

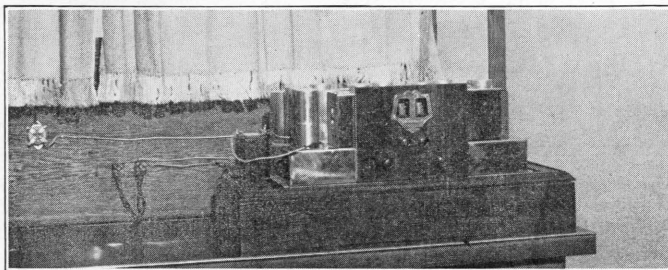
17A

# Scott Receiver Proves Its Quality In Actual Service!

Two years' continuous operation on average  
of 12 hours daily at large U. S. Army Post  
—Two new sets of tubes—Rebalanced three  
times only servicing required.

The photographs on this page were sent us by Lieut. M. A. Fennell, Signal Officer in charge of the Post Broadcast System at Schoefield Barracks, Hawaii. In the letter accompanying the photographs Lieut. Fennell says:

“Our main receiver at the Post is a SCOTT ALLWAVE, a picture of which is enclosed with this letter. This receiver has been in constant use for over two years on an average of 12 hours a day. During that time it has had two new sets of tubes, and has been rebalanced three times; other than that, it has not required any servicing. It has been used to pick up the local stations and main land short and long wave stations. Its performance



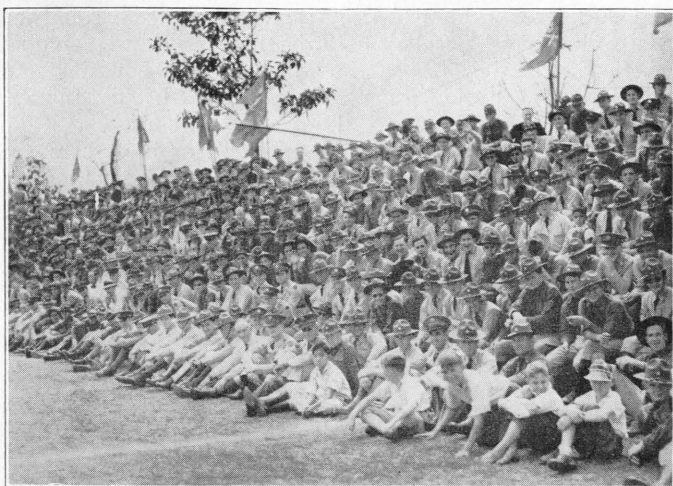
SCOTT ALLWAVE RECEIVER USED TO PICK UP AND REBROADCAST PROGRAMS THROUGH CONTROL ROOM AT SCHOEFIELD BARRACKS, T. H.

has always been excellent and we expect to use it for years to come.”

“For over a year we have been testing the Island of Oahu and Hawaii for the best receiving point, and have found a point on Wahiawa Heights, six miles from the Post, to be the

best, and want your DELUXE MODEL to install there as permanent equipment. We know Scott quality and dependability and it is absolutely necessary that we have both.”

The extracts from Lieutenant Fennell's letter speak for themselves, for his letter has been written after two years' experience with a SCOTT RECEIVER.

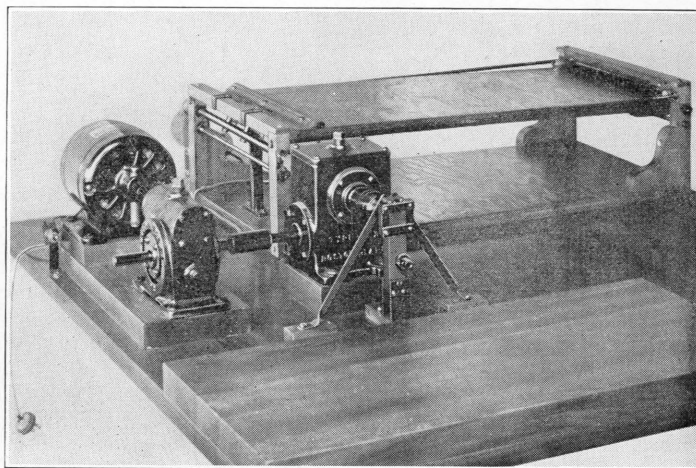


TROOPS AT SCHOEFIELD BARRACKS, T. H.



RADIO CONTROL ROOM—SCHOEFIELD BARRACKS, T. H.

