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The Only Autonomous Union of Radio-TV Engineers & Technicians

The Broadcast Engineers' Journal

In this Issue--

WOW-TV MOBILE UNIT

1949 IRE PAPERS

Image Orthicon Fine Mesh Screens
Inexpensive TV Waveform Monitor
News of Interest to Broadcast Men.

Vol. 16 No. 5
MAY 1949

SINCE 1934 . . . OF, BY, AND FOR
THE BROADCAST ENGINEER

THE BROADCAST ENGINEERS' JOURNAL

ED. STOLZENBERGER, EDITOR AND BUSINESS MGR.

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THE BROADCAST ENGINEERS' JOURNAL

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***E**ngineers and*
***T**echnicians*

OF, BY, and FOR THE BROADCAST ENGINEER

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NABET rank-and-file **members control** their union.
NABET means **good** trade-union practice.
NABET is the **progressive** union in the Broadcast Field.

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Pertinent Topics from the National Office

from

C. WESTOVER
Exec. Secy., NABET

The following leter is from a radio engineer, evidently an IBEW member, who has a keen apreciation of the difficulties facing radio broadcast and television engineers. NABET welcomes such letters as evidence that these Radiomen are becoming awakened and are willing to resist encroachment in their rightful field of endeavor.

There is nothing to add to this gentleman's letter. NABET is keenly aware of the dangers to our trade. NABET knows from first-hand knowledge, gained from the lips of the International Presidents of both the IATSE and IBEW, that the work of radiomen is already divided, mentally, and in some cases actually, between those two unions. The IATSE is getting the lion's share, too.

— — — — —

"..... Calif.
March 20, 1949

NATIONAL ASSOCIATION OF BROADCAST
ENGINEERS AND TECHNICIANS
NATIONAL OFFICE
421 - 7th Ave., N. Y. 1, N. Y.

Brothers,

One cannot help but admire the aggressive spirit of an organization which will take the primary issues of the day directly to the people who have a vital interest in the industry of which that organization is a part.

You of the N.A.B.E.T. have done just that by sending information to us workers in the broadcast industry telling us your views upon the subject of what we feel is our rightful jurisdiction in the television industry.

While this is strictly a letter from one worker to another and is in no way intended to voice an opinion from an I.B.E.W. viewpoint, I do feel that much good to all radio workers can come about through a wider dissemination of information to the rank and file members of radio unions and unorganized workers too, for that mater.

It has been my opinion that to be beter informed upon both sides of a question puts one in a superior position when making decisions. In short, Brothers, upon the common ground of knowledge we should transcend the mater of partisan differences if we are to go on toward higher accomplishments. With the sword of knowledge we will be better able to defeat our common enemies in their own bailiwicks. I feel that your efforts in this direction represent good trade unionism.

Of course, a responsibility lies with the source of information to insure that the material is acurate, true and not tainted with propaganda. And by the same token, it behooves those who receive the buletins to avail themselves

To Page 3

A Message to the Members of NABET

from

JOHN R. McDONNELL
President, NABET

I am taking the chance of seeming repetitious but I again urge each of you to exercise the utmost care in the selection of your Chapter Officers for the next year. NABET will need all of the forceful, intelligent leadership available,—and you make that leadership available on a national basis by your selection of the Chapter Chairman. Locally too, you will need men in your Chapter Council who are alert, agressive, and sincere. — Choose wisely.

At this date there seems to be no indication that Congress is in any particular rush to repeal or even revise the Taft-Hartley Act. It behooves every NABET member who has the best interests of his Union—as well as that of the rest of organized labor—at heart, to take pen in hand and let his Congressmen know how he feels as to the need for legislation that will correct the injustices incorporated in the Labor - Management Relations Act of 1947. You, the NABET members, can have a far more decisive effect on the forthcoming legislation by your collective letters than any lobby-type approach by the National Office.

On my trip East for the Network negotiations, I stopped at a number of Chapters en route. It was a real pleasure to become acquainted with many of you, and in other cases to renew old friendships. I am sure that I derived more from these visits than any of you. The genuine Union spirit, and the universal eagerness to improve the status of NABET was heartwarming. It was a matter of some concern however to learn that in some cases you were apparently uninformed as to what is happening Nationally. This information is available in the form of releases issued by the National Office, and should be well circulated through the Chapter. It therefore becomes the responsibility of not only the Chapter Chairmen and Councilmen to disseminate this information, but that of you, the individual member to inquire as to its availability. In short, at all times make it your business to know all you can about NABET, so that you may become a more effective member.

J. R. McDONNELL,
President, NABET

DEADLINE is 2nd OF EVERY MONTH. EXAMPLE: COPY RECEIVED MARCH 2nd APPEARS IN THE APRIL ISSUE, IN THE MAIL APRIL 1st.

Heading Cuts for Chapter news columns. Chapters without regular heading cuts and desiring same, should send in photo, cartoon, or drawing of subject matter that they wish used to identify and distinguish their column.

NABET Members—Please Note

The following tabulation of important releases; bulletins and reports, has been prepared by the National Office. They have been supplied in quantity to the Chairmen for the information of the membership.

Release Number	Dated	Subject matter.
1/49	1/ 5/49	Taking over of Executive Secretary's duties by C. Westover.
2/49	1/ 8/49	Ballot form for V. P. election.
3/49	1/ 8/49	Ballot form for Executive Board Member election.
4/49	1/17/49	Union Authorization NLRB election results at ABC, NBC.
5/49	1/18/49	Request to Chapter Officers to obtain and keep correct addresses of members.
6/49	1/21/49	Network negotiation questionnaire.
7/49	no date	Form for notification to Chairmen for members whose mail is not delivered as reported by Post Office.
8/49	1/24/49	Network negotiation questionaire explanation letter.
9/49	1/25/49	Constitutional Amendment vote tabulation.
10/49	1/28/49	Request for Chapter Charters or copy thereof to be sent to the National Office, in accordance with National Council meeting instructions—Detroit.
11/49	1/28/49	Request for delinquent voting on V.P. and Executive Board Member.
12/49	2/ 7/49	Announcement of Executive Board meeting in New York, Feb. 14, 1949.
13/49	2/ 4/49	January reports of National Officers.
14/49	2/18/49	Video Battle Looms.
15/49	2/17/49	IBEW antics at WJBK, Detroit, to detriment of Radio-TV men.
16/49	no date	Executive Board report on TV jurisdictional problems.
17/49	2/24/49	This is the Record.
18/49	3/ 2/49	Philadelphia Story—IATSE Version.
19/49	3/ 2/49	Tabulation of ballots for V.P.—unresolved.
20/49	3/ 2/49	Tabulation of ballots for Executive Board member, unresolved.
21/49	3/ 3/49	NABET Certified and/or contracted stations list as of 3/1/49.
22/49	4/ 4/49	Interim membership cards distribution to Chairmen.

Bulletin Number	Dated	Subject Matter
1/49	3/ 7/49	"Make your own comments"—Excerpts from IBEW Convention.
2/49	3/ 8/49	Statements re IATSE's claims over NABET jobs; also so-called raiding by NABET.
3/49	3/10/49	Feb. reports of National Officers.
4/49	3/17/49	"Flesh and Blood—Whose?"
5/49	3/25/49	IBEW member's letter to NABET commending spirit of organization in fight for radioman.
6/49	3/31/49	Tracy-Walsh raw deal summary.
7/49	3/31/49	Report on WOL election, where IBEW attempted raiding representation and lost 10 to 3.

Negotiation Reports

Neg. 1, Apr. 5, Negotiations (network) as of 4/4/49.
Neg. 2, Apr. 5, Negotiations as of 4/5/49.
Neg. 3, Apr. 8, Negotiations as of 4/7/49.
Neg. 4, Apr.11, Negotiations as of 4/8/49.

PERTINENT TOPICS—from page 2

of the opposing point of view in any controversial issue and to winnow out any slanted opinions or loaded questions, no matter whose side one is examining. If we, the workers of the radio industry, keep these postulates ever in mind, we can be confident that our decisions and conclusions are right and just.

By no means do I intend to imply that any of the bulletins which you of N.A.B.E.T. send us are falacious or untrue. If I thought or believed they were I would not take the effort to read them nor would I make this atempt to tell you how much I appreciate your sending them to me.

This is to inform you also that ..... no longer is living at ..... as he was drafted into the Army January 31. He is on military leave of absence for 21 months from ..... and no doubt intends to return to the broadcast industry upon his release from the Army. So if you would care to send him the mimeo bulletins here is his present address.

.....

.....

In sumary then, I could not resist the temptation of telling you how much I enjoyed receiving your leters and why I am interested in continued receipt of them. Thanks a lot fellas and keep it up. . . .

Sincerely

(Name Withheld)"

— — — — —

It is not amusing to hear from IBEW members who attended the IB Convention in Atlantic City, that Tracy's speech which said, "I have never given away jurisdiction and, by God, I never will" was not quoted accurately. Tracy added, sotto voice, I am told, "any jurisdiction that is legally ours" which indicates, it seems, that he feels that television does not belong to Radiomen.

Tracy is certainly following through on Chicago's Mike Boyle's thoughts. Boyle certainly has a profound disciple in Tracy, one who will live up to Boyle's agreement with the IATSE in Chicago.

FOR INFORMATION ABOUT

NABET

CONTACT ANY OFFICER

★ SEE PAGE 1 ★

WOW-TV MOBILE UNIT

Unique Features a Credit to WOW Engineers

By LOUIS DE BOER

The WOW-TV Field Car was designed by the WOW Engineering Department under the direction of our Technical Supervisor, Mr. Joseph Herold, and our Chief Engineer, Mr. William Kotera.

After a considerable amount of experience in TV-remotes, the engineering department decided that a unit should be designed to allow speedy operation in seting-up the remote equipment, with a minimum amount of labor.

After the specifications were all made out as to how and what should be in the unit, they were turned over to the Henney Motor Company of Freeport, Illinois. The entire unit was then custom-built by the Henney Motor Company to our specifications. The finished product is what you see in the lower righthand corner of the composite photograph.

The main labor-saving device is the console dolly. (As shown being removed from the unit in the lower left-hand corner.) On remotes, the equipment is removed from the unit and wheeled to the actual originating point. With the equipment on the dolly, it is not necessary to disconnect the control units. All that is necessary, is to setup where convenient and plug in power, cameras and video line. I suppose you would like to know how we get the dolly out of the Field Car; well, that is simple. A special steel ramp was constructed, to be used when the dolly is removed from the Field Unit. This ramp is also used to move the dolly up short flights of stairs. It is no problem to get the dolly through any standard width door, as the dolly is only 26 inches wide.

