

1 40 BRO DWAY NEW YORK 18, N.Y. W O R OPERATING MANUAL

BOOK 5

CHRONOLOGICAL OPERATING ROUTINE PHOCENTRE 50 & 5 NW TRANSITITER

W O R BAMBERGER BROADCASTING SERVICE, INC CARTERET, N.J.

50 KW Transmitter, Carteret, N.J. 710 K.C.

BOOK #5

"Chronological Operating Routine Procedure"

By - Charles H. Singer

BOOK No. (5) SEC. No. (A) PAGE No. (1)

C.O.R.P. #Items To Be Performed 50 KW

 Before entering the Building, visually inspect WOR Property, Grounds, Ponds, Poles, Building, Towers, Center Wire Antenna, Emergency Antenna, Emergency Antenna Coupling House. Also, listen to Monitor Speaker on wall in "Storage Room".

Page No. () () () () (

2. Hang up Hats and Coats in Clothes Lockers at foot of basement stairs. Information on Proper Dress.

Where to store Personal Tools.

Book No. () () () () ()

Sec. No. () () () () (

Page No, () () () () () (

3. Exchange Greetings with Supervisor and all Technicians on the Main Floor of Transmitter Building, when entering or leaving the Plant.
Book No. () () () () () () ()

Sec. No. () () () () ()

Page No. () () () () ()

4. Check all Radio Receivers that may be in operation in the Measuring Equipment Room.

Book No. () () () () () () Sec. No. () () () () ()

Page No. () () () () ()

VOR OPERATING MANUAL

SEC. No. (A)

C.O.R.P. "Items To Be Performed" 50 KW

PAGE No. (2)

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BOOK No. (${\bf 5}$)

SEC. No. (A)

C.O.R.P. "Items To Be Performed" 50 KW

2

PAGE No. (3)

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BOOK Nc. (5)

Sec. No. (A)

C.O.R.P. "Items To Be Performed"

PAGE No'. (4)

15. In Bay #2, Equalizer #3 is spare for Channels #1 and #2, FL 45086 and RL #7433 respectively.

16. In Bay #2, check the operation of the W.E. 1126-A Program Amplific Also known as "Peak Limiter".

Book No. () () ()) ()))) (Sec. No. () ()) () () ((Page No. () (

In Bay #2, check adjustments of the UTC Type 3-D Attenuator. 17. Book No. () () Sec. No. () ()))) Page No. () ((

18. In Bay #3, check operation of W.E. 8-A Rectifier #2.
Filament and plate switches are "On".
Book Nc. () () () () () ()

In Bay #3, check the operation of the W.E. 700-A VU Meter #6. 19.) Book No. () () (Sec. No. (ł)))) () (·) ((((Page No.

In Bay #4, check operation of the Amertran Power Supply. 20.) (•) () () () Book No. (() (.) () (:)) ((Sec. No. () Page No. () () () (

1

BOOK No. (5)

SEC. No. (A)

C.O.R.P. "Items To Be Performed" 50 KW

PAGE No. (5)

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BOOK No. (5)

SEC. No. (A)

C.O.R.P. "Items To Be Performed" 50 KW

PAGE No. (6)

26. In Bay #4, check attenuatoradjustments of VU Meter #4. (Registers audio input level to 50 KW transmitter)

BOOK	NO •-	()	()	() ·	()	()	()
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27. In Bay #4, check operation of the W.E. 94-C Monitoring Amplifiers #1 and #2.

) (Book No. () () . () Sec. No. Ć (Ϋ́)) (() () Page No.))

28. Check position of keys and faders on turret of AF Control Room Desk.

Book No. () (.) () Sec. No. ())· () (Page No.) (()))

.29. Test audio Facilities, Channels #1 and #2. Book No. ()) (Sec. No.)))) (: (() (((Page No.) () () () (

30. Check operation and patching of W.E. 268-A Order Wire PL Board in AF Control Room.

Book No.) (() () Sec No. () ((ÿ Page No.) () () (() (2)

(5)BOOK No.

C.O.R.P. "Items to Be Performed" 50 KW

PAGE No. (7)

(A)

SEC. No.

31. Note that Telephone Instruments of Outside Wire and Private Line are properly hung up on hooks in Left Front Recessed Compartment of Control Room Desk.

()) () () (Book No. (·)))))) Sec. No.)))) (() Page No. () ()

32. Note that Telephone Instruments of Outside Wire and Private Line in Supervisor's Office, are properly hung up. Book No. () () () () () ()

) Sec. No.) () (())) () (()) (Page No. (

33. Note that Telephone Instruments of Outside Wire and Private Line in Lobby-Office are properly hung up.

())) (Book No. () ())) ()) Sec. No. ())) () () () () Page No.) (()

6

Check Pilot Lights on Right Turret of Control Room Desk. 34. Book No. ()) Sec. No. ()) () () (Page No.) () ((

Check Switch positions on Right Turret of Control Room Desk. 35. Book No.)) ()) Sec. No. '() t () () Page No. () () ()

WÓR OPERATING MANUAL

BOOK No. (5)

SEC No. (A)

C.O.R.P. "Items To Be Performed" 50 KW

PAGE No. (8)

36. Check Morse telegraph key and sounder on control room desk and telegraph keys on desks in Supervisors Office and Lobby Office. All keys are normally closed.

Book No. () () Sec. No. ()). Page No.) () () (). . () ()

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. Check ventilating system bullseye indicators; located on 4 37. Control Room wall. just to left of entrance to Supervisors Office. Book No. () () ()) (.) (()) · Sec. No. () (() () ()) (Page No. ()) () ((

Check switch positions of Road and Flood lights, and Emergency service. 38. Book No. ()) () () () ()) (.. Sec. No.) (() (Page No. () ()) (.) · () () (

 39. Check temperature control thermostats in Control Room.

 Book No. () () () () () () ()

 Sec. No. () () () () () () ()

 Page No. () () () () () () ()

40. Note that tally boards with "WOR DAILY PROGRAM SCHEDULE", "WBAM DAILY PROGRAM SCHEDULE" and "TELEPHONE NUMBERS" are hung up in knee opening of 'AF Control Room desk.

(() (Book No. ()).) Sec. No. () (.) Page No.)) () ·(

WOR

BOOK No. (5)

OPERATING MANUAL

C.O.R.P. "Items To Be Performed" 50 KW

PAGE No. (9)

SEC. No. (R.)

41. Read all Notes on Bulletin Boards in Control Room and initial same. (Book No.) () () () () () Sec. No. ((-) () () () ()) Page No. () () () ()) (..)) (Check Left Turret of Transmitter Room Control Desk. 42. Book No. () () () () () () Sec. No. () () () () () ()) () () (Page No.) () (() 43. Check Pilot Lights on Right Turret of Control Desk in Transmitter Room. Book No.) () (() () () () Sec. No. () (5 () () () ()) () (Page No. () () () () 44. Check Switch positions on Right Turret of Control Desk in Transmitter Room.)) () (Sec. No. () () . () () Page No. () () () () () () Check Morse Telegraph Key and Sounder on Transmitter Room Desk. 45. List of Morse Call Letters, Stations, and continuity of Morse Circuits.

Book No. ()) (() () () Sec. No. (()) () () () Page No. () () () () () ()

SEC. No. (A) PAGE ic. (1C)

C.O.R.P. " Items To Be Performed " 50 KW.

47. Note that telephone instruments of Outside Wire and Frivate Line are properly hung up on hocks in left front recessed compartment of Transmitter Room Desk.

Procedure in answering telephones at Carteret Transmitting Plant.

 Book No. () () () () () () ()

 Sec. No. () () () () () () ()

 Page No. () () () () () () ()

48. Note that small electric fan, located on shelf in space beneath
Transmitter Room Desk, is running, forcing cool air on interior of the W...
1-C Frequency Monitoring Unit.

Book No. () (() Sec. No.) () () () Ĭ () Page No. () () () (

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All technicians will check "Information To Be Passed On". 49. Book No. ()) ().) (Sec. No.)))) () () Page No. () () ((

The technician assigned to Transmitter (Match will sign on 50. the " 50 KW HALF HOURLY RECORD" (\$0 KW F.C.C. Log). All technicians will read and discuss all entries on log. Book No. (·) ſ) Sec. No. ())) (() Page No. () () () ()

BOOK No. (5)

C.O.R.P. " Items To Be Performed " 50 KW SEC. No. (A)

Page No. (11)

51. One technician will sign on the " 50 KW Master Operating Log" All technicians will read and discuss all entries on Log. Book No. () () () () () () () Sec. No. () () () () () ()

Page No. () () () () () ()

52. All technicians will read all entries on " 50 KW Station Starting Procedure" log and discuss same.

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Page	No	<u>`</u> ()	()	()	()	()	()	

53. All technicians will read and discuss all entries on " 5 KW Half Hourly Record". (5 KW F.C.C. log. One technician will sign on this log if 5 KW Auxilliary Transmitter is used

during his watch.

Book No. () () () () (Sec. No.) (···) ((ľ) Page No. (.) () () (

54. All technicians will read and discuss all entries on " 5 KW Master Operating Log".

One technician will sign on this log if 5 KW Auxilliary Transmitter is used during his watch.

Book No. () () () () () () () Sec. No. () () () () () () () Page No. () () () () () () ()

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C.O.R.P. "Items To Be Performed" 50 KW.

BOOK No. (5)

SEC. No. (A)

PAGE NO. (12)

55 Note that the following Station Operating Books are on shelf in foyer office. (a): "CHRONOLOGICAL OPERATING ROUTINE PROCEDURE" Book No. 5 **(**b) "PLANT AND EQUIPMENT MAINTENANCE" Book No. 6 (c) "TRANSMITTER AND ANTENNA EQUIPMENT MAINTENANCE". Book No. 7 (b) "GENERAL BUILDING MAINTENANCE" Book No. 8 *INSTRUCTIONS TO THE STAFF" "F.C.C. RULES AND REGULATIONS" ·(e) and "W O R Construction and Engineering Details" Book No.10 "WORK TO BE DONE" (f) Book No.12) (() (() ((Book No. .))()()()() Sec.No. (Page No. All WOR library books except Operating Manuals No. 5-6-7-8-10-12 56 are kept in Supervisors office. Book No. () () () Sec. No. (. .)) (.) .((· Page No. (+ Note that tally boards with following station logs are hung up on 57. hooks beneath marker tags on rear of Transmitter Room Desk. (a) "50 KW HALF HOURLY RECORD" (50 KW F.C.C. LOG) 50 KW MASTER OPERATING LOG (50 KW M.O.L.) (þ) (c) "50 KW STATION STARTING PROCEDURE" (50 KW Daily Starting Log) (d) *5 KW HALF HOURLY RECORD" (5KW F.C.C. Log) "5KW MASTER OPERATING LOG" (5KW M.O.L .) (e) Book No. (***) **(***) **(***) **(***) **(***) Sec.No. (-) (-) (-) (-) (-)

Page No. () () () () (

BOOK No. (55)

SEC. No. (A)

C.O.R.P. "Items To Be Performed" 50 KW

PAGE No. (13)

58. Proceed to take the "50 KW MASTER OPERATING LOG " Technician that is going on transmitter watch should take readings. He will be accompanied by technician about to go off watch. Book No. () Sec. No. (Page' No. () ()) () () ()

59. While in the basement taking the "50 KW MASTER OPERATING LOG" technician going on watch will read all notes on blackboard.

Book No. () Ĵ ((() (•) Sec. No.)) (()) Page No. (.) (-) () ()). ()

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W O R OPERATING MANUAL

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C.O.R.P. "Items" "Methods" "References" 50 KW

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BOCK No. (5)

W O R OPERATING MANUAL

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (1)

SEC. No. (B)

1. (a)Technicians, upon entering WOR property, will observe to see if all is normal.

Look at the grounds, ponds, poles, building, towers, antennas, emergency coupling house, and storage room.

Items that are not normal will be entered in the "W.T.B.D." book.

Book #12, Sec. (B).

The item will then be performed by this or any other technician as soon as time permits.

If damage is extensive and may not be readily repaired, report such to Supervisor who will advise.

When entering building, note that monitor loudspeaker in storage room is "ON" and playing at proper level to check WOR program while in Storage room.

The loudspeaker is a permanent magnet type.

It is operated from W.E. 82-A #3 amplifier, located on panel #5 bay #3 in Audio Facilities Control Room. The fader for this amplifier is #2 located on slanting turret of desk in A.F. Control Room and is normally set on step #11.

The audio input to the amplifier is from "MON AMP OUT" jacks 215.

(b)The "Still" is also located in the garage storage room, bolted to the brick wall just to the right of the main work bench. (Continued)

C.O.R.P. "Items" "Methods" "References"

W O R OPERATING MANUAL

PAGE No. (2)

BOOK No. (5)

SEC. No. (B)

(c) The "Still" may, or may not be operating, depending upon requirements. If it is operating, the Water Softener is being used to furnish it with softened water. Softener valves"A" and "L" are open, main city water valve "Hl" is open, all other valves on water softener. are closed.

Water pressure gauge on side of Softener is reading <u>75 to 100 lbs.</u> Needle valve on Water Inlet to "Still" is adjusted by Supervisor for optimum operation and need not be changed by the technician. Distilled water may be seen dripping rapidly in Inspection Sight-Glass in distilled output pipe.

City water may be seen boiling in distilling chamber. Raw city water (From Water Softener) is flowing out of 3/4 inch "Still" outlet pipe into the sump pit through main pump room drain. "Still" output is one gallon of distilled water for each <u>8</u> gallons of city water.

(d) When "Still" is placed in service, turn the water on first and then the 230 volt A.C. supply switch #5.
When "Still" is shut off put the 250 volt A.C. supply switch #5 off first and then the water supply.

A.C. supply switch #5 is in the 230 volt supply panel box on wall of passageway to mixing chamber.

OPERATING MANUAL

BOOK No. (5)

SEC. No. (B)

C.O.R.P. "Items""Methods" "References"

PAGE No. (3)

2. Steel lockers are provided for all technicians.
They are located in small areaway at foot of stairs to basement.
Locker assignments are made by the Supervisor, who shall give each main his key. Lockers are identified series 1A to 1G and series 2A to 2G.
Dress coats and all other clean clothing, such as worn by technician when coming to work are hung up in large clothes lockers numbers <u>1 to 2</u>, also at foot of basement stairs.

Work clothing is to be hung up in lockers in the Storage Room. Other personal effects such as books and tools are to be kept by each technician in his own personal locker.

Technicians must be neat and clean at all times , except when performing maintenance work.

Technicians on the main floor of the transmitter building must be clean shaven, and neatly dressed. If you wear a vest, keep it buttoned. Technicians need not wear their coats except when requested by the Supervisor or visitors are expected.

During the hot summer months, technicians may work in polo shirts, light weight summer trousers and white or sport shoes. Gum-rubber soled shoes will not be worn since they unduly mark up floors.

Book No. .(<u>۱</u> Sec. No. ((Page No. () () () () () ()

OPERATING MANUAL

BOOK No. (5) SEC. No. (L) PAGE No. (4)

C.O.R.P. "Items" "Methods" "References"

3. (a) Proceed to Supervisors office and exchange greetings.

(b) Proceed to exchange greetings with all technicians on the main floor of transmitter building.

(c) Merely nod to those who might be very busy, so that they are not ist disturbed.

(d) Exchange greetings with Supervisor and other technicians, who may be in other parts of the plant, as your work progresses. That is, do not make a special trip to the basement to speak to a technician when you will be going there in a few minutes to take a "MASTER OPERATING LOG" reading. (e) When leaving the plant, say "Good bye" to Supervisor and all technicians. Ask one technician to say "Good bye" for you, to another technician, not in the the building but on the property, or when you can not do this yourself.) Book No. ()) (Sec. No. () () · () () () ()) "(Page No. () (

4. (a) Listen to the level and quality of all radio receivers that may be in operation in the Measuring Equipment Room. Readjust control settings of all receivers as required to properly check

level and quality.

Bays 5-6-7-8 receive 115 volts A.C. from Regular 115 v. Svc. switch #11. Bay 9 receives 120 volts A.C. from Emergency 120 v. Svc. switch #3. \rightarrow 4 \sim (Both are in Control Room wall panel- 120 volt Distribution Box) When receivers are set up for special examination, special tests, or other special operation, information may be found in technical bulletins published by the manufacturer which shall be available to the staff. (Continued)

BOOK No. (5)

SEC. No. (B)

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (5)

Such special bulletins are kept in the Supervisors office. Data on operation of all receivers installed in measuring equipment room, or any other location about the plant may be found in Operating Manual ^Docks.

(b) Receiver #1, panel #1, bay #6 R.E.L. frequency modulation receiver 21 Mc. to 40 Mc.

Receiver, panel #2, bay#6 is WOR FM monitor receiver frequency range 26 Mc. to 51 Mc.

Receiver #2, panel #4, bay #6 is All-Wave Sargent Communications type Receiver.

Receiver #3, panel #5, bay #6 is All-Wave Hammarlund Super-Pro communications type receiver.

(c) Select antennas for any of the receivers in bay #6, except FM Monitor receiver as follows:

There are four receiver selector switches mounted on panel #3,bay #6. They are marked, "Receiver #1" "Receiver #2" "Receiver #3" "Receiver #4" These four switches select antennas according to switch positions. Position #1 is the vertical antenna, tuned to 37.34 Mc. Position #2 is the horizontal dipole antenna, tuned to 43.5 Mc. FM Monitor receiver is permanently connected to terminal #1 of switch #1. When checking field strength on monitor, place receiver #1 antenna selector knob "OFF".

When this selector knob is in position #1, receivers #1 and #2 are connected in parallel to the vertical coaxial antenna.

All switch positions are connected in parallel through coaxial connectors. All other positions on these four switches are vacant.

BOOK No. (5)

SEC. No. (B)

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (5a)

(d) Output of receiver #1 is connected to jacks 5C6, "REL FM REC"
 "PM" Loudspeaker is mounted on panel #9, bay #5.

To use "PM" loudspeaker, patch from "REL FM REC" jacks 5C6 to "94D IN" jacks 5A1. Patch from "94D OUT" jacks 5C1 to "PM SPKR#500 OHM" jacks 5C9. 115 volt A.C supply toggle-switch is mounted on front of R.E.L. REC #1. 115 volt AC supply toggle switch is mounted on front of 94D amplifier. Adjust level by means of "AF gain" control on front of REL-receiver #1 and gain control on front of 94D amplifier.

"WOR FM Monitor" receiver output is connected to jacks 5D6, "WOR FM REC". To use "PM" loudspeaker patch from "WOR FM REC" jacks 5D6 to "94D IN" jacks 5A1.

Patch "94D OUT" to "PM" speaker, the same as for receiver #1. 115 volt AC supply toggle switch is mounted on front of FM receiver #2. Receiver #2 output is connected to "OUTPUT" jack on front of receiver. Loudspeaker for this receiver is mounted within receiver case. Receiver #3 output is connected to jacks 505 and multipled to jacks 5D5. To use "PM" loudspeaker patch from Hammarlund receiver jacks 5C5 to "94D IN" jacks 5A1.

Patch "94D OUT" to "PM" speaker, the same as for receiver #1.

BOOK NO. (5)SEC. NO. (B) PAGE NO. $(6)^{-1}$

C.O.R.P. "Items" "Methods" "References" 50KW

(e.) See that all clocks on "Carrier Timer Modulation Alarm Units are set for proper time and operation.

Green "Carrier On" light is illuminated.

Red "Carrier Off" light is extinguished.

Clock #1 (Carrier Off) running and indicating the correct time. Clock #2 (Total time off) stopped and both hands set on twelve. Clock #3 (Carrier Returned) running and indicating the correct time. Green bullseye light #1, "WOR MOD" becomes illuminated, and alarm bell rings when program is off for 25 seconds or more. Red bullseye light #2, "MOR Carrier" becomes illuminated and alarm bell

rings when carrier is off.

Bullseyes are located on front of panel #3 bay 9.

Alarm bells are located on back of panel #3 inside of bay 9. These lights and alarm bells are supplied with 115 volts AC from convenience outlets inside bay #9.

5. (a) The G.R. 731-A Modulation Monitor is a part of the Class 730-A Transmission Monitoring Assembly and is connected for such use.

As used at WOR, this assembly consists of the following:

G.R. 731-A MODULATION MONITOR Bay #8-Panel #4

G.R. 752-A DISTORTION AND NOISE METLE Bay #8-Panel #5

G.R. 732-P1 RANGE EXTENSION FILTERS Bay #8 -Panel #6

(b) All are operated from 115 volts A.C. (Control Room switch panel) Switch #11..

(c) The method of operation of the G.R. 73i-A Modulation Monitor is as follows:

BOOK No. (5)

SEC. No. (B)

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (7)

(d) 115 volt A.C. Cable Connector is normally plugged into the receptacle on back of the instrument and one convenience outlet supplied with power through fuses F7.1R and F7.2R(Right side of bay#8, viewed from rear). Toggle switch on front of the instrument is "ON"

(e) R.F. input is through concentric cable from "Trans.Mon.Sel.Sw." mount ted on panel #8, bay #8 to "R.F.INPUT" terminals on right rear of the instrument.

(f) Should the 731-A Modulation Monitor cease to indicate "Percentage Modulation", make sure that the auxilliary plug, located on the left rear side of the instrument is firmly in place.

This plug contains a 500 ohm resistor, which is in series with the meter when no remote meter is used.

As connected at WOR, the resistor has been removed and replaced by the remote meter located on the left turnet of the transmitter room desk.

(g) "TRANS MON SEL SW" must be set to correct position depending upon whether 50 KW transmitter or 5 KW transmitter is being used. These positions are marked, "50 KW"-"5 KW"

(h) Set "Carrier" knob to read 100 (red line) on the "Carrier" meter. If unable to get 100 on "Carrier" meter, reture the "Radio Frequency Tuner" (panel 1, bay 8) then readjust the "Carrier knob which will permit setting "Carrier meter" to 100.

(i) Set "Nominal Modulation Peaks" dial to 105.

(j) Set "Peaks" Selector knob to positive peaks, since it is always the positive peaks that are affected. The negative peaks will readily reach 100% where the positive peaks might reach only to 80%.

OPERATING MANUAL

BOOK No. (5)

SEC. No. (B)

C.O.R.P. "Items" "Methods" "References" 50KW

PAGE No. (8)

(k) Observe "Percentage Modulation" meter which should indicate the Average Percentage of Modulation to be between 85 and 100. The average would be one half the sum of the positive and negative peaks. Thus: Positive-80% plus negative -100%, equals 180 which divided by 2 equals 90% average modulation. If less than 85%, it can be increased by turning the 1126-A Program Amplifier Output Attenuator, upper right hand, the required number of steps, however this is not to be done at this time. Observe the percentage of modulation on the type 687-A Oscillograph (Sec. B, item 6, page 9).

(1) Observe "Over modulation" Indicator Lights (On face of the G.R. 731-A Modulation Monitor and right turret of Transmitter Room Desk) Overmodulation is indicated by flashing of the lamps. Never permit either the 50KW or 5KW transmitter to be overmodulated. Use G.R. 731-A Modulation Percentage meter and not VU meter in checking percentage of modulation.

If faulty gain control by "WR" Master Control, 1440 Broadway, N.Y.C., is causing over or under modulation, call WR on Morse telegraph circuit and have him adjust for correct level. Should Master Control be unable to keep level within proper limits, adjust for correct level at Carteret on fader of channel in use(Channel #1-Fader#1, 6hannel#2-Fader #3). Do not permit over or under modulation, particularly over modulation without quickly correcting same at Carteret. If overmodulation exists, and you correct it at Carteret, them Master ^Control should adjust the level and then readjust at Carteret for proper modulation.

(m) For all cases of overmodulation, investigate audio facilities and transmitter adjustments at Carteret before calling WR Master Control.

BOOK No. (5)

SEC No. (B)

C.O.R.P. "Items" "Methods" "References" 50KW

PAGE No. (9)

(n) Check to see if "Overmodulation Lamps" are good, by setting
 "Nominal Modulation Peaks" dial to zero. Lamps will flash with modulation or remain illuminated. If an indicator lamp is burned out, replace it with
 G.E. clear,6 watt, candelabra screw base, Mazda #40. Spares may be found in Transfile #94 in storeroom.

) (') ()() (Book No. ()) ()) (() ((·)) (Sec. No.) (.) () () (' Page No. (

6. (a) The G.R. type 687-A Cathode ray Oscillograph is used to visually check the percentage of modulation and character of the modulatedwave form. Bay #8-Panel #3.

(b) This instrument is operated from 115 volts A.C. switch #11 of the AFCR switch panel.

(c) The 115 volt A.C. cable connector is plugged into the convenience outlet outlet supplied with power through fuses F7.1R and F7.2R. Fuses are located on right side of bay #8 (viewed from the rear).

(d) R.F. input is through concentric cable from "TRANS.SEL.S"." to RF terminals of vertical plates. Terminals are lettered V and located on the right side of tube shield.

(e) This instrument has been modified at WOR, in that the vertical and horizontal plates connections have been brought out to G.R. terminals on front of the panel.

Each pair of deflection plates in the type 687-A Electron Oscillograph and sweep circuit is independent of the other pair and may be operated either balanced or unbalanced to ground.

The terminals marked V on the panel connect to the plates which produce

BOOK No. (5)

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (10)

SEC. No. (B)

(Item #6 continued)

a vertical deflection. These are the plates nearest the electron gun. Similarly the terminals marked "h" connect to the plates which produce a horizontal deflection and are nearer to the fluorescent screen. When the sweep circuit is in use, any external connections to the "H" terminals should be removed except when viewing a trapezoid pattern. The sweep circuit automatically grounds one of the "H" terminals.

(f) For regular viewing; set A.C. switch to "Tube and Sweep", noting that both red indicator lamps are lit.

(g) Replace any burned out lamps with 2.5 volt screw base flashlight bulbs. Kept in transfile #_____

<u>CAUTION</u>: Cathode ray instrument <u>MUST BE SHUT OFF</u> when doing any work of any kind inside chassis or any part of this unit because of <u>DANGER FROM</u> <u>HIGH VOLTAGE</u>. Merely lift the socket off the metal support to which it is clipped and screw out the defective lamp, installing new one.

(h) Adjust "Brilliancy" control to provide clear image.

 (i) Set the "TRANS SEL SW" to correct position, depending upon whether 50 KW or 5 KW transmitter is being used. Positions are marked
 "50 KW" "5KW" . Bay 8, panel #8.

(j) Adjust the "Focus" control for sharpness of definition.

(k) Set "Multiply Sweep Frequency Control to Xl position.

(1) Set "Sweep Frequency" knob to 40 to 60.

This gives closer definition of over modulation.

The negative peaks will show as a solid white line during overmodulation. (m) In bay #8 panel #1 proceed to adjust "Radio Frequency Tuner" for image 2 to 3 inches in width.

OPERATING MANUAL

BOOK No. (5) SEC. No. (B) PAGE No. (11')

C.O.R.P. "Items" "Methods" "References" 50 KW

(n) Inspect image on the cathode ray for modulation percentage and presence of unwanted frequencies.

(o) Adjust focus knob until the image is sharp.

(p) Unmodulated carrier will appear on the screen as a rectangle of light. Audio modulation will appear as sinusoidal indentations on the top and bottom of the rectangle.

(q) Observe modulation of varying frequencies, voice modulation,
syllabic and sinusoidal.All will be readily seen in their actual ratios.
(r) Measurement of modulation may be made on continuously varying
audio signals And one or more given audio signals of constant amplitude.
100% modulation is seen when the audio frequency wave increases the
rectangle of light in width, equal to one half of the actual width of
this rectangle before audio was applied.This is 100% modulation of the

100% modulation of the negative peaks may be seen when audio wave is
visible inside of the rectangle of light, equal to one half of this rectangle.
(s) Measurement of modulation may be observed on trapezoidal pattern
if desired. To do this proceed as follows:

Patch from "MON AMP OUT" jacks 215 to "T LINE #1" jacks 2k6 Patch from "T LINE #1" jacks 5A7 through concentric cable to horizontal plate terminals "H" on front of cathode ray instrument. Adjust instrument same as paragraphs h, i, j, k.

Measurement of modulation may be made on continuously varying audio signals and one or more signal's of constant amplitude. 100% modulation willform a perfect trapezoidal pattern.(Triangle) Zero modulation will be seen as avertical line about 1/8 inch long. Length of line is determined by amount of RF fed to the tube.

BOOK No. (-5)

C.O.R.P. "Items" "Methods" "References" 50 KW

SEC. No. (B)

PAGE No. (12)

Varying percentage of modulation will form pattern to right and left of vertical line as unfinished triangle except in the case of 100% modulation.

. CAUTION: If the electron beam is left sharply focused on a spot for a long period of time(Sweep circuit or RF input off) a dark spot or line may be burned on the fluorescent screen. To prevent this from happening when there is no sweep, adjust the instrument slightly out of focus.