# Laboratory Tests Give Receiver More Use In Five Weeks Than Owner Gives It In Five Years



"LIFE" TESTING APPARATUS FOR SCOTT RECEIVERS

Perfection in anything is only obtained after years of intensive work on the part of highly skilled men who concentrate their entire efforts and thought into whatever they are working on.

Few outside of the laboratory engineers realize the tremendous amount of work that has gone on "behind the scenes" to bring the modern custom built SCOTT ALLWAVE FIFTEEN RECEIVER up to its present high standard of performance.

Steadily, year after year, Scott research engineers, working in one of the most modern radio laboratories in the world, fully equipped with up to date precision equipment, have been able to constantly improve receiver performance. The delicate test instruments at their disposal enable them to measure with absolute exactness the degree of Sensitivity, Selectivity or Tonal Fidelity of a receiver. Today SCOTT RECEIVERS set the standard by which others are judged.

Such rapid progress has been made during the past few years in radio receiver design, that time and again their efficiency has been increased to the point where testing equipment that was perfectly adequate perhaps a few months before, is quite inadequate to measure the performance characteristics of newly developed models.

So the design of laboratory testing and measuring equipment has had to keep pace with the increased efficiency of our new receiver, and many thousands of dollars must be invested every year in the new precision equipment required in the Research Laboratory in order that the design of our receiver be constantly improved.

However, in addition to the large amount of precision testing and measuring equipment required in the research laboratory, it will, no doubt, be surprising to many to know that there are other test machines we use whose sole purpose is to test to see

if rough handling, careless treatment, or unusual weather conditions such as that encountered in humid tropical countries or in some locations near the sea coast, can upset the operation or the delicate adjustments of the SCOTT ALLWAVE FIFTEEN RECEIVER.

The tests which will be described are comparable to those made by some automobile manufacturers of their first model, in which they drive their cars over rough bumpy ground, up long steep hills or over hot desert roads in low gear to try and discover if there are any weak spots in the design. These are some of the tests the automobile manufacturer puts his car through so that he can deliver to you, one that will operate for thousands of miles, under all kinds of road and weather conditions, without giving trouble.

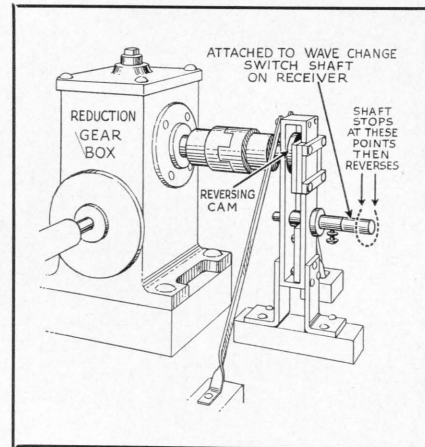
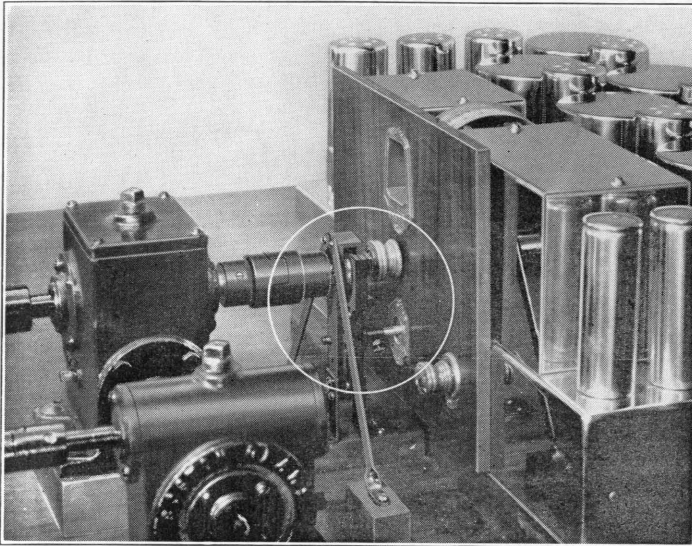
SCOTT RECEIVERS have been shipped to every corner of the globe and are now in daily use in 104 foreign countries. Their construction must be so sturdy that they can be shipped to every part of the world and stand the rough handling they undoubtedly get, during transit, yet arrive at their destination with all adjustments unaltered. Every part of a SCOTT RECEIVER (except tubes) is guaranteed for five years and we must be sure that they will give years of continuous service.