A patented feature of the Henney Motor Company, used on the Field Unit, is a hydraulic leveling device. It allows the Field Unit to be leveled on sloping ground or road. With the hydraulic unit in action, the Field car is held rigid so anyone walking on the top deck will not disturb the picture.

Any housewife would be pleased with the built-in cabinets that are used to store the cameras and other equipment. A picture of the interior is shown in the upper right-hand corner.

The deck is equipped with tripod clamps, a collapsible railing and waterproof port hole for camera cable entry, etc. To reach the deck, a chrome step-ladder, which is stored in the Field Unit, is placed in special chrome-plated slots on the rear of the unit. To support the equipment, (and the heavy enginers) a specially reinforced deck had to be constructed. To get the equipment on the deck is a simple mater, since the floor of the unit projects about two feet further than the deck. (See picture in upper left-hand corner.)

Special features of the Field Unit are the radio telephone, a front and rear flasher lamp to provide for driving through traffic; the side windows are one way, mirrored from the outside, but allowing good vision from the inside and, as in most expensive cars, the windows are raised and lowered by hydraulic action. The interior is finished in brown leather.

The Field Unit is equipped with a trailer hitch which will be used to haul a 6½ kw power unit.

YE ED'S NOTE: As for the picture in the center, well that is Loretta Dundis of the WOW Staff. However, it is not standard equipment on remotes!

"NOBETR—N A B E T ' R"

Official I.R.E. Summaries of Technical Papers

Presented at the 1949 IRE Convention—continued from last month

INSTRUMENTS AND MEASUREMENTS I—MICROWAVE

Chairman, W. R. HEWLETT
(*Hewlett-Packard Company, Palo Alto, Calif.*)

12. Measuring the Efficiency of a Superheterodyne Converter by the Input-Impedance Circle Diagram.

HAROLOD A. WHEELER AND DAVID DETTINGER, *Wheeler Laboratories, Inc., Great Neck, L. I., N. Y.*

There is presented a practical method of measuring conversion-efficiency input and output image impedance of crystal converters in superheterodyne receivers. The small-signal rf input impedance of the converter (with normal local-oscillator excitation) is plotted on the hemisphere chart as a function of if load impedance. The largest circle is obtained by variation of a pure-reactance if load from parallel resonance to short-circuit. The radius of this circle is equal to the conversion efficiency if the circle is centered on the chart. The central point of an arc plotted across this circle by variation of a resistance in parallel with the if circuit at resonance marks the if resistance equal to the output image impedance. This point marks also the if input image impedance.

13. Electrolytic - Tank Measurements for Microwave Delay-Lens Media.

SEYMOUR B. COHN, *Sperry Gyroscope Company, Great Neck, L. I., N. Y.*

By means of symmetry and image consideration, it is shown that the exact solu-

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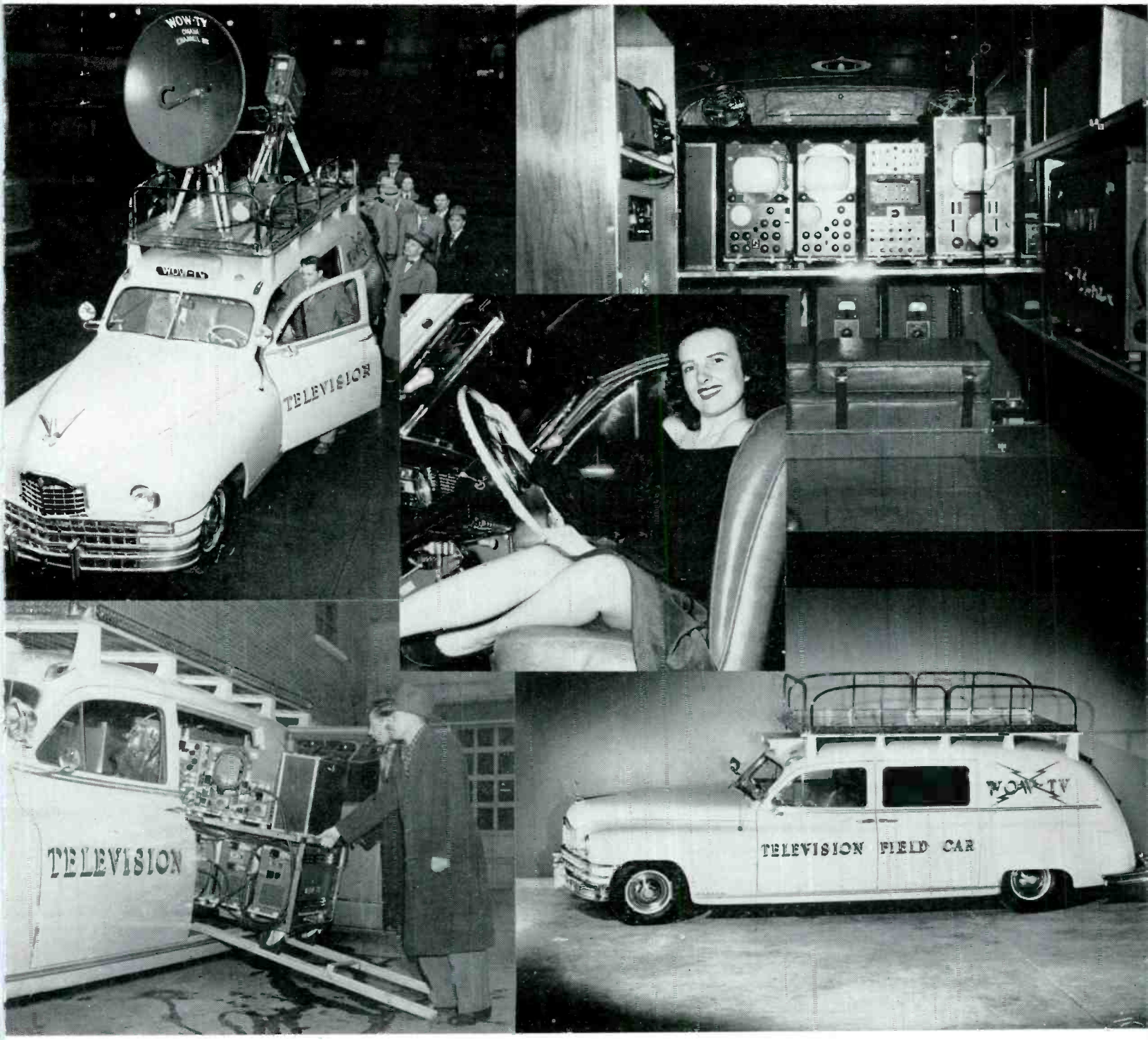
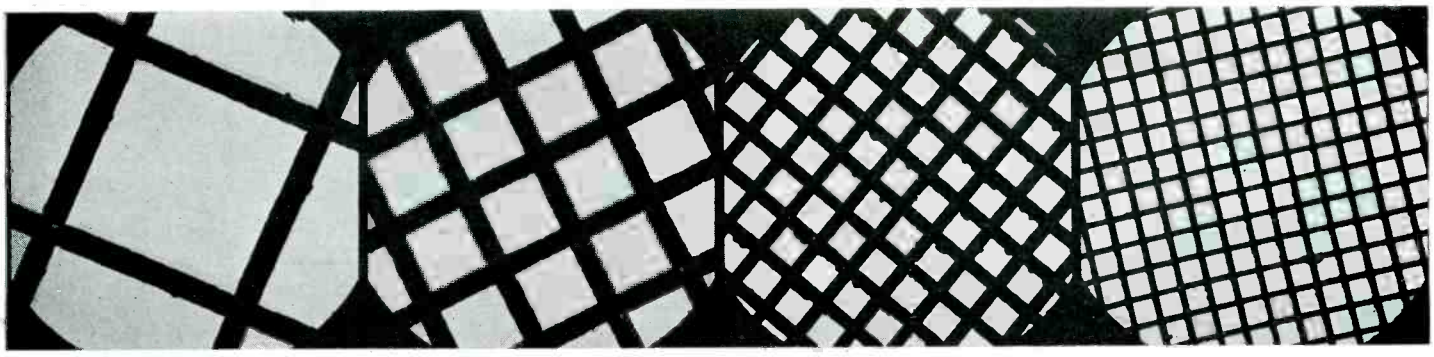


WOW-TV MOBILE UNIT

In the upper left photo, in Mobile Unit cab, WOW engineer R. E. Peck; stepping behind the wheel is WOW engineer Louis De Boer, and behind him and to the rear are the impressed members of the populace. In the lower left photo, at the TV field gear ramp closest to you, is WOW Chief Engineer W. Kotera, and farthest from camera is WOW engineer L. Sibilia. See text for center photo!



Shadow Pictures of 200, 500, 1000, and 1500 mesh screens enlarged 200 times by Electron Microscope.

Image Orthicon -- Making Fine Mesh Screens*

Metallic Gossamers of Extreme Fineness Are Made for Image Orthicon Tubes by Process Developed at RCA Laboratories

By DR. HAROLD B. LAW
RCA Laboratories Division

Production of a copper screen with 250,000 openings to the square inch was one of the problems faced in developing the sensitive image orthicon television camera tube now in common use at most television studios. Because the electron image of the scene to be televised is focused on this screen, the mesh must be extremely fine, otherwise it would be visible in the picture when viewed at the receiver.

Despite formidable difficulties, the problem was not only solved but in the research a method of manufacture was devised by which a screen could be made with the holes constituting more than 50 per cent of the screen area.

The finest prewar mesh screens were made of woven wire or formed by electrolysis. They had about 200 holes per linear inch, or 40,000 openings to the square inch. However, these metallic gossamers passed less than 40 percent of the electron image and, in addition, were non-uniform in the arrangement of openings.

Although these were the screens that had to be used in early models of the image orthicon, it was immediately obvious that they would seriously restrict picture quality.

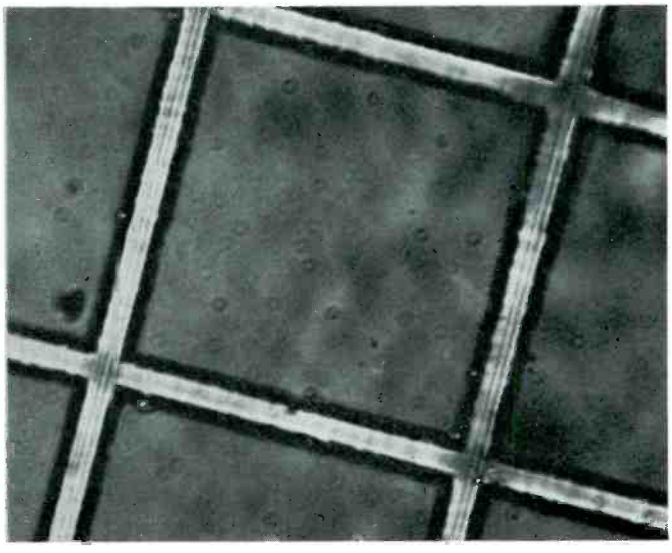
Because of the possible value of the image orthicon in military applications, a search was started for a method of making a high transmission, uniform screen of 500 mesh or more. Out of this war-intensified activity came a procedure that, on a small scale, delivered very uniform screens up to 1500 mesh, three times the goal.