Book	No.	()	()	() [.]	()	(·)	()
Sec.	No.	()	()	()	()	()	()
Page	No.	·()	()	()	()	()	()

For information on how to use Linear Rectifier, Wave Analyzer 6A. type 636-A, Beat Frequency Oscillatortype 713-B, Range Extension Filters type 732-Pl, etc. consult "WOR Library List" Book #100

7. (a) There are two bulletin boards at the WOR transmitting plant. One is located in the Measuring Equipment room and one in the Audio Frequency Control Room.

(b) The bulletin board in the Measuring Equipment room will generally contain Instructions to the Staff, Technical Information, Technical notes from the Supervisor, etc.

(c) The bulletin board in the Audio Facilities Control Room will generally carry information pertaining to Personnel, such as - Staff schedules, Program bulletins, Vacation schedules, Changes in Staff Time schedules, ETC

(d) The blackboard in the basement will generally contain all notes not necessary to keep for any length of time, such as-"Still on", "Pond pump off", Pond water being softened", etc. These notes will be

BOOK No. (C -

SEC. No. (B)

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (13)

dated and initialed and will be erased when no longer pertinent.

(f) Check with Supervisor on anything not understood.

(g) While you are in the M.E. room read all notes and date protection on this bulletin board.

(h) Initial all notes and material after reading them.

(i) It is the direct responsibility of technicians to see that all instructions are carried out.

8. Proceed to the "Audio Facilities Control Room.

(a) W.E. 8-A Rectifier #1 is located in Bay #1. Panel #13

(b) It is operated from 115 volts A.C.Control room panel box Switch #30.

(c) ... There is one R.C.A. type 523 or W.E. 274-A tube used.

(d) Filament switch is on. Bay #1 panel #13. This furnishes 115 volts A.C.
to the W.E. 263-A Voltage Regulator. Output of £63-A Voltage Regulator is
10 volts A:C. for filament supply of W.E. 81-A Amplifier #1. W.E. 82-A
Amplifiers #1 and #4, and W.E. type 700-A VU meter #5. 263-A is in Bay #1
panel #14.

(e) Plate switch is ON Bay #1 panel 13 .It is connected across the operating contacts of Time Delay Relay "E1" to maintain the plate voltage to amplifiers during any failure of the relay. "S1" relay and plate switch furn furnishes l15 volts A.C. to primary of transformer "T1" Maximum D.C. plate supply from 8-A rectifier #1 is 375 volts.Bay #1 panel#13. 8-A Rectifier #1 furnishes plate voltage for W.E. 81-A Amplifier #1, W.E. 82-A Amplifiers #Land #4, and W.E. type 700-A VU meter #5. Book No. () () () () () () Sec. No. () () () () () () Page No. () () () () () ()

W.O.R. OPERATING MANUAL

BOOK No. (5)

SEC. No. (B)

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (14)

8A. (a) W.E. type 106-A Amplifier is located in Bay #1, Panel#7

(b) This amplifier is normally OFF.

(c) "Gain" control is normally on Step 10.

(d) Plate current buttons #1 and #2 are not connected to measure the plate currents of tubes. When necessary to test tubes, remove and test in regular tube.

 Book No. () () () () () () ()

 Sec. No. () () () () () () ()

 Page No. () () () () () () () ()

9. (a) W.E. type 700-A VU Meter #5 is located in Bay #1 Panel #6.
(b) Rough Calibration Key "Kl" is on zero. (Left key.)

(c) "VU Calibration" Selector Potentiometer is on plus 10.

(d) To check operation of VU Meter #5, merely depress Rough Calibration Key "Kl" and meter will indicate minus 2 VU. (Right Key)

10. Plate currents of the following amplifiers, located in Bay #1 may be checked by depressing Test buttons.

W.E. 81-A Amplifier#1, panel #2(Low level microphone preamplifier)

W.E. 82-A Amplifiers #1 and #4, panels #3 and #5(Channel #1 and Spare)

Amplifier	Button	Current	Deviation	<u>Bay#</u>	<u>Panel #</u>
81-A	Vl	2.5 Mils	0.5 Mil	l	· 2
81-A	· V2	2,5 Mils	0.5 Mils	1	2
82-A	Vl	2.5 Mils	0.5 Mils	l	3&5
82-A	· V2	26.0 Mils	6.0 Mils	1	3&5
82-A	V3	26.0 Mils	6.0 Mils	1	. 3 &5

Tubes V2 and V3, 82-A amplifiers, should be balanced within 4 Mils of each other if possible.

If plate currents are not within allowable deviation, first test the 5Z3 rectifier tube in the 8-A Rectifier #1.

WOR OPERATING HANUAL BOGK No. (5)

SEC. W. (B)

C.O.R.P. "Items" "Hethods" "References" 50 KW

PAGE No. (15)

Next, test the 262-A en: 171-A tubes in the amplifiers. CAUTION : Channel #2 must be switched to service, before testing any tube in 32-A amplifier #1. Per Item 29, paragraph (g). Book No.. () () () () () () () Sec. No. () () () () () () () Page No. () () () () () ()

10A (a) Western Electric type 25-A equalizers are mounted on the rear of panel #1 in bay#1.Equalizers #1to #7 are mounted on this panel With a 154-C Repeater coil.

(b) Equalizer #1 is connected in channel #1, equalizing Radio Line #5036. It is fixed at 52 obts resistance and 3000 cycles.

11. (a) Modified W.E. 4-A Equalizer #7 is located in bay #2, panel #12. It is complete on this pane4.Equalizer #5 is Spare for Channel -1 or #2, Radio Lines #5036 and #7433.

When used in Channel #1, set to 8000 cycles at 32 ohms. When used in Channel #2, so t to dOOC cycles at 30 ohms. Look No.) ()) Sec. No.) ((()) () Page No. (()) () () ()

12. (a) The inductance and capacity sections together diffice the tage tapped resistance, making up the original W.E. type 25-A Equalizer#2 is located in Bay #1, panel #1.

(b) The variable Decades, 1000 ohms resistor, and 0.25 Mfd capacitor are mounted on a mat (panel #3) in Bay #2.

(c) Freq. Selector Knob is on 8000 cycles.

(d) "Decades units" Knob is on zero ohms.

300K	No.	(5)
GEC.	No.	(В)

C.O.R.P. "Items" "Methods" "References"

PAGE No. (16)

"Decades Tens" Knob is on 30 ohms. (1)"Tecades Hundreds" Knob is on zero chas.

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1000 ohus Resister Selector Enob is "Out" (g)

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Sec. No.))) Page No.) () 1 (

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(a) W.F. 1126-A Program Amplifier is located in bay#2, panels#3,#4,#5. 13.

It is operated from 115 volts A.C. Control Room Wall Panel Box Switch#30 (h)Broadcast channel #1 Power Supply Switch.

It is protected by a 115 volt, 2 ampere, screw type fuse, located on the left rear of the 20-A Rectifier Panel #5. (Fuse "F1")

115 volt A.C. togele switch, located on front of the 20-A (c)rectifier, panel #5, is "ON".

Proper settings on the 1125-A Program Amplifier are: (b)

Input Gain Control		•	• •	•	• •	•	• -				•			•		Step	10
Jutput Gain Control	•		• •	•		•	•	• •		•	•	•	••		•	Step	0
Compression DB (No Signal)	•		• •	•	• •		•	•	• •		٠	•	•	•	•	Step	0
Accovery Time	٠	•		• •	•				. •	• •						Step	3
-																• -	

Plate currents of all except Step "B" may vary plus or minus 15% (e) Before making any further tests, adjust the screw potentioneter "Pl" located on right rear of 20-A Rectifier, panel #5, until meter "MI" on Step "L" on front of the EJ8-A control, panel #4 reads 100 Set "D2" "Plate Current Selector" Knob on the 298-A Control (1)

panel Step	l ;:4 £1	1 (as Adj	1`c jus)] st	ios 11	ic:	: '']	rię	7h1	t j	, 00	tei	าไป	i.or	net	ter	• •	on	fı	ror	nt	o£	: 1	.12	26-	-A	A	นุก]	lil	ìi	er pa	nel
#3 u	ati]	Ŀ	-ie	ter	. 1	".AI	11	\mathbf{r}	380	is.	•	•	•	•	•	•	•	•	•	•						•	•	•	•	-		135	(ODB)
Step	±2		•			•	•		•	•	•		•	•	•	•.		•	•	•	•	•	•	•		è	•		•	•	•	1.25	
Step	÷3	•		•			•		•	•			•		•		•	•	•	•	•	•	•	•	•	•	٠	•	•	•	•	100	
Step	14	•			•	•		•	.•					٠			•		•	٠	•	•	•	٠	•	•	•	•	•	•	٠	100	
Step	-#5	,	٠	•	•		•	•	•			•		٠	•		• .	•	•	٠			•	•		•	•	•	•	٠	•	100	
Step	<i>‡</i> 6	•		٠	•	•	•	•	•	•	٠	•	•	•	•	•	٠	•	•		•	•	•	٠	•		•	٠	•	٠		110	
Step	<i></i> #Ό	•	•	•		٠	•	•	•	•			٠	•	•	•	•		•	•	•	•		•	•		•	•				0	
Step	u Bi	١.				e	•			•							•	•		•	•	•	•	•		•	•					100	

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AENENBER : Defore reacting any tube-patch the 1122-A Program Amplia a out of service by patching from "CE 122 CUT" jacks SCI to "RT Allo IN" jacks SD1.

(g) When it is impossible to adjust "Fl"potentioneter on rear of 20-A Rectifier panel #5 to read 100 on mater "ML" with "Plate Current" Switch on Step 1, adjust it to read 110.

Meter ""I" readings will be:

f

"PLATE CURRENT " SWITCH STLE

READING

Step 1 . . 135 Step 2 . 133 Step 5 105 105 Step 4 Step 5 . . 108 104 Step 6 Step 0 0 . 110 Step B

(h) With "Plate Current" switch on step "B" if reading on meter "ML" begins to increase past 110, readjust Potentiometer "Pl" to read 110 on meter "ML".

(i) Fixed attenuators are mounted on rear of the 298-A Control Panel #4. Imput attenuator is 40 Db. Output attenuator is 6.5 Db.

Book No. () () () () () () Sec. No. () () () () () () Page No. () () () () () ()

16. (a) UTC Attenuator Modelad is located in Bay #2. Panel #1.
(b) Attenuator normally is not in service. It may be used for attenuation of objectionable frquencies on Fadio Lines, when normal equalization is insufficient.

(c) "Attenuation" "Arbitrary Units" "Low Frequency" is on zero.

(d) "Cut-off Frequency" "Low Frequency" is on 100 cycles.

(e) "Cut-off Frequency" "High Frequency is on 10 Kilocycles. World Radio History

 $\tt BOOK$ No. (5)

SEC. No. (B)

C.O.R.P. "Items" "Method" "References" 50 KW

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PAGE No. (18)

(f) "Attenuation" "Arbitrary Units" "High Frequency" is on zero.								
(g) If Attenuator is patched into service with adjustments as set '								
hereon, the effect will be negligible.								
Book No. () () () () () ()								
Sec. No. () () () () () ()								
Page No. () () () () () ()								
17. (a) W.E. 8-A Rectifier #2 is located in Bay#3, Panel #13.								
(b) It is operated from 115 Volts A.C., Control Room Wall Panel Box								
Switch #32.								
(c) There is one R.C.A. type 5z3 or W.E. 274-A tube used.								
(d) Filament switch is "ON". Bay #3, panel #15, top switch.								
This furnishes 115 Volts A.C to the W.E. type 263-A Voltage Regulator.								
Output of 263-A Voltage Regulator is 10 Volts, A.C. for filament $\sup_i ly$								
of W.E. 82-A Amplifiers #2 and #3, and the W.E. type 700-A VU meter #6.								
(e) Plate switch is "ON". Bay #3, panel #13, bottom switch.								
It is connected across the operating contacts of Time Delay Relay "S1" to								
maintain the plate voltage to amplifiers during any failure of the relay.								
"Sl" Relay and Plate Switch furnishes 115 Volts A.C. to primary of								
transformer "Tl". They are located in Bay #2, panel #13.								
Maximum D.C. Plate Supply from 8-A Rectifier #2 is 375 volts. This								
furnishes plate voltage for W.E. 82-A Amplifiers #2 and #5 and the W.E. 700-A								
VU Meter #6.								
(f) 8-A Rectifier #2 furnishes 10 Volts A.C. thru Voltage Regulator								
type 263-A #2 for operation of the filaments of pilot lamps in front								
cases of VU Meters #I and #2. This connection is made to the filament								
terminals on 82-A amplifier #3.								

Book No. () () () () () ()

500K No. (5)

SEC.No. (B)

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (19)

(Item #17 concluded)

SEC. No. () () () (') () () PAGE No. () () () () () ()

18. (a) W.E. type 700-A VU Meter #6 is located in Bay #3, panel #6.

(b) Rough Calibration Key "Kl" is on zero.

(c) "VU Calibration" Selector Potentiometer is on plus 10.

(d) To check operation of VU meter #6, merely depress Rough CalibrationKey "Kl" and meter will indicate minus 2 VU.

Book No. () () () () () () Sec. No. () () () () () ()

Page No. () () () () () ()

19. Plate currents of the following amplifiers, located in Bay $\#\tilde{c}$ may be checked by depressing test buttons.

W.E. 82-A Amplifiers #2(Channel #2) and #3(Monitoring Amplifier)

Amplifier		Button		Current		Deviation	Panel #	
8 2- A		Vl		2.5 Mils		0. 5 Mil	38	2 5
82-A		V2	,	26.0 Mils		6.0 Mils	3 4	25
A-\$8	•	V3		26.0.Mils		6.0 Mils	5&	2 5

V2 and V3 tubes to be balanced at 26.0 Milliamperes within 4 Mils of each other if possible.If plate currents are not within allowable deviation, first test the 5Z3 rectifier tube in 8-A Rectifier #2.Next, test the 262-A and 271-A tubes in the amplifiers.

<u>CAUTION</u>: Channel #1 must be switched to service, before testing any tube in 82-A Amplifier #2.

Book No. () (} (·) () () () Sec: No. ())) (· Page No. ())
W O R OF ERATING MADUAL

: EC. No. (E)

C.O.R.P. "items" "dethods" "References" 50KW

PAG. No. (20)

20. (a) The type "a" Amertran Power Supply is located in pay #4 Panel #10 and 11.

(b) It is used to supply 12 volts D.C. for operation of any special equipment, telephones, etc. but is used for only two purposes in readar service.

It supplies 12 volts D.C. for operation of 523 Rectifier Tube in the Linear Rectifier located in the measuring equipment rock.

It supplies 12 volts B.C. for operation of the filament of the W.E. type 2F Indicator lamps.Spare 2F pilot lamps are found in Transfile # _____.

(c) Filament switch is "ON", bay #4, panel #11, left hand switch.

(d) Amertran Eliminator is pperated from 115 volts A.C., Control Room Wall Panel Box Switch #5.

(e) Plate Switch is "ON" Bay #4 Panel #11, right hand switch.

(f) Adjust "Voltage Control" Rheostat to read 12 volts on voltmeter on front of power supply panel.

(g) Change Rectifier Tube when maximum output voltage has dropped to 3.

(h) Rectifier tube is type FL-5-B H.D. (heavy duty), manufactured by the Electrons Company, Inc., Newark, N.J.

Beok	No.	()	()	()	()	()	()
Sec.	No.	()	()	()	()	()	()
Page	No.	()	()	(•)	()	(l	I)

20A (a) Gate-O-Matic controls are located in Bay #4 panel #8 on bakelite designation plate.

(b) There is a green pilot lamp, red pilot lamp and momentary contact switch mounted on the bakelite plate.

(c) The green pilot lamp indicates gate is open.

The red pilot lamp indicates gate is closed. World Radio History

OPERATING MANUAL

BOOK NO. (5)

C.O.R.P. "Items" "Methods" "References" 50 KW

SEC. NO. (B)

PAGE NO. (21)

(Item 20-A continued)

The momentary contact switch is used to open or close gate.

115 yolts A.C. is supplied from switch #8 in Control Room Wall Switch Box.

Book No. () () () () () () () Sec. No. () () () () () () () Page No. () () () () () () ()

21. (a) Both the 30 DB and 35 DB Faders are mounted on bakelite plate bay #4, panel #7

(b) The two outsidecknobs make up the 35 DB fader, and are normally set to positions 27 and 4.

The impedances of this fader is 500 ohms input and 500 ohms output. The left knob varies attenuation in steps of 3 DB, the right knob in steps of 0.5 DB. This fader is calibrated in "Gain Steps" and not steps of attenuation, i.e. 35 DB attenuation is with both knobs on zero; zero attenuation being on steps 30 and 5.

(c) The center knob is the 30 DB fader and is normally set to step 15.
The impedances of this fader are 500 ohms input and 500 ohms output.
This fader is calibrated in 1.5 DB steps of attenuation from 0 to 30.
Zero attenuation is on step zero, and 30 DB attenuation is on step 30.
Book No. () () () () () () ()
Sec. No. () () () () () () ()
Page No. () () () () () ()
22. (a) W.E. type 754-B VU Meter #2 is located in bay #4, panel #6.
(b) Impedance Adjustment Key is set to "High Imp."

(c) Attenuator setting is on step 14.

OPERATING MANUAL

EOCK No. (5)

SEC. No. (E)

C.O.R.P. "Items" "Methods" "References" 50 KW

'PAGE No. (22)

Face of VU Meter scale is illuminated by 2 Mazda type 47, 6-8 volt, (d) 0.15 amp, bayonet type frosted lamps, connected in series. Filament supply is 10 volts A.C. connected at the filament terminals of W.E. 82-A Amplifier #3 supplied by 8-A Rectifier #2 and 263-A Voltage Regulator #2 Lemps are mounted in two spring clip sockets on inside of front cover. To renow, merely remove the two screws on face of meter (not meter adjusting screw) and remove glass frame cover, changing lamps asrequired. (e) Meter may be calibrated by altering screwdriver adjustment on front, but is not to be calibrated at this time. VU meter #2 is registering channel #2 audio output level. Normal (f) peaks will reach 100 on voice and 80 on music. Occasional peaks may reach plus 2 VU. Book No. () () () () Sec. No. (Page No. ((a) W.E. type 754-B VU Meter #1 is located in Bay #4, panel #4. .23. Impedance adjustment key is set to "HIGH IMP". (b) (c) Attenuator setting is on step 14. (a)Face of VU Meter scale is illuminated by two Mazda type 47 6-8 volt Bayonet type, frosted lamps, connected in series. Filament supply is 10 volts A.C. connected at the filament terminals of W.E. 82-A Amplifier #3, supplied by 8-A Rectifier #2 and 263-A Voltage Regulator #2. Lamps are mounted in two spring clip sockets on inside of front cover. To renew, merely remove two screws on face of meter, and remove glass frame cover, changing lamps as required.

Meter may be calibrated by altering screwdriver adjustment on front,

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BOOK No. (5)

SEC. NO. (B)

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (23)

(Item 23 continued)

but is not to be calibrated at this time.

(f) VU Meter #1 is registering Channel #1 output level, peaks up to 100.

 Book No. () () () () () () ()

 Sec. No. () () () () () ()

 Page No. () () () () () ()

24. (a) VU Meter #3 is located on slanting control turnet of Control Room desk.It is not illuminated.

(b) Attenuator for VU Meter #3 is located in Bay #4, panel #3.
It is Daven type T 994-1, variable in 2 DB steps over a range of 24 DB.
It is normally set on Step #8.

(c) VU Meter #3 is normally registering 50 KW Transmitter audio input level, peaks up to 100.

(d) VU Meter #3 will select "CH NO. 1" output, "50KW" input or "5KW" input by manipulation of "VOL IND" key on control turret.

Book No. () () () () () () Sec. No. () () () () () ()

Page No. () () (') () () ()

25 (a) VU Meter #4 is located on left turret of Transmitter Room control desk. It is not illuminated.

(b) Attenuator for VU Meter #4 is located in Bay #4, panel #3.
It is Daven type T 994-1, variable in 2 DB steps, over a range of 24 DB
It is normally set on step #8.

(c) VU Meter #4 is normally registering 50 KW transmitter audio inputlevel. Peaks up to 100.

BOOK No. (5)

SEC.No. (B)

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (24)

(d) VU Meter #4 is connected to 50 KW transmitter input but may be patched out for use on any other circuit by merely patching at input j jacks 3BL2.

Book No. () () () () () () () Sec. No. () () () () () () () Page No. () () () () () () ()

26. (a) The W.E. 94-C Audio Monitoring Amplifier is located in Bay #4 panel #2.

(b) It is operated from 115 Volts A.C., Control Room Wall Panel Box Switch #5. It is protected by 110 volt, 3 ampere, screw plug fuse, FIR located inside of Bay #4, on lower left side.

(c) 115 volt A.C. Toggle Switch on front of amplifier is "ON".

(d) "Gain Control" is set to Step #9

(e) Input toggle switch of permanent magnet loudspeaker directly above the Control Room desk is "ON" and speaker is operating at comfortable level.

(f) Input toggle switch of permanent magnet loudspeaker directly above the glass window in the studio office is "ON" and speaker is operating at comfortable level.

(g) W.E. 94-C Amplifier #1 is normally connected to these two permanent magnet loudspeakers, for office and control room monitoring.

(h) "AUD MON" and "MON TRANSF" keys will permit monitoring from either Channel #1, Channel #2, 50 KW transmitter output, or 5 KW transmitter output. Book No. () () () () () () () Sec. No. () () () () () () Page No. () () () () () ()

28. (a) The positions of keys and faders on the slanting control turret of the A.F. Control Room desk are as follows:

(Continued)

World Radio History

BOOK No. (5)

SEC. No. (B)

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (25)

- (b) "OUTPUT CH NO. 2" key is "off".
- (c) "OUTPUT CH NO. 1" key is "on".
- (d) "50 KW INPUT" key is "on"
- (e) "5 KW INPUT" key is "on"
- (f) "EMGCY ANNC" key is "off"
- (g) "VOL IND" key is on "50 KW" when 50 KW transmitter is on the air.
- (h) "VOL IND" key is on "5 KW" when 5 KW transmitter is on the air.
- (i) "AUD MON" key is on "CH No. 2"
- (j) "MON TRANSF" key is on "RADIO"
- (k) "RADIO MON" key is on "50 KW" when 50 KW transmitter is on the air.
- (1) "RADIO MON" key is on 5 KW when 5 KW transmitter is on the air
- (m) All other keys on turret remain "OFF" for normal operation
- (n) Fader No. 1 is on Step <u>6</u> (Input 82-A #1)
- (o) Fader No. 2 is on Step <u>8</u> (Input 82-**A** #3)
- (p) Fader No. 3 is on Step <u>4</u> (Input 82-A #2)
- (q) Fader No. 4 is on Step <u>4</u> (Input 82-A #4)
- Book No. () () () () () () Sec. No. () () () () () () ()
- Page No. () () () () () ()
- 29. Procedure for testing audio channels #1 and #2 is as follows: Turn volume control on 94-C amplifier #1 to maximum- Bay 4, panel 2.
- (a) Put "MON TRANSF" key to "AUDIO"
- (b) Put "AUDIO MON" key to "CH NO.L". Increase Fader No. 1 from Step 6
 to Step 12 (5 steps-10 DB). Listen to quality and level on monitor speaker.
 (c) Put "AUDIO MON" key to "CH NO. 2".Listen to quality and level on monitor loudspeaker.Reduce Fader No.1 from Step 12 to Step6 (5 steps- 10DB)
 (d) Replace "MON TRANSF" key to "RADIO".

BOOK No. (5)

SEC. No. (B)

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (26)

(e) Observe that there is a difference in level when transferring "MON TRANSF" key from "RADIO" to "AUDIO" (Approx 6 VU) which is a function of the W.E. 1126-A Program Amplifier and the adjustment of the potentiometer on "RF MONITOR OUTPUT POTENTIOMETER", under the **f.F.Control** Room desk.

(f) Patch a pair of headphones into the 11260A Program Amplifier Out-Monitor jacks 1D9 and carefully check the audio quality.

If any low or high frequency sputtering noises, hum, or variable frequency tone interference to regular program is heard, remove headphones from monitor output output jacks and patch into 1126-A Program Amplifier monitor input jacks 1D7. If interference is heard on the monitor output jacks and not on the monitor input jacks, the trouble is most likely caused by one or more defective tubes in the 1126-A Program Amplifier itself.

The most likely defective tube causing such interference is the W.E. type 313-C Ballast tube.

Replacement of Ballast Tube necessitates patching out the 1126-A Program Amplifier.Merely patch from "CH 1&2 OUT" jacks 3Cl to "RT KEYS IN", jacks 3Dl. <u>CAUTION</u> : Push both plugs of single patch cord into jacks simultaneously so as not to cause interruption to program while on the air.

NOTE : Always insert patch cord plug with corrugations to the left.

Increase 82-A Fader, three steps (Total of 6 VU)

Test defective tubes in regular tube tester, replacing bad tubes from stock. Tube checker will not test 313-C Ballast Tubes.

If new 313-C Ballast Tube eliminates sputtering noises, removed tube is bad. (g)When it is desired to switch audio channels on the air, proceed as follows: Place left hand on "OUTPUT CH NO. 1" key and right hand on"OUTPUT CH NO 2"key, and simultaneously put."OUTPUT CH NO 1"key "on" and "OUTPUT CH NO 2" key "off".

Book No. (5)

SEC. No. (B)

C.O.R.P."Items" "Methods" "References" 50 KW

PAGE No. (27)

30. (a) The W.E. Type 268-A Order Wire Panel occupies the entire left turret of the Audio Facilities Control Room desk.

(b) Private line 5038 is connected to drop "A-1"

(c) Pennsylvania 6-8600 Extension 231 is connected to drop "A-7"

(d) Extension to the transmitter room is connected to drop "A-7"

(e) Extension to the towers is connected to drop "A-ll"

(f) Extension to the basement is connected to drop "A-12"

(g) To use PL 5038, merely patch from any "KEY OUT MULT" position to drop "A-1"

(h) Red selector key is in "B-12" position marked "K-2" and is to be kept in the vertical position so that the bell will ring when a station on the private line is calling. If key is in horizontal position, only the indicator lamp will light when station on private line calls.

(i) Indicator lamp is W.E. type 2F (12 volts)

(j) When technician is not in Audio Facilities Control Room, keep plug out of Ext. 231, drop "A-7". When station is called, drop will fall and ring loud extension bell. If plug is left in, drop will not fall and only regular PL bells will ring.

 Book No. () () () () () () ()

 Sec. No. () () () () () () ()

 Page No. () () () () () () ()

31. Be sure that telephone instruments are not resting on cords, which will lift the telephone partly off the hook and give the operator a "busy" signal on the outside wire.

 Book No. () () () () () ()

 Sec. No. () () () () () ()

 Page No. () () () () () ()

BOOK No. (5)

SEC. No. (B)

C.O.R.P. "Items" "Methods" "References 50 KW

PAGE No. (28)

32. (a) Open hinged door of compartment in right side of desk and check over contents as follows:

> Type 633-A "Salt Shaker" microphone cord is plugged into receptacle. Pair of Field Glasses.

Relay Tool Kit #1.

Relay Tool Kit #2.

32 Caliber Revolver.

2 Boxes of 32 Caliber Shells.

33. (a) In the Supervisor's Office, the Telephone Instrument of the Outside Wire is located on the Left Top of the Desk. This is a private unlisted number.

Make sure that the Hand Instrument is resting squarely on the Instrument support so that Telephone Operator will not get a continuous Signal, indicating a "Busy Line". This is dial phone. Numbers may be dialed in Carteret only. Do not dial CA-8, just dial the number of the call to be made. For all other exchanges dial operator and give the number wanted.

(b) PL Instrument is located on left side of space beneath the Supervisor's Desk.

Be sure that it is properly hung up on the Instrument Support.) () () Book No. (Sec. No. () () () () () () Page No.

BOOK No. (5)

SEC. No. (B)

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (29)

34. (a) In the Lobby Office, the Telephone Instrument of both the Outside Wire and PL are located on the Desk.

One for outside wire has dial, PL does Not.

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Make sure that both are resting firmly on the Instrument Supports.

When the Outside Wire Telephone is improperly hung up, the telephone operator will get a continuous Signal, and will reply to anyone calling the Station that the "Line is busy".

Book No. () () () () () () , Sec. No. () () () () () () () Page No. () () () () () ()

35. (a) Pilot Lights on the Right Turret of the Audio Facilities Control Room Desk are:

(b) "Aviation Lights" "Tower" (Red Light) is normally "ON" during the night to indicate to the Technician that Tower Flashing and Obstruction Lights, and Regular Rotary Beacon Lamp are illuminated.

(c) "Aviation Lights" "Rotary" (Clear Light) is normally extinguished at all times, day and night, but after dark the Emergency Lamp in the Rotary Beacon on Transmitter Building Roof will automatically switch into service IF the regular lamp has burned out. Then the "Rotary" (Clear Light) will be illuminated. This is not a "Normal Operation" for the Emergency Lamp to be on. Make removal of burned out lamp and installation of regular lamp, also changeover of service to regular lamp a "W.T.B.D." Item.