The apparatus, as described in this article, plays an important part in the design of SCOTT RECEIVERS. It consists principally of a  $\frac{1}{4}$  h.p. motor coupled to a reduction gear, which in turn is connected to a drive shaft. The shaft of the drive is connected to apparatus designed to test—

- 1—Moving parts on the receiver such as:  
Wave Change Switch, Dial and Volume Control.
- 2—Duplication of the rough handling the receiver goes through during transportation from Laboratory to owner's home.
- 3—Test of Tubes, Condensers, Resistors, etc.



## How Wave Change Switches, Volume Controls, Dials Are Tested



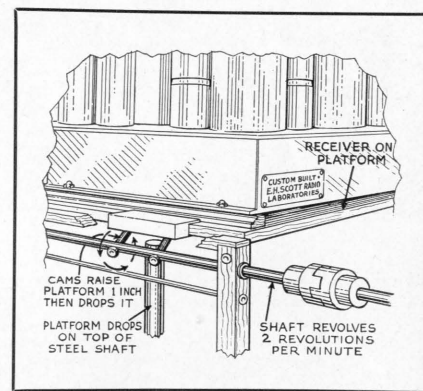
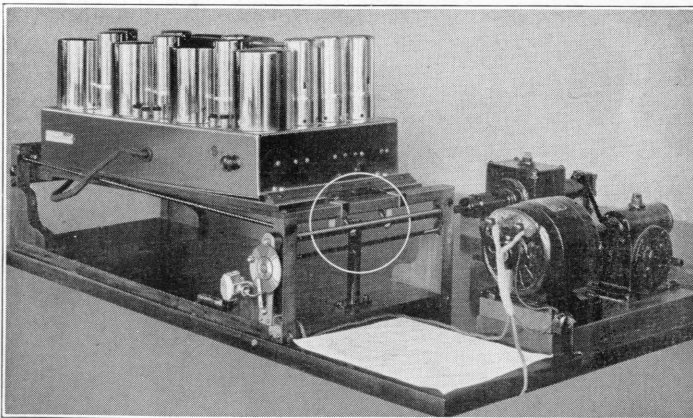
If a receiver is to stand up for a long period of time, good contacts on moving parts are absolutely essential. As the SCOTT ALLWAVE FIFTEEN RECEIVER is guaranteed against any mechanical breakdown for a period of five years, we must have positive proof that every movable contact point, switch or variable contact is absolutely reliable and will give years of trouble-free service.

These tests are made by coupling the shaft to the part to be tested—for example—the shaft of the Wave Change Switch in the receiver is connected to a shaft on the reduction gear, and by means of a reversing cam to which the shaft of the wave change switch is connected, turns in one direction over an arc of  $125^\circ$ —then reverses its action and turns the

shaft back over  $125^\circ$ . We thus duplicate exactly the action of turning the switch backwards and forwards, just as you do on your radio receiver. This arrangement is so worked out that the shaft makes two complete movements once a minute.

In this way, in a day's time, we are able to subject the wave change switch we are testing to 1,000 operations, so that within a period of ten days or so, we are able to give that part more use than it would ever get during the course of five years, even in the hands of the most enthusiastic owner. We know that when the part tested, be it Wave Band Change Switch, Volume Control, or Dial after passing this test successfully, will operate satisfactorily for many years in a receiver.

## How Scott Receiver Is Given Transportation and Rough Handling Test



An extension shaft is coupled to the other end of the reduction gear box drive by means of a clutch, and enables us to make a most interesting test. This extra shaft is attached to what we in the Laboratory call our "bouncer."

The idea behind this test is to make certain that all adjustments made are so secure and all parts so sturdy that rough handling or vibration during transit will not affect them.