On the opposite page is an attempt to illustrate the fineness of a 500-mesh screen. A small section of screen was laid over a period of the size which ends this sentence and the combination was enlarged about 70 times. Small as the dot appears to the naked eye, nevertheless, the photomicrograph reveals that 66 perfectly-formed, complete openings of the screen are included within the circumference of the period.

Production of fine mesh screens by the process developed at RCA Laboratories really begins with a sheet of highly polished plate glass coated with a layer of material resistant to acid. An exceedingly accurate ruling engine, similar to those used in making optical gratings, scores the desired pattern through the riststant layer, and then the lines are etched into the glass by submersing the entire plate in a hydrofluoric acid.

The metal which will form the screen is applied to the master by a process called sputtering. In this, the master is exposed to a fine mist of a special palladium-gold preparation until a thin semi-transparent layer of the metal covers the surface of the glass. The master is then placed in a shallow dish of water while the surface is rubbed with a thin piece of rubber. This removes the thin metal on the surface, without affecting the metal in the grooves. A corner is left unrubbed in order to provide electrical contact for the next step, that of copper-plating the metal in the grooves.

Since the metal in the grooves is very thin, plating does not take place instantly over the whole surface but proceeds from



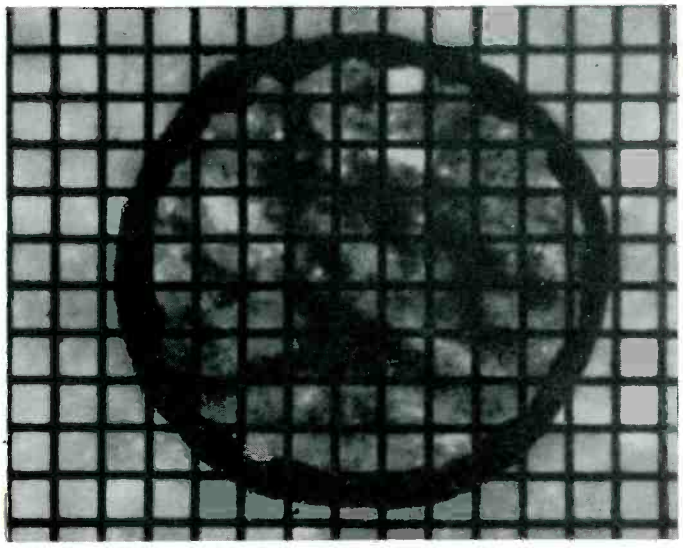
Section of 200-Mesh Glass "Master," Enlarged about 400 times.

*Data and illustrations courtesy RCA "Radio Age."

EXCESS METAL IS ERASED FROM THE MASTER (LEFT) AS ANOTHER WORKER EXAMINES A SCREEN FOR FLAWS.

the plating electrode in an ever-widening area until the whole surface is covered.

After plating, the master with the screen in the grooves is washed and the screen removed. Depending on the master, the screen may "float" off in the wash water or require only gentle pulling to be freed from the grooves. Roughness of the etch producing the grooves largely determines the degree to which the screen sticks.



Fineness of 500-mesh screen is illustrated above by laying a section over a period and enlarging the combination 70 times.

High transmission, fine mesh screens are, of necessity, very delicate. To secure a screen mounted tautly on a frame is a difficult task if conventional mountnig procedures are used. Fortunately in this instance, nature was caught in one of her rare cooperative moods, for it was soon found possible to mount the screen in a safely loose condition, using ordinary methods. Then, by holding the mounted screen for a few minutes in a vacuum in a temperature of about 900° C., it was found that a contraction takes place that tightens the screen ready for use.

With the start of factory production of the image orthicon the need for relatively large production of fine mesh screen became apparent. Mr. R. S. Moore, RCA Victor Division, Lancaster, Penna., took over the problem and has contributed improvements in the process. These advances result in a longer master life and a continuous high quality output in great numbers of 200 and 500 mesh screens of 75% and 60% transmission respectively, and in lesser quantities of 1000 mesh.

NABET

OFFERS ONE UNION FOR RADIOMEN

Join NABET

The NAB and its anti-labor attitude turns out to be the strongest answer to the broadcast engineer who would ask, "Why should I belong to a broadcast technicians' union?"

The solution to the broadcast engineers' problem of honest, competent, and highly specialized union representation requires a single national union, if their place in radio is to be bettered.

NABET is the *only* national union created expressly to serve the broadcast engineers and technicians.

Switch to NABET

NABET is the ONLY Union of Radio-TV Men that is Fighting to Defend the Jobs of Radio-TV Men.

NABET Intends to Beat the deal between the IBEW and IATSE in the same way that NABET beat the deal between the IBEW and Petrillo. The TRUTH has always won and NABET will win again!

URGENT! Eery Radio-TV Man of whatever union affiliation is urged to make himself cognizant of the IBEW-IATSE deal that will deprive Radio-TV men of their jobs. The IBEW double-cross of Radio-TV men is at work again! Write the NABET National Office for Guidance. This may be your last chance to switch to NABET—the only AUTONOMOUS union Of, By, and For Radio-Tv Men.

NABET invites inquiry from all Radio-TV men who are fully convinced of the futility of the IBEW as a haven for Radio-TV men.

To save your job in Radio-TV, you will have to have the courage to sign a NABET Union-Authorization Card, which will be provided by any NABET Officer see list (page one). IBEW radiomen from coast to coast are contacting NABET. Be organized among yourselves and designate a committee to provide the liaison with NABET. In NABET, the Radio-TV man's interests come FIRST.

NABET guarantees AUTONOMY for the Radio-TV man. Contact NABET today!

Review of Current Technical Literature

By Lawrence W. Lockwood

Audio Engineering—December 1948

MAGNETIC FIELD DISTRIBUTION OF A RING RECORDING HEAD—S. Begun

The magnitude of the magnetic field components acting on the recording medium is determined.

Audio Engineering—January 1949

PSYCHO-ACOUSTIC ASPECTS OF QUALITY REPRODUCTION—C. LeBel

The author emphasizes the commercial advantages of better reproduction.

A NEW CORNER SPEAKER DESIGN—C. McProud

A new speaker cabinet designed to accommodate television in addition to providing high-quality sound reproduction.

STUDIO CONTROL ROOM DESIGN—R. Kinney

Technical details of an efficient control-room layout.

The Bell System Technical Journal—January 1949

A NEW TYPE OF HIGH FREQUENCY AMPLIFIER—J. Pierce, W. Hebenstreit

This paper describes a new amplifier in which use is made of an electron flow consisting of two streams of electrons having different average velocities. Conditions for an increasing wave and the gain of the increasing wave are evaluated for a particular geometry of flow.

A METHOD OF MEASURING PHASE AT MICROWAVE FREQUENCIES—S. Robertson

A method of measuring microwave phase differences is described in which it is unnecessary to compensate for amplitude inequalities between the signals whose phases are being compared.

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FIG 1

CIRCUIT SCHEMATIC DIAGRAM 630TS

NOTE REFERENCES ON THIS DIAGRAM RE FIGS. 2 ~ 7

K = 1000

All resistance values in ohms, and capacitance values in mmfd., unless otherwise noted.

Direction of arrows at controls indicates clockwise rotation.

All voltages meosured with Volt-Ohmyst and with picture control counterclockwise. Voltages should hold within ±20% with 117 v. a-c supply.

In some receivers, C19 is omitted.

In some receivers C14 is fixed.

In some receivers, substitutions have caused changes in component lead color codes, in electrolytic capacitor values, and their lug identification markings.

R.F. UNIT

V1 6J6 R.F. AMPL

V2 6J6 CONVERTER

V3 6J6 R.F. OSC

S2-B S2-A S3-B S3-A S4-B S4-A CHANNEL SWITCH

LINK COUPLING

C10 2.2 C12 4.7 L111K COUPLING

C15 0.25 - 2.75 FINE TUNING

ANT J103

T1 T2 CONVERTER TRANS. 21.8 MC LC 21.25 MC

6BA6 1ST SOUND I.F. V104

6BA6 2ND SOUND I.F. V105

6AU6 3RD. SOUND I.F. V106

T111 1ST SOUND I.F. TRANS

T112 2ND SOUND I.F. TRANS

6AL5 SOUND DISCR. V107

T113 SOUND DISCRIMINAT TRANS

TO V123-4

6AT6 1ST AUDIO V108

6K6GT AUDIO OUTPUT V109

T114 AUDIO OUTPUT TRANS

SPKR

6AG5 1ST PIX. I.F. V110

6AG5 2ND. PIX. I.F. V111

6AG5 3RD. PIX I.F. V112

6AG5 4TH. PIX I.F. V113

T103 T104 T105

6AL5 PIX 2ND DET V114-A

SEE FIG. 5

6AU6 1ST VIDEO V115

6K6GT 2ND VIDEO V116

SEE FIG. 2

6AL5 D.C RESTORER V114-B

10BP4 KINESCOPE V117

R152 50K BRIGHTNESS CONTROL

6SH7 1ST SYNC. AMP V118

6SH7 SYNC SEPARATOR V119

6SN7GT 2ND SYNC. AMP V120-A

SEE FIG. 7

6J5 VERT OSC & DISCHG V121

6K6GT VERT. OUTPUT V122

T107 VERT OUTPUT TRANS

YOKE VERT. DEFL COIL 62 Ω TOTAL

R176 2.2 MEG. VERT. HOLD CONTROL

R166 100K HEIGHT CONTROL

R169 2.5 MEG VERT. LINEY CONTR

R181 20 VERTICAL CENTERING CONTROL

R211 20 HOR. CENTERING CONTROL

R183 1800 FOCUS CONTROL

R184 1500 FOCUS CONTROL

R195 247Ω FOCUS COIL

R185A 230 R185B 12 BLEEDER

TO FIG. 6 SINE WAVE AMP.