(d) "Antenna Transf" "50 KW" (Amber Light) is illuminated. (50 KW On the Air)

(e) "Antenna Transf" "5 KW" (Purple Light) is extinguished.(5 KW Off the Air)

WOR

OPERATING MANUAL

C.O.R.P. "Items" "Methods" "References" 50 KW

(5) BOOK No.

SEC. No. (B)

PAGE No. (30)

.

(Item #35 Concluded)

These lights are energized thru "Ant Switch" being in the "ON" position in either the Transmitter Room or Audio Facilities Control Room Turrets. Control Room Wall Panel Box 120 V. A.C. feeds 115 V. AC to them thru Switch #34. Antenna Switch is left in "ON" position on Transmitter Room Control Turret only. (f) "Power Feeders" "Rahway" (Red Light) is illuminated indiacting that Rahway 4150 Volt AC Public Service is available.

(g) "Power Feeders" "Rahway" (Green Light) is extinguished indicating that Rahway 4150 Volt A.C. Public Service is not being used.

(h) "Power Feeders" "Carteret" (Both Green and Red Lights) are illuminated indicating that it is being used to supply 4150 Volt AC Service for Transmitter.
(i) Indicator Lights are G.E. Mazda 6 Watt, 110 Volt, Candelabra Base, Color depending upon position, that is, RED - GREEN - CLEAR or FROSTED.

Book No. () () () () () () Sec. No. () () () () () ()

Page No. () () () () () ()

36. (a) The following Switches are of the Momentary Contact Type, and are normally in the inoperative or "off" Position.

"5 KW ON" "10,000 V OFF" "Ant Transf 50 KW" "1600 V ARM ON" "10,000 V ON" "Ant Transf 5 KW" (b) Note that 5 KW Auxiliary Transmitter may be started from Turret, but cannot be completely stopped from Turret. There being no master "off" button to stop rotating machinery.

To completely shut down 5 KW Transmitter, push the "Master Control Stop" Button "D3A" located on face of AC Panel "UNIT #1 (A) of Transmitter (AC POWER PANEL)

OPERATING MANUAL

BOOK No. (5) SEC. No. (B) PAGE No. (31)

C.O.R.P. "Items" "Methods" "References" 50 KW

(Item #36 Concluded)

(c) The following Switches are Push Button Type, and are not normally used unless Remote Controlled Type Loudspeaker is connected in Wall Sockets in the "Audio Facilities Control Room".

"MON SPKR" "ON-OFF"

"VOLUME" "PLUS - MINUS"

(d) "Antenna Switch" is in "OFF" Position. This witch is normally connected in parallel to "Antenna Switch" on Right Turret of Transmitter Room Desk. The latter is kept in the "ON" position.

If both Switches should remain "off" "Antenna Switch" cannot be changed from one transmitter to the other.

115 Volt Supply to "Antenna Transfer Switch" is from Switch #34 in Control Room Panel Box adjacent to door to Supervisor's Office.

(e) "Beacon" Switch is "OFF".

(f) "SW Switch is "OFF". This switch is Remote Control to put the 1600 Volt Field of 5 KW Transmitter "ON". It is in Parallel with "SW" Switch on Right Turret of Transmitter Room Desk, and in parallel to "DIC" "1600" Volt Generator Field" Switch on face of Oscillator Panel of the 5 KW Auxiliary Transmitter. Book No. () () () () () () ()

Sec. No. () () () () () ()

Page No. () () () () () ()

37. Morse Telegraph Keys on Audio Facilities Control Room Desk, Supervisor's Office and Lobby Office are closed.

Open, then close Key in Audio Facilities Control Room - Sounder will click if circuit is OK.

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	71	U n	•
OPERA	TI	NG	MANUAL

BOOK No. (5) SEC. No. (B)

(32)

PAGE No.

C.O.R.P. "Items" "Methods" "References" 50 KW

(Item #37 Concluded)

The Sounder for AFCR is located on the Right Recessed Compartment of antrol Room Desk.

There are no Sounders in the Supervisor's Office and Lobby Office.

 Book No. () () () () () ()

 Sec. No. () () () () () ()

Page No. () () () () () ()

38, (a) Ventilating System Bullseye Indicator Lights, and "OFF" Buttons, are located on 2 Red Plates on AFCR Wall, just to the left of the Door to Supervisor's Office.

(b) "Circulate" Red Indicator Light is illuminated, showing that Motor of the Circulating Fan #1 is rotating.

If desired to stop this Fan, merely push the Button adjacent to Light.

(c) "Exhaust" Red Indicator Light is illuminated, showing that the Motor of the Exhausting Fan #2 is rotating.

If desired to stop this Fan, merely push the Button adjacent to Light.

(d) Fan #1 and #2 may be stopped at these points by use of the "Stop" ^Duttons, but they cannot be started from these positions, it being necessary to restart from "Start" Buttons adjacent to Relays in the Passageway to Mixing Chamber in the Basement.

Reason for "Stop" Buttons being in Control Room, is that in the event of Fire, Fans may be stopped quickly, thus preventing Circulation of Smoke throughout the building.

BOOK No. (5)

BEC. No. (B)

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (33)

39. (a) There are four 120 Volt AC Emergency Service Switches located in
the top Positions of the Wall Panel Box in the AFCR (120 V. Dist. Panel)
These switches are normally set as follows:
#1 "Broadcast Channel #1" OFF
#2 "Broadcast Channel #2" OFF
#3 "Antenna Transfer" "Ant Switch, 1-C Freq. Monitor, 5 KW Master Start,
5 KW Xtal Heater, "Dl8C" Right Pos'n, Ant. Transf. Lights (5 KW Purple,
50 KW Amber)
#4 "Transmitter Room Clock" - Emergency Lights ON
(b) There are 38 regular 115 Volt AC Service Switches located in this
same Wall Box in the AFCR, below the four emergency service switches.
All except: #33, #35, #36, and #38 Switches remain "ON" all the time.
Switch #33 is for Flbod Lights on Roof of Transmitter Building.
Switches #35, 36, and #38 are outside Road Lights.
Switch #8 is for Front Gate operating mechanism.
Switch #10 is for Hot Water Heater in the Attic: "On" when necessary.
(c) The following Regular 115 Volt AC Switches must be "ON" at all times
while the Station is Broadcasting:.
#30 "Broadcast Channel #1
#32 "Broadcast Changel #2
#34 "Antenna Transf" Lights (5 KW Purple, 50 KW Amber), "Ant Switch", 1-C Freq.
Monitor, 5 KW Master Start, 5 KW Xtal ^h eaters, "D18C" Right Pos'n.
(d) CAUTION: Switches #1-Emergency, and #30-Regular
or Switches #2-Emergency and #32-Regular; or Switches #3-Emergency and #34
Regular must NOT be on at the same time, or Emergency Service Fuse F23P will blow out
(Sw. Room Emg. Svc. Panel).

World Radio History

BOOK No. (5)

SEC. No.

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (34)

(B)

(Item #39 Continued)

(d) The above is explanation in detail of Normal Operation of the Emergency Service 120 Volt and Regular Service 115 Volt Service Switches. The Rectox "XIP" and Crystal Heater Circuits #1 and #2 of 50 KW Transmitter are furnished with power from the 120 Volt Emergency Service. It is possible to operate them from the Regular 115 Volt A.C. Service by proper placing of switches in the "Control Room Panel Box" .

(e) All Three Arrangements for operation of Switches is as follows: NORMAL OPERATION: (Regular 115 Volt AC Service)

Regular Switch #30 .	•	•	•	:	•	•	.•	•	•	•	•	•	•	. •	•	.•	•	•	•	•	•	•	•	•	•	ON
Regular Switch #32 .	•	•	.•	•	•	•	•	•	•	•	•	•	•	•	٠	•	•	•	•	•	•	•	•	•	•	ON
Regular Switch $#34$.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	• .	•	•	•	•	ON
Emergency Switch #1		•	•	•	•	•	•	•	•	•	•	•	•	.•	ė	•	•.	•	•	•	•	•	•	•	•	OFF
Emergency Switch #2	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	٠	•	•	•	•	•	•	•	•	٠	OFF
Emergency Switch #3	•	•	•	•	•	•	•	•	• •	•	•	٠	•	•	•	•	•	•	•	•	•	•	•	•	٠	OFF
EMERGENCY OPERATION:		(Re	۶ġ	ıl e	ar	1:	15	٧c	511	t I	LO	K	VA	Fa	i]	Լա	re	to	5 J	Eme	ere	gei	ncj	r :	12	Ö.
Volt AC Service)				•							•						·									
Regular Switch #30 .	•	•	•	•	ð	•	•	•	• .	•	•	•	٠	•	•	•	•	•	•	•	•	•	•	•	0	FF
Regular Switch #32 .	•	•	•	•	•	•	•	•	.•	•	•	•	•	•	•	•	•	•	•	••	•	•	•	•	0	FF
Regular Switch #34 .	•	•	•	•	•	•	•	٠	•	•	•	•	•	•	•	•.	•	•	•	•	•	•	•	•	0	FF
Emergency Switch #1	•	•	•	•	٠	•	•	•	•	•	•	•	•	•	•	•	•	•	v	•	•	•	•	•	0	N
Emergency Switch #2	•	*	•	•	•	•. •	•	•	•	•	•	•	•	•	•		•	•	•	٠	•	•	•	•	0	N
Emergency Switch #3	•	a	•	•	•	•	•	٠		•	•	.•	•	•	•	•	•	• .	•	•	•	•	•	٠	0	N

BOOK No. (5)

SEC. No. (B)

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (35)

(Item #39 Continued)

COMPLETE EMERGENCY SERVICE 120 VOLT FAILURE: (How to feed the 115 Volt Regular Service into the Emergency Service, permitting operation of Rectox XIP, and Crystal Heaters #1 and #2, 50 KW Transmitter) ON Regular Switch #30 ON . ONP ON Emergency Switch #2 Emergency Switch #3 . . . ON Basement Emergency Switch #5 (Location P.S. Switch Room) OFF Note framed print on back of Audio Facilities Control Room Door. Book No. Sec. No.) Page No. () () 1)

40. (a) There are 3 temperature control Thermostats located in the AFCR on wall adjacent to the Door to Supervisor's Office. "Electric Heater #1" Thermostat Switch is set for 60 Degrees Fahrenheit Minimum, except when calling for Heat.

"Electric Heater #2" Thermostat Switch is set for 60 Degrees Fahrenheit Minimum, except when calling for Heat.

"50 KW Heater" Thermostat Switch is set for 75 Degrees Fahrenheit.

(b) Normally, the "50 KW Heater" (Distilled Water through Airfin Heaters" #1, #2, #3, and #4) is sufficient to maintain Building Temperature to the

BOOK No. (5)

SEC. No. (B)

C.O.R.P. "Items" Methods" "References" 50 KW

PAGE No. (36)

(Item #40 Continued)

required 75 degrees Fahrenheit, except when 50 KW Transmitter is offthe Air for long periods of time, and the Outside Ambient is <u>Lower than 10 above</u> Zero Fahrenheit.

(c) TO HEAT BUILDING WITH "50 KW HEATER"

1. Set "50 KW Heater" thermostat switch to 75 degrees Fahrenheit (Or desired temperature) (Audio Facilities Control Room).

2. Set "Electric Heater No.1" & "Electric Heater No. 2" Thermostat Switches to 60 degrees Fahrenheit. (Audio Facilities Control Room)

3. "Airfin Heaters" #1, #2, #3, and #4 are always in service. They are in
*Air Fin Unit" compartment in Basement.

Valves are normally in the following position:

Valve "A" - - - - Open

Valve "B" - - - - - Closed

Valve "C" - - - - - Open

These valves are located inside Pump Room just over Entrance Door (Basement).

4. Close Window in "Mixing Chamber" to within 3 inches of shut-off.

5. Retard "CIRCULATING" & "EXHAUST" Control Rheostats #1 and #2 wo Winter Settings. (Minimum counter-clockwise positions.)

6. Place Damper near Exhaust Fan to "Circulating" side for Extreme Heat, otherwise leave on Exhaust Side.

Handle to right for exhaust, to left for circulate positions.

Vertical middle position for partial exhaust partial circulate.

BOOK No. (5)

(B)

C.O.R.P. "Items" "Methods""References" 50 KW

PAGE No. (37)

SEC. No.

7. If this does not maintain Building Temperature to the required 75 degrees Fahrenheit, throttle the Output Valve of the Pond Pump in service, which will raise the Temperature of the Distilled Water, permitting higher temperature within the building. (Basement) "G" or "I" Pond Pump Valves. In extremely cold outside weather, Output Valve of Pond Pump may be throttled to 2 lbs, or entirely shut off at the Motor Switch. (NEVER THROTTLE INPUT VALVE TO PUMP)

CAUTION: Maintain Temperature of 50 KW Transmitter Distilled Water between 100 to 150 degrees Fahrenheit.

...(d) TO HEAT BUILDING WITH 50 KW HEATER AND ELECTRIC HEATER #1:

 Set "50 KW Heater" Thermostat Switch to 80 degrees (Maximum) AFCR.
 Put "On" the 230 Volt 3 phases AC Power Switch #5. It is located in the Distribution Panel 230 Volt 3 phase 60 cycle AC" box in the "Engine Driven Generator R_{oom}". Switch is marked, "Two 35 KW Electric Heaters".

3. Put "On" the "35 KW Electric Heater #1" Switch. It is located in the Passageway to Mixing Chamber.

4. Put "On" the 230 Volt AC "Electric Heaters #1 & #2 Relay Switch".

It is located in the Passageway to Mixing Chamber.

5. Set "Heater #2" Thermostat to 120 degrees. (Normally remains on 120 degrees) It is located in the Duct, directly above the Circulating Fan.

6. Set "Damper" Thermostat to 60 degrees. (Normally remains on 60 degrees) It is located in the Duct, directly above the Circulating Fan.

7. "Airfin Heater" Units #1, #2, #3, #4 must always be in Service (Normally remain in service) If they are not, place them in service in the following order:

BOOK No. (5) SEC. No. (B) PAGE No. (38)

C.O.R.P. "Items" "Methods" "References" 50 KW

(Item #40 Continued)

FIRST: Open Valve "A" ; SECOND: Open Valve "C"; THIRD: Close Valve "B". These Valves are located Inside the Pump Room, just over the Entrance Door. If Distilled Water is not circulating through the "Airfin Units", or if there is no water in these "Airfin Units" at all, pipes in "Airfin Unit Compartment" will overheat, and solder will melt from the joints, since the Electric Heaters are directly adjacent to "Airfin Units" and simulates a Soldering Iron. Water must be in all 4 "Airfin Units" whenever Electric Heaters are used, but it need not be circulating (when Transmitter is Off the Air). To check if water is actually in "Airfin Units" enter "Airfin Unit Compartment" open Valve "R2". Water will run out. Then close valve "R2" tightly. This is located in the "Airfin Unit Compartment".

8. Close window in *Mixing Chamber" to within 3 inches of shut-off (enter thru small trap door).

Retard Ventilating Fan Control Rheostats #1 and #2 to Winter Settings.
 (In Passageway)

10. Place Damper near the Exhaust Fan to "Circulating" for Extreme Heat, otherwise leave on "Exhaust".

11. Set "Electric Heater No. 1" Thermostat Switch to 75 degrees Fahrenheit (or desired temperature).

12. If this doem not maintain Building Temperature to the required 75 degrees Fahrenheit, throttle the Output Valve of the Pond Pump in service, which will raise the temperature of the Distilled Water, permitting Higher Temperature within the Building, since both the "50 KW Heater" and "Electric Heater #1" are in service.

BOOK No. (5)⁵ SEC. No. (B) PAGE No. (39)

C.O.R.P. "Items" "Methods" "References" 50 KW

(Item #40 Continued)

Beok No. (1) (1) (2) () () ()Sec. No. (W) (A) (B) () () ()Page No. () () () () () () ()

In Step 11, set "Electric Heater No 1" and "Electric Heater No. 2" Thermostat Switches to 75 degrees Fahrenheit (Or desired temperature).

(g) One Electric Heater is sufficient for Temperature average of 20 degrees above Zero, possibly two Electric Heaters when BELOW ZERO, during periods when 50 KW Transmitter is off the air.

(h) Always be sure that "50 KW Heater" Thermostat Switch is set to Maximum when calling for Electric Heat, otherwise "Airfin Unit Compartment" will get too hot and 50 KW Thermostat "S5P" on the Transmitter will ring Bell "BlA", because Distilled Water Temperature will rise excessively.

DO NOT USE ELECTRIC HEATERS BETWEEN 8 A.M. and 8 P.M., during which hours if more heat is needed, always see that Distilled Water is kept around <u>120 to</u> 150 Degrees Fahrenheit.

IT IS ABSOLUTELY UNNECESSARY TO USE ELECTRIC HEATERS UNTIL APPROXIMATELY ZERO WEATHER SETS IN

(i) When Outside Temperature is between 13 and 30 degrees F., the following should be performed during the Night Watch; when Transmitter is NOT ON 24 HOUR SCHEDULE:

Five minutes before 50 KW Transmitter is shut down, directly after 50 KW Transmitter is Signed Off the Air, go to Basement, set Ventilating System Damper to "CIRCULATING" and shut off the Pond Pump in Service.

BOOK No. (5)

SEC. No. (B)

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (40)

(Item #40 Continued)

This will raise Temperature of Distilled Water and when same reaches 135 degrees, put the Pond Pump back in Service, with Output throttled to <u>2 Lbs</u>. When Outside Temperature is lower than 15 degrees, shut off Pond Pump 10 minutes previous to Sign Off.

To Heat building with "50 KW Heater" and "Electric Heater" #2, the procedure is exactly the same as outline in Paragraph (d) for "50 KW Heater" and "Electric Heater #1" ecept as follows:

Set Electric Heater No. 1 Thermostat Switch to 60 degrees (Minimum)
 In step 11, set Electric Heater No. 2 Thermostat Switch to 75 degrees
 Fahrenheit (or desired Temperature).

This will raise Temperature of Distilled Water and when same reaches 135 degrees put Pond Pump back in Service, with Output throttled to <u>2 Lbs</u>. Because outside temperature may vary, watch Temperature of Distilled Water very carefully while Pond Pump is Off.

Note that Electric Heaters are not used during this method of raising building temperature, only the "50 KW Heater", consequently, both Electric Heaters No.l and No. 2 Thermostat Switches are set to 60 degrees (Minimum).

When station is not on 24 hour schedule, Pond Pump may be left shut off during the morning tests, until Distilled water temperature rises to point just above 135 degrees, in which case, put Pond Pump back in service.

During the Night when the Transmitter is off the Air, the Ventilating System will be left on "CIRCULATING" position.

Cont'd_on-next Page

C.O.R.F. "Items" "Methods" "References" 50 KW PAGE No.

OPERATING MANUAL

(Item #40 Continued)

It will never be necessary to use Electric Heaters while station is on the air, and seldom if ever, after station has signed off the air.

BOOK No. (5 (

(B)

(41)

(j) Building Temperature will rise faster, and remain higher if Damper is kept on "CIRCULATING" position.

If Air within the Building gets too stuffy during heating, place the damper partly on "EXHAUST" which will mix a small amount of fresh air with the air. being circulated about the building.

(k) Normally the following Electric Heater Switches are kept off except when calling for Electric Heat:

1. "Switch #5", "Two 35 KW Electric Heaters" located in "Distribution Panel 250 Volt 3 phase 60 cycle A.C." Box in Engine Driven Generator Room.

2. *35 KW Electric Heater Switches 1 - 2" located in "Passage way to Mixing Chamber".

3. "Electric Heaters 1 and 2 Relay Switch" located in Passage way to Mixing Chamber.

(1) Note that the Top section Metal Vanes directly in front of the "Airfin" heater units #1, #2, #3, #4, in the "Airfin Unit Compartment" are open adn that the lower vanes are closed, when calling for any kind of heat, i.e. Distilled Water, or Electric.

In this case the 250 KW Heater " Thermostat Switch is on maximum.

(M) When not calling for either Electric Heat or 50 KW Distilled Water Heat, top section metal vanes directly in front of "Airfin Heater Units" #1, #2, #3, #4 in the "Airfin Unit Compartment" are closed, and that the lower vanes are

C.O.R.P. "Items" "Methods" "References" 50 KW PAGE No. (42)

BOOK No.

(-5-)

(Item #40 Concluded)

open. This by-passes air around the "Airfin Heater" Units #1, #2, #3, #4. In this case "50 KW Heater" Thermostat Switch is set to a temperature lower than that of the "Audio Facilities Control Room".

OPERATING MANUAL

Book No. (1) (2) () () () () Sec. No. (A) (B) () () () () Page No. () () () () () ()

41. (a) One Tally Board containing the Program Schedules of WOR and WBAM and one Tally Board with complete List of Telephone Numbers, are hung up on Brass Hooks on right side of knee space of AFCR Desk.

(b) Check the "WOR-WBAM DAILY PROGRAM SCHEDULE" for any notations regarding "Comments" to be written around any Broadcast.

If Program Comments are to be written, the word "COMMENTS" will be noted

alongside of the Specified Program.

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"WOR DAILY PROGRAM SCHEDULE" is mailed to WOR Transmitting Plant at Carteret each Day. Supervisor will see that this Schedule is posted, but in the absence of Supervisor, Technician on Watch when Mail'is delivered will open envelope and post this Schedule on the Tally Board #1.

(c) Tally Board #2 contains complete List of most frequenctly used Telephone Numbers.

If the number you are looking for does not appear on this List, consult the Black Book of Special Numbers, kept on shelf of Book Case in Lobby-Office.

Book No. (. .)

Page No (

Sec. No.

W 0 R BOOK No. (5) OPERATING MANUAL SEC. No. (B') C.O.R.P. "Itens" "Methods" "References" 50 KW PAGE No. (43) (a) It is important that all Technicians read and understand all 41. Notes and Data posted on the Bulletin Board. (b) Initial all Notes and Material after reading them. (c) Check with Supervisor on anything not understood. (d). It is the direct responsibility of Technicians to see that all Instructions are carried out.) .(.) (Book No. (. •) .) () () (Sec. No. () Page No. (} 42. (a) All Technicians will sign on the "Daily Work Sheet, indicating their Assignment in Proper Spaces, such as "T" "M" "S". "My Indicates Maintenance. "T" Indicates Transmitter. "S" Indicates Special Assignment.) () () (Book No. ().[.]). ()· (Sec. No. (·,)) l ·) (·) ((. Page No.)) The following Station Operating Manual Books are kept on shelf in 43. (a) the Book Case of Lobby-Office. (b) "CHRONOLOGICAL OPERATING ROUTINE PROCEDURE" Book #5. This book contains the following sections: C.O.R.P. "Items to be Performed" are performed before assuming Duties on Watch. 50 KW TRANSMITTER Items #1 to #60. 5 KW TRANSMITTER Items #1 to #33.

OPERATING MANUAL

C.O.R.P. "Items" "Methods" "References" 50 KW PAGE No. (44)

BOOK No.

5)

(Item 42 Continued)

C.O.R.P. "Items" "Methods" "References" 50 KW, is the actual method of performing all the Items listed to be done before assuming Duties on Watch.

C.O.R.P. "Items" "Methods" "References" 5 KW, is the actual method of performing all the Items listed to be done before assuming Duties on Watch.

All Technicians when going on duty and throughout their Watch Periods will perform Items in Sequence as outlined in this "CHRONOLOGICAL OPERATING ROUTINE" PROCEDURE" Book #5.

This "CHRONOLOGICAL OPERATING ROUTINE PROCEDURE" Book #5 is written to cover the duties of Two Technicians on each of the three Watches, i.e. 12:00 Midnight, to 8:00 AM; 8:00 AM to 4:00 PM; and 4:00 PM to 12:00 Midnight.

This is considered Normal Operation.

However, the procedure is written so that all the Items may be performed by One Technician, when only One Technician is on any Watch.

When only One Technician is on Duty, he will combine both the 50 KW Transmitter and 5 KW TransmitterItems, and perform them in Outlined Sequence.

It is important that all Items be performed in the manner outlined.

No Deviation in performance of Items will be permitted, unless authorized.

(c) "PLANT AND EQUIPMENT MAINTENANCE" Book #6

This book contains the following sections:

BUILDING INSPECTION REPORT (B.I.R. ITEMS) (When authorized by Supervisor) SAFETY FIRST INSTRUCTION SHEET.

COMPLETE INDEX FOR EACH DAY OF THE WEEK, AND MONTHLY ITEMS.

SUNDAY MAINTENANCE ITEMS #1 TO #13.

C.O.R.P. "Items" "Methods" "References" 50 KW (Item #42 Continued)

OPERATING MANUAL

BOOK No.

(5)

MONDAY MAINTENANCE ITEMS #1 TO 10

TUESDAY MAINTENANCE ITEMS #1 TO #10

WEDNESDAY MAINTENANCE ITEMS #1 TO 10

THURSDAY MAINTENANCE ITEMS #1 TO #8

FRIDAY MAINTENANCE ITEMS #1 TO #7

SATURDAY MAINTENANCE ITEMS #1 TO 9

HOW TO RECONDITION VACUUM TUBES (Part of 5th Sunday Item #12)

Supervisor will check the "B.I. Report" placing same in the "P & E Maintenance" Book each day.

When all the Items on one report are completed, Technician will place same in folder of "STAFF FOLDER".

Unless Special Assignments prevent, both Technicians on Watch will divide the performance of Maintenance Items.

Maintenance Items listed for Sunday, will be done Sunday, those for Monday are to be done on Monday, etc.

When possible, always perform Maintenance Items on Days called for; do not do any undone Items for previous days first, unless specific Instructions are made by the Supervisor.

Maintenance Items completed, will be listed on front of the Tally Sheet in back of index book of that type maintenance. Qualifying remarks will be made on reverse of Tally Sheet.

Technicians will consult Maintenance Books for list of Maintenance Items not completed, then proceed to perform same in order of importance.

BOOK No. (5)

SEC. No. (B)

(46)

PAGE No.

C.O.R.P. "Items" "Methods" "Reference" 50 KW

(Items #42 Continued)

(d) "TRANSMITTER AND ANTENNA EQUIPMENT MAINTENANCE" Book #7 This book contains the following Sections:

SAFETY FIRST CHART

REFERENCE INDEX FOR SPECIAL ASSIGNMENTS

COMPLETE REFERENCE INDEX FOR ALL REGULAR MAINTENANCE ITEMS FOR EACH MONDAY MORNING AND EACH TUESDAY MORNING.

HOW WHEN TO PUT NITROGEN GAS IN MAIN AND DOUBLE CONCENTRIC LINES. HOW TO PERFORM SPECIAL ASSIGNMENT MAINTENANCE MONTHLY OR PERIODICALLY. MONDAY MORNING MAINTENANCE ITEMS.

TUESDAY MORNING MAINTENANCE ITEMS AS LISTED FOR 1st TO 5th TUESDAYS. Complete Information on When and How to perform 50 KW Transmitter and Three Array Antenna System Maintenance Items is outlined in this Book These Maintenance Items are all performed during the period 12:00 Midnight to 8:00 A.M. of the Day called for, i.e., Monday morning or Tuesday morning. Normally 3 Technicians are assigned to Duty on these 2 mornings. The Maintenance Book dividés Listed Items among the 3 Technicians. Each Technician will consult "T & A.E. MAINTENANCE" Book deciding which series of listed Items he is to perform and spend one full hour reading these Maintenance Items so that he will know how to do Items and when Tools are required. When it is impossible to perform a Maintenance Item due to Power being On, or Carrier On, always visually inspect, and include this information on Routine Report and also write it on reverse of Tally Sheet.

Upon the completion of Maintenance, remove all tools, Measuring Equipment, etc.

BOOK No. (5)

(B)

C.O.R.P. "Items""Methods" "References" 50 KW

PAGE No. (47)

(Item #42 Continued)

from within Transmitter Enclosures, then inform Porter who will clean up, dust or Buff Floors as required. If no Porter is present, Technicians on duty shall make all in order.

When less than 3 Technicians are assigned, those on duty will decide which Items are the most p important, perform these first, and then if time remains, proceed to complete other listed items for that Day.

(e) "GENERAL NIGHT EUILDING MAINTENANCE" Book #8

This Book contains the following Sections:

COMPLETE INSTRUCTIONS ON HOW TO USE CLEANING APPLIANCES, SUPPLIES, HOW TO CLEAN FLOORS, HOW TO CLEAN UP PLANT.

REFERENCE INDEX FOR ALL REGULAR MAINTENANCE ITEMS SUNDAY NIGHT (Mon.) TO SATURDAY NIGHT (Sun.), AND SPECIAL ITEMS TO BE PERFORMED ONCE EACH 2 WEEKS; ALSO ONCE EACH 6 WEEKS.

SUNDAY NIGHT (On Mon. Morning) MAINTENANCE ITEMS #1 TO #21. MONDAY NIGHT (On Tues. Morning) MAINTENANCE ITEMS #1 TO #23 TUESDAY NIGHT (On Wed. Morning) MAINTENANCE ITEMS #1 to #21 WEDNESDAY NIGHT (On Thurs. Morning) MAINTENANCE ITEMS #1 TO #20 THURSDAY NIGHT (On Fri. Morning) MAINTENANCE ITEMS #1 TO #21 FRIDAY NIGHT (On Sat. Morning) MAINTENANCE ITEMS #1 TO #20 SATURDAY NIGHT (On Sun. Morning) MAINTENANCE ITEMS #1 TO #22 ITEMS TO BE PERFORMED ONCE EVERY 2 WEEKS ITEMS TO BE PERFORMED ONCE EVERY 6 WEEKS.

