

IN REVIEW

Radio is now such a vast and diversified art it becomes necessary to make a general survey of important monthly developments. RADIO-CRAFT analyzes these developments and presents a review of those items which interest all.

NBC HEAD RESIGNS IN RCA SHAKE-UP

IN A wide-reaching reorganization of the huge Radio Corporation of America for the purposes of recapitalization in order to permit the use of its cash surplus for stock dividends, the well-known president of the National Broadcasting Co.—M. H. Aylesworth—offered his resignation last month. NBC is controlled by RCA and was thus involved in the reorganization.

Mr. Aylesworth asked to be relieved of his responsibilities because of his duties on the board of Radio-Keith-Orpheum.

He is succeeded by Lenox R. Lohr—who successfully managed the Century of Progress Exposition in Chicago.

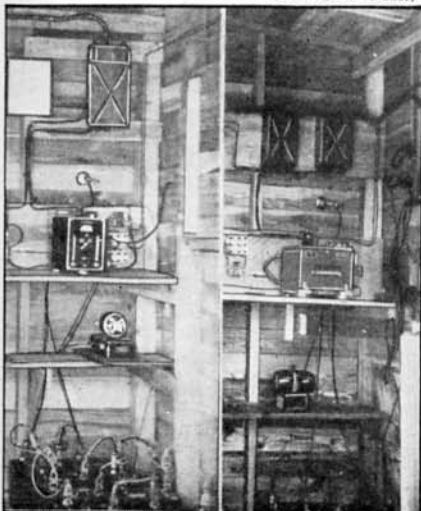
RADIO SUPPLIES EMERGENCY TELEPHONE COMMUNICATION

IN ONE of the hurricanes which struck the Florida Keys recently, telephone communication was completely cut off due to telephone poles being washed out.

News was received last month that the telephone companies resorted to radio equipment to temporarily restore these communication lines, until the wires could be re-erected and the power on Big Pine Key could be restored.

Two sets of aircraft transmitters and receivers were taken to Big Pine Key by boat and set up in temporary shacks. Within 2 days, full telephone service was restored thanks to this radio equipment. Transmissions from west to east used a frequency of 5 mc. while transmissions from east to west used 4 mc.

Emergency set-up of aircraft transmitter (left) and receiver (right).
(Photos, Bell Labs.)



FREQUENCY MODULATION DEMONSTRATED

THE long-expected public demonstration of Professor Armstrong's ultra-high frequency system of transmission by frequency modulation became a fact, last month, at a meeting of the Radio Club of America, in New York.

Communication was set up between Pupin Laboratory at Columbia University where the meeting of the Club took place, and amateur station W2AG, in Yonkers, about 12 miles away.

Station W2AG operated on 2½ meters as a frequency-modulated station having a power of about 100 watts.

Professor Armstrong, in concluding the demonstration and lecture stated, "While I do not like to make predictions, I feel that this demonstration will give an idea of the broadcasting of a few years hence . . . It will not be many years before the only noise heard from lightning will be the audible sound of thunder. The static crashes in the radio receiver will be entirely eliminated."

Several sound records were run off from records made during a thunder storm and while WEAJ and WMCA in New York were entirely "snowed under" the frequency modulated transmissions from the Empire State Building transmitter were almost entirely free from static and back-ground noises!

INTERNATIONAL BRIDGE BY RADIO!

WHEN Mr. and Mrs. Ely Culbertson played their international contract bridge match, last month, radio played an essential role in keeping constant communication between New York and Buenos Aires.

Two official "dummies" made the plays called for by the opponents who were over 6,000 miles away, thus demonstrating another of the myriad of uses to which radio is being applied!

The international bridge match in progress. Note the broadcast and short-wave "mikes."



The Immigration Service station in Detroit.

RADIO COMBATS ALIEN INFLUX

A 2-WAY radio system between a temporary headquarters set up in Detroit, and boats and scout cars was put into operation last month by the U.S. Immigration Service in an attempt to halt the increased numbers of aliens making illegal entry into the U.S. due to the improved business conditions here.