SEE FIG. 3

SEE FIG. 4

6AL5 H. SYNC DISCR. V123

T108 SYNC DISCR TRANS

6K6GT HOR. OSC V125

6SN7GT HOR. DISCH V120-B

6BG6-G HOR. OUTPUT V126

T109 HORIZ OUTPUT TRANS

6AC7 H. OSC CONTR V124

HOR. DRIVE CONTROL

183 GT/ 8016 H.V RECT. V127

5V4G REACTION SCANNING V128

HORIZ LINEARITY CONTROL

WIDTH CONTROL

YOKE HOR DEFL COIL

5U4G RECT V129

5U4G RECT V130

T110

S101 ON-OFF SWITCH

117V 60~ SUPPLY

J101

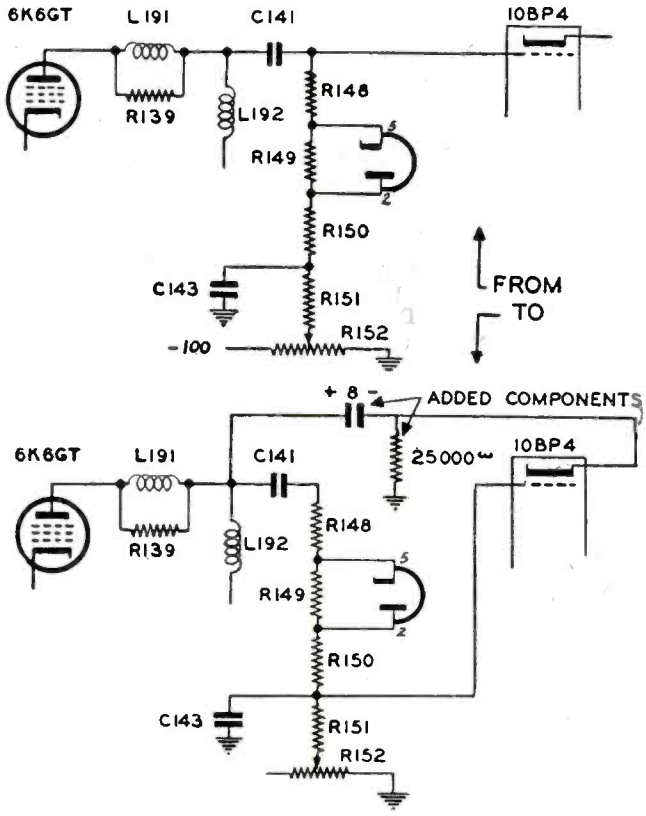
ION TRAP L203 L202

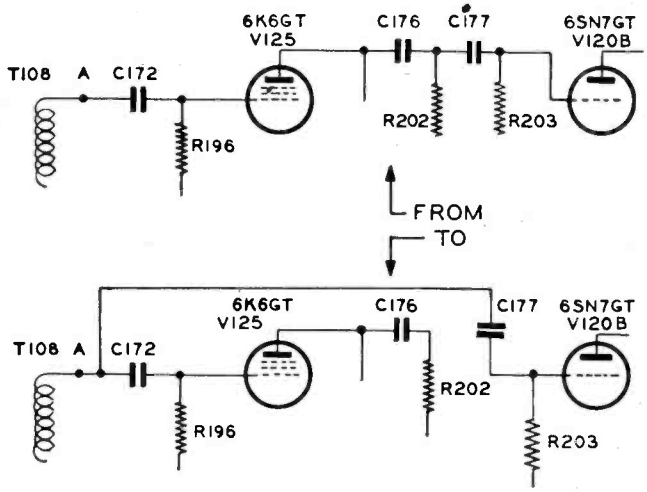
NOTE LINK CONN. TO 2-3 NORMAL POSITION OF LINK 1-2 UNSTABLE SYNC POS.

630TS (10" TABLE) W-93530

AN INEXPENSIVE WAVEFORM MONITOR for TV BROADCASTERS

By J. R. DE BAUN
Engineer-in-Charge, NBC-NY Uptown Television Studios





Turn page to center-spread of Figure 1, a two-page circuit diagram of the 630-TS TV receiver, which is the basis of this article.

At left, Figure 2, see text for discussion.

Above, Figure 3, see text for discussion.

The Federal Communications Commission requires that the modulating signal of television broadcast transmitters meet certain requirements[1] in terms of pulse widths and combinations of pulses which form the synchronizing signal and the blanking signal. To date, no practice of monitoring these prescribed limits has evolved which equals in simplicity or accuracy the technique originated in the National Broadcasting Company's television field test and so aptly described in the RCA Review of January 1942.[2]

Anyone who acquaints himself with the technique of using sine wave horizontal deflection on a cathode ray oscilloscope for measuring television pulse widths, and with a pulse-cross monitor for quick and relatively accurate operational checks of the modulation signal, has found what amounts to an indispensable tool. This is true for the reasons set forth in the aforementioned artichle[2], and more especially for a reason not stressed in the article. In checking stability of pulses from a synchronizing signal generator, triggered sweeps cannot compare with sine wave deflection for the cathode ray oscilloscope. Irregularities in the stability of the pulse under observation frequently will produce corresponding irregularities in the triggered sweep and thus be-cloud the results of the observation. In the case of the sine wave, it is possessed with inertia, or may be momentarily obtained from a second synchronizing signal generator for purposes of orientation, and is, therefore, a vastly superior tool for exposing flaws in pulse stability.

It is the purpose of these notes to de-

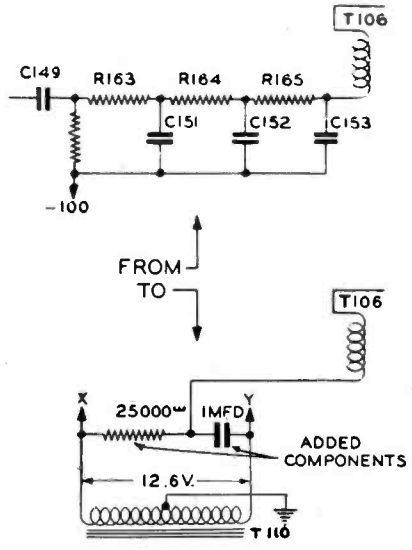


Fig. 4. Power plug may have to be reversed to secure desired phase relationship.

1. Federal Communication Commission. "Standards of Good Engineering Practice Concerning Television Broadcast Stations."
2. R. A. Monfort and F. J. Somers, RCA Review, January, 1942. "Measurements of the Slope and Duration of Television Synchronizing Impulses."
3. Transparent scale developed by W. L. States, Assistant Operations Supervisor, NBC-TV Hollywood.

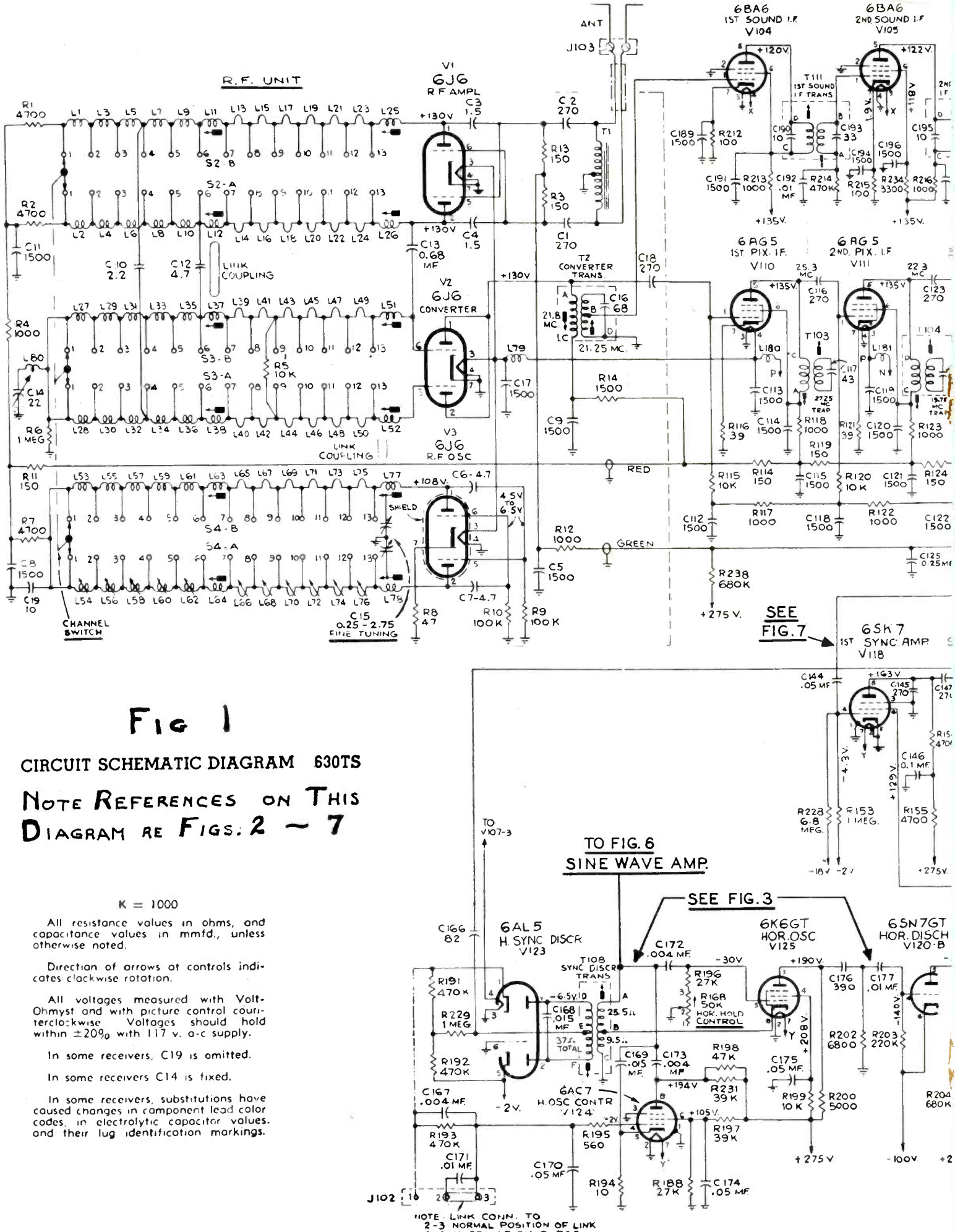


FIG 1

CIRCUIT SCHEMATIC DIAGRAM 630TS

NOTE REFERENCES ON THIS DIAGRAM RE FIGS. 2 ~ 7

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Direction of arrows at controls indicates clockwise rotation.

