

WOR

1440 BROADWAY
NEW YORK 18, N. Y.

W O R
OPERATING MANUAL

BOOK 6

50 KW TRANSMITTER P & E MAINT.

"FRIDAY" ITEMS

WOR

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50 KW TRANSMITTER P & E MAINT.
"FRIDAY" ITEMS

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"Plant & Equipment Maintenance"

BOOK No. (6)

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FRIDAY

ITEM 1.

Clean the Commutators of the 20 Volt Filament and 300 Volt Bias Motor-Generators in Service, with Coarse Thread Canvas each morning, per "Starting Procedure Carteret", Book No. (3) Sec. No. (A) Page No. (48) Item #55.

(a) "Basement": Proceed to the Basement and clean the Commutator of the 20 Volt Motor-Generator (MG1P or MG2P) in Service with Coarse Thread Canvas.

A Supply of Clean Canvas is kept in the Lower Right Hand Corner of "DL2P" "Filament Selector Switch" Cabinet, located on the 20 Volt Filament Generator Concrete Platform in the Basement.

Fold the Canvas into a Pad 2 inches by 4 inches.

Be sure that there are no loose Threads hanging.

They may come off and tangle with the Brushes and Brush Holders.

Place the Canvas Pad against the Commutator, press firmly, and move back and forth across the Commutator.

Do this on both Sections of the Commutator.

Have One Technician "Standing By" the 50 KW Transmitter "Control Unit" #1 (A) to adjust the "Filament Generator Rheostat" "R16A"

The cleaning of this Commutator may cause the 20 Volt Filament Voltage to vary. Keep adjusting the "Filament Generator Rheostat" "R16A" so as to maintain Voltage Reading on "Amplifier Filament Voltage" Voltmeter "MLA" as specified on the "Starting Procedure Carteret" (19.7 Volts)

Technician will continue "Standing By" until "Amplifier Filament Voltage" is steady.

If Canvas fails to clean properly, use Commutator Brush "Re-seating Stone" kept in Drawer # (6) of Basement Work Bench.

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ITEM 1.

This Stone is used ONLY IF CANVAS FAILS TO "STEADY" the Voltage.

Wipe off End-Bearings and Generator Frame with a Rag lightly dampened with Machine Oil.

Clean Motor-Generator Concrete Base.

Wipe out Drip Pans.

It is essential that cleaning be done very thoroughly, since Carbon and Copper dust collects freely and can cause Erratic Voltage.

Excess Film and Dirt on the Commutator is caused by heavy, continuous Power Load, excess Dirt about the Plant, uneven Brush Pressure, and many other Causes.

Cleaning with Canvas takes care of the Slight Amount of Film that collects on the Commutator and is usually a sure cure for slight Erratic Voltage Fluctuations.

The "Brush Re-seating Stone" takes care of the more "Stubborn" Cases.

Checking Brush Spring Pressure per Wednesday Item #5, Paragraph (D). Page No. (27) takes care of it when Canvas and the "Brush Re-seating Stone" do not.

Cleaning the Commutator each Morning with Canvas leaves the Normal Coating on the Commutator, assuring Perfect Commutation.

The Cleaning Stone improves Brush Performance, reduces Noise, assures even Distribution of Brush Voltage Drop and Brush Wear.

Sparking and Chattering are also reduced.

The "Brush Re-seating Stone" (Cleaning Stone) also cleans Film from the Brushes and helps to re-seat them.

Correct Brush Spring Pressure assures a Steady Output Voltage.

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ITEM 1.

If, after cleaning the Commutator, the Voltage varies considerably, do the following.

Use the "Fisherman's Scale" and increase Spring Tension to 4 Lbs. for each Brush.

The Brush Springs on the Bottom are those which usually lose their Temper the quickest.

See that this is done IF THE "AMPLIFIER FILAMENT VOLTAGE" VARIES MORE THAN 1/2 OF 1 VOLT.

COMMUTATOR NOTES:

NEVER use Emory Cloth.

NEVER use Coarse Sandpaper.

NEVER use SANDPAPER of any kind with FINGER PRESSURE.

NEVER use Oil on Commutators.

NEVER use any Lubrication on Surface of the Commutator.

If Sandpaper is the only Course left, use a #0000 Grain Sandpaper around a Square Edged Block of Wood.

PRESS LIGHTLY against the Commutator.

(b) "Basement": While in the Basement, clean the Commutator of the 300 Volt Motor-Generator (MG3P or MG4P) in Service with Coarse Thread Canvas.

Procedure same as Item No. 1 (a) (Sunday) except for the following:

EXTREME CARE should be exercised when cleaning the Commutator of this Motor-Generator, since the moving of either One of the Brushes from the Commutator will remove the Bias Voltage from the Transmitter and CAUSE 50 KW TRANSMITTER CARRIER FAILURE.

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ITEM 1.

The Left Brush is Positive.

The Right Brush is Negative.

(As viewed from the Generator End of the Machine)

Do NOT USE THE FISHERMAN'S SCALE TO ADJUST SPRING PRESSURE on this Generator.

Press an Insulated Prod against the Brush and attempt to WEAR IT IN.

No adjustment should be made which requires Brush Tension Adjustment or
handling WITHOUT RUBBER GLOVE PROTECTION.

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End Item 1.

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ITEM 2.