'Before going on Duty, Porter will read all Bulletin Boards, Black Board,

OPERATING MANUAL

BOOK No. (5)

SEC. No. (B)

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (48)

(Item #43 Continued)

and initial any Notes not purely Engineering.

Porter will sign on "Daily Work Sheet".

"G.N.B. MAINTENANCE" is performed 7 night each week.

On Sunday and Thursday Nights, when no Relief Porter is on Duty, Transmitter Technician will tidy up about the Plant enough to hold over until next period of G.N.B.M.

(f) "INSTRUCTIONS TO THE STAFF" "WAR TIME OPERATIONS" "F.C.C. RULES AND REGULATIONS" "WOR CONSTRUCTION AND ENGINEERING DETAILS" Book #10. This book contains the following Sections:

'INSTRUCTIONS TO THE STAFF.

WAR TIME OPERATIONS.

F.C.C. RULES AND REGULATIONS.

WOR CONSTRUCTION AND ENGINEERING DETAILS.

Instructions to the Staff from Supervisor are written on Onion Skin Paper, and 2 Ozalid Copies are made, one of which is posted on Bulletin Board, the other is placed in this book.

After all Technicians have read and initialled the Instructions on the Board, they are taken down, but remain in the book for reference.

All War Time Operating Instructions are written on onion skin paper, and 2 Ozalid Copies made, one of which is posted on Bulletin Board, and the other is placed in this Book.

After all technicians have read and initialed the Instructions on the Boards, they are removed, but a copy remains in the Book for reference.

BOOK No. (5)

W O R OPERATING MANUAL

SEC. No. (B)

PAGE No. (49)

C.O.R.P. "Items" "Methods" "References" 50 KM

(Item #43 Continued)

Instructions may be Photostated and placed in the Book, in which case they are not posted on the Bulletin Board.

Technicians should see that they keep informed regarding all changes in Book #10. It will be necessary to oheck Book #10 once each watch, for new Instructions. Pertinent F.C.C. Rules and Regulations applicable to all WOR Transmitters are part of thes book.

Where Information on F.C.C. Rules is required and same is not part of this Book #10, it may be found on shelf in Foyer Office, bound in Loose Leaf Book Form listed as "FCC Rules and Regulations".

All information regarding Construction Details of WOR Transmitter Plant are part of Book #10, for reference.

(g) "WORK TO BE DONE" Book #12.

This Book contains work items not regularly performed as Maintenance from Books #6, #7, #8 and #9.

Items may be written in Book #12 by the Supervisor or members of the Staff. Any Technician observing work to be performed about the Plant other then regularly Scheduled Maintenance will enter it in this Book.

If he does not have time to do the work, or complete the Item, say so on the "50 KW MASTER OPERATING LOG" but the Signature in the completed column of the "WORK TO BE DONE" Book, will definitely indicate that the work is completed. Onother Technician noting the Work Item in the "WORK TO BE DONE" Book #12, will perform it.

Technicians should weigh the inportance of all Work Items so that this Work and

BOOK No. (5)

SEC. No. (B)

C.O.R.P. "ITEMS" "Methods" "References" 50 KW

PAGE No. (50)

(Item #43 Continued)

Regular Maintenance are completed in the order of their importance. EXAMPLES: Technician, upon taking a 50 KW M.O.L. reading, will observe that the Door Check on top of Transmitter R_{oom} D_{oor} is inoperative. He promptly enters this in the "Work To Be Done" Book #12. Complete instructions on how to do this, may be found in Book No. 12, Sec. No. (A) Page No. (1) to Page No. (3). Include Information on all Work To Be Done Items in Routine Report. If the Technician who noticed the item were doing Regular Maintenance Item, such as Tuesday Item #3, which call for General Cleaning of the 5 KW Auxiliary Transmitter, he would defer or not do the Work Item until theTuesday Maintenance Item #3 is completed.

Obviously, the Tuesday Maintenance Item #3 is much more important than a run of the mill WTBD Item.

Book No. ()) () () Sec. No.) () Page No. () () () () () ()

BOOK No. (5) SEC. No. (B)

C.O.R.P. "Items" "Methods" "References" 50 KW

• PAGE No. (51)

43. (a) The Left Turret of the Transmitter Room Control Desk contains the following:

(b) VO Meter #4, which is connected for measurement of Audio Input to 50 KW T_r ansmitter.

VU Meter #4 is registering peaks up to 100.

(c) Selector Keys #1 and 2, 3, 4, 5 for special radio receivers.
 There are no receivers connected to these selector keys.

(d) Selector Key #6 will select RF Input to the W.E. 1-C Frequency Monitor.
 When placed Vertical, it will select 50 KW Transmitter for Deviation Measurement.
 When place Horizontal, it will select 5 KW Transmitter for Deviation Measurement.

(e) "Percent Modulation" Meter Switch is "ON" and Meter is registering modulation percentage up to 100.

This is Remote Meter, connected to the G.R. 731-A Modulation Monitor located in Bay #9 in Measuring Equipment Room.

Book No. () () () () () () Sec. No. () () () () () () Page No. () () () () () ()

(a) Pilot Lights on the Right Turret of the Transmitter Room Desk are:
(b) "Aviation Lights" "Tower" (Red Light) is normally illuminated during the night to indicate to the Technician that Tower Flashing and Obstruction Lights, and Regular Rotary Beacon Lamp are illuminated.

(c) "Aviation Lights" "Rotary" (clear light) is normally extinguished at all times, day or night, but after dark the Emergency Lamp in the Rotary

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BOOK No. SEC. No.

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (52)

(5)

(B)

(Item #44 Continued)

Beacon on Transmitter Building ^Roof will automatically switch into Service IF Regular Lamp burns out; then the "Rotary" (Clear Light) will be illuminated. This is not normal operation for Emergency Lamp to be in service.

(d) "Antenna Transf" "50 KW" (Amber Light) is "ON" (50 KW On the Air).

(e) "Antenna Transf" "5 KW" (Purple Light) is "OUT" (5 KW Off the Air).
These "Antenna Transf" Lights are energized thru "Ant Switch" being in the "ON"
Pos'n., in either the Transmitter Room or Audio Facilities Control Room Turrets.
Control Room Wall Panel Box 120 V. AC feeds 110 V. AC to them thru Switch #34.
"Antenna Switch" is left "ON" on Transmitter Room Control Turret, only.

(f) "Power Feeders" "Rhway" (Red Light) is "ON" indicating that Rahway
4150 Volt AC Public Service is available.

(g) "Power Feeders" "Rahway" (Green Light) is "OFF" indicating that Rahway 4150 Volt AC Public Service is NOT BEING USED.

(h) "Power Feeders" "Carteret" (Both Green and Red Lights) are "ON", indicating that it is being used to supply 4150 Volts AC Service for Transmitter Operation.

(i) Indicator Lights are G.E. Mazda 6 Watt, 110 Volt Candelabra Base, Color depending upon position, that is RED - BREEN - CLEAR - or FROSTED.

Vorld Radio History

 Book No. () () () () () () ()

 Sec. No. () () () () () () ()

 Page No. () () () () () () ()

BOOK No. (5)

SEC. No. (B)

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (53)

45. (a) The Following Switches are of the Momentary Contact Type, and normally are in the inoperative or "Off" position.

"5 KW ON" "10,000 V OFF" "Ant. Transf 50 KW"
"1600 V ARM ON" "10,000 V ON" "Ant Transf 5 KW"
(b) Note that 5 KW Auxiliary Transmitter may be started from Turret, but cannot be completely stopped from Turret. There being no master "Off"
button to stop rotating mechinery.

To completely shut down 5 KW Transmitter, push the "Master Control Stop" Button "D3A" located on face of AC Panel "Unit #1 (A)" of Transmitter(AC Power Panel) (c) The following Switches are Fush Button Type, and are not normally used unless Remote Controlled Type Loudspeaker is connected in Wall Sockets in the "Audio Facilities Control Room".

In one Addito Pacificies condici in

"MON SPKR" "ON-OFF"

"VOLUME" "PLUS_MINUS"

(d) "Antenna Switch" is "ON" feeding 115 volts to the "Antenna Transfer" Switch in the Antenna Coupling Room, ("J" Unit").

This Switch (On right turret) must be "On" as will be indicated by Amber or Purple Indicator Lights beneath the Direct designations "Antenna Transfer" "50 KW" (Amber) and "5 KW" (Purple).

This Switch is normally connected in parallel to "Antenna Switch" on the Right Turret of the Control Room Desk, (Whith is normally "Off"). 115 Volt Supply to "Antenna Transfer Switch" is from Switch #34 in Control Room Panel Box.

OPERATING MANUAL

BOOK No. (5) SEC. No. (B) PAGE No. (54)

C.O.R.P. "Items" "Methods""References" 50 KW

(Item #45 Continued)

(e) "Beacon Switch" is "Off" - Transmitter "WREY".

This switch will supply 230 Volts AC from Master Switch #3 in Wall Cabinet "Distribution Panel" 230 V. 30 60 Cycles AC located in "Engine Driven Generator Room".

(f) "SW Switch" is "OFF".

This Switch is Remote Control to put the 1600 Volt Field of 5 KW Transmitter "Cher This Switch is in parallel with "SW" Switch on Right Turret of Control Room Desk, and in parallel to "DIC", 1600 Volt Field Switch on face of Oscillator Panel of the 5 KW Auxiliary Transmitter.

Book No. () () () () () () () Sec. No. () () () () () () () Page No. () () () () () () ()

46. (a) Morse Telegraph Key on Transmitter Room Desk is "Closed".
(b) The Sounder is mounted in the right recessed Compartment of Transmitter room desk.

(c) All Morse Keys and Sounders at 444 Madison Avenue, WBAM, WOR Main Studios, 1440 Broadway, and WOR Transmitter, Carteret, N.J., are connected in Series..

(d) Entire Morse Loop is fed from a Rectifier at WBAM, 444 Madison Avenue, N.Y.C. This rectifier is mounted on wall behind Speech Bays at WBAM.

This Rectifier delivers 110 Volts DC to Morse Circuits.

(5) BOOK No.

SEC. No. (B)

C.O.R.P. "Items""Methods" "References" 50 KW

PAGE No. (55)

(Item #46 Continued)

Series Current on Morse Circuit is approximately 60 Milliamperes.

Rectifier Output Positive Terminel is connected to the Morse Circuits.

Negative is grounded.

Final Ground on the Morse is made at WOR, Carteret Transmitter.

(e) In an Emergency, entire morse loop, or Morse from WOR, Master Control at 1440 Broadway to Carteret Transmitter or from WOR, 1440 Broadway to WBAM, may be fed from a Rectifier located at WOR 1440 Broadway, N.Y.C.

(f) Entire Morse Circuit is Simplexed on T_elephone Company Private Lines, from WBAM, 444 Madison Avenue to WOR S₁udios 1440 Broadway, N.Y.C., PL #60054 is Simplexed for Morse.

From WOR Studios, 1440 Broadway, N.Y.C. to WOR Transmitter, Carteret, N.J. PL #5038 is Simplexed for Morse.

(g) The Continuity of Morse Telegraph Stations, Call Letters and Locations are as follows:

#1 "W4" WBAM, 444 Madison Ave., N.Y.C.

#2 "WR" WOR Master Control, WOR Studios, 1440 Broadway, N.Y.C.

#3 "MO" Office of Mr. Poppele, 1440 Broadway, N.Y.C.

#4 "CH" Office of Mr. Singer, 1440 Broadway, N.Y.C.

#5 "HK" Office of Mr. Harkins, 1440 Broadway, N.Y.C.

#6 "CY" Transmitter Room, Carteret, N.J.

#7 "CY" or "CK" Kitchen at Transmitter, Carteret, N.J.

#8 "CY" or "CB" Basement, WOR Transmitter, Carteret, N.J.

#9 "FN" or "CY" Supervisor's Office, WOR Transmitter Carteret, N.J.

#10 "CY" Lobby Office, Carterety N.J.

#11 "CY" Control Room, WOR Transmitter, Carteret, N.J.
BOOK No. (5)

SEC. No. (B)

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (56)

(Item #46 Continued)

(h) The following will supplement Engineering Communications No. 8391. Whenever there is an interruption for any reason on the feed of program material between Master Control and either Carteret or 444 Madison Avenue, it will be the duty of the Technician at the Transmitters to call on the Morse and say: "WR" - "CY" or "W4" "NIL" (This means that nothing is coming over the line).

This should be repeated until Master Control replies as follows:

"Dit" "Dit" "WR" TWAIT" (.-..., Morse abbreviation).

This means to wait and that he is aware of the trouble. Transmitter will reply:

"Dit" "Dit" "Cy" or

"Dit" "Dit" "W4"

The Procedure in answering the Morse shall always be:

. "Dit" "Dit" "CY" or

"Dit" "Dit" "W4" with message following.

All calls on the Morse Wire must be answered immediately.

If in doubt, use the PL.

(i) Whenever the Telephone Company calls, stating that work will be done on the Private Lines #5038 to Carteret or #600054 to WBAM, open the Morse at Carteret (Open one of the morse keys).

When Morse operates and Technician can not understand text of material being sent, pick up PL #5038 and communicate with Master Control.

WOR

OPERATING MANUAL

(5) BOOK No.

(57)

- SEC. No. (B)

C.O.R.P. "Items" "Methods" "References" 50 KW PAGE No.

47. (a) The W.E. 1-C Frequency Monitoring Unit is located in the recessed compartment on right side of the Transmitter Room Desk.

(b) It is operated from 115 Volts AC Control Room Wall Panel Box Switch #34.
(c) It is protected by Fuses Fl.1 and Fl.2 - 110 Volt, 15 Amperes, Screw
Plug, in the 1-C Frequency Monitor Unit itself, as well as Fuse Fl1R, located
on the rear of the Transmitter Room Desk.

(d) 115 Volts AC Switch "D3" is "ON"

1

(e) Adjust Rheostat "R8" to rear 130 Volts (Red Line) on "Oscillator Plate Voltage Meter" "M2".

(f) "Oscillator Grid Current" Milliammeter "Ml" is approximately .31 Mil.
(g) Crystal Heater Indicator Light "El" is periodically flashing "On" and "Off" indicating to the Technician that Quartz Crystal Temperature is being maintained at contant point.

If indicator light does not flash "On" and "Off", check operation of the 1-C Frequency Mohitor.

When necessary to renew the Indicator Lamp, remove Screws in the 4 Corners of Front Panel, remove Knobs from Rheostat "R8" and Input Potentiometer "Pl" Leads are long enough to lay front panel in horizontal position on some flat object (Not long enough to rest on Floor).

Unscrew Lamp and install new G.E. 18 volt 0.11 Ampere, Type T4 Candelabra Base Tubular Bulb.

(h) Input Potentiometer "Pl" is on Maximum "Increase" position.

"Frequency Difference" Switch "D4" is "Off" and needle of
 "Frequency Difference Mater" is reading Minus 30 cycles.

Continued on next Page

BOOK No. (5)

SFC. No. (B)

C.O.R.P. "Items" "Methods" "References" 50 KT

PAGE No. (58)

(Item /47 Continued)

CAUTION: DO NOT ALTER THE METER NEEDLE ADJUSTMENT SCREW - - -

(j) Measure Frequency Deviation of Transmitter as follows:

On the Left Turret of Transmitter Room Desk, place Selector Key #6 to Vertical for 50 KW Transmitter, or to Herizontal for 5 KW Transmitter.

Place "Frequency Difference" Switch "D4" "On" and read Meter "M1" in Cycles, Flus or Minus of Center Zero.

(k) Check normal operation of the 1-C Frequency Monitor by pressing"Direction" Eutton "Cl3".

Meter must always indicate "PLUS"

If it does not, check 1-C Frequency Monitor operation at once.

(1) Shut off "Frequency Difference" Switch "4".

Except when reading deviation, "D4" Switch must be off.

(m) If Transmitter Frequency should be measured as more than Plus or
 Minus 6 Cycles, or if 1-C Frequency Monitor does not operate correctly,
 notify Supervisor at once.

When authorized by Supervisor, call R.C.A. Frequency Measuring Service in New York, Phone: Riverhead-2290.

Enter all such outside frequency measurements on reverse of proper F.C.C. Log per sample:

	Ite	em No	o			lime,	50) KW	Tra	nsm	itte	r.Fre	equency meas	sured by
R.C.A. Free	quer	ncy l	Mea	.suri	ng	Bers	rice	, Rj	ver	head	d, L	.I.,	as(ycles Plus
or Minus.	Eng	gine	er	at F	.c.	A. F	live	rhea	id,	L.I	., M	r		•
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World Radio History

BOOK No. (5)

(B)

C.O.R.P. "Items" "Methods" "References" 50 KW

PAGE No. (59)

SEC. No.

48. (a) Telephone Instruments of Outside Wire and Private Line are
hung up on Hooks in left front recessed compartment of Transmitter Room Desk.
(b) Make sure that Telephone Instruments are not resting on cords, which
will lift the telephone partly off the hook and give Telephone Operator a
continuous signal.

Persons calling WOR Transmitter will be told that the "Line is busy".

(c) The proper way to answer telephone at WOR Carteret is as follows: PL·#5038 . "CARTERET TRANSMITTER - RUCKSTUHL" PE 6-8600 EXT 231 , "CARTERET TRANSMITTER - GARUFY" Center Coupling House "CENTER COUPLING HOUSE - QUODOMINE" Control Room WCONTROL ROOM - WILLEY" Answer all intercommunicating telephones at Carteret, by naming the station and your name, as "East Tower Coupling House - Stanford" Book No. Sec. No. Page No.))) ((a) The small Electric Fan, located on the shelf in the space 49. beneath the Transmitter Room Desk, is running, forcing cool air on the interior of the 1-C Frequency Monitor Unit.

(b) It is operated from 115 volts AC, Control Room Wall Panel Box Switch #34.
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BOOK No. (5)

W O R OPERATING MANUAL

SEC. No. (B)

PAGE No. (60)

C.O.R.P. "Items" "Methods" "References" 50 KW

50. (a) The proper performance of "INFORMATION TO BE PASSED ON" is very important.

(b) At times Technicians are away from the plant 2 to 4 days, which makes it difficult to keep up with the work at the plant.

A general discussion of such information among the Technicians, and the passing along to the Incoming Watch, by Technicians about to go off duty, of all data, instructions, etc., will assure the proper completion of station work.

(c) At times, equipment may be set aside to be disposed of by a later Watch, or an engineering change in a piece of equipment may be ordered for a later watch to do. In this case, set such equipment on floor in main Basement and enter data on reverse of proper MOL.

(d) <u>BE SURE THAT YOU PASS ALONG ALL INFORMATION - BE SURE THAT YOU</u> RECEIVE ALL INFORMATION TO BE PASSED ALONG.

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51. (a) All Technicians will minning sign on the "DAILY WORK SHEET"; indicating their assignments in proper spaces, such as "T" "M" "S". "T" Indicates Transmitter.

"T" Indicates Transmitter.

"M" Indicates Maintenance.

"S" Indicates Special.

The "Daily Work Sheet" Book is kept on Library Table in Lobby Office.

(b) Read all entries on both sides of "50 KW HALF HOURLY RECORD" and discuss them.

Cont'd on next Page

C.O.R.P. "Items" "Methods" "References" 50 KW PAGE No. (B) (Item #51 Cont'd)

BOOK No. (5)

(c) Investigate reasons for all Entries of abnormal values.

OPERATING MANUAL

(d) Discussion among Technicians will be such that all are informed, so that proper operation of Transmitter may be continued in fonformity to
 F.C.C. Requirements.

(e) The Technicians assuming the Transmitter Watch will sign on the
 "50 KW HALF HOURLY RECORD" after the notes left by previous watch or
 Supervisor, are read.

(f) When another Technicians takes the "50 KW HALF HOURLY RECORD",
he will be sure to Sign On and Off, also be sure that the other person signs off.
(g) All entries on "50 KW HALF HOURLY RECORD" will be made exclusively
by the Technician whose name is on that log.

If it becomes necessary for this Technician to leave the Transmitter Room to do Maintenance or for some other reason, 2nd Technician will cover the Watch, signing on the 50 KW F.C.C. Log.

During the period of being on Watch, this Technician will then proceed to make proper entries on the 50 KW F.C.C. Log.

(h) Per Example:

Name				-	<u>On</u>			. <u>N</u>	ame				<u>Off</u>	•	Assigned
Francis C.	Gai	rufy	7	8:	00 🗚	M	F	ranc	is (). G	aru	Су.	- 9:30	AM	T-Reg.
Edmund E.		9:	30 I	M	E	dmur	d E.	, Fr	anke	e	11:30	AM ·	T-Relief		
Francis C.	rencis C. Garuf					M	F	rand	is (C. G	aru	ſy.	4:00	PM.	T-Reg.
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W O R OPERATING MANUAL C.O.R.P. "Items" "Methods" "References" 50 KW PAGE No. (62)

52. (a) One Technician will Sign on the front of "50 KW Master Operating Log". Technician will sign on in first vacant space after preceeding Watch Technician.

(b) Read all Entries on both sides of "50 KW MASTER OPERATING LOG" and discuss them.

Discussion among Technicians will be such that all are informed as to normal, or abnormal operation of any part of WOR T_r ansmitting Plant written about on this Log.

(c) Technician going on Duty, will see that Technician going off duty signs off on front of the "50 KW MASTER OPERATING LOG".

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53. (a) Read all Entries on both sides of *50 KW WEEKLY-MONTHLY RECORD STARTING PROCEDURE* (Daily Starting Log) and discuss them.

(b) Discussion among Technicians will be such that all are informed regarding all Operations during the Starting Period of the 50 KW Transmitter whether WOR is on 24 Hour Schedule or not.

(c) Investigate reasons for all Entries of abnormal Values.

(d) One Technician will Sign on this Log whenever it is taken.This Log is normally taken at 5:00 AM each morning.

(e) Technician going on Duty will see that Technician going og Duty enters Time Off in the proper space.

Contid on next Page

OPERATING MANUAL

WOR

C.O.R.P. "Items" "Methods" "References" 50 KW PAGE No. (63)

BOOK No.

(5)

54. (a) Read all entries on both sides of "5 KW HALF HOURLY RECORD" (5 KW F.C.C. LOG) and discuss them.

(b) Discussion among Technicians will be such that all are informed, so that proper operation of the Transmitter may be continued in fonformity to F.C.C. Requirements.

(c) One Technician will sign on this log if 5 KW Auxiliary Transmitter is used on the air during his Watch.

In the Space for "NAME" (On and Off) he will write his name.

In the "*ON" space, he will write the time on. (12:00 Mid - 8:00 AM or 4:00 PM) In the "OFF" space he will write the time off. (12:00 Mid. - 8:00 AM or 4:00 PM) If it bedomes necessary for this Technician to leave the Transmitter Room to take the 50 KW "WEEKLY MONTHLY RECORD" or for some other reason, 2nd Technician will cover the Watch, signing on the "5 KW HALF HOURLY RECORD". In the space for "NAME" (On and Off) he will write his name.

In the "ON" space, he will write the exact time of taking over the Watch. In the "Off" space, he will write the exact time of going off Watch. During the period of being on Watch, this Technician will then rpoceed to make proper entries on the 5 KW "HALF HOURLY RECORD".

Book No. (Sec. No. (.) Page No. () (.) •) () () (()

C.O.R.P. "Items" "Methods" "References" 50 KW

BOOK No. (5) SEC. No. (B) PAGE No. (64)

	55.	(a) Read all Entries on both sides of "5 KW MASTER OPERATING LOG"
	and discu	uss them.
	Discussio	on among Technicians will be such that all are informed as to normal
	or abnorn	mal operation of any part of WOR 5 KW Auxiliary Transmitter.
	(ъ)	When 5 KW Transmitter is used or tested, One Technician will make
	Entries a	and Sign his initials on proper Space.
	Book No.	
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u*•	56.	(a) All WOR Operating Manual Books wxcept Manual #5 #6 #7 #8
	#10 and #	12 are kept in Supervisor's Office.
_	(Ъ)	A complete Library, consisting of WOR Technical Books, Reference
•	Books, Jo	ournals, and Published Technical Books is kept in the Supervisor's Office.
	Book No.	
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	57.	(a) ' Tally Boards with following Station Logs are hung up on Brass
	Hooks ber	neath Identifying Marker Tags affixed to rear of the Transmitter
	Room Desl	ζ.
	(b)	"50 KW HALF HOURLY RECORD" (50 KW F.C.C. LOG)
	(c)	"50 KW MASTER OPERATING LOG" (50 KW M.O.L.)
	(d)	"50 KW WEEKLY-MONTHLY RECORD STARTING PROCEDURE" (DAILY STARTING LOG)
	(e)	"5 KW HALF HOURLY RECORD" (5 KW F.C.C. LOG)
	(f)	"5 KW MASTER OPERATING LOG" (5 KW M.O.L.
	Contia o	n next Page

(5) BOOK No.

SEC. No. (B)

(65)

C.O.R.P. "Items" "Methods" "References" 50 KW PAGE No.

(Item #57 Cont'd)

(g) When removing, or replacing Tally Boards, exercise all care not to scar Back of Transmitter Room Desk.

Power Graphs covering operation of the 50 KW Transmitter by the
 Direct and Indirect Methods are affixed to Tally Board containing 50 KW F.6.C. Log.

(i) Power Graphs covering operation of the 5 KW Auxiliary Transmitter
 by the Direct and Indirect Methods are affixed to Tally Board containing 5 .
 KW F.C.C. and M.O.L. Logs.

Book No. () () () () () () () Sec. No. () () () () () () () Page No. () () () () () ()

58. (a) The first reading of the 50 KW Master Operating Log for each watch, will be taken by two Technicians.

(b) The first Reading furing each Watch need not be taken exactly at 15 minutes after the Hour, but may be taken just before the Hour, or just after the Hour, whichever is most convenient, within the 30 minute period.

(c) This reading will be taken by the Technician going on Duty, who will be accompanied by the Technician being relieved.

In this way, both Technicians will know exactly how the Entire WOR Plant is functioning.

There should be no Deviation on readings from those taken at the start of the Transmitter and those at the shut-down period.

Discuss readings with those on Watch and get Reasons for any changes in readings during the previous Watch period.

Cont'd on next Page

BOOK No. (5) SEC. No. (B) PAGE No. (66)

C.O.R.P. "Items" "Methods" "References" 50 KW

(Item #58 Cont'd)

It is important that Technicians make comparison between Readings taken at the beginning and ending of Watch Periods. Normally, there should be no Deviation during this time.

Discussion on Operation of Speech Input, Transmitters, Receivers, etc., during taking of Log will aid Technicians to peroperly understand all operations. Both Technicians will cooperate so that Relieving Technician will find the Plant in perfect order.

Have you made certain that you have all the information that was to be passed on?

(d) When Technician is relieving at some time <u>other than</u> 12:00 Midnight,
8:00 A.M. or 4;00 PM., the same procedure as outlined above will be adhered to,
i.e., both incoming and outgoing Technicians will take the first reading.
(e) After completing all entries on Front and Reverse of 50 KW Master
Operating Log, both Technicians shall sign reverse of Log directly below entries.

Technician going off duty shall sign first, name and time. Relieving Technician shall sign directly beneath, his name and time. Book No. () () () () () ()

Sec. No. () () () () () () () Page No. () () () () () () ()

59. (a) It is important that all Technicians read and, understand all Notes and Data posted on this Bulletin Board, and Black Board.

(b) This Item is performed afterfinishing the Basement postion of the 50 KWMaster Operating Log Readings.

(c) Initial all Notes and Material after reading them.

BOOK No. (5)

SEC. No. (B)

(67.)

C.O.R.P. "Items" "Methods." "References" 50 KW PAGE.No. (Item #59 Cont'd)

(d) Check with Supervisor on anything not understood.

(e) It is the direct responsibility of Technicians to see that all instructions are carried out.