Detroit has been the goal of most of the illegal entries because of the booming of the auto industry.

The radio system at Detroit has already aided materially in stemming the illegal tide in the short time it has been in operation. Similar 2-way radio systems will be put into operation at other border stations, including the Mexican border and along the Canadian line.


NETWORKS CEASE USING POPULAR SONGS!

MANY of the best-known and most popular songs of the past few years were silenced over the NBC and CBS networks in the beginning of January as a result of the withdrawal by Warner Brothers Pictures Inc., from their agreement with the American Society of Composers, Authors and Music Publishers.

ASCAP is the intermediary between the music publishers and the broadcasters, and the music publishers are controlled for the most part by Warner Brothers. It is said that about 40 per cent of the music played over the radio networks is owned by this company.

This action by ASCAP will no doubt provoke a court battle as many of the theme songs used by radio performers are included in the banned music!

(Continued on page 556)



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HOW TO MAKE A "FREE-REFERENCE-POINT" RESISTANCE-CAPACITY ANALYZER

(Continued from page 528)

"TEST" jacks for a series connection.

To use the high range, set Sw.1 to "AC," Sw.2 off, Sw.3 to "OHMS" Sw.4 to "R," and Sw.5 to the spare post. With the transformer used by the writer, a total of 400 V. is obtained for the ohmmeter. Greater or less voltage may be obtained from other transformers, and it is advisable to calibrate this range after the unit is assembled. Ohm's law is used for the calibration. Tests are made with the leads in the "TEST" jacks.

BRIDGE MEASUREMENTS

Set Sw.1 to "A.C." Sw.2 to off, Sw.3 to "OHMS," Sw.4 to "R," and Sw.5 to the approximate value of the unknown resistor. The bridge knob is rotated for least hum, at which point the value of the resistor is indicated. Resistance measurements as low as 0.1-ohm and as high as 50 megohms are possible with the bridge circuit!

SOCKET ANALYSES

The requisite cable by means of an adapter, is plugged into the set socket. The test leads, plugged into the "TEST" jacks, are used to contact the individual pins. Measurements may now be made between any two points on the same socket, or between any two points between any two sockets. (The set of course must be disconnected from the wall socket before any tests are made.)

External Tests: These tests are made by connecting a known standard to the "EXT." jacks, and the unknown unit to the "TEST" jacks. Set Sw.5 to "EXT." and other controls according to the type of unit being checked. The outside scale on the bridge indicates the ratio.

Center-Tapped Transformer Windings: Connect the center-tap to positive and one end to negative "TEST" jacks. Connect the other end to one "EXT." jack, and proceed as above. This must be the post which connects to Sw.5. A perfect balance will be indicated on point 1. Complete to left or right, indicates open or short, either condition rendering the transformer unsuitable for use.

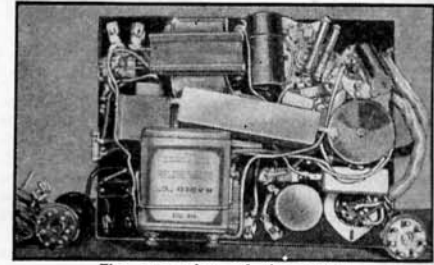
Transformer Ratio: Connect one winding to "EXT." and the other to "TEST." If a null point is not found, reverse the leads of one winding. The ratio is indicated on the outside scale. Knowing the voltage of a power transformer primary, all other voltages may be found, using this test.

Short-Circuits: Minimum hum at extreme right of scale is an indication of a short-circuit.

Open-Circuits: Minimum hum at the extreme left of the scale indicates an open-circuit.