Dust all Control Desks, Window Frames and Ledges, 50 KW Transmitter and 5 KW Transmitter Enclosures, Spare Tube Room Enclosure, Antenna Coupling Room Enclosure, Tops of Tables and Chairs, and all Equipment that may be reached on the Main Floor of the Transmitter Building.

(a) "Transmitter Room": Proceed to this Room and dust with a Soft Dry Cloth all Equipment as listed.

Transmitter Room Control Desk.

50 KW Transmitter Front Panels with Meters and Controls, Units #1 (A) to #8 (I) inclusive.

Exercise Care not to alter any Adjustments.

5 KW Transmitter Front Panels with Meters and Controls, Units #1 (A) to #6 (F) inclusive.

Exercise Care not to alter any Adjustments.

"WREY" Beacon Transmitter Front Panels with Meters and Controls.

Window Frames, Doors and all Equipment in the Transmitter Room.

Procedure in Dusting is simple, merely wipe off with clean Cloth, shaking Outdoors frequently.

Dust is settling very fast and cooperation on our part will aid the "Non Technical Building Maintenance Technician" and lighten his Cleaning Burdens.

(b) "Audio Facilities Control Room": Proceed to this Room and dust with a Soft Dry Cloth all Equipment listed.

Audio Facilities Control Desk - Left Turret, Slanting Turret, and Right Turret.

CAUTION: Exercise Care not to change the positions of any of the Keys on the Slanting Turret while Dusting.

Best Procedure is to hold Key with Finger while dusting.

Use a small piece of cloth and wipe Dust off this Slanting Turret very carefully,

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ITEM 2.

since accidentally knocking a Key "Off", or changing the Position of a Key might cut the Audio Feed to the Transmitter, taking the Program Off the Air. Dust all parts of Audio Facilities Control Desk, including the Telephone and Morse Instrument Compartments.

Audio Facilities Speech Input Equipment, Bays #1 #2 #3 #4

CAUTION: Exercise Care not to alter the Adjustments of any Amplifiers or other Equipment on these Bays.

BE CAREFUL not to accidentally knock "Off" any 115 Volt A.C. Supply Switch on any of the Amplifiers or other Equipment on these Bays.

Window Frames, Doors, Furniture and all Equipment in this Room.

Procedure same as Item No. 2 (a) (Sunday)

(c) "Supervisor's Office": Proceed to this Room and dust with a Soft Dry Cloth all Equipment as listed.

Supervisor's Desk.

Window Frames, Doors, Furniture and all Equipment in this Room.

Procedure same as Item No. 2 (a) (Sunday)

(d) "Reception Office": Proceed to this Room and dust with a Soft Dry Cloth all Equipment as listed.

Office Desk.

Steel Files.

Window Frames, Doors, Furniture and all Equipment in this Room.

Procedure same as Item No. 2 (a) (Sunday)

(e) "Measuring Equipment Room": Proceed to this Room and dust with a Soft Dry Cloth all Equipment as listed.

Office Table.

Steel Files.

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ITEM 2.

Drawing Table.

50 KW Transmitter Distilled Water Expansion Tank and associated Pipes.

5 KW Transmitter Distilled Water Expansion Tank and associated Pipes.

Measuring Equipment Bays #3 #4 #5 #6 #7 #8 #9.

CAUTION: Exercise Care not to alter the Adjustments of any Amplifiers or other Equipment on these Bays.

BE CAREFUL not to accidentally knock "Off" any 115 Volt A.C. Supply Switch on any of the Amplifiers or other Equipment on these Bays.

Window Frames, Picture Frames, Enclosure Ledges, Doors, Furniture and all Equipment in this Room.

Procedure same as Item No. 2 (a) (Sunday)

(f) "5 KW Transmitter Enclosure": Proceed to Passageways on both Sides and Rear of this Transmitter and dust with a Soft Dry Cloth all Metal Panels and Ledges.

Procedure same as Item No. 2 (a) (Sunday)

(g) "Kitchen": Proceed to this Room and dust with a Soft Dry Cloth all Equipment as listed.

Kitchen Table and Chairs.

Storage Cabinets.

Food Cabinet.

Top, Back and Sides of "WREY" Beacon Transmitter.

Window Frames, Doors, Furniture and all Equipment in this Room, such as Electric Refrigerator and Electric Stove.

Procedure same as Item No. 2 (a) (Sunday)

(h) "Lavatory": Proceed to this Room and dust with a Soft Dry Cloth all Equipment as listed.

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ITEM 2.

Window Frames, Doors, Furniture and all Equipment in this Room.

Procedure same as Item No. 2 (a) (Sunday)

(i) "Spare Tube Room": Proceed to this Room, enter the Enclosure and dust with a Soft Dry Cloth all Equipment as listed.

All Metal Panels and Ledges.

Glass Frame in Door and entire Door.

Leave this Room, close the Door, then proceed to dust with a Soft Dry Cloth all Metal Panels and Ledges, Glass Frame in Door and entire Door.

(j) "50 KW Transmitter Enclosure": Proceed to Passageways on both Sides and Rear of this Transmitter and dust with a Soft Dry Cloth all Metal Panels and Ledges#.

Dust Walls, Door Frames, License Frame in these Passageways.

Procedure same as Item No. 2 (a) (Sunday)

(k) "Antenna Coupling Room": Proceed to the Front of this Room and dust with Soft Dry Cloth all Metal Panels and Ledges.

Procedure same as Item No. 2 (a) (Sunday)

(l) "Rear Door": Proceed to Areaway in Front of Rear Entrance Door, and dust Walls and Ledges.