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C.O.R.P. "Items To Be Performed" 5 KW

BOOK No. (5)

SEC. No. (C)

C.O.R.P. "Items To Be Performed" 5 KW

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BOOK No. (5)

SEC. No. (C)

C.O.R.P. "Items To Be Performed" 5 KW

PAGE No. (2)

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BOOK No. (5) SEC. No. (C) PAGE No. (3)

C.O.R.P. "Items To Be Performed" 5 KW

Note that Loudspeaker over Door to Pump Room is "On" and playing at 12. sufficient Level to properly check WOR Program while in the Basement. () Book No. () () Sec. No.) Page No.)))) () (((• (Check 5 KW Distilled Water Circulating Pumps. 13. Book No. ()) () Sec. No. () () () Page No.) () (() () (Check #1 and #2 Sump Pumps. 14. Book No.)) () (() (+ Sec. No. () () ()) () () Page No. () ((Note that MERCOID Switch mounted on 50 KW Distilled Water Return 15. Pipe adjacent to Valve "A" is "OFF") () (Book No.) (({ Sec. No. (() (Page No.))) ((() () (() Note that "AIRFIN" Heaters are in Service; Valves "A" & "C" being 16. Open, Valve "B" Closed.) Book No. () () (Sec. No.) () Page No.) () ((

WOR BOOK No. (5)OPERATING MANUAL SEC. No. (c) "Items" "Methods" "References" 5 KW C.O.R.P. PAGE No. (4) 17. ' Check the Water Softener. Book No. () () Sec. No. Page No. } Check Operation of the "STELL" 18. Book No.) (Sec. No. Page No. () Check positions of Motor Switches of 50 KW Distilled Water and Pond 19. Water Pumps, and 50 KW - 5 KW Distilled Water System Filler Pumps, and 5 KW Distilled Water Circulating Pump.) (. Book No. () () () Sec. No. ()).() (Page No. 20. Check "EMERGENCY OPERATING INSTRUCTIONS" posted on Wall in the Pump Room, adjacent to the "STILL" (),()()(Book No. () () Sec. No. (Page No. Check Overflow Drains of Air Release Valve in 50 KW Transmitter Dis-21. tilled Water System Inlet Pipe, in the Pump Room. Book No.) () Sec. No. (Page No. () () ())

(5) BOOK No. WOR OPERATING MANUAL SEC. No. (C) C.O.R.P. "Items To Be Performed" 5 KW PAGE No.) (5 22. Check Sill Cock on the Wall above 50 KW Distilled Water Pump #1. It is marked: "GARAGE OUTSIDE & SOUTH WALL FAUCETS". (Normally Open in Summer, Closed in Winter) .) Book No. (1) ()) (() () Sec. No.)))) (17 (() () Page No.) (,)) () () (() (23. Check Emergency Distilled Water Supply, kept in 5 Gallon Bottles on Rack in Pump Room. Book No: () () () ((()) () () () () Sec. No. () () () () () () () Page No. (24. Check positions of Switches #1 to #11 inclusive on Wall in Engine Driven Generator Room.) Book No. (2) (2)(() () () Sec. No. (C) Έ) () () () (() Page No. () ()) () () () (25. Check 110 Volt A.C. Distribution Switch #12 for House Lights and Speech Input Equipment. (Switch is Normally "ON".) Book No. (2 (2)) ()) ()) Sec. No. (C) (С () ()) Page No. () () () () () () 26. Check 230 Volt A.C. Supply Switch #13 for Kitchen Stove. Book No. (2) (2) () () ()) (Sec. No. (C) B () () ()))) ()) ()) Page No. (((

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2.*	C.O.R.P	"Items To Be Performed" 5 KW	PAGE No.	(6)
27.	Check "CATW	ALK - EXTENSION ANTENNA AMMETER"	Switch #14.	
(Swit	ch is Normally	"ON".)		•

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28. Check "ROTATING BEACON - TOWER LIGHTS" Switch #15. (Switch is Normally "ON".) Book No. (2)(2)(2)()()()()()

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29. Check "TOWER & BEACON" Switch #16.

(Switch is Normally "OFF".)

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 30.
 Check "ROTATING BEACON" Switch #17.

 (Switch is Normally "ON".)

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BOOK No. (5)

SEC. No. (C)

C.O.R.P "Items To Be Performed" 5 KW

PAGE No. (7)

31	•	Check	110 '	Volt	- 230	Vo:	Lt - •	480	Volt	A.C.	Test	Lamp	8.			
(Loca	ted	l on Br	rick V	Wall	adjao	ent	to "	480	Volt	Mast	er 0.(C. B., "	" – "D	1 ^{p#} ,	and	on
Wall	in	Spare	Tube	Room	just	t to	left	of	Enter	rance	Door	•)				
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32. Check Main Fuse Tester Rack, containing Spare Fuses for 50 KW Transmitter, 5 KW Transmitter, and building.

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33. Proceed to complete Test of 5 KW Auxiliary Transmitter with No Carrier Output.

Restore to "STAND-BY" Condition when Test is finished.

Book	No.	(9)	(9.1)	(9.2	')	(9.3)	(9.4)	()
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C.O.R.P. "Items" "Methods" "References" 5 KW

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World Radio History

BOOK No. (5)

SEC. No. (D)

C.O.R.P. "Items" Methods" "References" 5 KW

PAGE No. (1)

The 5 KW Transmitter is pre-heated by the following method: 1. 230 Volts A.C. is furnished to the Transmitter through Switch #7 in the "230 Voit AC Main Distribution Panel Box" in the "Egine Driven Generator Room". All 5 KW Transmitter Rheostats are Minimum when turned Clockwise.) Set "14 Volt Generator Field Rheostat" "R5C" to Minimum. Unit #3 (C). (a) Set "22 Volt Generator Field Rheostat" "R2C" to Minimum. Unit #3 (C). (b) (c) Set 3rd Amplifier "Input Control" to 58 Divisions. Unit #3 (C). Push "1600 Volt Generator Field Switch" "D2C" "OFF" and set 1600-(d)Volt Generator Field Rheostat "R3C" to Minimum. Enter Transmitter Enclosure and open "High Voltage Transformer Disconnect (e) Switch" "D5A". Unit #1 (A) (On bottom rear of the Unit).

Check the Selector Switch "DI8C" which supplies Crystal Heater Power Supply and 5 KW Master Start Relay "S5A". "DI8C" is mounted on Rear of Crystal Heater Control Sub-panel in the "Oscillator Unit".

"S5A" in mounted on Rear of Unit #1 (A) - Top Right position of Relay Panel under the Metal Cover.

Selector Switch "D18C" must be in the Normal Postion, which is marked "115 Volts AC from Control Room Box Switch #34"(When Transmitter is operated from 230 Volts AC Public Service Power Supply) (In Right Position)

When Auxiliary Transmitter is operated from "Engine Driven Generator" Power Supply, place Switch "D18C" to the position marked "115 Volts AC from Transformer T1C", (In Left Position) (This is Step #8) This is 115 V. Secondary of "T1C". 115 Volt AC Supply Switch "D7H" is Normally "OFF".

"D7H" is mounted behind Bay #5 in Measuring Equipment Room on the Wall marked "Emergency Antenna Switch".

Cont'd next Page

OPERATING MANUAL

BOOK No. (5) SEC. No. (D)

C.O.R.P. "Items" "Methods" References" 5 KW

PAGE No. (2)

(Item #1 Cont'd)

"D7H" Furnishes 115 Volts AC for operation of the Antenna Switch located in the Emergency Antenna Coupling House, when 5 KW Transmitter is to be operated on the Emergency Antenna per Book No. (9) (Sec. No. () Page No. ().

(f) 230 Volt AC "Main Power Disconnect Switch" "D4A" in "ON". Unit #1 (A) If it is not, first hold finger on "STOP" Button of "Master Control" Switch "D3A", and put "D4A" "ON" (D3A is on Unit #1 (A)).

Reason for this method of putting "D4A" "ON" is to prevent burning the "Flippers" on "D4A" if "Master Control" Relay is locked in.

Pressing "STOP" Button of Master Control Switch "D3A" will release "S5A" Relay... Putting 230 Volt AC "Main Power Disconnect Switch" "D4A" "ON" with Relay "S5A" locked in will start all Rotating Equipment.

This will burn the "Flippers" on ends of Contacts of "Main Power Disconnect Switch" "D4A".

Transmitter must always be started in the proper manner, i.e. by operation of "Master Control" Relay "S5A".

(g) Press the "START" Button of "Master Control" Switch "D3A", which will energize Relay "S5A" through Switch #34 in the Control Room Switch Panel Box. This will start all Transmitter Rotating Equipment.

(h) Distilled "Water Pressure" Indicator will register approximately 40 Lbs.
if Pump #1 - MOIP is in use, but only 28 lbs if spare Pump #2 - "MO2P" is in use, when Transmitter is operated from the 230 Volt AC Public Serfice Power Supply.
Using Pump #1 - "MOIP", and "Engine Driven Generator" as Power Supply, Water Pressure Indicator will register approximately 46 Lbs.

When you start the Transmitter, instantly observe "Water Pressure" Gauge and Power Amplifier Tube Filaments

World Radio History

Con'td next Page

BOOK No. (*5

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C.O.R.P. "Items" "Methods""References" 5 KW

PAGE No. (3)

SEC. No.

(Item #1 Cont'd)

If Tube Filament come "ON" and there is no Pump Pressure reading in "Water Pressure" Gauge, <u>SHUT DOWN IMMEDIATELY</u> by pressing the "STOP" Button of "Master Control" Switch "D3A" as sustained operation of filaments without circulating water will burn out Power Amplifier Tube Filaments.

(i) "14 V. GENERATOR" Voltmeter "M8C" is Reading <u>1 to 7</u> Volts.

Allow Filements to warm up for 3 Minutes at 7 Volts.

After this time proceed to adjust 14 Volt D.C. Rheostet "R5C" until Voltmeter is reading <u>14</u> Volts.

Note that 1600 Volt Time Delay Relay "S5C" is in the "Up" or Operative Position. This Relay is Operative when minimum of <u>10</u> Volts is read on Voltmeter. Less than 10 Volts may not operate the Contactor.

Filaments of Oscillator, 1st Amplifier, 2nd Amplifier, 3rd Amplifier, Modulation, and R.F. Monitor are illuminated from the 14 Volt D.C. Generator.

(j) "1600 V. GENERATOR" Voltmeter "MIC" is reading Zero, or 50 Volts if Armature Contactor is closed on relay "S3C".

(k) "22 V. GENERATOR" Voltmeter is reading <u>19.5</u> Volts.

Bias V.M. should read 250 V. Adjust Rheostat "R190". Bias Voltmeter is designated "250 Volt Generator"; Rheostat "R190 is designated "Field 250 V. Generator". After this time, proceed to adjust 22 Volt D.C. Rheatest "R20" until Voltmeter is reading <u>21.5</u> Volts.

Note that 10,000 Volt Time Delay Relay "S8C", Unit 3, is in the "UP" or operative position. This Relay is operative when a minimum of

<u>17</u> Volts is read on V.M. Note that Minimum Power Amplifier Tube Voltage on the Filament is <u>19.5</u> Volts, which means that "S8C" will operate when Power Amplifier Tube Filament are lighted.

Cont'd next Page

World Radio History

OPERATING MANUAL

BOOK No. (5) SEC. No. (D) PAGE No. (4)

C.O.R.P. "Items" "Methods""References" 5 KW

(Item #1 Cont'd)

(1) Rectifier Fil Rheostat 1 - 2 - 3 Unit #1 - should be turned to minimum. Set Voltmeter Switch on Rectifier #1, etc., push "Rectifier Control Switch" "D2A" "ON" and allow Rectifiers 1 - 2 - 3 to preheat for 3 Minutes. "D2A" Is Located on right turret of Transmitter Room Desk and on Right Turret of the Control Room Desk. It is marked "10,000 V. ON" on both Desk Turrets. Should Power Amplifier Tube Filaments come "ON" without "Water Pressure", Water Flow Relay "SIB" is stuck in the operating position (Contacts closed). Relay "SIB" is located on back of Unit #2 (B), Transmitter <u>MUST BE INSTANTLY</u> SHUT DOWN.

Investigate reason for Non-operation of "SIB" and then clear or repair it. <u>CAUTION</u>: Before putting Transmitter back "ON", i.e. before pressing the wtart button of "Master Control" Switch "D3A" to start the Rotating Equipment, place Power Amplifier "FIlament Reversing Switch" "D1" to the OPEN or Nonconducting Position, then Power Amplifier Tube Filaments will remain extinguished. "D1E" is located on Top Rear of Power Amplifier Unit 5 'E). 10 K.V. Rectifier Tube Filament will remain extinguished while 5 KW Auxiliary Transmitter Enclosure Door is Open.

These 10 K.V. Rectifier Tube <u>FILAMENTS MUST REMAIN EXTINGUISHED WHILE INVES</u>-<u>TIGATING OR TESTING FOR NON-FLOW OF WATER</u>. If Water Pressure is Normal, but Power Amplifier Tube Filaments do not come "ON", reason will most likely be that the "Water Flow" Relay "SIB" is held in the inoperative postion(Contacts open). When Relay "SIB" is inoperative (contacts open), Water Protection Relay "S3A" is held inoperative, also. When Relay "S3A" is held inoperative, its contacts

Contid next Page

BOOK No. (5) SEC. No. (D) PAGE No. (5)

C.C.R.P. "Items" "Methods" "References" 5 KW

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are open allowing Resistors R6.1A and R6.2A (Total of 15 Ohms) to be connected in Series with 22 Volt DC Generator Field. R6.1A & R6.2A are located on rear of Unit 1 (A) behind Relay Metal Cover.

When "SIB" Operates correctly, its contacts close continuity of 230 Volt AC to "S3A" which will operate. Contacts of "S3A" short out 22 Wolt DC Generator Field Resistors E6.1A and R6.2A. "S2A" is located on rear of AC Power Panel Unit 1 (A) behind metal cover.

If Power Amplifier Tube Filaments come "ON" with normal water pressure, proceed with Pre-heat Test.

This will place the Filament Voltage on the 10 K.V. Rectifier Tubes if enclosure door is shut, but will not put "ON" the Plate Voltage while 10 KV Rectifier Switch "D5A" remains "OFF" (Unit 1 (A)).

Note that all 3 Rectifier Tube Filaments are illuminated.

Adjust Rectifier Filament Rheostats "Filament Rectifier 1" "R3A"; "Filament Rectifier 2" "R4A", and "Filament Rectifier 3" "R5A" to exactly 200V. After this, check Public Service Line Voltage on all three Phases. To do this merely select the Phases by placing Voltmeter Selector Switch "DIA" to positions marked "Line Phase - A" "Line Phase - B" "Line Phase - C" and read the Voltage indicated on "Voltage" Meter "MIA" located on top front of AC Power Panel Unit 1 (A). Public Service Line Voltage on all 3 Phases *11 te 230 to 240 Volts.

Finally, check Line Frequency on Meter marked "Frequency". Normal is 59.8 to 60.2 Cycles per second.

Cont'd next Page

SEC. No. (D)

C.O.R.P. "Items" "Methods" "References" 5 KW

PAGE No. (6)

(Item #1 Contid)

(m) Leave the Auxiliary 5 KW Transmitter in this Pre-Heat Condition and proceed with Items #2 through to end of 5 KW Transmitter Test.

Book No. (9) (9.1) (9.2) (9.3) (9.4) ()

2. Proceed to the Basement (leaving all 5 KW Transmitter in this Pre-heat Condition).

(a) All Auxiliary 5 KW Transmitter Motor Generators are mounted on "Auxiliary 5 KW Transmitter Motor-Generators" Platoform in the Basement.

(b) Read all Notes on the Elack Board. It is important that all Technicians read and understand these Notes.

Initial all Communications after reading them.

Check with Supervisor on any Communications not understood. .

It is the direct responsibility of all Technicians to see that all

instructions on this board is taken care of.

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5. In the Basement near the Entrance Door is a long cabinet built against the wall. It normally contains measuring instruments. Nothing is left on top except Telegraph Key and Sounder for Easement.

Book No. () () () () () () Sec. No. () () () () () () Page No. () () () () () ()

OPERATING MANUAL

BOOK No.. (5)

SEC. No. (.D)

C.O.R.P. "Items" "Methods" "References" 5 KW

'PAGE No. (7)

(a) The 480 Volt AC Main Disconnect Panel for 50 KW Transmitter is 4. mounted on the Brick Wall, just to the left of "Master 480 Volt Oil Circuit Breaker" Switch "DLP". (b) Switch "Dl.1P" is located directly above the Panel Door, and is "ON" (c) Panel Door is closed and securely latched (1) (1) (1)(Book No. (Sec. No. (A) (MG) (P) Page No. · (5. (a) The "Motor Distribution Panel" of 50 KW Transmitter is mounted on the Brick Wall just to the left of the #480 Volt AC Main Power Disconnect Panel" (ъ) Switch "DI5P" located directly above the Panel Door, is "ON". (c) Panel Door is closed and securely latched. "SIP" 480 Volt AC "Main Motor Contactor" is located behind small (d) hinged door in top left part of the Panel Box. (e) 😳 Relay "S3P" "20 Volt Filament Generator Overload Protection" is located behind small hinged door in top right part of the Panel Box. Relay "S3P" is set to 120%. A Public Service Power Surge or Power Dip of sufficient magnitude will cause operation of Protection Relay "S3P" (Contacts will open) thus opening the 110 Volt AC Control Circuit, which will "Drop Out" "SlP" stopping all rotating machinery. String reset of Relay "S3P" is hanging down from bottom of Panel Box. When Protection Relay "S3P" has operated, it is necessary to pull down on the string and keep holding it down, or the heat remaining in the Thermal Elements caused by the initial overload, will open the Contacts and keep them open until reset temperature is reached. Cont'd next Page

World Radio History

BOOK No. (5) SEC. No. (D)

(8)

PAGE No.

C.O.R.P. "Items" "Methods" "References" 5 KW

(Item #5 Cont'd)

"S3P" May be reset mechanically by placing a Battery Clip across the contacts. <u>CAUTION</u>: This is 110 Volts AC, be careful not to ground the connections to the contacts of "S3P" when Battery Clip is used.

Relay "S4P" is located behind the small hinged door on the top right part of the Panel Box.

During the operation of 50 KW Transmitter, Relay "S4P" is held "UP" in the Operating Position.

In this case, the Relay Left Contacts complete continuity from the "XIP" Rectox DC voltage for operation of Blower indicator light "E14".

"XIP" Rectox Unit is located on the Iron Frame Work supporting High Voltage Shorting Switch "DI3P" just inside of the Left Entrance Door to 50 KW Transmitter Enclosure.

"Blower" Light "El4A" is mounted on top row of indicator lights on the "Control Unit" ("A" Unit) of the 50 KW Transmitter.

"El4A" is extinguished when 17 KV Rectifier Air Blast Temperature rises above <u>Maximum of 105 Degrees F</u>. or when it drop to a <u>Minimum of 85 Degrees F</u>. Relay "S4P" will drop out when 50 KW Rotating Machinery stops, either by pressing the "OFF" button of "D3A" "Tube Change Switch" or for any other reason. "D3A" "Tube Change Switch" is mounted on a Metal Plate on Rear of the 50 KW. Control Unit (1-A) just below 1650 Volt Rectifier Tube Position #2. Relay "S4P" will Drop Out when 17 KV Rectifier Tubes Air Blast Motor "MOIC" stops, either by placing "D1C" off, or for any other reason. When Relay "S4P" drops out, the Right Contacts complete continuity of the 20 Volt DC Circuit for "Alarm Bell" - "BLA" which will ring, indicating one of both

Cont'd next Page

BOOK No. (5)

(D)

C.O.R.P. "Items" "Methods" "References" 5 KW

PAGE No. (9)

SEC. No.

'(Item #5 Cont'd)

of these failures.

<u>NOTE:</u> When "S4P" drops out because of Stoppage of the 50 KW Rotating Machinery, the Bell "BLA" will ring only a few moments as the 20 Volt Generator Output is failing, and then will cease to ring as the Voltage drops too low.

It will continue to ring for any failure of the 17 KV Rectifier Air Blast Motor. Book No. (1) (1.1) () () () () () Sec. No. (A) (A) () () () () () Page No. () () () () () ()

Before shutting down the 5 KW Transmitter, check the 14 Volt D.C.,
1600 Volt D.C., Single Frame, Motor-Generator Machine, "MG1P".
Both Generators are mounted on one Frame Base, Generators being separate Units.

Both are driven by the one motor.

The 14 Volt DC Generator performes 2 functions which are:

1. Light the Filaments of the Oscillator, 1st Amplifier, 2nd Amplifier, 3rd Amplifier, Modulator, and R.F. Monitoring Amplifier (Rectifier) Tubes:

2. Excites the Field of the 1600 Volt DC Generator.

The 1600 Volt DC Generator is provided with 2 Commutators, one on each end.

The output voltage is divided, i.e. 800 Volts on each end.

Both ends are kept covered with Metal Cages.

Oil Rings on the Motor, 14 Volt and 1600 Volt Generators are whirling, thus carrying Oil to moving surfaces.

cont'd next Page

BOOK No. (5:) SEC. No. (D) PAGE No. (10

C.O.R.P. "Items" "Methods""References" 5 KW

(Item #6 Cont'd)

Oil is Gargoyle Type "C".

Motor and Generator Bearings are warm, not hot to the touch.

There is no excessive dripping of Oil from the Oil Level Inspection and Overflow Cups.

Do not add oil to Motor or Generator Bearings.

Motor, Generators, Frames are all clean.

If they are not, wipee off with Clean Dry Rag. Exercise Care.

Book No. () (()) () () Sec. No. () ())) Page No. (() ()

7. Before shutting down the 5 KW Transmitter, check the 22 Volt DC Motor-Generator Machine #1, "MG2P" as follows: When this machine is in use, Oil Rings on Motor and 22 Volt DC Generator are whirling, thus prying til to moving surfaces.

Oil is Gargoyle Type "C".

Motor and Generator Bearings are warm, not hot to the touch.

There is no excessive dripping of Oil from the Oil Level Inspection and Overflow Cups.

Do not add oil to Motor or Generator Bearings.

Motor, Generator, Frames are all clean.

If they are not, wipe off with clean Dry Rag.

Generator output Selector Switch #1 is "Up" choosing output machine #1.

The Spare 22 Volt DC Filement Generator Machine #2, "MG3P" is connected for use.

Cont'd next Page

BOOK No. (5)

SEC. No. (D)

C.O.R.P. "Items" "Methods" "References" 5 KW

PAGE No. (11)

(Item #7 Cont'd)

Before shutting down the 5 KW Transmitter, check the 22 Volt DC Motor-Generator Machine #2 "MG3P" as follows: When this machine is in use Oil Rings on Motor and 22 Volt DC Generator are whirling, thus carrying oil to moving surfaces.

Oil is Cargoyle Type "C".

Motor and Generator Bearings are warm, not hot to the touch.

There is no excessive dripping from the Oil Level Cups and Overflow Cups.

Do not add oil to Motor and Generator Bearings.

Motor, Generator, and Frames are all clean.

If they are not, wipe off with Clean, Dry Rag.

Book No. () () () () () () Sec. No. () () () () () ()

Page No. () () () () () ()

8. Before shutting down the 5 KW Transmitter check the 250 Volt DC Bias Motor-Generator Machine #1, "MG4P" as follows: When this machine is in use, Oil Rings on the Motor are whirling, thus carrying Oil to moving Surfaces. Oil is Gargoyle Type "C".

Generator Bearings are lubricated through small Oil Holes, using sufficient quantity of Gargoyle Type "C" Oil.

There is no excessive dripping of Oil from the Oil L_evel Inspection and Overflow Cups on the Motor, or Oil Holes on the Generator.

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Motor, Generator, and Frames are all Clean.

If they are not, wipe off with Clean Dry Rag.

Cont\d next Page

BOOK No. (5) SEC. No. (D)

C.O.R.P. "Items" "Methods" "References" 5 KW

PAGE No. (12)

(Item #8 Cont'd)

Generator Selector Switch "DIP" is "UP", choosing output from Machine #1. Before shutting down the 5 KW Transmitter check the 250 Volt DC Bias Motor-Generator Machine #2, "MG5P" as follows: When this machine is in use, Oil Rings on the Motor are whirling, thus carrying oil to moving surfaces. Oil is Gargoyle Type "C".

Motor and Generator Bearings are warm, not hot to the touch.

There is no excessive dripping from the Oil $L_{\rm Evel}$ Cups and Overflow Cups.

Do not add oil to Motor and Generator Bearings.

Motor and Generator Frames are all clean.

If they are not, wipe off with Clean, Dry Reg.

Book No. () () () () () () Sec. No. () () () () () () Page No. () () () () () ()

9. (a) The 230 Volt AC Switches for 5 KW Transmitter Rotating Equipment are mounted on the Motor Frames of all except the Distilled Water Fump Motors "MOIP" and "MO2P" which are mounted on the Brick Wall in the sump Foom adjacent to the pumps.

(b) The 480 Volt AC Switches for 50 KW Transmitter Motor-Generators ar mounted on Wall adjacent to 50 KW and 300 Volt Biach, Machines.

(c) "D2P" or "D3P" 20 Volt DC Motor-Generator Switch on the Machine in Service is "ON" and "Stop" pin is in position to prevent accidental shutting off.

Cont'd next Page

BOOK No. (5) SEC. No. (D) PAGE No. (13)

C.O.R.P. "Items" "Methods" "References" 5 KW

(Item #9 Cont'd)

(d) Motor Switch of 20 Volt Motor-Generator not in service is "OFF".

(e) "D6P" or "D7P" 300 Volt Motor-Generator Switch of Machine in Service.

is "On" and "Stop" Pin is in position to prevent accidental shutting off.

(f) "D6P" and "D7P" 300 Volt DC Bias Motor Switches are fitted with Overload Heat Units, Cat. No. 9809 of 8 Ampere Rating.

"Wait 2 minutes after Overload Trip before reclosing Switch".

If handle is tripped "Free", (Remove "Stop" Pin,)push firmly to "OFF" before placing "ON".

When "MG1P" is in use, "D12P" is placed to left position chosing output from.

#1 - 20 Volt Filament Generator.

When "MG2P" is in use, "Dl2P" is placed to right position, chosing output from #2 - 20 Volt generator.

When "MG3P" is in use "D14P" is placed "UP" choosing output from #1 - 300 Volt Bias Generator. When "MG4P" is in use "D14P" is placed "DOWN" choosing output from #2 - 300 Volt Bias Generator.

Book No. () () () () () () () Sec. No. () () () () () () () Page No. () () () () () () ()

10. (a) The W.E. Type 100-A Condensers for 50 KW Transmitter 20 Volt DC Filament Generator Output Filtering are mounted on a shelf on the Brick Wall, adjacent to these Generators ("MGIP" & "MG2P").

A total of 4 ^Condensers are used, 2 in parallel for "ClP" and 2 in parallel for "C2P". Each is 1000 Mfd. "ClP" Total is 2000 Mfd. "C2P" Total is 2000 Mfd.

Cont'd next Page

BOOK No. (5)

SEC. No. (D)

C.O.R.P. "Items" "Methods" "References" 5 KW

Page No. (14)

(Item #10 Cont'd)

(b) The W.E. Type 100-D Condensers for 50 KW Transmitter 300 Volt DC Bias Generator Output Filtering are mounted on a shelf on the Brick Wall, adjacent to these Generators ("MG3P" & "MG4P").

A total of 2 Condensers are used, in this Filtering Network, one designated as "C4P" and the other as "C5P". "C4P" is 2000 Mfd and "C5P" is 2000 Mfd.

(c) The W.E. Type 100-A Condensers for 5 KW Transmitter 14 Volt DC Generator Output Fileting are mounted on a shelf on concrete platform adjacent to the Motor-Generator "MG1P". A total of 2 Condensers are used. They are designated as "Cl.1P" and "Cl.2P". Total capacity is 2000 Mfd.

(d) The W.E. Type 100-A Condensers for 5 KW Transmitter 22 Volt DC
 Filament Generator Output Filtering are mounted on a shelf on Concrete Platform
 adjacent to the Generator. A total of 2 Condensers are used.
 They are designated as "C2.1P" and "C2.2P". Total capacity is 2000 Mfd.

(e) Inspect all these Electrolytic Condensers for excessive Precipitation, Discoloration, etc. Precipitation will be observed as Grey Particles at the bottom of the Jar. This is the result of a corrosive action.

Report excessive Precipitation to the Supervisor.

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11. (a) There are two 35 KW Electric Heaters, both of which are located in the Heating Chamber of the Ventilating System. They are installed side by side in the top part of the Chamber, alongside the 50 KW Airfin Heater Units.

Cont'd on next Page

(5) BOOK No.

SEC. No. (D)

C.O.R.P. "Items" "Methods" "References" 5 KW

PAGE No. (15)

(Item #11 Cont'd)

(b) The 230 Volt AC Main Thermal Cut-out Switches for "Electric Heater #1" and "Electric Heater #2" are normally "OFF". These Switches are loc fed in. Left Wall of "Passageway to Mixing Chamber". When Electric Heat is a mirred, put Switch #1 in first for one heater, and if this is insufficient to contain building heat, place Switch #2 in also for heater. Switch #5 in the 2%5 V. Distribution Panel in "Engine Driven Generator Room" furnishes power for the Heaters, Switches, etc.

(c) The 230 Volt AC Heater Relays #1 and #2 Power Switch is normally "OFF" and is located in the Passageway to the Mixing Chamber.

(d) "Heater #2 Thermostat" is normally set to 120 Degrees, and is located in the duct directly above the Circulating Fan.

(e). "Damper Thermostat" is normally set to 60 degrees Fahrenheit.If it is not, set it to that Temperature.

It is located in the Duct (Adjustable from outside) directly above Circulating F (2)(1) Book No. (W) (E) Sec. No.) (()) ()() (Page No.