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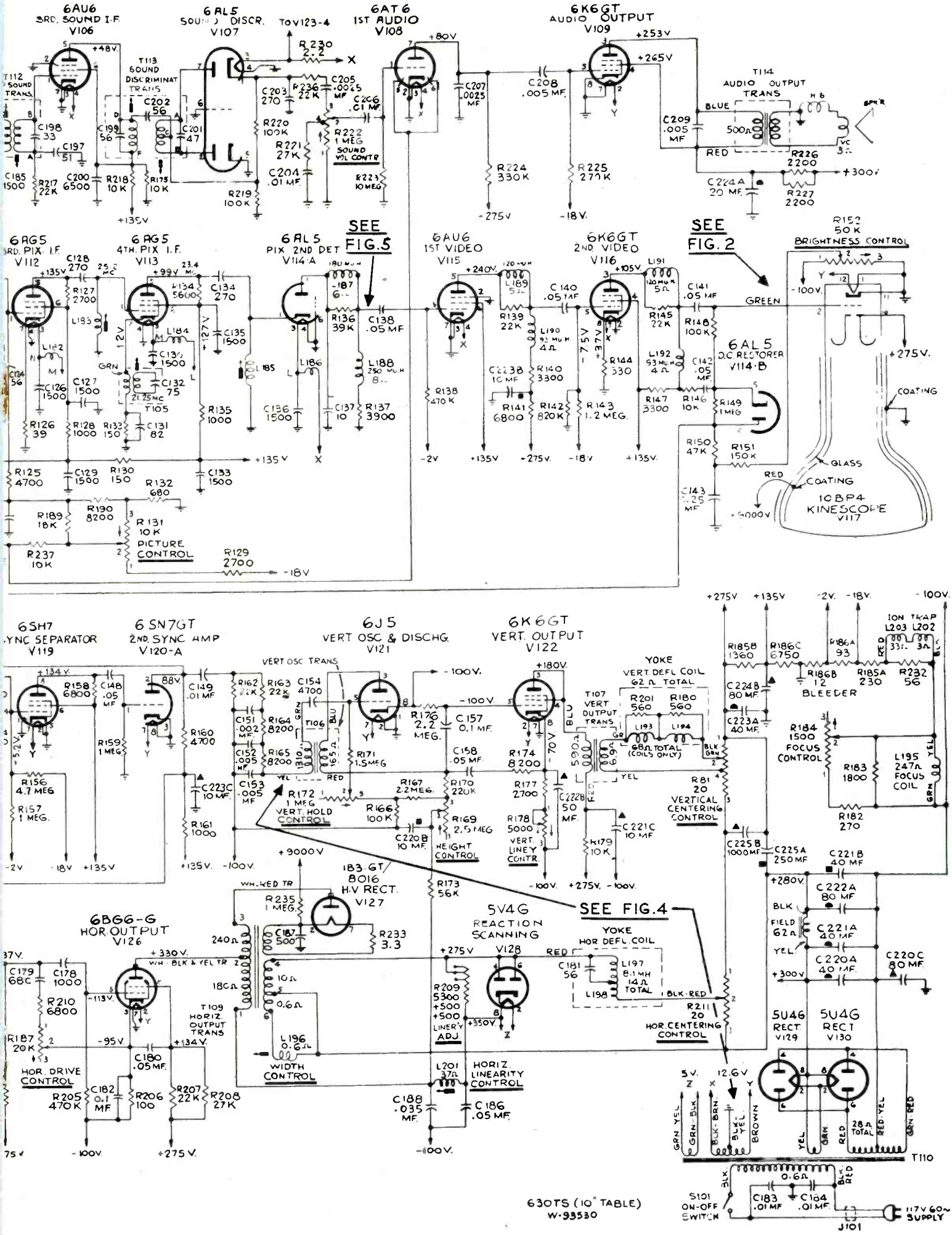
In some receivers, substitutions have caused changes in component lead color codes, in electrolytic capacitor values, and their lug identification markings.



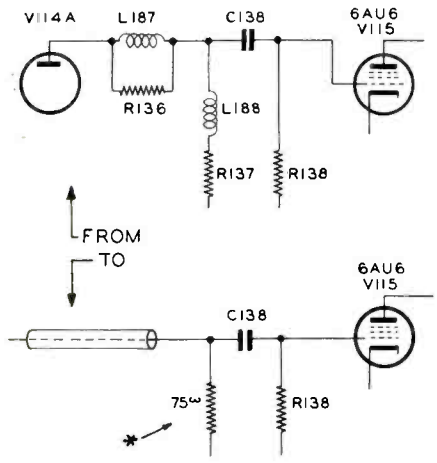


Fig. 5. (*) 2 to 3v p/p of composite video or synchronizing signal.

illustrated in Figure 3.

3. The shifting in phase of the vertical deflection with respect to the signal applied between the Kinescope cathode and grid. This is illustrated in Figure 4.
4. A means of applying the composite video signal to the first video amplifier input. This is illustrated in Figure 5.
5. The generator of the sine wave voltage at 15,750 cycles. This can be accomplished by either modifying the two-stage audio amplifier of the receiver, or by supplying an auxiliary two-stage amplifier as shown in Figure 6. Close attention to detail is necessary because subsequent accuracy in measurements depends upon the purity of the sine wave

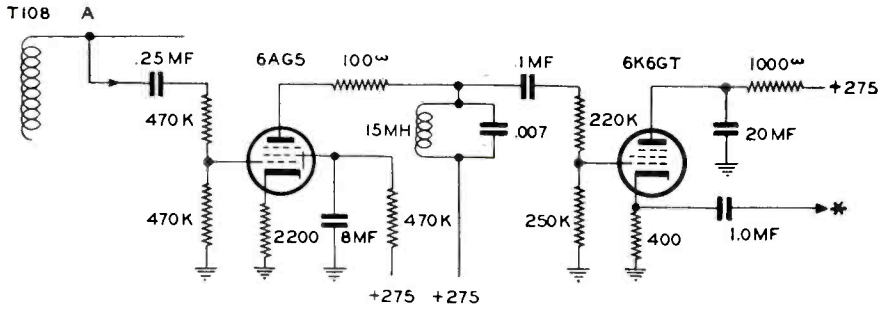


Fig. 6(*) 16v p/p 15750 cps sine wave with less than 2% distortion. The highest "Q" obtainable should be used for the 15 mh coil. A band pass filter on the output may enhance the results.

scribe a means of providing both a sine wave generator and a pulse-cross monitor at relatively small cost by simple modifications to an RCA 630TS or 8TS30 television receiver. Any receiver utilizing a horizontal oscillator of the "Syncro-Lock" type is susceptible to such modifications.

The basic modifications to be described are made on the premise that the receiver will be used exclusively for the sine wave generator and pulse-cross monitor. The unit with these basic modifications is effective as a monitor of both locally generated composite video signals and remotely generated composite video signals just so long as both synchronizing signal generators are locked in with the same (synchronous) commercial power supply. This permits checks at the local control point of the signal from mobile unit pickups.

Five changes are necessary to accomplish the basic modifications. These are:

1. The inversion of the signal applied bet ween the Kinescope cathode and grid. This is illustrated in Figure 2.
2. The shifting in phase of the horizontal deflection with respect to the signal applied between the Kinescope cathode and grid. This is

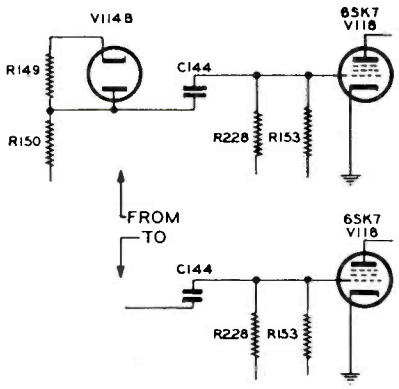


Fig. 7. C-144 is fed from a source of 2 to 10v p/p negative polarity 15750 cps driving pulse from generator under alignment.

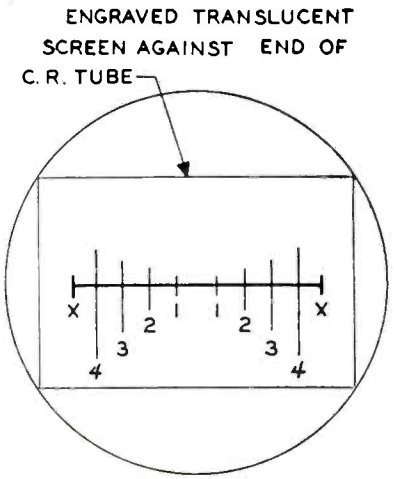


Fig. 8. Marks 1-1 Vertical Driving; 2-2 Horizontal Driving; 3-3 Vertical Blanking; 4-4 Horizontal Blanking, etc. Horizontal sine wave deflection of CRO is set to x-x. Pulse to be measured is brought to coincidence with the proper marks by means of a phase shifter in the 15750 cps sine wave supply to the CRO horizontal deflection and by adjustment of pulse width, if required.

obtained.

In plants equipped with two synchronizing signal generators a further modification to the receiver will allow the use of the sine wave generator and the pulse-cross monitor in aligning and adjusting the stand-by synchronizing signal generator. This modification is shown in Figure 7.

Appropriate switches for restoring the circuits to the original condition will permit the receiver to be used as a receiver or as a sine wave generator and pulse-cross monitor for checking an off-the-air signal.

One improvement in the use of the sine wave[3] for pulse width measurement has evolved since the publishing of the previously mentioned paper[2]. A transparent material placed on the front of the cathode ray oscilloscope can be engraved as indicated in Figure 8. This lends itself to more rapid check and adjustment of pulse widths than the reference to the nomograph in the aforementioned article[2]. The locations of the engraved markers are derived from the nomograph.

In conclusion, these notes cover "interim" equipment and therefore not necessarily the ultimate. However, the equipment described can yield benficiael results in two directions. First, the operation of a TV plant without *knowing* that the required pulses are *stable* and of correct width is as logical as servicing a piece of equipment without first determining that the malfunctioning is not due to improper voltages or defective vacuum tubes. The sine wave generator aids greatly in establishing these parameters. Secondly, compliance with Federal Communications Commission requirements, hence uniformity of transmission to the public will be enhanced with measures which reduce the time and skill required for operational checks and adjustments.

TECHNICAL PRESS—from page 8

Communications—January 1949

PUTTING A STATION ON THE AIR IS OFTEN QUITE A JOB—Q. Prochaska

250 kw Dickinson, North Dakota station successfully put on the air despite hardships of an extremely cold winter, basic equipment and transportation delays, accessory shortages, incompetent antenna tower work and a telephone strike.

AIRLINE TV RECEIVER INSTALLATION TESTS—W. Smoot

Floor model 12" direct viewing TV receiver tested on commercial airline during runs between Washington and Norfolk, Washington and Chicago, and Detroit and Washington found to provide excellent results.

AN FM BROADCAST MONITOR—M. Silver

Experimental FM monitor measures frequency, percent modulation, noise level and distortion of FM transmitter.