Procedure same as Item No. 2 (a) (Sunday)

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ITEM 3.

Touch up Spots, Worn Places, Marks, or Chipped Paint on Bays #1, #2, #3, and #4 as well as Control Desk in "Audio Facilities Control Room".

Touch up Spots, Worn Places, Marks, or Chipped Paint on Bays #5, #6, #7, #8, and #9 in "Measuring Equipment Room".

Touch up Spots, Worn Places, Marks, or Chipped Paint on "Transmitter Room" Control Desk.

(a) "Storage Room": Proceed to this room and gather special paint and small paint brush to perform this item.

"Special Grey Paint" (Kept in Storage Room)

"Special Grey Crinkle Paint" (Kept in Storage Room)

"Special Black Crinkle Paint" (Kept in Storage Room)

"Special Black Paint" (Kept in Storage Room)

Small "School Set" Paint Brush (Kept in Storage Room)

Clean Polishing Cloth (Kept in Storage Room)

(b) "Audio Facilities Control Room": Proceed to this room and Touch up all Spots on Bays #1, #2, #3, #4, and Control Desk.

Inspect Fronts, Rears, and Sides of all Bays, for Marked, Chipped Paint, or Worn Places.

Carefully paint the spots with small amount of Special paint to match either original Grey or Black paint.

Inspect 268-A order wire panel, slanting turret, right turret, front, sides, and space beneath Control Desk for Marked, Chipped Paint, or Worn Places.

Carefully Touch up the spots with small amount of Special paint to match either original Grey or Black paint.

(c) "Measuring Equipment Room": Proceed to this room and Touch up all Spots on Bays #5, #6, #7, #8, and #9.

Carefully paint the spots with small amount of Special paint to match either original Grey or Black paint.

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ITEM 3.

(d) "Transmitter Room": Proceed to this room and Touch up all
Spots on Left and Right Turrets, Front, Sides, and Space beneath
Control Desk.

Carefully paint the spots with a small amount of Special paint to match
either original Grey or Black Paint.

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End Item 3

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Inspect then clean and polish all Measuring Equipment not permanently installed in the "Measuring Equipment Room".

Measuring Instruments are kept on "Measuring Bench" in Basement; "Portable Fuse and Test Unit" in Main "Transmitter Room", and Transfile No. (✓✓).

(a) "Basement": Gather all Tools and Cleaning equipment necessary to perform this item.

Small screw driver (Kept on Display Board of Basement Work Bench)

Small precision screw driver (Kept in Leather Relay Kit #1 in "Portable Fuse and Test Unit" in "Transmitter Room")

Bottle of Staffords Polish (Kept on Display Board of Basement Work Bench)

Tube of "Walscolube" (Kept in Maintenance Tray #1)

(b) "Basement": Inspect all Measuring Equipment to determine that it is in Good Working Order and Condition.

The following Data will prove helpfull when servicing Measuring Equipment.

"NOTES ON THE CARE AND MAINTENANCE OF GENERAL RADIO INSTRUMENTS"

PROPER CARE AND MAINTENANCE are obviously necessary if Optimum Performance and long Life are to be obtained from electrical and mechanical Instruments, yet the Experience of our Service Department with returned Instruments indicates that Most users of General Radio Instruments do not follow a definite Maintenance Program.

The fine degree of Accuracy of many of our Instruments is dependent in part upon the smooth operation of Controls free from Backlash, Clean Contacts, and the exclusion of Dust and Foreign Matter.

A large part of the charge made for Reconditioning Instruments is for the

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Labor of Replacing Parts that have not been properly cared for, Cleaning Contacts, Lubricating Moving Parts and Removing Foreign Matter such as Dust, Grit, Insects, Bits of Metal, Salts from Corrosion and the like. Much of the Inconvenience and Expense of returning instruments for Repair could be avoided if the user followed a program of Periodic Inspection and Adjustment in his own Laboratory.

Of course, in many applications Operating Conditions are such that the wear and Corrosion are inevitable, but a definite Maintenance Program will help to minimize Deterioration and Failures .

Although the individual conditions of use will determine the details of any maintenance program, the following suggestions are offered to assist the User of General Radio Equipment in any Servicing he may choose to do. Equipment used for Production Testing demands frequent Servicing. An instrument operated occasionally may have to be serviced each time used because of the Oxidation of Contacts, Switches, etc., presence of foreign matter, and possible Moisture.

Lack of Lubrication and the presence of Foreign Matter on switches, Contacts, Bearings, Controls and Mechanisms cause considerable difficulty even when an instrument is relatively new.

Instruments should be kept as Clean as Possible.

A solution of Half Alcohol and Half Ether is recommended for Switch and Relay Contacts, Contact Surfaces of Wire-Wound Controls, Slide Wires and Mechanical Contact Surfaces of various types such as Mouse-Trap Type Attenuators, Detent Mechanisms, Gear Trains, Shafts and Bushings.

To remove Oxidation or Corrosion, a fine Abrasive such as Crocus Cloth may be
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used, but its use is limited to relatively large Contact Surfaces such as those on Variacs, Attenuators and Relay Contacts. A very Fine Grade of Sand Paper is recommended on certain types of contacts, although the Residue must be removed with a fine brush for smooth operation. Fine sand paper may be used on Wire-Wound Controls, Key Switches, Push Switches, Anti-Capacity Type Switches, and Multi-Blade Contact Rotary Switches, also on Contact Buttons and Relays.