12. Loudspeaker on wall to right of Pump Room entrance is "ON" play at sifficient level to properly check WOR Program while in the Easement. Loudspeaker is of the Permanent Magnet type.

It is operated from 82-A #3 Monitoring Amplifier, Bay #3, Panel #5 in Audi-Frequency Control Room.

 Book No. () () () () () ()

 Sec. No. () () () () () () ()

 Page No. () () () () () () ()
OPERATING MANUAL

BOOK No. (5)

SEC. No. (D)

C.O.R.P. "Items" "Methods" "References" 5 KW

PAGE No. (16)

13. (a) 5 KW Transmitter Distilled Water Circulating Pumps #1 and #2 are located on small concrete platform just to the right of the Distilled Water Storage Rack on Left Wall of Pump Room.

(b) 230 Volt AC Supply Switch #1, located on wall just above Machine #1, ("MG1P") is "ON" and machine #1 is operating. This Switch is fitted with overload heat unit; Cat. 9805 - 5 Amperes. (Wait 2 minutes after overload trip before reclosing Switch). If handle is tripped "Free" push firmly to "OFF" before placing "ON".

(c) Spare Distilled Water Pump #2 ("MG2P") has been connected for use. To use Regular Pump #1 (MG1P), put "ON" Switch #1 first, then Open "OUTPUT" and "INPUT" Valves. Close "INPUT" and "OUTPUT" Valves of Pump #2 ("MG2P") (Normally closed).

To use Spare Pump #2 ("MG2P") put "ON" Switch #2, Open "OUTPUT" and "INPUT" Valves. Close "INPUT" and "OUTPUT" Valves of Regular Pump #1 "MG1P" and put "OFF" Switch #1. <u>NOTE</u>: Pump Pressure from "Spare" Pump #2 ("MG2P") will be 26 to 28 pounds as compared to 42 pounds on "Regular" pump #1 ("MG1P").

(d) Oil Rings on Motor Bearings are whirling, thus carrying oil to moving surfaces.

Oil is Gargoyle Type "C".

Do not add oil to this Motor Generator at this time.

(e) There is no excessive dripping of Oil from Oil Level Inspection and Overflow Cups.

(f) Pump Bearings are lubricated by sufficient quantity of "Ballrex" Grease applied at Alemite Fittings.

Do Not add Grease at this time.

Con't next Page

OPERATING MANUAL

(5) BOOK. No. SEC. No. (D)

(17)

PAGE No.

C.O.R.P. "Items" "Methods" "References" 5 KW

(Item #13 Cont'd)

(g) Pump Glands are not leaking excessively.

If they are, tighten up on the Gland compression muts slightly.

<u>CAUTION</u>: A very small amount of tightening is all that is necessary, be sure to feel Pump Gland, which will very quickly overheat, burning out the packing and scoring the shaft if tightened too much.

Pump must be running when tightening Glands.

Remain checking Glands for overheating at least for 5 minutes after tightening same.

(h) Inlet Valve "V" and Outlet Valve "W" are both wide Open.

Motor, Pump, and Concrete Platform are clean.

Small Copper Overflow Water Receptacle is empty.

If it is not, empty down the Sump, wipe any spilled water with clean rag.

If all is not clean, wipe off with Dry Rag.

(1) Spare Pump #2 is "MO2P" connected for use, but Motor is shut off at Switch #2, which is exact duplicate of Switch #1, Machine #1.

Switch #2 is located on Wall just to Left of Switch #1.

Motor of Machine #2 is lubricated at Oil Openings on Beerings.

Oil is Gargoyle Type "C".

Pump of Machine #2 is lubricated by sufficient quantity of "Ballrex"

Grease in Turn Down Grease Cups.

Do not add oil or grease to these bearings.

Spare Pump #2 is to be used in emergency only.

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BOOK No. (5)

(D)

C.O.R.P. "Items" "Methods" "References" 5 KW-

PAGE No. (18)

SEC. No.

14. (a) 230 Volt & Switches for Sump Pump Motors #1 and #2 are "OR".
(b) "Stop" Pins are in position to prevent accidental shtting are "Switches.

(c) Thermal Overload Breakers are on Wall directly beneath AC Switten Wait one Minute, then Push to Reset when Overload Protection has operate to stop Motors.

(d) 230 Volt AC Smitches mounted on sides of Sump Pump Motors are "ON".
 These Switches are "Push to Start" and Pull to Stop". They remain in positic:
 to which placed.

Both #1 and #2 Pumps are automatically turned on and off by Copper Floats in the Sump Pit. Copper Floats are connected by means of long shafts to levera operating Switches "Push to Start" on sides of Motor Casings.

(e) Motor and Pump Shafts are properly lubricated by sufficient quantity of "Ballrex" Grease in turn down grease cups.

Do not add grease at this time.

 Book No.
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 Sec. No.
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 Page No.
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15. (a) The Mercoid Switch "SSP" mounted on Distilled Tater P and Pipe, just to the right of Valve "A" is "OFF". Mercoid Switch Connects "SSP", close and ring Bell "BLA" (Nounted in "A" Unit directly alongsid "Water Temperature Thermostat "SLSA") when Distilled Water Temperature reaches 150° to 160° F. This is not critical, and is not to be relied upon.

World Radio History

Cont'd next Page

BOOK No. (5)

SEC. No.

C.O.R.P. "Items" "Methods" "References" 5 KW

PAGE No. (19)

(D·)

(Item #15 Cont'd)

(b) Mercoid Switch "S5P" is located just inside Pump Room Door, directly above it.

When Bell "BLA" rings, always check Temperature of "S15A" at once for within tolerance operation.

(c) "Water Temperature Thermostat" "S15A", located on Control Unit, shuts down the 50 KW Transmitter when Temperature of Distilled Water reaches 180° F.

Book No.	()	()	, ()	()	()	()	
Sec. No.	()	.()	()	. ()	()	()	
PagesNo.	()	()	()	()	()	() .	

16. (a) 50 KW "Airfin" Heaters remain in Service at all times with Distilled Water circulating thru them.

Valves "A" and "C" are Open.

.Valve "B" is closed.

(b) 50 KW "Airfin" Heaters and Input and Output Pipes to the Valves
 "A" "B" and "C" contain <u>25 Gallons</u> of Distilled Water.

In hot weather, when heat is not desired, air is by-passed thru open shutterbeneath airfin units. Shutters in front of airfins are closed. In cold weather when heat is called for, shutter in front of sirfin units are open passing air thru them and by-pass shutters below units are closed. Book No. (()Sec. No. (Page No. () () () () (

BOOK No. (5)

C.O.R.P. "Items" "Methods" "References" 5 KW

Sec. No. (D)

PAGE No. (20)

17. (a) Brief directions for operation of Water Softener are printed on a Metal Sign, secured to Wall, adjacent to the Softener in Pump Room.
(b) If Softener is not being used, Valve "C" is open, all other Valves are closed, and Water Pressure Gauge is reading <u>0 to 6 lbs.</u>
When gallonage indicator reads Zero, Softener should be Washed, Rinsed and Recharged, then the indicator set to 5000.

(c) Sufficient quantity of Rock Salt is in Brine Tank.

(d) When amount of Salt in Brine Tank is reduced to <u>1/2 Tankful</u> notify Supervisor.

(e) Water Level in Brine Tank is <u>2</u> inches from top of Tank. Book No. () () () () () () () Sec. No. () () () () () ()

Page No. () () () () () ()

18. (a) The Still is located in the Garage, bolted to the Brick Wall just to right of main Work Bench.

(b) The Still may or may not be operating, depending upon requirements.
 It if is operating, Water Softener is being used to furnish it with softened
 City Water.

(c) Valves "A" and "L" are Open, all other Valves on Water Softener are closed.

Main City Water Valve "Hl" is Open.

Water Pressure Gauge on side of Softener is reading <u>75 to 100 lbs</u> Needle Valve on Water Inlet to Still is adjusted by Supervisor and need not be changed by Technician when operating Still, or shutting it down, except when Still is not making Distilled Water properly.

Cont'd next Page

BOOK No. (5)

C.O.R.P. "Items" "Methods" "References" 5 KW

SEC. No. (D)

PAGE No. (21)

(Item #18 Cont'd)

.Water.

Valve "S", Softened Water Inlet to Still in Garage Storage Room is open. Distilled Water may be seen dripping rapidly in Inspection Sight Glass in Distilled output pipe.

City Water may be seen boiling in Distilling Chamber.

(e) Raw City Water (From Water Softener) is flowing out of 3/4 inch Still
 Outlet Pipe into the Sump Pit thru main pump room drain.
 Still output is One Gallon of Distilled Water for each <u>8</u> Gallons of City

(f) 230 Volt AC Electrid Supply Switch #5 in Panel Box on Wall of Passageway to Mixing Chamber is "ON".

(g) When Still is placed in Service, turn the Water on first, and then the 230 Volt AC Supply Switch #5.

When Still is shut off, put the 230 Volt AC Supply Switch #5 "OFF" first and then the Water Supply.

(h) If Still is not operating, all Valves on Water Softener are closed.(Unless Softener is being used to Soften Pond Water)

When Water Softener is idel, Valve "C" is left Open.

Switch #5 in AC 230 Volt Supply Panel Box on Wall of Passageway to Mixing Chanber is "OFF".

No Distilled Water is being made.

We city "ater is flowing out of the 3/4 inch Still Outlet Pipe into the Wesh Funnel.

'Pump Room: Distilled Water Valve is open, allowing Distillate to fall

Cont'd on next Page

W O R OPERATING MANUAL C.O.R.P. "Items" "Methods" "References" 5 KW PAGE No. (21A)

(Items #18 Cont'd)

directly into the Main Storage Tank.

By-pass Valve _____ is closed.

If it is desired to pour distilled water down drain (Directly after cleaning Still to prevent dirt from entering tank,) close Valve _____ and open Valve _____.

These Valves are located just above 200 Gallon Storage Tank in Pump Room. Book No. () () () () () () () Sec. No. () () () () () () Page No. () () () () ()

19. (a) Motor Switches of 50 KW Distilled Water and Pond Water Pumps are located on the right wall just to the right of the window in the Pump Room.
(b) "D8P" or "D9P" Spray Pond Water Pump Motor Switch of Machine in service is "On" and "Stop" Pin is in position to prevent accidental shutting off.
Overflow pit on Pump is connected to drain pipe and to Sump and is not stopped up. If it is stopped up, get a piece of wire and clear it, wipe up water leakage.
Motor Switch of Pump not in service is "OFF".

"DSP" and "D9P" Switch Boxes are fitted with Overload Heat Units, Cat. 9805,

5 Amperes.

Wait 2 minutes after Overload Trip, before reclosing Switch.

If Handle is tripped "Free", (Remove "Stop" Pin) push firmly to "OFF" before placing "ON". (Tripped Free means Switch is in middle position..)

"MOLP" is Spray Pond Pump Motor #1 and "MO2P" is Spray Pond Pump Motor #2.

World Radio History

(c) "D4P" or "D5P" Distilled Water Pump Motor Switch of Machine in service is "ON" and "Stop" Pin is in position, to prevent accidental shutting off.

Cont'd next Page

EOOK No. (5) SEC. No. (D) PAGE No. (22)

C.O.R.P. "Items" "Methods" "References" 5 KW

(Item #19 Cont'd)

Motor Switch of Pump not in service is "Off".

"Date and "D5P" Switch Boxes are fitted with Overload Heat Units, Cat. 9814,

14 Asperes.

Mait 2 minutes after Overload Trip before reclosing Switch.

If handle is tripped "Free", (Remove "Stop" Pin) push firmly to "Off" before placing "On".

"MO3P" is Distilled Water Pump Motor #1 and "MO4P" is Distilled Water Pump Motor #2.

(d) "DLOP" 50 KW Transmitter and 5 KW Transmitter Distilled Water System
 Filler Pump Motor "MO5P" Switch is "On" and "Stop" pin is in position to prevent accidental shutting off.

"DLOP" is fitted with Overload Heat Units; Cat. 9800 3/4 - 3/4 Ampere.

Book No. () () () () () (

Sec. No. () () () () () ()

Page No. () () () () () ()

20. (a) Framed Ozalid Copies of "EMERGENCY OPERATING INSTRUCTIONS" are posted on Wall in the Pump Room, adjacent to the Sump Pumps as follows:

(b) Instructions for Emergency Switching of 50 KW Transmitter Distilled

(a) Emergency Use of City Water Through Intercooler 50 KW Transmitter. Spray Pond Failure.

(d) Addition - Removal of Distilled Water 5 KW Transmitter Circulating System.

Contid next Page

BOOK No. (5) SEC. No. (D)

6.6.R.P. "Items" "Methods" "References" 5 KW PAGE No. (23)

'(Item #20 Cont'd)

(f) Registry of Stills.

(g) All the above Data may also be found in WOR Operating Manual, Book No.

(1) Sec. No. (W).

Book No. () () () () () (

Sec. No. () () () () () () () ()

Page No. () () () () () ()

21. (a) The Overflow Drains of Air Release Valve in 50 KW Transmitter Distilled Water System are located on Wall, over the Intercooler in the Pump Room, they empty into main drain to sump.

(b) Overflow Drains are not leaking.

If they are, inspect to see if the Output Drain Pipe is clogged up, or if Air Gap between Drain Pipe and Small Funnels is sufficient to prevent Overflow from getting "Air bound".

22. Sill Cock to shut off Water to Garage Outside and South Wall Faucets is located in the Water Pipe on the Wall in the Pump Room, directly above the 50 KW Distilled Water Pump #1 "MO3P".

Valve is normally open in the Summer and is closed in the Winter.

World Radio History

.Page No. () () () () () () ()

	EQOK	No. (5)
	OPERATING MANUAL	
•	SEC.	No. (D)
	C.O.R.P. "Items" "Methods""References" 5 KW	
	PAGE	No. (24)
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23. There are <u>43 Five Gallon Bottles</u> of Distilled Water on rack, making a total of <u>215</u> Gallons of Distilled Water on hand for Emergency Use. All Bottles are kept filled and placed on the Rack at all times.

In an Emergency to add Distilled Water to 50 KW - 5 KW Storage Tank, in amounts of 5 Gallons or more, use from Bottles, refilling Bottles as water is made by the Still.

To fill bottles, merely place bottle under faucet on Storage Tank and open valve.

Book No. () () () () ()

Sec. No. () () () () () () ()) Page No. () () () () ())

24. (a) The 230 Volt AC Main Distribution Panel Boxes are located on the Wall in the Engine Driven Generator Room.

(b) 230 Volt 3 Phase 60 Cycle AC Power Main is distributed to this Room from the three 37.5 K.V.A. Transformers in the Transformer Vault, whose 4150 Primaries are fed from the Switch Room Oil Circuit Breaker #1, Panel #1, designated "5 KW & Bldg Distribution 0.C.B. 4150 Volt to 220 Volt - 115 Volt AC" "37.5, 10, 1.5 KVA Trans."

(c) 120 Volt 3 Phase 60 Cycle AC Power Main is distributed to this
Room from three 10 K.V.A. Transformers, wired as a 4 wire Single Phase System,
in the Transformer Vault, whose 4150 Volt Primaries are fed from the Switch
Room Oil Circuit Breaker #1, Panel #1, designated "5 KW & Bldg. Distribution
0.C.B. 4150 Volt to 230 Volt -115 Volt AC - 37.5, 10, 1.5. KVA Trans."
(d) The 230 Volt 3 Phase 60 Cycle AC Distribution Panel in this Room
Contains the following Switches:

Cont'd next Page

W O R OPERATING MANUAL C.O.R.P. "Items" "Methods" "Reference" 5.KW PAGE No. (25)

(Ites #24 Cont'd) -

	<u>Sriken #</u>	ircuit		Normal Position
	1 230 Volt 3 P	hase 60 Cycle	AC Power Main	ON
	2βpare	• • • • • • •	• • • • • • • •	••• OFF
	5 Beacon Trans	mitter		••• OFF
	4 Spare :		• • • • • • •	•••• OFF
-	52 – 35 KT EL	ectric Heaters	• • • • • • •	•••• OFF
	6 Ventilating	Motors	······································	••• ON
	7 5 KW Auxilia	ry Transmitter	• • • • • •	••• ON
	Switch #1 feeds 230 Volts to	Switches #2, 3	, 4, 5, plus ot!	ner 230 Volt
	Distribution Panels Throughout	the Plant. $#$	6 and 7 are fed	from Switch #8,
	lower position.		•	
	(e) In this Room, are oth	ner Switches, d	esignated from I	left to Right
	as follows:			
	(f) Switch #8 - Public Se	rvice Power Su	uply to Engine I	Driven Generator .
	240 Volts AC is distributed fr	om this Switch	as follows:	
	Top Position Engine Driv	en Generator f	rom 30 K.V.A. An	ito-Transformer.
	Lower Position Public Seri	vce Power Supp	ly, 230 Volt, 3	Phase, 60 Cycle,
	Distribution Panel Switches #6	and #7.		· · .
	(g) Switch #9 - Public Se	rvice Power Su	pply to Engine I	Driven Generator.
	20 Volts AC is distributed fr	om this Switch	to the following	ng:
	Top Position Engine Driv	ven Generator,	4 Wire - 120 Vol	lts AC.
	Lower Position Public Serv	ice Power Supp	ly.	•
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Cont'd next Page

C.O.R.P. "Items" "Methods""References" 5 KW

BOCK No. (5) SEC. No. (D) PAGE No. (26)

(liem #24 Cont'd)

Small Thermal Switch directly above Switch #13, controls Fan in (b)Transformer Vault. Normally "ON". During Freezing Weather this Switch is turned "OFF" Book in. (() (() (Sec. No. - (*) · Page No. - (: ()

25. Switch #12 (4 Wire - 115 Volt Distribution Panel). This Switch located in the ^Lngine Driven Generator Room, controls all the 115 Volt A.C. To House Lights; Speech Input Equipment in the Control Room, Bays #1, #2, #3, and #4; and Measuring Equipment Room Bays #5, #6, #7, #8, and #9; Wall Sockets. Be careful and note 230 Volts AC between Switch Blades.

It also furnishes 115 Volts AC to all Floodlights, Aviation Tower Lights, Catwalk and Antenna Extension Ammeter Relays, Building Lights, etc.

- Book No. () (), () () () () Sec. No. () () () () () () Page No. () () () () () ()
- 26. Switch #13 9 This Switch, located in Engine Driven Generator Room controls the 230 Volt AC Supply to Kitchen Stove. This Switch is normally #0N" at all times.
- Book No. (2)(2)(2)()()()()Sec. No. (C)(E)()()()()()

(5)BOOK No.

> SEC. No. (D)

C.O.R.P. "Items""Methods" "References" 5 KW.

PAGE No. (27)

-Switch #14 - This "Catwalk and Antenna Extension Ammeter" Switch is 27. located in the Engine Driven Generator Room.

This Switch is normally "ON".

It furnishes 115 Volts for operation of the Coupling House Lights and Extension Anmeter Relays in the 3 Coupling Houses.

When Switch is "OFF" all Catwalk and Coupling House Lights are extinguished, Fans in Center Coupling House are "Off", and Antenna Extension Ammeters in the

"I" Unit of the 50 KW Transmitter will not indicate any Antenna Current. Bdok No. ()) ()) ()) ()) ()) ())

Sec. No. () () () ()

Page No. (.) (.) (.) (.)

Switch #15 - this "Rotating Beacon - Tower Lights" Switch is located 28. in the Engine Driven Generator Room.

This Switch is normally "ON".

Switch controls the 230 Volt AC Supply to the Rotating Beacon Light on the roof of Transmitter Building and the Tower Flashing and Obstruction Lights. In the box directly above the Switch is the AC Magnetic Contactors for Power Supply to facilities, also the Fuse F27P which supplies 115 Volts AC for the Couplin g House Lights and Extension Ammeter Relays.

Book No. () () () () () () () Beck No. () () () () ()

Page No. () () () () ()

BOOK No. (5)

(D)

c.o.r.p. "Items""Methods" "References" 5 KW

PAGE No. (28)

SEC. No.

29. (a) Switch #16 - This Aviation Lights "Tower - Beacon" Switch is located in the Engine Driven Generator Room.

(b) This Switch is normally "OFF".

(c) This Switch puts the Rotating Beacon and Tower Aviation Lights "ON" when the Photo-Electric Cell on Transmitter Building Roof, and its associated Relays fail to work properly.

(d) There is a fuse, designated "F28P", in the Box marked "Photo-Cell Aviation Light Control" which should be tested in event that Aviation Lights remain "ON" during Daylight.

If Fuse is Blown, Aviation Lights will remain "ON" at all 'times.

(Most likely cause for lights remaining "ON" will be that Relays are in need of cleaning)

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30. Switch #17 - This "Rotating Beacon" Switch is located in ! Engine Driven Generator Room.

(a) This Switch Furnishes 115 Volts AC Power Supply to Red Rotating Beacon light on roof of the Transmitter Building.

(b) Directly above the switch is the "girplane Beacon Relay". Control will be down when Regular Beacon Lamp is in service, and in the up position when the Emergency Lamp is in service.

(There are 2 Lamps, one regular and one emergency in the Rotating Beacon.)
Book No. () () () () () () ()
Sec. No. () () () () () () ()
Page No. [) () () () () ()

BOOK No. (5)

(D)

C.O.R.P. "Items" Methods" "References" 5 KW

PAGE No. (29)

SEC. No.

The following Test Lamps are hung up on a wood Back Board secured to the Brick Wall, just to the right of "Master 480 Volt O.C.B. - DIP" in basement, also a duplicate set are hung on wood back board secured to Plaster Wall of spare Tube Room on Main Floor, just inside of Entrance Door.

One 110 Volt Single Lamp Test Set.

31.

One 230 Volt Single Lamp Test Set.

Two 480 Volt Double Lamp Test Sets.

Each Test Set is fitted with insulated handle test prods.

Book No. Sec. No. (Page No. () : (

Proceed to complete test of 5 KW Auxiliary Transmitter with No . 32. Carrier Output as follows:

(a) Push "Rectifier Control Switch" "D2A" "OFF". Control Unit #1 (A) Parallel Switches are located on Right Turret of Transmitter Room Desk and on the Right Turret of the A.F. Control Room Desk.

It is marked #10000 V Off" on both Desk Turrets.

It is marked "Rectifier Control" on Unit #1 (A).

Note that all three 10 K.V. Rectifier Tube Filaments are extinguished after pushing "D2A" "OFF".

Enter the Transmitter Enclosure and close "High Voltage Transformer (b) Disconnect Switch" "D5A".

This Switch is located on the rear of the "AC Power Panel", (Unit #1 (A). Leave the Transmitter Enclosure, close and lock the door.

World Radio His

Contid next Page

BOOK No. (.5) SEC. No.

(D)

C.O.R.P. "Items" "Methods" "References" 5 KW

PAGE No. (30)

(Item #32 Cont'd)

Place "3rd Amplifier Input" Control on 58 Divisions.

Adjust 22 Volt D.C. Generator Field Rheostat "R2C" until Voltseter (c) "M9C" is reading exactly 22 Volts. (Oscillator Unit #3 "C")

Adjust 14 Volt D.C. Generator Field Rheostat "R5C" until Voltmeter (d) "M8C" is reading exactly 14 volts. (Oscillator Unit #3 "C")

Adjust 250 Volt D.C. Generator Field Rheostat "R19C" until Voltmeter (e) "M7C" is reading exactly 250 Volts. (Oscillator Unit #3 "C")

(f)Push 1600 Volt D.C. Generator Armature Button "DlC" "ON", 1,600 V. Armature Voltmeter "MIC" will read 75 Volts (Residual Voltage) if "1600 Volt Generator" Voltmeter "MIC" does not indicate any voltage, investigate: "1600 Volt D.C. Generator Field Disconnect Switch" "D3C" must be "ON". This Switch is located inside of Transmitter Enclosure on left side of rear of Oscillator Unit. If "D3C" is "ON" "MIC" will register 75 Volt, is "OFF", nil. (g) Push "1600 Volt D.C. Generator Field Switch" "D2C" "ON", and adjust "R3C" 1600 Volt Generator Field Rheostat to read 1600 Volts on 1600 V. Generator Voltmeter, "MIC".

Readjust 14 Volt D.C. Generator Rheostat "R5C" to read exactly 14 Volts. Readjust 1600 Volt D.C. Generator Rheostat "R3C" to read exactly 1600 Volte. Readjust 22 Volt D.C. Generator Rheostat "R2C" to read exactly 22 Volts. Readjust 250 Volt D.C. Generator Field Rheostat "R19C" to read exactly 250 Volter

(h) Observe that Oscillator, 1st Amplifier, 2nd Amplifier, 3rd Amplifier, and Modulator are all operating correctly, plate Currents are all normal. Output Currents of 1st Amplifier and 2nd Amplifier will be approximately the same as when the Transmitter is on the Air.

World Radio History

Cont'd Next Page

BOOK No. (5)

SEC. No. (D)

C.O.R.P. "Items" "Methods" "References" 5 KW

PAGE No. (31)

(Item #32 Cont'd)

Consult the 5 KW M.O.L. for correct values.

Output of the 3rd Amplifier is approximately 4.6 Amperes.

Grid Current of Power Amplifier is approximately 220 Milliamperes.

(i) Check 5 KW Transmitter Crystal Frequency Deviation.

Put "1-C Freq. Monitor" Selector Switch on Horizontal, or 5 KW Transmitter position. This Switch is located on Left Turret (#6 Switch) of Transmitter Room Desk. Place "Frequency Difference" Switch #"D4" "ON" and read Meter "M1" in Cycles per second, Plus or Minus Center Zero.

"D4" and "M1" located on front of 1-C Monitor in right recessed compartment of Transmitter Room Desk.

Frequency Deviation Tolerance is Plus or Minus 2 Cycles.

If it is not, check temperature of crystal in 5 KW Transmitter Oscillator Unit No. 3 (C) and readjust as necessary.

Raise temperature to Increase Frequency (turn Knob adjacent to Thermometer to left.) Temperature will rise _____degrees C^o per turn.

A quarter turn of the knob to the left will raise temperature approximately 2.8 Degrees C^o.

After measurement of Frequency D_eviation, shut off "Frequency Difference" Switch "D4" and replace "1#C Freq. Monitor" Selector on Transmitter Room Desk Turret, (Switch #6) to Vertical or 50 KW Transmitter position.

The frequency of each crystal may be manually increased approximately 15 cycles by adjustment of small condensers "C38C" for (No. 1) and "C39C" (for No. 2). They are not to be adjusted except in emergency. If required, insert small

Contid next Page

BOOK No. (5)

SEC. No. (D)

C.O.R.P. "Items" "Methods" "References" 5 KW

PAGE No. (32)

(Item #32 Cont'd)

S rewdriver in opening in metal plate of Oscillator Unit and turn shaft. Notch needle of Meter "Ml" on "1-C Frequency Monitor" until it rests at Zero.

j) Push "1600 Volt D.C. Generator Field Switch" "D2C" "OFF".
 ote that "1600 Volt Generator" Voltmeter "MIC" will read approximately 75
 Volts due to residual.

Note that all Plate currents are Zero.

(k) Push "Rectifier Control Switch" "D2A" "ON".

It is located on Right Turrets of Transmitter Room and Control Room Desks, and is marked " $10000 \vee 0n^*$.

Note that all three 10 K.V. Roctifier Tube Filaments are illuminated. Place Voltmeter Selector Switch "DLA" to "Filament Rectifier 1" position, and adjust "Filament Rectifier 1" Rheostat "R3A" to read exactly 200 Volts. Place Voltmeter Selector Switch "DLA" to "Filament Rectifier 2" psition,, and adjust "Filament Rectifier 2" Rheostat "R4A" to read exactly 200 volts. Place Voltmeter Selector Switch "DLA" to Filament Rectifier 3" position and adjust "Filament Rectifier 2" Rheostat "R4A" to read exactly 200 volts. Place Voltmeter Selector Switch "DLA" to Filament Rectifier 3" position and adjust "Filament Rectifier 3" Rheostat "R5A" to read exactly 200 Volts. Note that High Voltage is reading 10.8 to 12.8 Kilovolts on "Rectifier Voltage" Meter "M4B".

Note that "Rectifier Plate Circuit Ammeters" are reading approximately .1 ampere. Note that "Power Amplifier Plate Ammeter" is reading 220 Milliamperes. Note that "Leakage Current Milliammeter" "M2E" is reading approximately 4 mils. Note that "Power Amplifier Grid Milliammeter" "M1E" is reading Zero. Note that "Water Temperature" Thermometer "S2E" is reading 80 to 140 dgrees F. Note that "Closed Circuit Ammeter" "M1F" is reading Zero.

Contid next Page

BOOK No. (5)

SEC. No. (D)

C.O.R.P. "Items" "Methods" "References" 5 KW

PAGE No. (33)

(Item #32 Cont'd)

Note that "Antenna Circuit Ammeter" "MIF" is reading Zero.

(1) Push "Rectifier Control Switch" "D2A" "OFF".

(Located on Right Turrets of Transmitter R_{oom} and Control Room Desks; marked "10000 V Off")

Note that all three 10 K.V. Rectifier Tube Filaments are Extinguished after pushing "D2A" "Off".