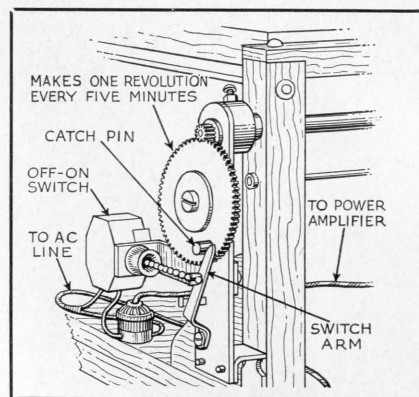
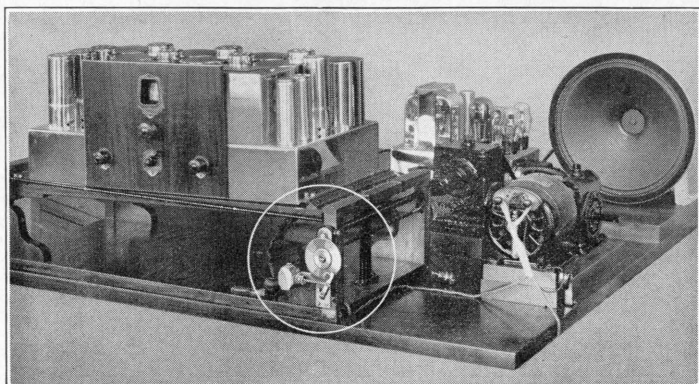
A chassis is placed on the wooden platform. Attached to a shaft at the end of this platform there are two cams, which revolve twice a minute. They come around and slowly raise up the platform 1" then BANG—down goes the chassis with a thud that can be heard all over the Research Laboratory. You would think to watch this test that no receiver could be built to stand such rough treatment, yet Scott chassis stand this for

weeks at a time and still remain in perfect adjustment.

This test has proved that the adjustments of a SCOTT RECEIVER are so thoroughly locked and everything about the chassis of such a sturdy nature that they can be given as many as 10,000 "bumps" without any of the adjustments being altered in any way.

I might explain that during the period tests of this nature are being carried on, the first thing each morning, the chassis is taken out of the tester, put on the Signal Generator and its characteristics carefully measured and noted to see if any change has taken place. In this way, any weakness is immediately shown up, and steps taken immediately to eliminate it. Tests are carried on until everything is perfect, and chassis will stand up indefinitely under all conditions.

## How Tubes, Condensers and Resistors are Given Life Test

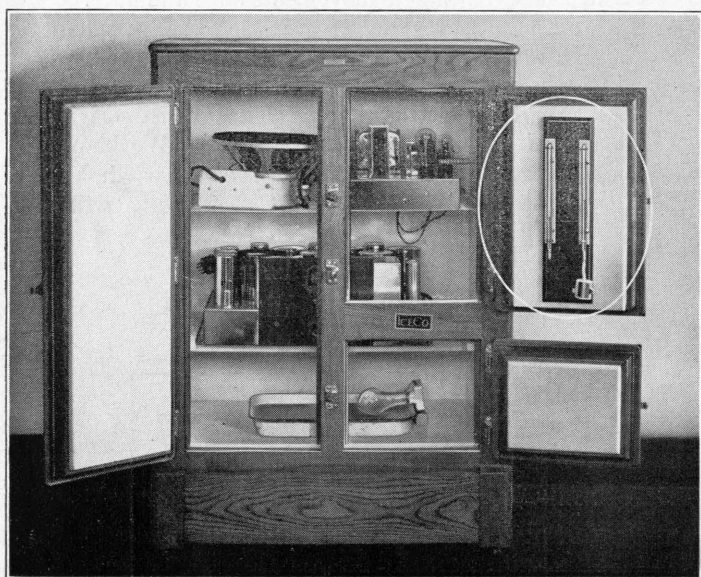


The third test made is a very severe one on tubes, condensers and resistors.

At the end of the extension shaft which comes thru the frame to the part of the test equipment on which we make the "bouncer" test, a very small wheel is geared to a much larger wheel, which revolves exactly once in five minutes. There is a catch pin out from the large wheel which passes over a switch arm connected by a cord to an off and on AC switch, so that once every five minutes this switch is operated. In this test, a complete receiver is plugged in to A.C. line (note A.C. socket below Off-On Switch) so that once every five minutes, the set is switched on and all tubes light, then, at the end of five minutes, the switch is

operated again and the set is turned off, and for the following five minutes everything cools off, just the same as if you were to go to your radio set once every five minutes turn it on, let it play, then after five minutes turn it off again. This is a particularly severe test on tubes in that they are alternately heating, then cooling. This test also is a shock each time to the various condensers and resistors, sending the current thru them, then turning it off.

This is the test we use to check the efficiency of the tubes of various manufacturers and enables us to supply tubes with the SCOTT ALL-WAVE FIFTEEN RECEIVER that we know will give long life and efficient service in our set.