Some Assemblies, such as Synchro-Clocks, Piezo-Electric Crystals, Motors, and Meters require Special Attention.

Synchro-Clocks should be carefully cleaned by one acquainted with fine mechanisms of this type.

Quartz Crystals should be returned to the factory.

Electric Motors demand the usual attention to Commutator Surfaces, Brushes and Bearings.

Meters should not be cleaned except by one skilled in handling such fine work.

Proper lubrication is very important in the maintenance of precision instruments.

Some Bearing Surfaces require a Grease, while for other, Oil is best. When Instruments are assembled at the Factory, moving parts are Lubricated with either "Lubrike" (Density MD, manufactured by Master Lubricants Company, Philadelphia, Pa.) or a fine grade of Clock Oil or "Walscolube" and use of these lubricants is recommended in maintenance.

"Lubrike" or "Walscolube" have been selected because they are Acid-Free and because they adhere to Moving Parts, better than most lubricants.

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They are recommended for use on Wire-Wound Controls, Button Contacts, Attenuators, and the Type 200-B Variac.

However, a very thin film should be applied, as a large quantity will cause Foreign Matter to Collect.

For Detent Mechanisms, Chain Drives and Gear Trains, Ball Bearings, Shafts, Vernier Drives, Etc., a Larger amount should be used.

These moving parts require lubrication more frequently to prevent wear.

The use of a fine grade Clock Oil is recommended for Slide Wires, Push Button Switches, Synchro-Clocks, and Condenser Bearings.

This type of Lubricant should be applied in very small quantities.

A thin film applied with the finger will suffice for a slide wire but this should be done frequently because of evaporation.

The Small Gear on the Shaft of the Rotor of a Synchro-Clock requires Lubrication every few months.

Likewise the Bearings should be oiled to insure proper operation.

Condenser Bearings (Cone Type) require occasional Lubrication in small quantities.

Tubes and batteries in our equipment should be tested frequently and replaced if necessary. Only such types as recommended for our instruments should be used.

It is always well to inspect the wiring in an instrument. While every effort is made during manufacture to solder firmly each connection, occasionally one will break loose due to excessive vibration either in transit or in use.

Dials are lacquered and usually do not require much attention. However, the use of an oil polish will improve their appearance. For smooth operation, Slow-Motion Drives, either friction or gear type, must be cleaned occasionally.

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A fine brush and a cloth saturated with Carbon-Tetrachloride are satisfactory.

Air condensers require occasional attention and the dirt and lint between the plates can be removed with pepe cleaners. With calibrated Condensers, care must be taken not to bend the Plates. Foreign matter between terminals on a fixed Condenser should be periodically removed, otherwise the combination of dirt and moisture will produce a low value of Leakage Resistance.

An oil Polish may be used on Wood Cabinets, Panels, and Dust Covers to improve appearances. The Crackle Finish can be restored to it's original appearance by using an oil Polish and carefully wiping afterward.

For specific Instruments, these general suggestions often must be supplemented by more specific information, usually included in Instruction Books. Whenever additional service or Maintenance Instructions are needed, the Service Department will gladly supply the necessary Information.

(c) "Transmitter":

PROPER USE OF VOLTMETERS - AMMETERS - OHMMETERS ETC.

Transfiles No. (55) (56) (57) () () and the Measuring Bench have been provided for the purpose of holding our Voltmeters, Ammeters, V.I. etc.

Since all Technicians are capable in the handling of such delicate Instruments, a Burn out, Breakage, etc., by carelessness will mean only one thing, that is, all of us at Carteret will have to pay for repairs.

The Station cannot be billed for Careless Damage when it is not known who caused same.

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ITEM 4.

As is true of other Breakage or Damage about the Plant, please report any Damage caused to these Instruments, so that proper measures may be taken to prevent any repetition of same.

TECHNICIANS USING THESE INSTRUMENTS WILL PLEASE LEAVE THEM CLEAN AFTER USING.

Use Weston Model 45 Voltmeter for measuring Voltages in 50 KW and 5 KW Transmitters.

Hickok and Jewell Meters are to be used for Measurements of Voltages and Currents on our Remote (Nemo) Equipment etc.

Meters equipped with mirrors just below scales are to be read by the following method:

Adjust Zero setting by looking directly at face of meter and line up the needle and the reflection of needle so that only one needle is seen, now read throughout entire scale by the same method.

Exercise Care in placing Meters so that leads do not hang in heavy fields since this causes error in measurements.

Small D.C. Meter attached to Wood Box has two Scales; 0 to 300 Milliampere and 0 to 3 Amperes.

There are 2 Shunts for these Scales inside of the Box.

When measuring D.C., be sure that Correct Shunt is wired in use, otherwise Meter will be damaged.

The Triplet Meters are for use when on "Nemos" or other jobs, etc., also to be used at the Plant whenever desired.

Weston Type 663 Volt-Ohmmeter is used for Continuity Test, Measurements of Resistance, etc., and for Tower and Coupling House D.C. Measurements and Resistance.

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Weston Type 772 Precision Meter is used for Measurements of A.C. Voltages, Currents, D.C. Voltages, Currents, Continuity and Resistance measurements.

EXERCISE CARE IN THE USE OF METERS SO THAT SAME ARE NOT CONNECTED TO VOLTAGES OR CURRENTS IN EXCESS OF SCALE MEASUREMENTS. BE SURE THAT CORRECT SCALE IS CHOSEN BEFORE INSERTING THE METER IN THE CIRCUIT, THIS WILL ELIMINATE BURN OUTS OR BENT NEEDLES.