ADDING AN AURAL SYSTEM TO A STUDIO MODULATION MONITOR—W. Kiewel

Improvised single loop circuit on monitor provides operation of audible signal in studio to contact announcer for program correction, warning of possible transmitter trouble or phone calls.

MOVING STUDIO EQUIPMENT WHILE ON THE AIR—F. Bartlett

Unique plan adopted to permit installation of speech input consolette without disturbing on-the-air schedule.

A COMPOSITE AUDIO PREAMP—H. Eidson, Jr.

High quality preamp with its own supply, designed for transmiter location application, has a gain of 71 db and a noise level below –64 db.

FM - TV—January 1949

A SIMPLIFIED MODULATOR FOR FM—J. Day

REL's four tube serrasoid unit reduces noise and distortion affording substantial improvement in network operation.

TV BUSINESS IN 1949

This will be televisions year of progress when technical advances should set the pattern for future expansion on a national scale.

16MM FILM SUITABLE FOR TV—J. Maurer

Use of 16mm film will reduce TV production costs, the difficulties that have been experienced can be eliminated readily.

Tele Tech—January 1949

TRENDS IN TELEVISION AND RADIO RECEIVER DESIGN—R. Batcher

Enginering design boards now carry new circuit arrangements and show production methods that offset growing tendency of more complicated features.

SYNCHRONIZATION OF TV CARRIERS TO REDUCE CO-CHANNEL INTERFERENCE—A. Francis

Controlled frequencies improve marginal area reception.

VIDEO RECEIVER CIRCUITS SIMPLIFIED—D. Cole

New television chasis designs feature improved circuit performance and require fewer tubes.

A FRONT END FOR TELEVISION RECEIVERS—J. Silvey

Design, construction and performance details on new two-tube GE tuner assembly.

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ROCKY MOUNTAIN NEWS

By G. A. SOLLENBERGER

This chapter was indeed honored this month by a visit from the NABET pres., John McDonnell, on the way thru to the shmoke-filled rooms of the negotiating seances. He is going the long way via Cleveland, Chicago, and then New York. Mac was honored guest at the special dinner given at one of the better local beanesies in Denver. (YB material!) A discussion revealed some interesting facts after which the meeting temporarily adjourned and, though depleted in number reconvened in the hold of the now famous Ship Tavern. (Ah—more Year Book material!—Ed.) Adjournment from an enjoyable evening came when all of the lights were turned off. Several exchanges of hats and coats were made under the cooling glow of the nearest street light and then came the dispersal of dream-filled engineers as they skidded home on some of the slick Denver streets.

The Greeley men didn't exactly have a picnic on the way back and might have wished that they had put the anti-freeze in the radiator instead. The weather man bailed out six inches of snow by the time McDonnell left and the day following there was a total snowfall of about ten inches which proves that it really gets deep around here.

Noted in the back row of the acompanying photo will be the smiling countenance of Verne Andrews, better known as DX, just back on the KOA studio crew after a cranium correction for atmospheric pressure at this altitude (from the foot of the towering snowcapped Rockies).

The rather portly gentleman on the left in the picture of the gold dust twins is genial George Pogue. (Note: this picture was the better of the two because it didn't show the gravy engravings as plainly thereby distracting from the center of interest.) President Mac was of course the source we had all been waiting to hear and meet. Thanks for the swell visit Mac.

Left: George Pogue, Chairman Rocky Mountain Chapter NABET. Right: John R. McDonnell, President NABET.

Is there an engineer who has mastered the code, International Morse, who would be willing to lend Carl Drebing an Instructograph for about a month so that he too may join the rank(s) of the amateur fraternity? A few tapes would be helpful too to the big code stumbling block which still has Drebe behind the eight word ball. Communications may be addressed c/o KOA, Denver 2, Colorado.

Out at the transmitter of KOA, Barney "Hot Rod" Nesbitt ran his new Hudson 105 miles an hour and will probably be in for a set of bearings, either in his car or himself. Holcomb has finally followed the crowd and built himself a ten meter rig. So you can look for these flea-power but S9 signals on ten phone: Holcomb, WØOLL, Green,

To Page 18

Left to right standing: Merton Marley, Roy Harris, Francis Kettler, Harold Austin, Connelly Holcomb, Aubrey Blake, Verne Andrews, Kenneth Raymond, Al McClellan, Walter Morrisey, Howard Johnson, George Anderson, Blair Dobbins, and Russell Thompson.

Left to right sitting: Carl Drebing (sec'y-treas.), Carl Nesbitt (alternate KOA transmitter councilman), George Pogue (chapter chairman), John McDonnell (national president), Stanley Neal (KOA studio councilman), George Oblander (councilman KFKA), George Sollenberger (journal editor), and Garland Dutton.

SAN FRANCISCO

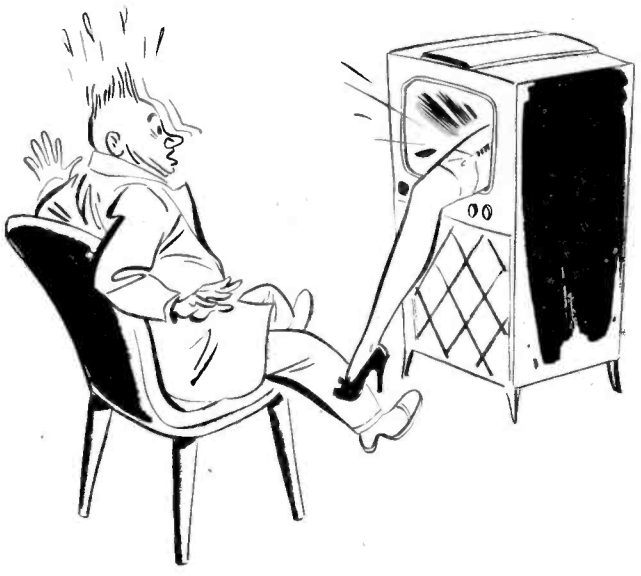
By C. T. STEVENS

A lot of strange faces are being seen around these here parts of late, namely, Robert Heller from KSMO to KGO TV, Stanley Younger from the CAA to KGO TV, Earl Holtman from KVON to KGO TV, and for the life of me I can not think of his first name but the last name is Mc Crae and he comes highly recommended from GE Co. to join the rest of the gang up on the hill at the KGO TV transmitter. And speaking of KGO FM, which we were not, just the other day they went on with full power. 10 KW into the antenna. They used to have a big fat signal and now,—Oh brother!!!

To get back into the "Strange Faces Department" vacation relief at the KNBC transmitter will be handled by Douglas Mariska, Robert Nelson will do the same at KGO while the job of Studio vacation relief will be taken over by Jaun Trasvina who has a background of over ten years with the company; the last few being in the Sound Effects Dept. John Hall who was vacation relief last year is now on the staff of ABC in the Studio Group. Welcome back John and a great big giant welcome to the others of the new group. Also, it looks like this is only the beginning of the additions that are to take place in the future.

We almost forgot a couple of other strange faces that were seen here lately, that is, Art Brearly and Norman Dewes. They were up from the Hills of Hollywood to do their respective shows, Skelton and Crosby. Both are very swell guys and we enjoyed having them around. Come back again soon. And speaking of Norman Dewes, what ever became of that column that he used to pound out? That was really a super de-luxe job of writing and we miss it. No kidding.

Now for some gossip. Oh? Well you are going to get it any how. You don't have to read it. Go ahead, turn the page, put the magazine down, you'r not supposed to read while you do a program anyhow. That's right, your a sucker if you read any further. Well, that's taken care of! As predicted in this column, Red Sanders DID get married. It took place early in March and he kept it such a secret that all we could find out about his new bride is that her name is Emily. Lots of good luck to both of you.



George Dewing is spending quite a bit of time in the North West with the Standard School and International Harvester. Likewise your "correspondent" with the Standard Symphony. I hope that George gets a better break on the weather than has ever happened to me up there. It is a great place to live—if you are a fish.

Edmondson and Salle are the two characters responsible for the latest gimmick around the lounge, of all things it is a trick diet, no starches, no sugar and I don't know what all. What do they want to do, live to be a hundred? They take a terrific ribbing on accournt of it with no hard feelings. It won't last long.

The story of the week is entitled, "The Irony of Fate". Norm Tapper has been doing a "Meat and Potatoes" commercial show for week and weeks and just as they take him off of it and give him a nice shiny new commercial to do, they take the other show to the sponser's restaurant for a broadcast. How tough can it get? His new sponser? Oh, yes, he sells PAINT!!!

"Earl Sorenson has now seen a picture on his TV set." End of quote.

The NABET office was badly in need of a couple of signs, Dick Parks works a fast deal with John Grover (First class announcing done cheap). John works a very fast deal with his wife (a lovely gal and a fine artist). The result is that we now have two very nice signs for the office. Complicated? You said it.

Well, my "Tea" has just run out so I will do likewise until the next time. Do you mean to tell me that you are still reading this stuff? So long, sucker.

HUDSON CHAPTER

By GENE CLARK

Lots of buzzing around over here re TV. The WOR-TV tower now reaches about 250 feet in the air with about 500 feet more to go. What a spot for my ten meter helical folded dipole!

Jim Carter off the air due to BCTVI. After all the bragging he did around here about his cooperative neighbors! Well at any rate I guess Jim has no time for ham radio at present. He is the hardest working Sec.-Treas. our chapter has seen for many a moon.

Lots of boys attending the free TV lectures held twice weekly. Lecturers include Mr. J. Bingley who was formerly for many years with Philco and British TV setups. Others will be Mssrs. Smith, Brazee, and Poppele. The talks are very interesting and informative.

Al King finally sold that beat-up excuse for a car. Congrats Al! However—I don't believe you guys care about what happened to my Aunt Minnie this month so I will sign off but not without mentioning that Pat Miller W2AIS dropped in this week after geting back from Palestine where he operated a radio station for the UN. He had lots of fun contacting hams all over the world.

DO WE HAVE YOUR ZONE NUMBER?

DETROIT By WALT BAKER

Hi! Spose you missed us last month, but our husky, smilin' "Red" Lewis got a yen for higher education and started back to engineering college again. He'll have little time to spare from his studies for some time.

We wished him good luck and promised to return this column to him as a reward for his new sheepskin, but till then you fellows out there are going to have to put up with a collection of talk from a few of us newer and younger members of the union and profession. The news wil probaby be predominantly TV—but what else is there?

NABET is about to take a couple of steps forward here in Detroit as a result of the untiring work of several union-minded men. The boys at WJLB are coming into the fold. NLRB elections have already been completed and negotiations have begun. We hope to report the contract completed by next isue and tell you more about the new members. Fort Industries' new station, WJBK, to which TV was added a few months ago increased in personnel and labor complications so fast that a rather prudent management asked for a union. Both departments were very solidly NABET, but IB jumped in with both feet and tried its best to gum the works. The air has cleared somewhat due to the good work of our local committee and national representative, George Maher. IB has managed to delay negotiations until an NLRB jurisdiction hearing in spite of the fact they have no noses to count.