## How Scott Receivers Are Tested For Use In Tropical Countries

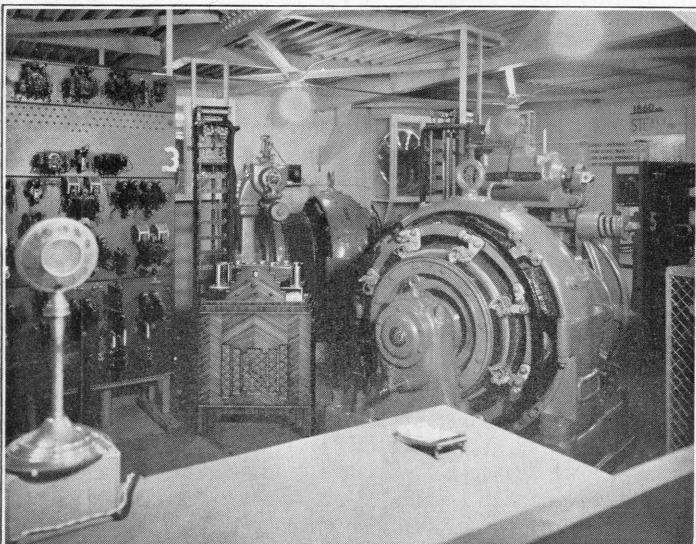
The humidity test is one that is particularly valuable and especially interesting to users of sets in foreign countries, such as some parts of South America, South Africa, Panama Canal Zone, South Sea Islands, the Phillipines, part of India, Siam, and places where there is present nearly every month of the year, a moist humid atmosphere which plays havoc with radio receivers that are not especially equipped to withstand these conditions.

In this test set-up we use a large refrigerator, to the inside door of which is attached a U. S. Weather Bureau type Hgrometer, to show temperature and humidity. At the bottom of the refrigerator is a large pan of water to which salt has been added, and also a socket with an electric light bulb connected to a thermostat. As the degree of humidity in the air varies with the temperature, the temperature, therefore, must be kept constant and this is done by means of the thermostat.

In this refrigerator are placed complete chassis, power amplifiers, speakers and various parts, which are subjected, for long periods of time to extremes of humidity such as would be encountered in tropical countries.

Years have been spent in the SCOTT Laboratory developing methods of impregnating and sealing the various delicate parts of our receivers so that they will give long periods of service under the most difficult and trying climatic conditions. Parts that will stand up for years without deterioration in a climate such as we have in the Middle-West of the United States, break down within a few weeks in tropical humid climates. However, by scientifically sealing and impregnating the various parts our receivers can be sent to any part of the world with the certainty that they will give years of satisfactory operation.

There are a number of other interesting tests a highly developed custom built radio receiver must go thru before its design is considered perfect and it is ready to be sold to the radio enthusiast, which will be described in later articles of the Scott News.



## Another Unusual Test Proves Perfection of Shielding In Scott All-Wave DeLuxe

The photo shows a SCOTT ALLWAVE DE LUXE RECEIVER in the Napier Consolette used in the control room at the top of the elevator in the Observation Tower of the Sky Ride at the Century of Progress.

Every day from eight to as many as twelve thousand people visited this control room. They heard music and news coming from a radio receiver located right in the center of a mass of motors, dynamos, control contacts and other electrical equipment. They saw the dynamos turning, the contacts breaking and making contact but to their amazement they did not hear a single click coming from the speaker of the SCOTT ALL-WAVE DE LUXE but just clear, quiet reception.

These thousands of visitors who saw and heard the receiver every day witnessed just another proof of the superiority of a SCOTT RECEIVER—a demonstration that proves the perfection of its shielding and also the fact that it will give its owner reception under the most difficult conditions.



17<sup>B</sup>

June 14, 1934.

ELGIN NATIONAL WATCH COMPANY EXHIBIT  
GENERAL EXHIBITS BUILDING #4.

Here you see the Elgin National Watch Company exhibit; the Observatory showing how time is taken from the stars at the Observatory in Elgin; a display of modern Elgin merchandise and of historical models showing the progression of clock construction from 1581, Galileo's period to the present; - a display of materials as used in a watch, and the Elgin theatre where a motion picture with sound demonstrates the use of time in industries and sports.

The time balls at the gates which you saw as you came in, are controlled by a second time impulse from the Elgin Observatory at Elgin, as are all the official clocks in the grounds.

The Elgin Watch Company also conducts the Arcturus ceremony with a lecture and movie screen display every night on the stage in the Court of Honor at the Hall of Science. This is interesting and instructive, showing how the Arcturus beam is caught amplified and used to turn on the lights.