Check for broken connections, loose battery wires, weak or dead batteries, broken gauges, broken glasses, etc.

Make repairs where necessary, but do not break any manufacturer's seals on instruments.

It is not necessary to take instruments and apparatus apart in order to check same.

Please use Stafford's polish on black crackle finish panels of instruments.

Polish Fronts and Sides of all Instruments.

All Voltmeters, Tube Testers, Ammeters, Watt meters, and Continuity meters, and any other instrument which may be found on the Measuring Bench are to be cleaned.

REMEMBER; THAT THESE ARE EXPENSIVE INSTRUMENTS and require care in handling. Enter on "50 KW M.O.L." and report to Supervisor any information or data pertaining to defective instruments, extent of defect, renewals, repairs, anetc.

Open case of all instruments containing batteries, and measure under load.

Procedure same as 5th. Monday Item No. (15) Page No. (75) to No. (78).

Put "On" the "A" and "B" battery switches and measure total voltage under load.

For this measurement use High Resistance Voltmeter (Weston Model #772).

Briefly test the instrument per operating instructions, if it contains batteries.

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After testing an Instrument containing batteries, hang a tag on it containing Data . If o.k., date, battery voltage, and sign per example:

Test OK 10/30/42

"A" -- 6 V

"B" -- 125 V

"C" -- 4.5 V

ROB.

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ITEM 5

Inspect, Service, and Test the following Short Wave Equipment:

Make Entries on Charts in Book No. (6) Sec. No. (G) Pages No. (66)
to Page No. (68).

Receivers and Power Supplies:

Hammarlund Receivers #1049, 1050, 2691, 3136, 3728:-

Hammarlund A.C. Power Units #1 - 2 - 3:-

Hammarlund Dynamotor Units #1 - 2 - 3 4 5:-

WOR U.H.F. Program Receiver #1.

WOR U.H.F. Program Battery Box #1.

WOR U.H.F. Cue Receiver #1176F-3

WOR I.F. Cue Receiver #1176F-3

N.C. 1-10 Receiver #1 - 2.

SW-3 Receiver #1 - 2.

G.E. LB-530 Receivers #1 - 2 - 3 - 4 - 5.

G.E. LB-530 Power Units #1 - 2 - 3 - 4 - 5 - 6 - 7.

R.C.A. Receivers #1 - 2 - 3.

Motorola Receiver #1.

Frequency Monitors:

WOR I.F. #1.

WOR U.H.F. #2.

Field Strength Meters:

R.E.L. #1.

Pre-Amplifiers:

WOR 5-A #1 - 2 - 3.

Mixing Units:

WOR S.W. Mixer

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S.W. Bags:

Radio Bag #

Audio Bag #

Transmitters and Power Supplies:

~~KAY 613~~
WBAM - Serial #1

~~KAY 614~~
WBAM - Serial #2

~~KAY 616~~
WBAM - Serial #3

~~KAY 615~~
WBAM - Serial #4

~~KAY 612~~
WBAM - Serial # *Wegle F*

WBAR - Serial #

WBAS - Serial #

Transmitter Dynamotor Power Unit #1 - 2 - 3 - 4.

Transmitter A.C. Power Unit (#1) - 2.

Miscellaneous

Antennas ✓

Antenna Rods ✓

Antenna Transmission Lines. ✓

Spare Tube Kits. ✓

Spare Parts Kits. ✓

Wave Meters

(a) "Basement": Gather the following tools and equipment needed for the performance of this Maintenance Item:

Screw Drivers (Kept on Display Board *own Telephone Cabinet* of ~~Basement Workbench~~)

Pliers (Kept on Display Board of ~~Basement Workbench~~)

Weston 506 Dry Battery Test Meter (Kept in Battery Locker)

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Pair of Headphones (Kept ~~on Rack adjacent to 5 KW Motor Generator Set~~ *in transfile # near entrance to Smith Room*)

Supply of Clean Rags (Kept in Drawer #3 of Basement Workbench)

1 - 633-A Microphone (Kept in Transfile # 115) *by Smith room door*

1 - "Ohmite" Dummy Antenna (Kept in Transfile # 141) " " " "

2 - 6 Volt Storage Batteries (Kept in Storage Room)

Supply of Metal Rimmed Tags (Kept in Stationery Locker)

Bottle of Stafford's Polish (Kept ~~on Display Board of Basement Workbench~~ *in maintenance #2*)

(b) "Basement": Proceed to the Short Wave Shelves in the Basement and remove the Hammarlund Receiver #1049 from the Shelf and place it in front of the Work Bench.

Remove wooden cover and unscrew wood screws holding receiver in wooden case.

Lift the receiver out of the case and place on work bench.

Remove the thumbscrews on front and machine screws in back, holding receiver cover in place.

Remove the receiver cover and inspect the receiver noting that all tubes are in the sockets securely and all grid caps and shields are in place.

Check all parts for looseness and dust out thoroughly.

Replace the cover on the receiver.

Take Hammarlund A.C. Power Unit from short wave shelf and place on floor in front of Work Bench.

Remove top wooden cover from Power Unit and plug 110 V. A.C. Plug into the A.C. Outlet on the under side of the work bench.

Connect the "Jones" plug from the power unit to the "Jones Plug from the receiver.

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Turn "ON" the Receiver Power Switch.