LIST OF PARTS

One Electrad 1,000-ohm variable resistor, R1;
One Electrad 4,000-ohm variable resistor, R2;
One Electrad 4,500-ohm wire-wound resistor, R3;
One Continental 0.5-meg. resistor, $\frac{1}{2}$ -W., R4;
One 1 ohm resistor (rewound from filament resistor), R5;
One Continental 5,000 ohm resistor, R6;
One Continental 50,000 ohm resistor, R7;
One Continental 0.5-meg. resistor, R8;
One Continental 5-meg. resistor, R9;
One Electrad 0.4-meg. resistor, R10;
One Cornell-Dubilier 8 mf. electrolytic condenser, C1;
Two Cornell-Dubilier 0.5-mf. paper condensers, C2, C6;
One Cornell-Dubilier 500 mmf. paper condenser, C3;
One Cornell-Dubilier .005-mf. paper condenser, C4;
One Cornell-Dubilier .05-mf. paper condenser, C5;
One Cornell-Dubilier 5 mf. paper condenser, C7;
One Eby 4-prong wafer socket;
One Raytheon type 80 rectifier tube;
One candelabra socket, for neon tube;
One $\frac{1}{4}$ -W. neon glow lamp;
Four Eby sets of tip jack;
One General 30 hy. filter choke;
Two Blan $1\frac{1}{4}$ in. pointers;
One Blan $2\frac{1}{4}$ in. pointer;
One General power transformer (6.3, 5.0, 325-325 V.);



The rear view of the tester.

One "C" battery analyzer-type, $4\frac{1}{2}$ V.;
One panel, 7 x 9 ins.;
Two Eby octal sockets;
Two 8-wire cables;
Two 7-prong plugs;
Two midjet battery clips;
One S.P.S.T. toggle switch, Sw.1;
Two S.P.D.T. toggle switches, Sw.2, Sw.3;
One D.P.D.T. toggle switch, Sw.4;
One 7-point, 3-gang tap switch, Sw.5.

I-METER SUPERHET. SERVICING PROCEDURE

(Continued from page 526)

signal is detuned; the greatest deflection towards zero indicates the station is correctly tuned.

(2, 3, 4) Tune in a station with a steady signal. Adjust I.F. transformer trimmers, the greatest deflection towards zero on the meter being the resonance point. The trimmers on the tuning condensers can then be adjusted for greatest deflection.

(5) By connecting different antennas to the set, the meter will show by the greatest deflection the antenna giving best collective results.

(6) As various stations will have a different deflection and the deflection is in direct relation to the speaker output, a volume value can be determined such as weak, poor, good, strong, very strong, etc.

(7) The meter shows at a glance whether the station tuned-in is worth listening to in relation to fading; sudden drops to maximum scale reading indicate entire absence of signal.

(8) With the set tuned-in on a fading signal and the reproducer at room volume, the meter when swinging towards maximum indicates a decreased signal input. If the volume in the speaker remains at the same level, or possibly increases slightly on a sudden swing towards maximum, the automatic volume control action is OK.

(9) By trying different coils and windings the greatest deflection will indicate the most efficient coil.

(10) As tubes and circuits will work best at certain voltages, these voltages can be adjusted to get greatest signal strength on the meter. The bias values can be treated in the same manner.

(11) Fixed condenser and resistor values can be determined as these units directly effect the signal strength and therefore the meter will indicate best values.

(12) Tube performance can be determined as the meter will show the difference between a good and poor tube.

All of the above tests with the exception of No. 8 can be made without any racket coming from the speaker, with the volume control at minimum.

THE RADIO MONTH IN REVIEW

(Continued from page 519)

Also there is little doubt that the offices of NBC and CBS will be flooded with caustic comments by listeners because bewhiskered musical selections are heard in place of newer favorites!

STEEL RIBBON RECORDING IN FRANCE

A NEW scheme for broadcasting spot news programs has just been successfully tried by the French P.T.T. station in Paris, according to a report received last month.

The old system of magnetic recording on steel wire or tape which has been gaining some favor in Europe is now being used to record these spot news items, which later on in the day are put on the air at scheduled hours.