set, can in reality usually be traced to the speaker. Also the fact that a speaker works well with one set and not with another is no reason to lay faulty reception to the set. "So," the experts point out, "you must understand the speaker if you are to receive the maximum results from your receiver."

"HOW TO BUILD MODERN LOUD SPEAKERS," by Clyde J. Fitch, is not only the best source from which to obtain this essential information, but also probably the cheapest. Complete, dependable data on every speaker known in radio—full instructions for building. All this for only twenty-five cents, the price per copy of "HOW TO BUILD MODERN LOUD SPEAKERS," by Clyde J. Fitch. Mail this coupon to Conrad Company, Inc., 230 Fifth Avenue, New York, N.Y.

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should be only about one inch smaller in diameter than the rubber discs, in order to prevent the edges of the latter from folding over when they are pressed against the spinning disc.

It will pay the experimenter to have these flanges turned out for him by the local machine shop or by the garage man if he has a lathe; they will cost only a dollar or so, and will be well worth their price. Unless these flanges fit the driving motor's shaft smoothly, the rubber discs will wobble and will make the spinning disc wobble also.

Use any small induction or synchronous motor that is obtainable. Universal motors which presently exasperate at the commutator should be avoided, as this sparking will affect the neon gas glow-tube and cause spots to appear in the image. However, this trouble can generally be eliminated by a pair of ordinary 0.5- or 0.1-mf. by-pass condensers connected in series, and across the motor brushes, with the center connection of the condensers going to the ground lead of the radio set.

Naturally, the only way to determine the proper position for the driving motor is to tune in the television or "radio-movie" signals from WISN-W2XAL or from 5XK (the Jenkins station on 47.7 meters), and to turn the adjusting screw shown in the diagrams until the images appear. A little patience is required for this adjustment; if you do not obtain pictures on the first trial, try again.

On the Short Waves

Editor, Radio News:
The letter entitled "Short-Wave Reception on a Standard Ultratone" in Radio News for September (page 257) deals with a matter that is surely not new to anyone who has ever operated a superhet on the amateur-frequency band. The fact that most any superhet (and particularly the Ultratone) has a tendency to "click" and "pop" is well known in the "how-to-do-it" articles, probably because of the commercial ring of these articles. It is not uncommon for the power amplifier to "pop" and "click," with the result that the reader is left to wonder the whole story. However, the remedy of the Ultratone so far as its own oscillator harmonies was mentioned in QST, at least three years ago.

With my own superhet (just the ordinary commercial standard variety) I found some time ago that it was the third or fourth oscillator harmonic that was determining the short-wave signal to the frequency of the intermediate transformers, and that by retuning the short-wave switch to "come through" on broadcast settings of the oscillator dial, practically every superhet owner in this vicinity has the same complaint.

Here are a number of methods of possibly overcoming the difficulty:

1. Supersnipping the undesired S.W. signal in the loop by means of a tunable absorption circuit on the loop frame. (This is often heard of a real superhet that required more than a loop for correct reception.)

2. Supersnipping the undesired oscillator harmonic by surrounding the pickup coil with a tunable absorption circuit.

3. Supersnipping the S.W. interference at its source by using the heterodyne transmitting "blanket" device which is available from a number of manufacturers. (This is often heard of a real superhet that required more than a loop for correct reception.)

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This handy book should go with every Radio!

It is surrounded with radio parts—some functioning ones and some that aren't. It is the complete guide to Radio where you can find hundreds of ideas and new information. It will be able to read and understand and you can buy through your radio dealer at a small price and get the most out of your book.

Write for it!