Connect an Antenna Lead from the Antenna Terminal on the Receiver to the Antenna Terminal Board on the under side of the Work Bench just to the left of Drawer #9.

Proceed to the "Measuring Equipment Room" on the Main Floor to Bay #6 Panel #3 and see that the "Receiver No. 4" Switch of the "Receiver - Antenna Selector Switches" is on Position No. 4.

This connects the Short Wave Transmitting and Receiving Antenna to the Antenna Terminal Board in the Basement.

Proceed to the Basement and Plug a pair of headphones into the Output Jack on the front of the receiver.

Carefully check the receiver for noise, hum, distortion or other faults.

Tune over each frequency band of the receiver noting quality and operation of several Stations on each band, both on Phone and C.W. Reception.

Note operation of all Controls on the front panel and see that they are free from noise during operation.

Turn A.C. Power Switch "OFF".

Remove A.C. Power Unit "Jones" Plug from receiver "Jones" Plug.

Check for Spare Tubes in the Power Unit.

One 5Z3 and one 80 Type Tubes are Correct Spares.

Clean off A.C. Power Unit and replace the Cover.

If necessary, repaint any Chapped or Scratched Paint on the Cabinet.

Enter Date, Tested (OK or NG), and Signature on Metal Rimmed Tag and attach tag to the Handle of the Power Unit.

Replace A.C. Power Unit on Short Wave Shelf.

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Take Hammarlund Dynamotor Unit #1 from Short Wave Shelf and place in front of Work Bench.

Remove Cloth Cover and open front Cover of the Unit.

Place Switch on the Top of the Unit to "OFF".

Inspect inside of Dynamotor Box.

Check all screws, plugs, etc. for looseness.

Tighten where necessary.

Take out the two Rubber Covered Battery Leads.

Observe the Polarity as indicated on the Clips and Connect to the 6 Volt Storage Battery.

Turn "ON" the Bias Switch located on the Top of the Choke inside the Un
Dynamotor Unit.

Connect the Dynamotor "Jones" plug to the Receiver "Jones" plug.

Put "ON" Receiver Power Switch.

Allow the Receiver Tube Filaments to heat for a few moments, then put "ON"
Switch on the top of the Dynamotor Box.

This will put Dynamotor in operation and supply Plate Voltage for the Receiver.

Test the Receiver, using the same procedure as outlined previously with the
A.C. Power Unit.

After Test is completed, put "OFF" Switch on top of Dynamotor Box.

Put "OFF" Switch for Bias Voltage inside the Dynamotor Unit.

Put "OFF" Receiver Power Switch.

Disconnect the Dynamotor "Jones" Plug from the Receiver "Jones" Plug.

Disconnect the Storage Battery Leads from the Storage Battery.

Disconnect the Plug from the 45 Volt Bias Battery.

This is an Eveready "Mini-Max" Type No. 482 "B" Battery.

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Use the Weston Type 506 Dry Battery Tester and check the Voltage of the Bias Battery.

For Procedure See Thursday Item No. (3) Paragraph No. (d)

Replace this Bias Battery if the "Voltage under Load" falls below 33 Volts.

Clean all Parts and Touch up with paint where scratched or chipped.

Coil the Cords neatly inside the Unit.

Replace Cloth Cover on Dynamotor Unit.

Enter Date, Tested (OK or NG), Bias Battery Voltage, and Signature on a Metal Rimmed Tag and attach same to the Handle of the Dynamotor Unit.

Place Dynamotor Unit back on the Short Wave Shelf.

Thoroughly clean the Hammarlund Receiver.

Polish knobs with Stafford's Polish.

Clean off Dials and Meter Glasses.

Touch up any scratched or chipped spots with proper Paint.

Disconnect the Headphones and the Antenna Lead from the Receiver.

Replace the Cover on the Receiver, and place the receiver back in the Wooden Case.

Replace the long wood screws holding receiver in Cabinet, then place Cover on the Case.

Enter Date, Tested (OK or NG) and Signature on a Metal Rimmed Tag and attach same to the Receiver Case Handle.

Clean off case and touch up any scratched or chipped spots with proper Paint.

Put the Receiver Back on the Short Wave Shelf.

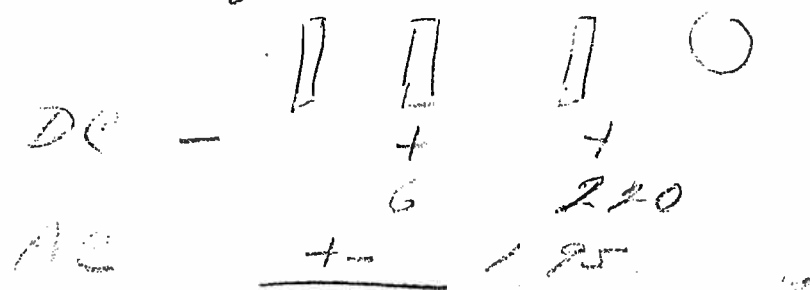
(c) "Basement": Inspect, Service, and Test Hammarlund Receivers #1050, 2691, 3136 and 3728; AC Power Units #2 & #3; Dynamotor Units #2 & #3.

Procedure: See Friday Item No. (5) Paragraph (b).