(m) Completely shut down the 5 KW Auxiliary Transmitter and restore to
 "STAND-BY" condition as follows:

Push "Master Control Switch" "D3A" "OFF".

All Rotating Equipment will stop. Transmitter is "Shut Down".

All Meters and Gauges read Zero, except those associated with Crystal #1 and #2 Temperature Control Circuits.

Push "1600 Volt Generator Field Switch" "D2C" "ON".

Set 3rd Amplifier "Input Control" to 58 Divisions.

"14 Volt DC Generator Field Rheostat" - "1600 Volt DC Generator Field Rheostat" - "22 Volt D.C. Generator Field Rheostat" - and "250 Volt DC Generator Field Rheostat" remain at their adjustments for correct Voltages during this Test, so that Transmitter may be quickly placed into Service for any Emergency Failure of the 50 KW Transmitter.

On #2 Unit: Green and Red Lights are indications that C_{ry} stal H_eater Units are Operating. They will periodically flash on and off.

On Unit 1 (A), are two switches for Starting the Engine Driven Generator. Switch #1 is the Start Switch and Pilot Light indicates that Motor-Generator is running.

Cont'd next Page

BOOK No. (5)

SEC. No. (D)

C.O.R.P. "Items" "Methods" "References" 5 KW

PAGE No. (34)

(Item #32 Cont'd)

Switch #2 is the Ignition Switch and Pilot Light indicates 6 Volt Starter Battery is OK.

In this Stand-by Position the 5 KW Transmitter will automatically start when the 50 KW Transmitter Power falls below 12 KW.

The Filaments - Bias - and 1600 Volts will come on automatically.

Audio Facilities are connected in permanently thru 5 KW Input Switch in A.F. Control ^Hoom. Procedure from here on will be found in Book No. (3) Sec. No. (C) Page No. ().

The Starting of the 5 KW Transmitter Filaments - 1600 V. and Bias, may be performed from the Control Turret (Either from the Transmitter Room or A.F. Control Room Turret).

10,000 Volts "ON" and "OFF" may be done at the Turrets as well, but must be "OFF" before Switching Antenna from 50 KW to 5 KW Transmitter.

See Procedure Book 3 - Sec. C.

Page No.

To test transmitter on Dummy Antenna, proceed with Item #1, Page No. (1) (a) to (m) except paragraph (e) and add the following:

While in 5 KW Enclosure, place RF Output Switch "DIF" to position marked "Dummy". Switch is located on top rear of Unit #6 (F).

Perform Item #32 (a) to (i) and (k) to (m) inclusive.

Check 5 KW MOL for correct operating values during this test.

They will be approximately same as when transmitter is operating on regular antenna system. When test is finished, stop Transmitter per z

Stopping procedure Book No. (5) Sec. No. (D) Item #32 Paragraph (m).

Book No. () () () () () () Sec. No. () () () () () ()

SFC. No. (E)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

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BOOK No. (5)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

SEC. No. (E)

PAGE No. (1)

(a) It is understood that in the following Chronological Operating NOTE: Routine Procedure, when more than One Item is outlined for the same time of the day, the duties will be divided eqaully among all Technicians on Watch. When only One Item for main floor is mentioned for a certain time, it is usually the Duty of the Technician assigned to the Transmitter Watch to perform same. Normally Two Technicians are assigned to each Watch Period. (:)Both Technicians will perform Items 1 to 57 inclusive, listed under C.O.R.P. "Items Tc Be Performed" 50 KW, before one Technician Signs on the 50 KW M.O.L. The Technician assuming the Transmitter Watch will Sign On the *50 KW HALF HOURLY RECORD" after reading the Duties and Notes in respective Watch Section. The Technician Signing On the front of the 50 KW M.O.L., is the same person who takes over the Watch and shall complete Items 58 to 60 C.O.R.P. "Items To Be Performed" 50 KW. One Technician will perform all Items listed under C.O.R.P. "Items To Be Performed" 5 KW, after performing Items 1 to 57 inclusive of C.O.R.P. "Items To Be Performed" 50 KW, and then proceed with other Duties.

When only One Technician is assigned to a Watch Period, he shall perform the Duties of both C.O.R.P. "Items To Be Performed" 50 KW and 5 KW, before Signing On the 50 KW M.O.L. and 50 KW F.C.C. Log.

<u>REMINDER</u>: Complete operating data for 50 KW Operation before, during, and after Lightning Storm is explained in detail in Book No. (1) Sec. No. (H). Pages No. (18) to No. (22).

(c) It is the responsibility of the Watch to see that the following is also carried out:

1. Porter, when on Watch performs his work according to Book No. (8), "General Building Maintenance".

Vorld Radio History

Cont'd next Page

BOOK No. (5) SEC. No. (E)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

PAGE No. (2)

(NOTE Concluded)

2. Any necessary extra work is taken care of, such as shovelling Snow from Front and Rear Steps, Plank Walk to East Tower, the Path to the Spray Ponds, cleaning up Spilled Water, wiping off Dirty Furniture.

3. Assist Technicians to clean up after dirty Maintenance Work is finished by Staff or others.

4. Inspect about the Plant and have improperly done "G.B.M." Items done over so that Supervisor will find the Entire Plant clean and in order upon morning inspection.

5. It Shall be the duty of one or both of the Technicians on the l2am to 8am Watch to perform Daily P. & E. Maintenance Items #1 and #2. Best time to begin these items is between 4 and 6 am. Book No. () () () () () ()

Sec. No: () () () () () () Page No. () () () () () ()

BOOK No. (5)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

SEC. No. (E)

PAGE No. (3)

12:00 Mid. (a) The first Reading of the 50 KW Master Operating Log for each Watch will be taken by Two Technicians.

(b) The first Reading during each Watch need not be taken exactly at 15 minutes after the hour, but may be taken just before the Hour, or just after the Hour, whichever is most convenient within the 30 minute Period.

(c) This Reading will be taken by the Technician coming on Duty, who will be accompanied by the Technician being relieved. In this way, both Technicians will know exactly how the entire WOR Plant is functioning.

There should be no Deviation on Readings, from those taken at the Start of the Transmitter, and those at the Shut Down Period.

Discuss Readings with those on Watch, and get Reasons for any changes in Readings during the previous Watch Period.

It is important that Technicians make comparison between Readings taken at the BEGINNING and ENDING of Watch Periods; normally there should be no Deviation during this time.

Discussion on Operation of Speech Input, Transmitters, Receivers, etc., during taking of Log will aid Technicians to properly understand all operations. Both Technicians will cooperate so that Relieving Technician will find the Plant in perfedt Order.

Have you made sure that you have all the information that was to be passed?

(d) When Technician is relieving at some time other than 12:00 Midnight,
 8:00 AM or 4:00 PM, the same Procedure as outlined above will be adhered to
 i.e., both the Incoming and Outcoming Technicians will take the first Reading.

Continued next Page

OPERATING MANUAL

BOOK No. (5) SEC. No. (E) PAGE No. (4)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

(Continued)

For Example, any Technician coming to work at any time other than Standard Watch period and take over the Watch will assume the Responsibility of the Transmitter Watch.

If he has no place to Sign Name on Front of the Log, he will Sign On the Reverse of Log per Sample:

"J.T. Doe on 50 KW M.O.L. at 3:00 PM - Off at 8:00 PM"

He will take the 50 KW M.O.L. and the F.C.C. Log as previously outlined in procedure for taking over the Watch. (M.O.L. Procedure back of book). Relieved Technician goes off the 50 KW M.O.L. & F.C.C. and continues with other Duties.

(e) There are filled out "50 KW MASTER OPERATING LOGS" containing readings of NORMAL and ABNORMAL Operating Values among which are: (Book No. (3) Sec. No. (G) Page No. (1) to Page No. (10)) Normal Readings taken at 12:15 PM, Typical Summer time Readings taken at 2:15 PM, Typical Winter Readings taken at 4:15 PM, Readings while Antenna System was covered with Ice, Snow and Sleet; Readings' of Emergency Operation an One Antenna Tower; Readings of Abnormal operation of the 50 KW Transmitter with less than full compliment of Tube in 1st. Power Amplifier, 2nd Power Amplifier, and 3rd Power Amplifier. Use these Readings freely for comparison purposes whenever any 50 KW Transmitter Value, or Antenna System Readings do not appear normal, or when the 50 KW Transmitter is to be operated in some Emergency manner. Whenever Emergency or abnormal condition prevents maintaining Power Output within Plus 5% or Minus 10% of 50 KW, immediately revert to the Indirect Method of computing Power Output for 50 KW F.C.C. Log. Graph will be found on 50 KW F.C.C. Log Tally Board.

<u>/orld</u> Radio History

BOOK No. (5)

SEC. No. (E)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

PAGE No. (5)

12:00 Mid. Night Porter, if on Duty, will Sign On the "Daily Work Sheet" when coming on duty and when going off duty. He will write time "ON" and time "OFF" and in the assigned space write "M" for Maintenance. Fill out Day and Month Columns.

12:00 Mid. Night Porter, if on Duty, will make complete Outside Inspection about the Grounds, going out to the West Tower along the Catwalk. He will note condition of all Buildings, Fences, Walks, Poles, Signs, Lights, Property, etc.

He will immediately report to Technicians, any unauthorized Persons observed On or Near WOR Property.

Night Porter will enter on Reverse Side of the 50 KW M.O.L. when Inspection is made and briefly what was observed.

() Book No. $\left(\right)$ ()))) Sec. No. ·)) (() (•) () Page No. (() (() () ()

BOOM No. (5)

SEC. No. (E)

C.O.P.P. "12n-8am" "8am-4pm" "4pm-12m"

PACT No. (6)

Take a complete Set of Readings on the "50 KW MALF HOUPLY RECORD" 12:30 M. Fook No. (·) () () ()) £ () (Sec. No. ()) () () () (Page No. () () ()) (Read all notes in Staff Folder kept on desk in front 19:30 AV. Foyer Office.) (.) () () () (Eook No.) () () () ()) Sec. No. (Pege No. () () () () () Begin to get Midnight Meal ready. 12:30 AM. The allotted time for a meal at Carteret is one hour. This means from the time the meal is prepared to the time the dishes are washed and put away. When finished, put away food properly wrapped in Wax Paper, clean up dishes, clean and tidy up the Kitchen. When no porter is on duty empty waste tasket and garbage pail. Place paper in incinerator out in back yard. Put garbage in large container near basement areaway in back yard. Book No. - () () (() () ()) Sec. No.) () () () () () ()) (Page No. (

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BOOK No. (5) SEC. No. (E)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

PAGE No. (7)

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BOOK 1. (5)

SEC. No. (E)

C.O.R.P. "12m-Ban" "8am-4pm" "4p.-1..."

AGF N: (8)

1:30 AM On Monday and Tue.day mornings only, test 5 KW Auxil: ry Transmi r on Durmay Antenna.

Take a complete Set of Readings on the "5 KW HALF HUURLY RECORD".

After Test is completed, approximately 1:45 AM., restore 5 KW Auxiliary Transto "READINESS" for Switchover as follows:

"DIF" Transmitter Radio Frequency Output Switch set to 5 KW Concentric Line :: "D5A" "High Voltage Transformer Disconnect Switch" (Inside Encl.). . ON

5 KW Transmitter Enclosure Door closed and locked.

"DIC" "1600 Volt DC Generator Armature Eutton (F ce of Oscillator Unit) ON "D2C" "1600 Volt DC Generator Field Switch (Face of scillator Unit) "N "3rd Amplifier Input" Gain Control on Step 58.

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1:40 AM Place the following equipment for 5 KW Transmitter oper tion:

 Place "Trans. Mon. Sel, Switch" to 5 KW Position. Located upper shelf of Panel S, Bay, Measuring Equipment Room.

2. This will permit use of following for proper checking of T. Transmitter and Carrier and Program.

Adjust control on "Radio Frequency Tuner" panel 1, Bay 8, Mea, $\operatorname{urin}_{\ell}$ Equ. - nt Room, for enough radio frequency signal to operate C thode Ray Specifics ph and 731-A Modulation Monitor.

Continued

WOR DEPENDENT

OPERATING MANUAL

BOOK No. (5).

(E)

C.O.R.P. "lCm-8em" "8om-4pm" "4pm-1Cm"

PAGE No. (9)

SFC. No.

On Monday and Tuesday mornings only, call WR, Master Control and 1:50 AM. cooperate with him for Switchover from 50 KW to 5 KW Auxiliary Transmitter. Book No. Sec. No. Page No.) (On Monday and Tuesday mornings only, take a complete Set of Readings 1:58 AM. on the 50 KW F.C.C. Log. () () () BOOK NO.))) Sec. No.)) Page No. ()) () (() On all mornings, except Monday and Tuesday mornings, takea complete 2:00 AM. set of readings on the 50 KW F.C.C. Log. Book No.)() Sec. No.)() ()()) ()) Page No. (On Monday and Tuesday mornings only, (time approximate) depending 2:00 AM. on Local Announcements, etc., *

BE READY TO SWITCH THE 50 KW TRANSMITTER OFF

AND

BE READY TO SWITCH THE 5 KW TRANSMITTER OH

Unless otherwise prevented, best time to make the ANTENNA TRANSFER is directly after the Cuc: "WOR, NEW YORK - AT THE SIGNAL, THE TIME WILL BE <u>2:00 AM</u>." Hold 50 KW Transmitter for epproximately 2 minutes in readiness, (All filaments on, 1650 V. on and 17 KV off) until you make certain that all is normal with 5 KW Transmitter, after switching over to 5 KW. If all is OK, proceed with normal routine, if not quickly put 50 KW back on the air until trouble is cleared.

(10)

FAGE No.

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

 2:01 AM
 Reset "Carrier Timer Modulation Alarm Unit" Clocks.

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On Monday and Tuesday mornings only, adjust 5 KW Transmitter 2:02 AM Carrier to read 8.25 Amperes on "ANTENNA CURRENT AMMETER". Take a complete Set of Readings on the 5 KW F.C.C. Log. Book No. Sec. No. . ((Page No. () () ())

<u>2:15 AM</u> On Monday and Tuesday mornings only, take a complete Set of Readingr on the "5 KW MASTER OPERATING LOG".

Be careful to note that Modulation is 85 to 100% as noted on G.R. 731A Modulation Monitor and Reproduction of the Best as required by Standards of Good Engineering Practice of F.C.C.

Book No. () (Sec. No. ()) (Page No. (.) (÷()

2:15 AM. On all mornings except Monday and Tuesday, take a complete Set of Readings on the 50 KW M.O.L.

Book No. ())) ()) (Sec. No. (((Page No. (() () ()))

'BOOK No. (5)SEC. No. (E)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

PAGE No. (11)

2:15 AM · On Monday morning only, switch all 50 KW Transmitter Rotating Equipment to the newly Serviced Set.

(a) 50 KW Transmitter is completely shut down.

(b) Proceed to change 20 Volt DC Filament and 300 Volt DC Bias Motor-Generators to the newly Serviced Set.

Proceed to change position of 20 volt Generator 115 Volt AC Blower (c) to Generator No. 1. Place on black space painted on concrete platform. Proceed to change Spray Pond Pumps to the newly Serviced Set. (à) If you wish to know the Set in use, refer to the "STATION STARTING PROCEDURE". Spray Pond Pump Motor Switch "D9P" (MO2P) OFF Spray Pond Pump Motor Switch "D8P" (MOLP) ON Spray Pond Pump #2 Inlet Valve "Cl" . . .CLOSED Spray Pond Pump #2 Outlet Valve "Bl"CLOSED OPEN Spray Pond Pump #1 Outlet Valve "Al".... OPEN The following Week, the procedure is reversed.

(Continued)

C.O.R.P.

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BOOK No. (5) (E) SEC. No.

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"l2m-6am" "8am-4pm" "4pm-12m" . (12) PAGE No.

(e) Proceed to change Distilled Water Pumps to newly Serviced Set.
If you wish to know the Set in Use, refer to the "STATION STARTING PROCEDURE"
Distilled Water Pump Motor Switch "D5P" (MO4P) OFF
Distilled Water Pump Motor Switch "D4P" (MO3P)
Distilled Water Pump #2 Inlet Valve "E"
Distilled Water Pump #2 Outlet Valve "G"
Distilled Water Pump #1 Inlet Valve "R"
Distilled Water Pump #1 Outlet Valve "J" OPEN
The following Week, the Procedure is reversed.
(f) If any difficulty is encountered with any Machine, merely switch to the
good one, and leave the other in question to be serviced or rechecked.
Include details of abnormal operation in Routine Report.
Book No. () () () () () ()
Sec. No. () () () () () ()
Page No. () () () () () ()
2:15 AM Reverse 50 KW Transmitter Crystal Selector Switch "D12D".
This shall be done but once during the Week unless difficulty arises and
requires the other Crystel to be used.
Book No. () () () () () ()
Sec. No. () () () () () ()
Page No. () () () () () ()
2:18 AM On Monday and Tuesday mornings only, proceed with all 50 KW Transmit di
and Equipment Maintenance as outlined in T. & A.E. Maintenance Book #7.
Book No. () () () () ()
Sec. No. () () () () () ()
Page No. () () () () () ()

2:30 AM

SEC. No. (E)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

On Monday and Tuesday mornings only, take a complete set of Readings

PAGE No. (13)

on the 5 KW F.C.C. Log. Book No. () () () () (Sec. No.) ()) () () Page No. (() (() On all mornings except on Monday and Tuesday, take a complete Set of 2:30 AM Readings on the 50 KW F.C.C. Log. Book No. () () () Sec. No. () ((Page No.) ()) ((() ()) 3:00 AM On Monday and Tuesday mornings only, take a complete set of Readings on the 5 KW F.C.C. Log. Book No. (() () () () () Sec. No. (.) ())))) (Page No. () () () () () 3:00 AM On all mornings except on Monday and Tuesday, take a complete Set of Readings on the 50 KW F.C.C. Log. Book No. ((()) Sec. No.) (Page No. () () () () ()) On Monday and Tuesday mornings only, take a complete Set of Readings 3:30 AM on the 5 KW F.C.C. Log. Book No.) () ((Sec. No. () () Page No.) .() () World Radio History

OPERATING MANUAL

"12m-8am" "8am-4pm" "4pm-12m"

C.O.R.P.

BOOK No. (5)

SEC. No. (E

Page No. (14)

On all mornings except Monday and Tuesday, take a complete Set of 3:30 AM Readings on the 50 KW F.C.C. Log. Book No. () Sec. No. · · ()) Page No. () ()).() ((On Monday and Tuesday mornings only, take a complete Set of 4:00 AM Readings on the 5 KW F.C.C. Log. Book No. () () (·) (). .) () () .() Sec. No. ((.) () (•) Page No.) (. 4:00 AM On all mornings except on Monday and Tuesday, take a complete Set of Readings on the 50 KW F.C.C. Log. Book No. · ((Sec. No. .) ((.(Page No.) () (On Monday and Tuesday mornings only, take a complete set of Readings 4:15 AM on the 5 KW M.O.L. Book No. ((. ()) (Sec. No. ())).)))) ...(Page No. .))) ((On all mornings except on Monday and Tuesday, take a complete Set of 4:15 AM Readings on the 50 KW M.O.L. Book No. (). () () (() ... ((

<u>/orld Radio History</u>

BOOK No. (5)

SEC. No. (E)

(15)

C.O.R.P. *12m-8am* *8am-4pm* *4pm-12m* PAGE No.

On Monday and Tuesday mornings only, take a complete Set of 4:30 AM Readings on the 5 KW F.C.C. Log. ()()()() Book No.) () (Sec. No. Page No. On all mornings except Monday and Tuesday, take a complete Set of 4:30 AM Readings on the 50 KW F.C.C. Log. Book No. () () $(\cdot \cdot)$.) () Sec. No. .) () (Page No. ()) On Monday and Tuesday mornings only, take a complete Set of 5:00 AM Readings on the 5 KW F.C.C. Log. Book No. (.). ().(Sec. No.) ((() () () Page No. () ((On all mornings except Monday and Tuesday, take a complete Set of 5:00 AM Readings on the 50 KW F.C.C. Log. Book No. Sec. No. Page No.). ((

5:00 AM On all Mornings, beging to take the 50 KW "STATION STARTING PROCEDURE". On Monday and Tuesday mornings only, all values may be accurately read, since 50 KW Transmitter is "OFF" the Air for Maintenance, and is to be Started in proper

(Continued)
BOOK No. (5)

SEC. No. (E)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

PAGE No. (16)

Sequence as outlined. Entries on front of the log will start Transmitter properly. Entries on reverse of log will complete all data. On all mornings, except on Monday and Tuesday, 50 KW Transmitter remains on the Air; enter readings on Front and Reverse of 50 KW "STATION STARTING PROCEDURE" as outlined. Book No. () () () () () () () Sec. No. () () () () () () Page No. () () () () () ()

<u>5:10 AM</u> On Tuesday mornings only, patch #7 High Voltage Rectifier Tube in place of one of the regular Six Tubes, closing Filament Switch of #7 Tube. Refer to previous Tuesday entry on reverse of "STATION STARTING PROCEDURE" to Choose tube for next succeeding position.

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On Mondayand Tuesday mornings only, make regular Degassing Test of 5:12 AM. 50 KW Transmitter at 18 KV only. Enter Data on reverse of 50 KW F.C.C. Log. Book No. () ()) Sec. No. -{) () Page No. ((

5:17 AM On Tuesday mornings only, after completion of Degassing Test at 18 K.V., Patch out #7 H.V. Rectifier Tube from Test Position, and Patch Regular H.V. Tube back into service. Open Spare Rectifier #7 Tube Filament Switch. Enter Data on reverse of "STATION STARTING PROCEDURE". Book No. () () () () () () Sec. No. () () () () () ()

SEC. No. (E) PAGE No. (17)

(5)

BOOK No.

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

5:20 AM On Monday and Tuesday mornings only, have 50 KW Transmitter in "READINESS" for switch-over at 5:30 AM. To place in "READINESS", proceed as follows:

1. Shut 50 KW Transmitter Enclosure Doors.

 Place High Voltage Protection Switch "DI6P" to the Operating Position.
 Put "On" 1650 Volt Rectifier Switch "DIOA" and adjust the Voltage to 1650 Volts.

Check all Voltages and Current Readings of Oscillators #1 and #2, Buffer Amplifier, Radio Frequency Amplifier, Modulating Amplifier, Audio Input Amplifier, Audio Power Amplifier, and 1st Power Amplifier.

All are normal, i.e. the same as read when 50 KW Transmitter is On the Air, except that First P.A. Input is <u>60</u> divisions. These values may be found on 50 KW M.O.L.

Visually inspect all Six 1650 Volt DC Type 258-B Rectifier Tubes. (Rear of Control Unit #1 "A").

Replace any found not operating. (Those not operating will show no blue (color) fluorescence at all).

4. Put "Off" 1650 Volt D.C. Rectifier Switch "DIOA".

5. Put on 17 K.V. Rectifier Switch "D9A".

17,000 Volt Rectifier Voltmeter "M4A" is reading Approx. 18.4 K.V.

Voltage is steady, color steady faint blue or faint purple about the 17 K.V. Rectifier Tube Anodes.

6. Static Plate currents of Second Power Amplifier are Front <u>275</u> Mils. Rear <u>275</u> Mils.

orld Radio History

7. Leakage Current is <u>1 to 10</u> Mils.

(Continued)

BOOK No. (S)

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C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

PAGE No. (18)

8. Static Plate Currents of Third Power Amplifier are: Front <u>.4 to .7</u> Amperes, Rear <u>.4 to .7</u> Amperes.

9. Put "Off" 17 K.V. Rectifier Switch "D9A".

10. Put "On" 1650 Volt Rectifier Switch "DIOA", (Technician is repeating Item #3 here).

11. Set 1st P.A. Input to <u>20</u> Divisions.

50 KW Transmitter is now in "READINESS" for Switch-over.

Call WR, Master Control and coordinate Switch over details with him.

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5:20 AM Place the following Equipment for 50 KW Transmitter Operations:

G.R. 687-A Cathode Ray Oscillograph (Merely turn knob of "Trans. Mon. Sel. Sw") , G.R. 731-A Modulation Monitor.

• W.E. 1-C Frequency Monitor.

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5:28 AM On Monday and Tuesday mornings only, take a complete Set of Readings on the 5 KW F.C.C. Log.

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BOOK No. (5)

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.C.O.R.P. "12m-3am" "Sam-4pm" "4pm-12m"

PAGE No. (19)

5:30 AM On Monday and Tuesday mornings only, Time approximate, depending on Local Announcements, etc.,

BE READY TO SWITCH 5 KW TRANSMITTER OFF

AND

BE READY TO SWITCH 50 KW TRANSMITTER ON

Unless otherwise prevented, best time to make the ANTENNA TRANSFER is directly after the Cue: "WOR, NEW YORK".

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<u>5:30 AM</u> On Monday and Tuesday mornings only, as soon as the 50 KW Carrier in on the Air and Transmitter Output Power is correctly adjusted, note that Modulation is <u>85 to 100 %</u> and that reproduction is of the best.

Adjust Transmitter Carrier to read <u>26.1</u> Amperes on Antenna Current Ammeter in.*J* Unit.

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5:30 AM On all mornings except Monday and Tuesday, take a complete test of Readings on the 50 KW F.C.C. Log.

Book No. () (.) () ()) () (Sec. No. (·) () Page No. () () () () () ()

BOOK No. (5)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m" SEC. No. (E) PAGE No. (20)

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<u>5:31 AM</u>	01	n Mo	nday	r and	d Tu	lesd	ay 1	norn	ing	s on	ly,	take	a co	mplet	ie Se	t of		
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6:15 AM	_ T	ake	a. co	ompl	ete	Set	of	Rea	ıdin	gsic	on t	he 50	KW M	.0.L.	Log	•		
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Weston Magnetic Relay, located in the Box marked, "PHOTO ELEC. CELL AWIATION LIGHT CONTROL". This puts the Mercury Switch attached to the Armature "Off" and all Aviation Lights will become extinguished.

World Radio History

BOOK No. (5) SEC. No. (E)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m" PAGE No. (21)

Put "Off" Road and Flood Light Switches #33, #35, #36, #38. VARIABLE. Control Room Wall Panel Box. Book No. () () () Sec. No. () () () Page No. () Take a complete set of Readings on the 50 KW F.C.C. Log. 6:30 AM) () (Book No. () () () () Sec. No. () () () () () () Page No. () () () () () () 7:00 AM Take a complete set of Readings on the 50 KW F.C.C. Log. ()(Book No.). () () Sec. No. () ()) () · (Page No. () () () () (7:30 AM Take a complete set of Readings on the 50 KW F.C.C. Log. Book No. ()). (• -) Sec. No. () ()) Ċ • • • • • • (Page No. () () () (Shut "OFF" the Hot Water Heater Switch #10 in Control Room Wall 7:50 AM Panel Box, because water gets too hot. No other reason. Log on reverse of M.O.L. 8:00 AM Take a complete Set of Readings on the 50 KW F.C. Log. Book No. (-) () ($(\cdot \cdot)$) () () Sec. No. () ()) · Page No.- () () ()

EGCK No. (5) SEC. No. (E)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

PAGE No. (11)

<u>B:00 AM</u> Tidy up Operating Desks in both Control Room and Trans..i ... Room. Clean off the Glass Tops of Desks.

Use a damp cloth, wiping off Glass with Clean Dry Cloth before glass here the to dry off.

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BOOK No. (5)

SEC. No. (E)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

PAGE No. (23)

<u>B:00 AM</u> Before the 12:00 Mid. to 8:00 AM Watch is relieved, check off all Maintenance, Special and "W.T.B.D." Items performed as indicated on the Routine Reports and the 50 KW M.O.L.

Check all Logs for any irregularities of Entries made, have them corrected if necessary.

Make a tour of the plant with them and visually check work performed. This consists of the Maintenance Items completed, cleanliness of the Station, and to see if all material and equipment is in proper place.

Check the following, other than Regular Items:

1. All Desks Clean.

2. No dust behind Speakers, Tables or Equipment on the Floor.

3. No dust on partitions or window ledges.

4. All Fldors Clean.

5. Generators and P_{ump} Bases Clean as well as the Rotating Machinery, Which should be always clean.

6. Work Bench Clean and all Tools and Jars in Place.

7. Equipment and Material in place and on the proper shelves. If all the work is properly performed, release the Watch. If any items have been overlooked or carelessly performed, have them complete same before leaving. If any of the above work was not properly executed, after the above, leave note to Supervisor why it was not properly done, since this should have been checked before assuming watch. This Watch is chosen because of the Porter's Work, and the minimum amount of special work items during the day.

Book No. () () () () () () Sec. No. () () () () () () Page No. () () () () () ()

C.O.R.P.

CEC. No.