All these things were happening during our recent contract negotiations which were rather eventful in themselves. After beating back harassing demands of management, we finally came up with substantially the same contract with a few valuable new clauses pertaining to TV, but with only a three dollar hike. The most important gain, however, was a new classification in TV —a "Technical Director". For some time our TV crews have been working as units without direct supervision and subject to the 'personality' of non-technical production directors. Under the new setup, one member of each crew is designated as the TD and is made responsible for all operations relating to the technical quality of the program, and carries with it an added ten percent in pay voluntarily offered by management. TV operations at WWJ have taken a big step forward.

That's all for now. In the future, we plan to bring you a word picture of the operational and equipment setup of NABET television operations in Detroit in the absence of news. Hope you'll be interested.

RCA ANNOUNCES

A new uni-directional microphone, designed to meet requirements of movie sound work.

An electron diffraction unit to aid in measuring conditions on surfaces or in thin layers of materials such as ceramics, metals, biological materials, etc. Will permit chemical analysis of substances weighing as little as 1/28 millionth ounce, and will aid in study of corrosion and contamination.

A mechano-electronic triode transducer, translates mechanical vibration into audible or visual signals. Weight 1/16 ounce, 1/3 inch diameter. The moving element is the plate shaft which extends thru the tube. This shifat has a deflection sensitivity of 40 volts per degree deflection.

Fifty kw high band FM transmitter at WTMJ-FM has been extremely stable, the first of the 50 kw transmitters in service.

Another 50 kw FM transmitter at WBRC-FM Birmingham, Alabama, being heard 200 miles away, effective radiated power over 500,000 watts at 102.5 mc. This coverage said to provide possible key to rural FM coverage.

Complete audio and provision for TV-future has been contracted for by WBAP, Fort Worth. Said to be largest custom-built order of broadcast plant.

Common stock dividend increased from 30 to 50 cents, an increase of 66 2/3% after all operating and TV expenses. Good news!

Mr. Frank M. Folsom becomes president of RCA, previously Exec. V-P. General Sarnoff continues as chairman of the RCA board.

Mr. Folsom predicts 17,000,000 TV sets in use by 1953, when TV will be an eight billion dollar industry.

TV carrier synchronization between WNBW and WNBT, Washington and New York TV stations, said by RCA to have greatly increased the marginal service area of these stations.

A new RCA TV transmitter of 500 watts, for channels 7 thru 13, for smaller

cities, or for emergency or standby-service.

George F. Maedel has been elected Vice President and General Superintendent of RCA Institutes. Mr. Maedel joined RCAI in 1933 as the first math instructor. In 1940, he became Chief Instructor, and in 1944, Ass't Superintendent. He has been Superintendent since 1947. Congratulations!

IRE PAPERS—from page 4

tion for a microwave delay-lens medium consisting of a uniform array of obstacle may be obtained from the solution for a single obstacle with proper boundary conditions. It is shown that, for obstacle spacings much less than a wavelength, these boundary conditions may be easily and exactly simulated in an electrolytic tank. It is also shown how approximate frequency corrections may be applied. The results of measurements by this method are given for thin, square, and circular obstacles.

Through an application of Babinet's principle, the electrolytic-tank method may also be used in the measurement of the magnetic polarizability of small apertures of any shape.

14. **A Michelson-Type Interferometer for Microwave Measurements.**
BELA A. LENGYEL, *Naval Research Laboratory, Washington, D. C.*

The optical Michelson interferometer is modified by replacing one of its branches by a directional coupler and a waveguide. The instrument serves many purposes, among which are: precision wavelength determination, the measurement of dielectric constants of materials available in sheet form, the determination of reflection from laminated sheets at normal incidence, the study of metal-loaded dielectrics and of parallel-plate metal lens media. An instrument operating at 3.2 cm is described.

15. **Impedance Instrumentation for Microwave Transmission Lines.**
PIERRE A. PORTMANN, *Naval Research Laboratory, Washington, D. C.*

Three measurable sets of parameters describing the condition of a load on a transmission line are considered. These are: (1) generalized voltage versus current. (2) complex standing-wave ratio, and (3) complex reflection coefficient. The utility of these parameters for measurement purposes is discussed in terms of their applicability to automatic and semiautomatic instruments. The reflection coefficient is shown to be easily transformed to the other two sets of parameters.

The standing-wave ratio is applied to a semiautomatic instrument utilizing a circular waveguide phase shifter. The output data are presented on an oscilloscope. The deflection coefficient is applied to a

semiautomatic instrument; data are presented on a meter and calibrated scale.

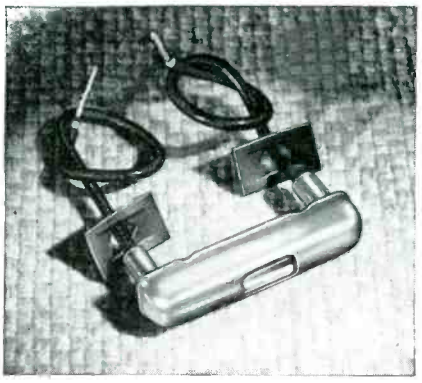
16. **A Broad-Band High-Power Microwave Attenuator.**
HERBERT J. CARLIN, *Microwave Research Institute, Polytechnic Institute of Brooklyn, Brooklyn, N. Y.*

The principal portion of the device consists of a high-attenuation probe whose broad-band characteristics are obtained by a simple yet novel arrangement of discontinuity capacitance in coaxial line. Supplementing the probe is a lossy section of coaxial line designed to function as an attenuation equalizer. The power in the attenuator is dissipated in a broad-band coaxial high-power load which can dissipate over 100 watts. A typical design, which was built and tested, has a maximum input VSWR of 1.16 and an attenuation of 50±1 db over the frequency band 1,000 to 3,000 Mc.

17. **An Absolute Method for Measuring Microwave Power of Low Intensity.**
HAROLD HERMAN, *Naval Research Laboratory, Washington, D. C.*

A method of absolute power measurement is described for the microwave and millimeter wavelength region using an adiabatic microcalorimeter having a limiting sensitivity of approximately 5 microwatts. For an accuracy of about 2 per cent, the system is usable at levels above 100 microwatts. The errors involved and the application of the method to the calibration of bolometer mounts are discussed.

A new pilot light for use on instrument panels, switchboards, electrical and electronic apparatus and thermostatically controlled heating units is now being produced by Industrial Devices, Inc., Edgewater, N. J., manufacturers of neon-



lamp devices. Encased in a polished chrome-plated housing, this new item known as the Tiny-Glow is an extremely rugged, dependable, and yet economical pilot light. Utilizing a neon lamp, it may be used over a wide range of voltages from 75 to 250 volts ac or dc.

Tom Hutchinson, well known TV producer, is now director of Television Studios of The School of Radio Technique, Inc., at 316 W. 57 Street, New York City.

REVIEW—from page 13

Television—January 1949

AN APPROACH TO BETTER STUDIO LIGHTING—Dr. F. Back

Some observations on lighting requirements for TV and specific proposals for the improvement of illumination for TV.

Electronics—January 1949

ULTRAFAX

A new facsimilie method uses cathode ray tubes as light sources at both transmiter and receiver. Ultimate high speed transmission depends upon 10 mc. microwave relay chains. Receiving devices uses photographic film that can be developed in a few seconds.

6000 MC. TELEVISION RELAY SYSTEM—W. Forster

Utilizing the super-high frequency allocation for television, programs can be relayed through Neshanic, N. J., and Mt. Laurel, N. J. from New York to Philadelphia over two-way circuits.

DISTORTION AND NOISE METER FOR TESTING BROADCAST EQUIPMENT—R. Freeland

High selectivity possible with standard components in a null T-Bridge filter circuit, is made use of in a simple, easily built meter for checking noise and distortion of broadcast and other audio equipment. Suggestions are made for construction and operation.

FM RECEIVER DESIGN PROBLEMS—E. Freeland

A survey of design and production techniques include an evaluation of limiter-discrimination, ratio, and synchronized oscillator detectors. Hum reduction and the tracing and elimination of regenerative effects in I.F. and R.F. stages, particularly for ac/dc receivers, are described.

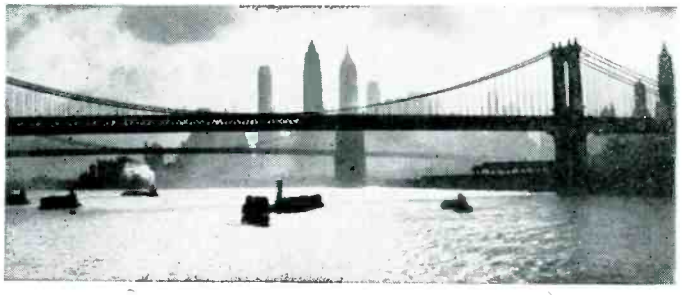
LOCKED OSCILLATOR FOR TELEVISION SYNCHRONIZATION—K. Schlesinger

Synchronization of horizontal sweep is accomplished by two types of flywheel circuits, a resonator and a locked oscillator. Both types introduce selectivity betwen the noisy signal and the sweep circuit, thereby contributing to noise protection and picture improvement.

ROCKY MOUNTAIN—from page 14

WØLYJ, Turre, WØDCY, and Dutton whose call is WØFKQ. It's so far from the home QTH to the xmitter they usually have time for at least two or three rag-chews before going into the salt mine (heh-heh) and on the way home don't even lite the filaments they're so tired of listening to the babble of voices; but who can blame them!