Continued on next Page.

here. Power supply out of case
 Power supply in case. Two sets
 A.C. - 2 V. terminals
 & banana plugs.
 A.C. min. fil at A - 5.5 min. 3
 B+ = 195 + 15%

Block diagram should show



Re. sec. & 1st sec. plugs
 in receiver same as in case

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(d) "Basement": Remove the WOR - U.H.F. Program Receiver #1 from the Short Wave Shelf and place on the Work Bench,

Remove the cloth cover and the Receiver Cover.

Unscrew the thumb Nuts on the left front panel and pull out the receiver. *Remove is left hand unit*
Check Wires, terminals, and parts *(visually) for loose connections*

Note that tubes are in sockets securely and that Grid Caps are properly in place.

If not push gently down in place.
Replace the Receiver and thumb screws.

Plugs in back and so that carefully force banner
Unscrew the thumb screws from the right front panel and pull out the A.C. Power Unit. *110V*

Unit.

visually
Inspect parts, terminals and wires. *for loose connections. Tighten all connections.*

Note that tubes are securely in the Sockets.

Replace the Power Unit and *tighten* thumb screws.

#
Check the Spare Tubes in the Center Compartment.

Remove the A.C. Cord from the Center Compartment and connect from Power Unit *110V* to the A.C. Outlet on Work Bench.

Put Power Switch to A.C. Position.

Check operation of the Receiver by listening to WOR Harmonics. *or consult set of WBAE - WBSZ to listen to these radio stations.*
Disconnect the A.C. Power Cord from the Program Receiver Power Supply.

Take the U.H.F. Program Receiver Battery Box #1 from the Short Wave Shelf and place in front of the Workbench.

Remove the cover from the box.

Connect the Rubber covered "A" Battery leads to the Battery Box with the Spade Lugs.

Continued on next Page.

Put print line.
Put Block diagram line.

—
regalid capids & go into

11.16

—

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and to ^athe 6 Volt Storage Battery with the Battery Clips.

Observe Polarity at all times.

Plug the Battery Cable into the Battery Box and into the receptacle on the Receiver Power Supply Front Panel.

Put Power Switch to D.C. Position. and

Check operation of Receiver by listening to the output.

Test all "B" Batteries in the Battery Box, using the Weston 506 Dry Battery

Tester. *Total B = 6 x 45 or 270 min = 198V*

Procedure: See Thursday Item No. (3) Paragraph No. (f)

Replace any "B" Batteries falling below Minimum of 33 Volts.

Enter Replacement on Form in Book No. (6) Sec. No. (F) Page No. (37)

When Test is completed, put Receiver Power Switch to A.C. Position.

Remove the Battery Cable.

Remove the Battery Cables from the Battery Box and Replace the Cover.

See battery cables & handle of Battery box.
Enter Date, Tested (OK or NG), Battery Voltage, and Signature on Metal Rimmed

Tag and attach same to handle of the Battery Box.

Replace Battery Box on the Short Wave Shelf.

Clean the Program Receiver Panel and Polish the knobs with Stafford's Polish.

Wipe off Meter Glass with damp rag.

Repaint with proper paint any scratches or chipped spots on the Receiver.

Replace the Front Cover and the Cloth Cover.

wipe off Battery box with little Stafford's Polish.
Enter Date, Tested (OK or NG) and Signature on a Metal Rimmed Tag and attach

same to Handle of Receiver.

Replace Receiver on Short Wave Shelf.

When required, replace receiver. Procedure
Continued on next Page.

cedure in Book 11.16 To be transferred and here.

A Battery: one type 23A

1.5 V.

B Battery 2 type 23A x 45 each
in series 7.5 V

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(e) "Basement": Remove the WOR U.H.F. Cue Receiver #1176F-3 from the Short Wave Shelf and place on the Work Bench.

Remove the cloth cover and open the receiver front Cover.

Remove the Cover Screws and lift out the Receiver Chassis.

Inspect Carefully for loose connections, parts, tubes.

See that grid caps and shields are tightly in place and that tubes are securely in sockets.

Replace the Receiver Chassis in the Case and put back the Screws.

Remove the four screws holding the Rear Bottom Panel of the Receiver.

Test the Batteries behind this panel, using the Weston 506 Dry Battery Tester.

Replace any Batteries with Voltage lower than that indicated on the Battery Chart in Book No. (6) Sec. No. (C) Page No. (80).

Replace Battery Cover Plate on Rear Bottom of Receiver.

Insert Headphone Plug into Jack on Front Panel of Receiver.

Put "ON" Receiver by turning Combination Volume Control and Switch Knob to Right.

Screw Antenna Rod into Receptacle on top of Receiver.

This Antenna is located in a pocket of the Cloth Cover.

Tune over entire tuning range of Receiver and listen for WOR Harmonics. *or tune in Mike nutting CUBA R - WIF AS*
Check for noise and improper operation.

Turn "OFF" Combination Volume Control and Power Switch (counter-clockwise)

Clean and Polish Front Panel and Knobs with Stafford's Polish..

Close cover on front panel and clean outside of receiver.

Repaint any Scratches or Chipped Spots with proper paint.

Continued on next Page.

Orchest & best way to align
receiver is as follows.

Connect 605 B Leg generator
to ~~the~~ ^{the} ~~terminals~~ ^{input}. 125 det
tube grid & grid.
~~Take~~

Connect Variable output
of 605 B thru .0508
line up if . . .

Then connect to ant
input.

line up same as for
u H F p gm receiver.

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Unscrew the Antenna Rod from the Receiver Receptacle and place in the pocket of the Cloth Cover.

Place the cloth cover on the Receiver.