"12m-8am" "8am-4pm" "4pm-12m"

PAG1 No. (24)

NOTE: (a) It is understood that in the following Chronological Operating Routine Procedure, when more than One Item is outlined for the same time of the Day, the Duties will be divided equally among all Technicians on Watch.
When only One Item for main floor is mentioned for a certain time, it is usually the Duty of the Technician assigned to the Transmitter Watch to perfore same.
(b) Normally Two Technicians are assigned to each Watch Period.
Both Technicians will perform Items 1 to 57 inclusive, listed under C.O.R.P.
"Items To Be Performed" 50 KW, before one Technician Signs on the 50 KW HALF
HOURLY RECORD" after reading the Duties and Notes in each Watch Section. In the Space for "Assigned" he will write "T-Reg".
The Technician Signing On the 50 KW M.O.L. is the same person who signs on the

"50 KW HALF HOURLY RECORD" and takes over the watch. He will complete Items 58 to 60, C.O.R.P. "Items To Be Performed" 50 KW. One Technician will perform all Items listed under C.O.R.P. "Items To Be Performed" 5 KW after performing to 57 inclusive of C.O.R.P. "Items To Be ^Performed" 50 KW, and then proceed wi other Duties.

When only One Technician is assigned to a Watch Period, he shall perform the Duties of both C.O.R.P. "Items To Be Performed" 50 KW and 5 KW before Signing the 50 KW M.O.L. and 50 KW F.C.C. Log.

(c) It is the Responsibility of the Watch to see that the following is also carried out;

1. Porter, when on Watch performs his work according to Book #8, "General Night Building Maintenance".

2. Any necessary extra Work is taken care of, such as shovelling Snow from Front and Rear Steps, Plank Walk to East Tower, the Walk to the Spray Ponds; cleaning up Spilled Water; wiping off Dirty Furniture.

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

SEC. No. (E)

PAGE No. (25)

3. Assist Technician to clean up after dirty Maintenance Work is finished by Staff or others.

4. Inspect about the Plant and have improperly done "G.N.B.M." Items done over so that Supervisor will find the Entire Plant clean and in order upon Morning Inspection.

) Book No. () () () () ())) · ((() Sec. No. (Page No. () () () () () (.)

World Radio History

BOOK No. . 5)

SEC. No.

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

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-8:00 AM. (a) The first reading of the 50 KW Master Operating Log for each Watch, will be taken by Two Technicians.

(b) The first reading during each Watch need not be taken exactly a minutes after the hour, but may be taken just before the hour, or just the hour, whichever is most convenient within the 30 minute period.

(c) This reading will be taken by the Technician going on Duty, who will be accompanied by the Technician being relieved.

In this way, both Technicians will know exactly how the entire WOR Plant 1: functioning.

There should be no deviation on readings, from those taken at the Start of Transmitter, and those at the Shut Down Period.

Discuss Readings with those on Watch, and get reasons for any changes in readings during the previous Watch Period.

It is important that Technicians make comparison between Readings taken at the BEGINNING and ENDING of Watch Periods; normally there should be no Deviation during this time.

Discussion on Operation of Speech Input, Transmitters, Receivers, etc., during taking of Log will aid Technicians to properly understand all operations. Both Technicians will cooperate so that Relieving Technician will find the Plant in perfect order.

Have you made sure that you have all the information that was to passed on ?
(d) <u>When Technician is relieving at some time other than 12:00 Midnight</u>
8:00 AM. or 4:00 PM. the same Procedure as outlined above will be adhered to a southing and Outgoing Technician will take the first Reading.

(Continued)

Vorld Radio History

BOOK No. (5)

SEC. No. (E)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

PAGE No. (27)

For example, any Technician coming to work at any time other than Standard Watch Period and take over the watch will assume the responsibility of the Transmitter Watch.

If he has no place to Sign Name on Front of the Log, he will Sign on the Reverse of Log per Sample:

"T.F. Doe on 50 KW M.O.L. and F.C.C. at 3:00 PM - Off at 8:00 PM" He will take the 50 KW M.O.L. and the F.C.C. Log as previously outlined in Procedure for taking over the Watch (M.O.L. & F.C.C. Procedure back of Book). Relieved Technician goes off the 50 KW M.O.L. & F.C.C. and continues with other duties.

(e) There are filled out "50 KW Master Operating Logs" containing Readings of NORMAL and ABNORMAL Operating Values among which are: (Last page in Book) Normal Readings taken at 12:15 PM, Typical Summer Time Readings taken at 2:15 PM., Typical Winter Readings taken at 4:15 PM., Readings while Antenna System was covered with Ice, Snow and Sleet; readings of Emergency Operation on One Antenna Tower, readings of abnormal operation of the 50 KW Transmitter with less than full complement of Tubes in 1st Power Amplifier, 2nd Power Amplifier, and 3rd Power Amplifier. Use these readings freely for comparison purposes whenever any 50 KW Transmitter Value, or Antenne System do not appear normal, or when the 50 KW Transmitter is to be operated in some emergency manner.

Whenever Emergency or Abnormal condition prevents maintaining Power Output within Plus 5% or Minus 10% of 50 KW, immediately revert to the Indirect Method of computing Power Output for 50 KW F.C.G. Log.

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BOOK Nc. (5) SEC. No. (E)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

PAGE No. (28)

8:05 AM. Time approximate, but before 8:15 AM., call Mr. Brown on Outside Phone (Carteret 8-5055) and order food supplies for next 24 hours. In ordering food supplies, use good judgement so as to order within our budget and consistent with Food for Wholesomeness. Book No. Sec. No. Page No. () () Time approximate, but before 8:15 AM., call Perth Amboy News 8:12 AM. on the outside phone (P.A. 4-0400) and five them the Minimum and Maximum Outside Temperatures for the past 24 hours as recorded on the 50 KW M.O.L. DO NOT GIVE THEM ANY OTHER INFORMATION. Book No. Sec. No. ()))) Page No. 8:30 AM. Take a complete Set of Readings on the 50 KW F.C.C. Log. Book No. () (.) (()) Sec. No. .). Page No.)) (·) ()) () (((

World Radio History

WOR. OPÉRATING MANUAL

Check the following WOR OPERATING MANUALS for Maintenance to be

BOOK No. (5) SEC. No. (E)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

8:30 AM.

24GE No. (29)

performed during the Watch. Make Notes of same. Book No. 10 - "INSTRUCTIONS TO STAFF" "F.C.C. RULES AND REGULATIONS" "WOR ENGINEERING DETAILS". Book No. 6 - "PLANT AND EQUIPMENT MAINTENANCE" Book No. 7 - "TRANSMITTER AND ANTENNA EQUIPMENT MAINTENANCE" Book No. 8 - "GENERAL NIGHT BUILDING MAINTENANCE" Book No.12 - "WORK TO BE DONE" ()) ((Book No. (). (Sec. No. (()) Page No. ()) () When required, put Water in the Spray Ponds. Enter the Amount of 8:50 AM. Water added to Ponds on reverse side of 50 KW STATION STARTING PROCEDURE LOC. Book No. (• }) ()) Sec. No.) () ·(Page No.)) ())) () (9:00 AM. Take a complete Set of Readings on the 50 KW F.C.C. Log. Book No. Sec. No. () Page No. () () ())) (

BOOK 'No. (5)0. R OPERATING MANUAL SEC. No. (E) C.O.R.P. #12m-8am" *8am-4pm* *4pm-12m* PAGE No. (30) 9:10 AM. Check Nitrogen Gas Pressures of #1 and #2 Concentric Transmission Lines. Add Gas to these Lines when Pressures have dropped to 30 lbs. in #1 Line and 10 lbs in the #2 Line. Bring the Gas Pressure in #1 Transmission Line up to 40 lbs. Bring the Gas Pressure in #2 Transmission Line up to 30 lbs. Enter on 50 KW STARTING LOG. Book No .. Sec. No. - () . (Page No. (') (). (Take complete Set of Readings on the 50 KW F.C.C. Log. 9:30 AM. Book No. Sec. No. Page No. () As soon as the Mail is received, open the Envelope containing 9:30 AM. "WOR DAILY OPERATING SCHEDULE" and place it on Tally Board hanging under Control Desk in A.F.C.R.. Book No. Sec. No. Page No.) () 9:30 AM. Take a complete Set of Readings on the 50 KW F.C.C. Log. Book No. () ..(Sec. No.)

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World Radio History

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(5) BOOK No.

SEC. No. (E)

"12m-8am" "8am-4pm" C.O.Ŕ.P. "40m-12m"

PAGE No. (31)

10:00 AM. Take a complete Set of Readings on the 50 KW F.C.C. Log.

Book No. Sec. No. Page No.

Take a complete Set of Readings on the 50 KW M.O.L. 10:15 AM.

Book	No.	()	()	<u>(</u>)	()	()	()
Sec.	No.	. (.)	()	()	()	()	()
Page	No.	()	()	()	()	.()	()

10:25 AM. Check the Water Softener.

It should be always recharged when 5000 Gallons of Raw City Water have been Softened. (Indicator needle will read Zero). Directly after Recharging, set Indicator Needle to 5000 Gallons. Enter on reverse of Station Starting Procedure when softener is recharged. (15)Book No. (1)l (.) (.C) Sec. No. (1) Page No.) (·), (() (

10:28 AM. Whenever Rain increase Level of Water in Ponds, estimate the approximate Amount gained and enter this amount on the Reverse of the 50 KW Station Starting Procedure.

Book No. Sec. No. Page No.

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			OPERA	N O R TING MANUAL		BUCK S.	(5)
		C.O.R.P.	[∎] 12m-8am [₩]	. **8am#4pm **	[#] 4pm−12m [#]	SEC. No. PAGE No.	(E) (32)
	10:30 AM.	Take a co	omplete Set	of Readings	on the 50	KW F.C.G. Later.	
	Book No. () ()) () () ()	(·)		
	Sec. No. () ()) () () ()	()		
•	Page No. () ()	()() ()	()		
	11:00 AM.	Take a co	omplete Set	of Readings	on the 50	KW F.C.C. Log.	
	Book No. () () ()	()()	()		
	Sec. No. () ())))	()()	()		
	Page No. () (*)) ()	()()	()		
	11:30 AM.	Take a co	omplete set	of Readings	on the 50	KW F.C.C. Log.	
	Book No. () ()) (), (•) ()	()		
	Sec. No. () () () () (`)	()	- ,	
	Page No. () ()) () () ()	()		
	11:40 AM.	Begin to	get Lunch	ready. (Perf	ormed by T	ransmitter Watch)	
	Book No. (· · · · · · · · · · · · · · · · · · ·) () () ()	()	•	
	Sec. No. () () () () ()	. ()		
	Page No. () (), (*) () ()	()		
	12:00 Noon	Take a co	omplete S _e t	of R _{eadings}	on the 50	KW F.C.C. Log.	
	Book No. () () () () ()	· () \		
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	12:15 PM	Take a co	omplete S _e t	of Readings	on the 50	KW M.O.L.	•
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World Radio History

BOOK No. (5) SEC. No. (E) PAGE No. (33)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

12:30 PM. As soon as Lunch is ready, call Supervisor and all Technicians.
When Lunch is over, Two Technicians will clean up Dishes, put away Food
properly wrapped in wax paper, clean and tidy up the Kitchen.
Book No. () () () () ()
Sec. No. () () () () ()
Page No. () () () () ()
1.00 PN Take a complete Set of Readings on the 50 KW F C C Log
<u>1:00 PM.</u> Take a complete bet of neadings on the 50 km r.0.0, hog.
Book No. () () () () ()
Sec. No. () () () () () ()
Page No. () () () () () ()
1:30 PM. Take a complete Set of Readings on the 50 KW F.C.C. Log.
Book No. () () () () () ()
Sec. No. () () () () () ()
Page No. () () () () ()
2:00 PM. Take a complete Set of Readings on the 50 KW F.C.C. Log.
Book No. () () () () () ()
Sec. No. () () () () () ()
Page No. () () () () ().
2:15 PM. Take a complete set of Readings on the 50 KW M.O.L.
Book No. () () () () ()
Sec. No. () () () () () ()
Page No. () () () () () ()

World Radio History

BOOK No. (5)

(E)

SEC. No.

OI ERATING MANUAL

"12m-8am" "8am-4pm" "4pm-12m" PAGE No. (34)

2:30 FM. Take a complete Set of Readings on the 50 KW F.C.C. Log.

Book	No.	()	()	()	()	()	()
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Page	No.	.(.)	()	(:)	()	()	()

C.O.R.P.

3:00 PM. Take a complete Set of Readings on the 50 KW F.C.C. Log. Book No. () () () () () () ()

Sec. No. ()) Page No. () () () () () ()

3:30 PM.		Take	a	compl	e	Set	of	Read	ings	on	the	50	KW	F.C.C.	Log.
Book No.	()	()	()	()	()	()			
Sec. No.	()	()	()	()	(ÿ	()			
Page No.	()	()	()	()	()	()			

<u>3:45 PM</u>. Receive "WBAN" Technicians Report when coming on and going off Watch. Enter on Reverse of the 50 KW M.O.L. Name of Technician and time coming on Watch, and Name of Technician and time going off Watch.

When Technician gives you routine report covering activities at WBAM, address this routine report; "Re-WBAM Routine Report" to Supervisor.

Book No. ()) (() (())) ' (Sec. No. () () () () ()) (Page No. ({)

(5). BOOK No. WOR OPERATING. MANUAL SEC. No. (E) C.O.R.P. #12m-8am# #8am-4pm# .#4pm-12m# PAGE No. (35) Take a complete Set of Readings on the 50 KW F.C.C. Log. 4:00 PM. Book No. () () () () () () .) ()) (() (· .) Sec. No.) (() · () () () Page No. ł) () 4:00 PM. Tidy up Operating Desks in both Control Room and Transmitter Room. Clean off the Glass Tops of Desks. Use a Damp Cloth, wiping off Glass with Clean Dry Cloth before Glass has time to dry off. .) () (.) Boo No. () (Sec. No. (() ·))¹. () () (Page No. (

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E X No. (5) SEC. No. (F)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

PAGE No. (36)

NOTE: (a) It is understood that in the following Chronological Operating Routine Procedure, when more than one item is outlined for the same time of the day, the duties will be divided equally among all Technicians on Water. When only one item for main floor is mentioned for a certain time, it is usual the Duty of the Technician assigned to the Transmitter Watch to perform some. (b) Normally Two Technicians are assigned to each Watch Period. Both Technicians will perform Items 1 to 57 inclusive, listed under C.O.R.P. "Items To Be Performed" 50 KW, before one Technician Signs on the 50 KW M.O.L. The Technician assuming the Transmitter Watch will Sign On the "50 KW HALF HOURLY RECORD" after reading the Duties and Notes in each Watch Section. In the Space for "Assigned" he will write "T-Reg.".

The Technician Signing On the 50 KW M.O.L. is the same person who sign, takes over the Watch will complete Items 58 to 60, C.O.R.P. "Items To Be Performed" 50 KW. One Technician will perform all items listed under C.O.R.P. "Items to Be Performed" 5 KW after performing Items 1 to 57 inclusive of C.O.R.P. "Items to Be Performed" 50 KW, and then proceed with other Duties.

Duties of both C.O.R.P. "Items To Be Performed" 50 KW & 5 KW before signing on the 50 KW M.O.L. and 50 KW F.C.C. Log.

(c) It is the Responsibility of the Watch to see that the following is iso carried out;

1. Porter, when on Watch performs his work according to Book #8, "General Nive Building Maintenance".

2. Any necessary extra work is taken care of, such as shovelling snow from Frent and Rear Steps, Plank Walk to East Tower, The Walk to the Spray Ponds; cleaning up Spilled Water; wiping off Dirty Furniture.

3. Assist Technician to clean up after dirty Maintenance Work is finished by Staff or others.

World Radio History

BOOK No. (5)

SEC. No. (E)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

PAGE No. (37)

4. Inspect about the Plant and have improperly done "G.N.B.M." Items done over so that Supervisor willfind the Entire Plant clean and in order upon Morning Inspection.

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BOOK Nc. (5)

C.OR.P. "12m-8am" "8am-4pm" "4pm-12m"

SEC. No. (Σ)

PAGE No. (38)

4:00 PM. (a) The first Reading of the 50 KW Master Operating Log for each Watch will be taken by two Technicians.

(b) The first Reading during each watch need no be taken exactly at 15 where after the hour, but may be taken just before the hour, or just after the whichever is most convenient within the 30 minute period.

(c) This reading will be taken by the Technician going on Duty, who will be accompanied by the Technician being relieved.

In this way, both Technicians will know exactly how the entire WOR Plant is functioning.

There should be no Deviation on Readings, from those taken at the Start of the Transmitter and those at the Shut Down Period.

Discuss readings with those on Watch, and get reasons for any changes in readings during the previous Watch Period.

It is important that Technicians make comparison between Readings taken at the BEGINNING and ENDING of Watch Periods. Normally, there should be no Deviation . during this time.

Discussion on Operation of Speech Input, Transmitters, Receivers, etc., during taking of Log will aid Technicians to properly understand all operations. Both Technicians will cooperate so that Relieving Technician will fine the count in perfect order.

Have you made sure that you have all the information that was to be parted on?
(d) When Technician is relieving at some time other than 12:00 Mignight.
8:00 AM. or 4:00 PM, the same procedure as outlined above will be what i to ,
i.e., both the Incoming and Outgoing Technicians will take the first h ading.

BOOK No. (5) BEC. No. (E)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

PAGE No. (59)

For example, any Technician coming on at any time other than Standard Watch Period, will assume the responsibility of the 50 KW M.O.L.

He has no place to Sign Name on Front of the Log, therefore he will Sign On the Reverse of Log per Sample:

"J.T. Doe on 50 KW M.O.L. at 3:00 PM - Off at 8:00 PM"

He will take the 50 KW M.O.L. reading as outlined.

Relived Technician goes off the 50 KW M.O.L. and continues with other duties. (e) There are filled out "50 KW MASTER OPERATING LOGS" containing readings of NORMAL and ABNORMAL Operating Values among which are: Normal readings taken at 12:15 PM., typical Summer Time readings taken at 2:15 PM., typical Winter Time readings taken at 4:15 PM., readings taken while Antenna System was covered with Ice, Snow and Sleet; readings of Emergency Operation on One Antenna Tower; readings of Abnormal Operation of the 50 KW Transmitter with less than full complement of Tubes in 1st Power Amplifier, 2nd Power Amplifier and 3rd Power Amplifier.

Use these readings freely for comparison purposes whenever any 50 KW Transmitter Value, or Antenna System readings do not appear normal, or when the 50 KW. Transmitter is to be operated in some Emergency manner.

Whenever Emergency or abnormal condition prevents maintaining Power Output within Plus 5% and Minus 10% of 50 KW, immediately revert to the Indirect Method of computing Power Output for 50 KW F.C.C. Log.

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C.O.R.P. "12m-8am" "8em-4pm" "4pm-12m"

SEC. No. (?)

PAGE No. (40)

 4:30 PM.
 Take a complete Set of Readings on the 50 KW F.C.C. Log.

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 4:30 PM.
 Receive "WBAM" Technicians Report when coming on and going off

 Watch.

Enter on Reverse of M.O.L. Name and Time of Technician Coming on Watch, and Name and Time of Technician Going off Watch.

 Book No. () () () () () () ()

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 Page No. () () () () () () ()

4:35 PM. Check the following WOR OPERATING MANUALS for Maintenance to be performed during the Watch.

Make Notes of Same.

Book No. 6 - "PLANT AND EQUIPMENT MAINTENANCE"

Book No. 7 - "TRANSMITTER AND ANTENNA EQUIPMENT MAINTENANCE"

Book No. 8 - "GENERAL NIGHT BUILDING MAINTENANCE"

Book No.10 - "INSTRUCTIONS TO STAFF" "F.C.C. RULES AND REGULATIONS"

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Book No.12 - "WORK TO BE DONE"

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BOOK No. (5)

SEC: No. (E)

C.O.R.F. "12m-8cm" "8am-4pm" "4pm-12m"

PAGE No. (41)

<u>5:00 FM.</u>	Take	e a	0.071	plot	te	Set	of	Rordi	ngs	on	the	50	KW	F.C.C.	Log.
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5:30 PM.	Take	6	con	plet	Je.	Set	of	Readi	.ngs	on	the	50	ĸw	F.C.C.	Log.

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<u>VARIABLE:</u> At the Approach of Derkness, when Outside Visibility falls below 36 Ft. Condles, note that Aviation Lights, and Rotating Ecacon on Roof of Transmittor Building go "ON" <u>Automatically</u> as shown by Red Indicator Lights on the Right R Turnets of Transmitter Room and Control Room Desks. The "Aviation Lights" consist of the Red Rotating Beacon on Roof of Transmitter Building, Red Tlashing Lights on Top of East and West Antenna Towers, and the 100 Ft. and the 200 Ft. Levels Obstruction Lights on the East and West Towers. The Red Indicator Lights on Right Turnets of the Two Control Desks, are marked "AVIATION LIGHTS TOWER".

Go Outside and observe that All Aviation Lights, that is "Tower and "Beacon" are "ON".

If these Lights do not go "ON" Automatically, put them "ON" MANUALLY just before darkness.

Put "ON" Switch #16 "Tower - Beacon" to put "Aviation Lights" "ON" Manually.

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SEC.

C.O.R.P. "1:2m-8am" "8am-41m" "4,m-12m"

PAGE No. (42)

If the "Aviation Lights are put "ON" Manually, anter Time ope Information the 50 KW F.C.C. Log (On reverse side of log).

On the Roof of the Transmitter Building, is a Photo-Electric C. 11, her transmitter Bu "ON" all "Aviation Lights" i.e. "Retary Beseen" on Roof of Transmitter Bu and the "Tower Flashing and Obstruction Lights".

All "Aviation Lights " are Red.

On the Right Turrets of both the Control Room and Transmitter Room Desks, the Red Pilot Lights indicate to the Technician that All "Aviation Lights" have been turned "ON" Automatically or Manually as the case may be, and also that '--"Rotary Beacon" on the Roof of the Transmitter Building is operating with the "Regular" 1000 Watt Lamp in Service.

The White Pilot Lights indicate that the "Retury Beacon" on Roof of Transmitter Building is operating on the Emergency 1000 Watt Lamp.

If "Rotary Beacon" is "ON" the Emergency Lamp, go to the Basement and shut "OFF" only the D.P.S.T. knife Switch marked "ROTATING BEACON".

Replace the burned out Lamp as follows:

1. Take new 1000 Watt Special Lamp to Roof.

2. Loosen Clamps of Light, swing Lens open.

3. Remove burned out Lamp from Regular Position Socket.

4. Remove Lamp from Emergency Position Socket and place it

in the Regular Position Socket.

5. Instell New Lamp in Emergency Position Socket.

6. Lift Lamp Carriage Clamp, swing Carriage to the Left until

it looks in place with the Regular Position Lamp in Conter of Follector. Note Serial Numbers and Positions of Lamps.

Enter Information containing the following on the reverse of the 60 KW M.O.L. Serial Number of Lamp burned out and time removed.

World Radio History

BCCK No. (5)

SEC. Ho. (E)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

PAGE No. (43)

Serial Number of Lump removed from Emergency Position Socket and installed in Regular Position Socket.

Scrial Number of Lamp installed in Emergency Position Socket.

Carriage moved to the Left for operation of the Regular Position Lump. After changing Lumps in Rotary Beacon, put "ROTATING BEACON" Switch "ON", go to Transmitter Room and check if White Pilot Light is "OUT" and if "RED" Pilot Light is "ON" (This is normal).

Go outdoors and observe that All "Aviation Lights" are "ON".

Note any "Aviation Lights" on Towers and any of the "Wbstruction Lights" that may be extinguished and enter this information on the 50 KW M.O.L. Obstruction Lights on East and West Towers at the 100 and 200 foot levels are 100 Watts, Clear, Screw-base Lamps, One Lamp in each position. Flashing Lights on tops of East and West Towers are Special Bayonet Type 500 Watt, Westinghouse Lamps, 2 Lamps on top of Each Tower. One is mounted Base Down and the other with Base up.

Spare Lamps for all Aviation Lights are kept in Transfiles in Storage Room. At any time when one or more of the TOWER FLASHING LIGHTS, and or the "ROTATING BEACON" Lights are "OUT" IMMEDIATELY REPORT THIS CONDITION TO:

> DEPARTMENT OF COMMERCE, DURLAU OF AIR COMMARCE AIR NAVIGATION DIVISION, NEW POST-OFFICE BUILDING, NEWARK, N.J., AIR NAVIGATION DIVISION, TELETYPE GROUP - TELEPHONE MARKET 2-0121.

Inform Person answering the Telephone and he will see that all Airmen, Control Tower and other Persons concerned, are notified.

SEC. No. (E)

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C.O.R.P. "121:-8am" "8am-4pm" "4pm-12in"

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PAGE No. (44)

After notifying him of conditions, just which lights are out, etc.. get his Name and Title, and enter Complete Data on Reverse of 50 KV F.C.C. " ^N " When Towers are Relamped, or Aviation Lights reported (ut, are put notify above Authority that all is Normal, getting Name and Title o: son to whom reported and enter Complete Data on Reverse of F.C.C. Log (1 5).) () () (Book No. ())) (Sec. No. (Page No. () () ()) () () (

VARIABLE: As Darkness approaches, put "On" all Dutside Road Lights, and Flood Lights.

These Lights are controlled by S_w itches #33, 35, 30 and 38, located in the Control Room Wall Panel Box.

BOOK No. () () () () (() Sec. No. ().()) (· Page No. () () () ()) (

6:00 PM. Take a complete Set of Readings on the 50 KW F.C.C. Log. Book No. () ())) ((•) Sec. No. ())))\ () () ()) Page No. () ((

Take a complete Set of Readings on the 50 KW M.C.L. 6:15 PM. Book No. () Sec. No. (())))) Page No. () (((() (

BOOK No. (5)

SEC. No. (E)

C.O.R.P. "12m-8am" "8am-4pm" "4pm-12m"

PAGE No. (45)

6:30 PM. Take a complete Set of Readings on the 50 KW F.C.C. Log.

Book	No.	(·)	()	()	()	()	()
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Begin to get Dinner ready. (Performed by Transmitter Watch). 6:30 PM.) () () () () (Book No. () .)) () (() () Sec. No. () () (. Page No. () () () () ()

7:00 PM.		Take	а	comp	lete	Set	t of	Re	adiı	ngs	on	the	50	KW	F.C.C.	Log.
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7:00 PM. As soon as Dinner is ready, cell Supervisor and all Technicians. When Dinner is over, Two Technician will clean up Dishes, put away food properly Wrapped in Wax Paper, clean and Tidy up the Kitchen.

Book No. () ' () ((()) Sec. No. ())) () () ())) ()) () ((Page No. (). (

Take a complete Set of Readings on the 50 KW F.C.C. Log. 7:30 PM. ()) () () .) •) Book No. ((() () ·) `)) Sec. No. (((() Page No. () () () () (.) ()

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WOR OPFRATING MANUAL C.O.R.P. "12n-8nm" "8au-4, m" " tpp -12m" 8:00 PM. Take a coult te Set of Readings on the 50 NW F.C. Lon. Book No. (()) () () Sec. No.) () (Page No. () () ()) () - () (8:05 PM. Turn "ON" the Hot Water Heater. It is turned on at Switch #10, Control Room Wall Panel Box. This Electric Hot Water Heater is located in the Attic, on the Platform near the Trap Door. Enter on Reverse of 50 KW M.O.L. Time Hot Water Tank Switch is put "ON". Bock No. (()) () () () () Sec. No. (()) () {))) Page No.) () () (() () () Take a complete Set of Readings on the 50 KW M.O.L. 8:15 PM. Book No. (.) () ())) Sec. No.) (() () () Page No. () () () () () () 8:30 PM. Take a complete Set of Readings on the 50 KW F.C.C. Log. Book No. ()) Sec. No. () Page No. () () () (()) 9:00 PM. Take a complete $S_{\Theta}t$ of Reidongs on the 50 KW F.C.1. Log. Book No. () () () () Sec. No. (() ((() ()

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HOUR No. (F)

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C.C.E.P. "Lim-Sam" " $\delta cm - 4 cm$ " "4 cm" "4 cm"

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9:30 P);; * 		Take	શ	compl	.c↓e	Sc1	t of	Rea	wi.	ngs	on	the	50	KW	r.c.c.	¹ .05.	
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11:00	PM.		Take	a	coub	lete	Se	t of	Re	adi	.ngs	on	the	50) KT	fF.C.C	. Log.	
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MEC. No. (2)

C.O.R.P. "12m-Sam" "Sam-4pm" "4pm-12m" .

P.C. No. (18)

12:00 Mid. Take a complete Set of Readings on the 50 KW F.C.C. Log.

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12:00 Mid. Tidy up Operating Desks in both the Control Room and Transmitter Room.

Clean off the Glass Tops of Desks.

Use a Damp Cloth, wiping off Glass with Clean Dry Cloth before glass has time to dry off.

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World Radio History

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World Radio History

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"Audio Facilities Control Econ" - Emergency 4-4 Amplifier	SEC.	No.	(F)
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"Transmitter Roon" - Control Desk - 50 KW Transmitter.	SEC. No.	(F)
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VOR OPERATING MANUAL	BOCK No) . (,	5)
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"50 KW Transmitter Motor-Generators"	PAGE No	J. (•	. 8)

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World Radio History

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