That looks like the works for this issue and needless to say contributions are welcome. So from up here to all of you down there,—



NEW YORK—By Bob Zweck

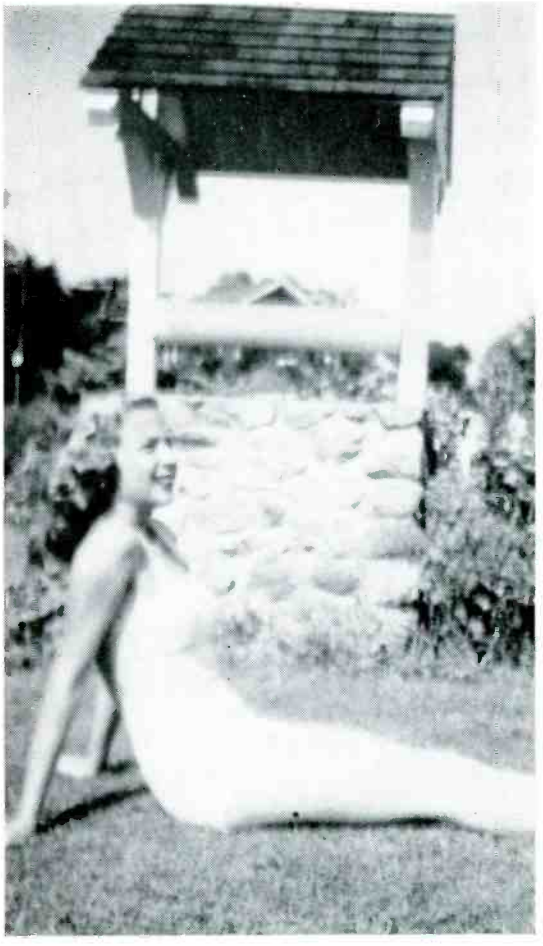
Sonce cities may have beer on tap some may have ale; but here in N. Y., we have O'DWYER (and that ain't no joke, son). In all truth, there have been, and will be, elected officials whose chief complaint is that their constituents sleep during their speeches and don't give a DARN as to what they say; NOT SO in N. Y. Thru the gifts of electronics, our Mayor's words will be kept for the repeat show and then posterity. . . . And speaking of BIG NAMES, do you suppose that the President's "description" of a certain radio commentator could aptly be called a S O B story? Who says that we in communications don't figure in the making of history?

I have received millions of letters, fired with enthusiasm, asking for further details on the "Miss Broadcast Engineer of 1950" campaign we are initiating. Here again are the details: Each chapter across the country will submit (in their column) a photo of one or two gals together with a brief description of how many husbands she has, what her hobbies are (the latter may now seem unnecessary), where she works, etc. The young lady need not be employed in the radio industry. (Aside to editors: If your city, unlike N. Y., supports a local burlesk, this is an ideal spot to begin your TALENT hunt.) After about five more issues of the Journal, the individual chapter will CHOOSE the lucky lady to represent them as Miss Hollywood, St. Lawrence, etc. These girls will then submit new and DIFFERENT pictures for judging on a national level. The winner "Miss Broadcast (and of course, television) Engineer of 1950" will then have her beauty displayed in a prominent place in our coming Yearbook. We can't promise the girls any reward other than the fun, publicity, and OFFERS . . . of marriage she doubtless will receive. I, for one, am sure that all chapters can come up with girls that will match those to be found in N. Y. or Hollywood. Let's make this a challenge to Mr. Dewes . . . I don't suppose I have to tell you lucky fellows who are on the AUDITIONING committees how to go about your jobs. . . .

It is always interesting to know what kind of IMPRESSION you make on people you come in contact with. The fellow who goes out on Nemos meets many people and sometimes leaves LASTING impressions, etc., behind him. And so, here and now we are going to mention some casual impressions obtained by two gals who work at a local paper covered by us on a daily SE pickup known as the "METROPOLITAN NEWS ROUNDUP". It should be pointed out that these two women are middle-aged bachelor girls (I hope they don't ever see this), and because it is a Nemo (or remote) pickup, only the most virile young men are assigned

NICE!

Meet Miss Margaret Barry, presently NBC Receptionist. Likes swimming, horseback, and tennis. A blue-eyed blonde, interested in writing, maybe for radio. 5-ft. 6-in.



WELL!

Meet Miss Joyce Higbee, presently secretary at NBC-TV. Likes to sing and swim, lives near Jones Beach, L. I. Reported not career-minded, just "normal desires." Blue-eyed blonde, 5-ft. 8-in.

to it. . . . Listening in on our secretOp 6, we overheard these brief comments on:—JOHN (I was swimming off the coast of Cuba) WARD—"Oh, He's a wolf, but he's very frank. . . ."; GEORGE (I'm in TV now) PETERS—"A very sweet boy" (Ed. Note: This is not meant the way it sounds. He is married and is a father.); JACK KENNEDY —"A DOUBLE wolf! Boy, is he smooth!"; JACK BRAVERMAN—"Nyaa, he just THINKS so. A would-be wolf."; JIM COLEMAN—"Oh, the big one. He's always talking about Chinese boys and his trip over there." (Ed note: The girls were mistaken; it should be . . . Japanese boys.) . . . . This ends our little invitation to mayhem and lawsuit. But let it teach you a little lesson when out on a Nemo: Keep your fader *open* and your big mouth ————. . . .!

THANX to HARRY LANG, DICK BERRIEN, HARRY ALEXANDER, BILL CHAMBERS et al for their kind words and encouragement of my feeble efforts on this column. And seeing as how I do "The Mystery Chef" program these days, I want to assure youse guys that care to throw those eggs and tomatoes, they are welcome and will be used as soon as I tackle his next receipe.

During the war, at one of those rare dances open for both officers and enlisted men, a young private approached one of the hostesses selected from the town's deb and subdeb set and asked for a dance. "I'm very sorry" she replied stiffly, "but I never dance with anyone lower than a second lieutenant." The private looked hurt for a moment and then, with a slight bow, said: "Excuse me ma'am, but I didn't know there *was* anyone lower than a second lieutenant!" . . . All this gives me a perfect cue to announce that I just received my appointment as SECOND LIEUTENANT in the ORC, Army of the U. S. This helped no end by the efforts of Lt. Col. R. J. McKithan, 1st Army, and of Capt. Bill Buschgen, CO of the 406th Mobile Radio B'casting Co. The 406th is a pyschological warfare outfit activated at NBC, under the Army's Affiliation Program, and will be an organized reserve unit. We, in the next issue, will have further information on the possibilities of additional units being formed across the country and of vacancies in these for technicians and engineers.

Starting with this issue, we are printing the pictures of the first two young ladies who have elected to vie for the title of "Miss New York" and then be in the running for TOP honors as "Miss Broadcast Enginer of 1950". . . . ALL PERTINENT data on the gals will be found in the captions written by Ed. Stolzy. . . . 'N if you guys think you can do BETTER, mail your pictures to me at the lounge. . . .

We'd like to close this with mention of two items; one serious, the other . . . well. . . . Firstly, we all wish the best good fortune to Walter Wiebel, of traffic who leaves the beginning of the month to operate his own Pontiac agency up in Conn. If any of you would like a new car, well, you know what to do. . . . Secondly:—

It may've been due to the taxi strike,
Or maybe a glass of Hemo . . .

But whatever the reason, the news is PLEASIN',
GIL MARKLE has done a NEMO!!! — (Egad!)

ABC—New York News

By GEORGE HALVONIK

The General Meeting at the King Edward Hotel on March 25th was well attended. The big turnout was due to the interest in the new contract that was to be discussed and no doubt a few members wanted to save themselves the five buck penalty!

The general agenda, which was not limiting, included the status of "One NABET Chapter" in the metropolitan New York area; the status of the IATSE-IBEW jurisdictional deal and the local IB 1212 invitation to Messrs Westover and Stolzenberger; and the status of eight contracts being negotiated that concern and affect members of the New York Chapter.

It was a long-drawn out affair that made a person uncomfortable after siting for hours on *end!* Mr. Stolzenberger talked about an IBEW meeting that he and Mr. Westover attended. They were cordially received, reported Mr. Stolzenberger and after talks to the memebrs present, were nicely applauded. This display of friendliness on the part of I.B.E.W. is a healthy sign that NABET'S fight on behalf of Radiomen in the industry is bearing fruit.

After the Chairman's lengthy talk on NABET affairs Mr. Westover was invited to handle the discussion of negotiations. He read excerpts from the new ABC contract that would be presented at negotiations. There is no need to discuss the contract here because by the time this is in print the new contract will be signed and everybody will be happy; I hope. The meeting lasted until after one o'clock the following morning.

The IATSE is looking for trouble, I gather from a report I heard. At an ABC-TV show the IA men walked in, declared that *they* would do the sound effects, or there would be no show. The IATSE controls the props, you know. To what extent will this strikebreaking outfit go to break into Radio or TV Engineering?

All ABC employees that have been with the company for five years or more get an extra weeks vacation—this includes NABET members. This new company policy makes vacation time begin a week earlier than was formerly announced. I'll be going to see my dear old mother in Perryopolis, Pa. on May 21 instead of May 28. No kiddin', there is a town in Pa. named Perryopolis and it wasn't named after Bill Perry in Studio Engineering!

What is going to happen to Tony Hutson of Field Enginering couldn't happen to a nicer fellow. Tony is going on a trip around the world in a few months—all expenses paid. There will be stops in all the big cities; London, Paris, Berlin, etc. The countries behind the Iron Curtain are not included. It's a co-op radio show with transportation provided by the PanAmerican Airways. We envy you, Tony Hutson.

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A new design feature, permits the servicing and inspection of all components from the front of the panel, with a maximum of ease and in a minimum of time. This is also a direct reading instrument, entirely eliminating time-consuming computations.

It is no longer necessary to use makeshift equipment for determining the transmission characteristics of audio systems. The Type 1-1 A gain set has been priced low enough to come within the reach of the most limited budget.

FEATURES

FREQUENCY RANGE:
20 cycles to 20 KC.

ACCURACY:
Accuracy is ± 0.1 db, from 20 cps to 20 KC.

OUTPUT LEVELS:
Ranges of output levels— +4 to —110 db and —10 to —124 db in steps of 0.1 db.

ACCESSIBILITY:
All components accessible from front of rack panel— for ease of servicing.

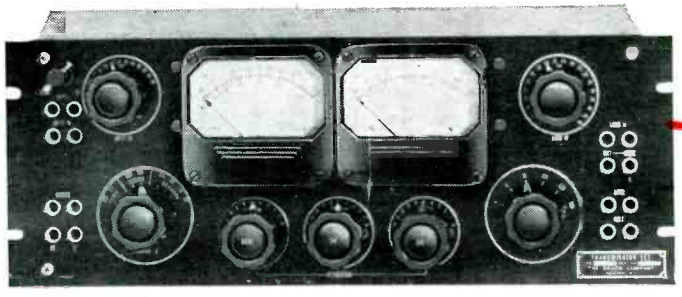
IMPEDANCE RANGES:
(a) *Source Section*— 600-150 ohms internally terminated. 600-250-150-30 ohms unterminated.

(b) *Load Section*— 600-250-150-16-8-4 ohms.

APPLICATIONS

- AUDIO GAIN MEASUREMENTS.
- AUDIO LOSS MEASUREMENTS.
- MEASUREMENTS OF MATCHING AND BRIDGING DEVICES.
- COMPLEX CIRCUIT MEASUREMENTS.
- MEASURING MISMATCH LOSS.
- FREQUENCY RESPONSE MEASUREMENTS.

WRITE TO DEPT. BE-5 FOR ADDITIONAL INFORMATION.



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