Enter Date, Tested (OK or NG), Battery Voltage, and Signature on Metal Rimmed Tag and attach same to the Handle of the Receiver.

Place the Receiver on the Short Wave Shelf.

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

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

(f) "Basement": Inspect, Service and Test the WOR I.F. Cue Receiver #1176F-3.

Procedure: See Friday Item No. (5) Paragraph No. (8). Page No. (27)

Book No. (11.9) () () () () ()

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

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(g) "Basement": Inspect, Service and Test the N.C. 1-10 Receiver #1.

Place this receiver on the Basement Workbench. ✓

Unscrew the four thumb nuts holding the top front cover in place.

Remove the cover and pull the receiver part way out of the Case.

Remove the antenna leads connected to the 2 Antenna Posts on top of the Receiver.

Lift up the hinged-cover of the receiver.

Carefully inspect for loose or broken connections.

See that the tubes are securely in the Tube Sockets.

BE VERY CAREFUL IN CHECKING THE "ACORN" TUBES AS THE TUBE PRONGS ARE DIRECTLY IN THE GLASS, AND ANY UNDUE STRAIN WILL CRACK THE SEAL.

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Connect the Antenna Leads to the receiver and place the Receiver back in the Case.
Remove the 4 Screws holding the bottom cover in place and proceed to test the
Batteries on the lower shelf.

Use the Weston 506 Dry Battery Test Meter.

Proceedure: See 5th Monday Item No. (15) Page No. (75) Paragraph (a)
For Minimum Battery Voltage See Form in Book No. (6) Sec. No. (C)
Page No. (80).

Replace any Batteries below this Minimum.

Replace the bottom Cover.

Check the Spare Coils and Tubes in the Compartment below the Receiver.

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

Also see Tuning Chart on inside of Receiver Cover.

Plug the receiver Battery Cable into the Battery socket on the front of
the Receiver Shelf and Turn Receiver "ON".

Carefully tune over each band of the Receiver with each set of Coils.

Listen for WOR Harmonics, and note any noise as Receiver is tuned and various
controls operated.

All controls should operate smoothly and quietly.

Turn "OFF" Receiver and remove Battery Cble Plug from Battery Socket.

Polish the dials of the Receiver with cloth dampened with Staffords Polish.

Replace the Front Cover and clean the outside Cabinet of the Receiver with Stafford's

Enter Date, Tested (OK or NG), Battery Voltage, and Signature on a metal rimmed
tag and attach same to the Handle of the Case.

Place receiver back on "Short Wave Shelves".

Book No. (//) (//13) () () () ()

Sec. No. (J) (A) () () () ()

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(h) "Basement": Inspect, Service and Test the N.C. 1-10 Receiver #2.

Procedure: See Friday Item No. (5) Page No. () Paragraph (g).

Book No. (//) (//13) () () () ()

Sec. No. (J) (A) () () () ()

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

(i) "Basement": Inspect, Service and Test the S.W.-3 #1 Receiver.

Place the SW-3 #1 Receiver on the Basement Workbench.

Remove the 4 Thumb Nuts holding the top front ~~mx~~ Cover in place and remove the Cover.

Remove the receiver from the Cabinet and open the top Hinged Cover.

Check that all tubes are in the sockets properly, and that grid caps and Shields are securely in place.

Check all parts for loose connections.

Place the receiver back in the Cabinet.

Remove the two thumb screws holding the lower cover in place and take off the Cover.

Check Coils and Spare tubes in the Lower Compartment.

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

Also see list of Coils in the receiver Cover.

Test all Batteries.

Use the Weston 506 Dry Battery Test Meter.

For Minimum Battery Voltage see Battery Chart in Book No. (6) Sec. No. (C)
Page No. (80).

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Procedure: See 5th Monday Item (15) Page No. (75) Paragraph (a.)

Inspect the Receiver Battery Cable for loose or broken Connections.

Plug this Cable into the Battery Socket.

Attach the Antenna Leads from the Receiver Antenna Terminals or rear of the Receiver to the Antenna Terminals under Workbench adjacent to Drawer #9.

Put Receiver Power Switch "ON".

Tune over entire range of each band, checking several phone and C.W. Stations on each band.

Check for Noise while tuning and operating controls.

All controls operate smoothly and quietly.

Put Receiver Power Switch "OFF".

Remove the Receiver Battery Cable Plug from Battery Socket.

Clean the Receiver, polishing knobs with Stafford's Polish.

Replace the Front Covers and clean off Case.

Touch up with proper paint any scratches or chipped spots.

Enter Date, Tested (OK or NG), Battery Voltage, and Signature on metal rimmed tag, and attach same to the handle of the Receiver Case.

Replace the Receiver on the "Short Wave Shelves".

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

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(j) "Basement": Inspect, Service and Test the S.W.-3 Receiver #2.

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ITEM 5

Procedure: See Friday Item No. (5) Page No. (30) to (31) Paragraph (i).

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Sec. No. (~~A~~) () () () () ()

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

(k) "Basement": Inspect, Service and Test the G.E. LB-530 Receiver #1.

Place this receiver on the Basement Workbench.

Remove the Back of the receiver by pulling the attached leather flap.

Check the Storage Battery.

The degree of charge can be determined by observing the "Charge Balls Indicator".

These are the Green, Red, and White Balls in the Battery.

The Green Ball sinks when 10% of Battery Capacity has been discharged.

The White Ball sinks when 50% of Battery Capacity has been discharged.

the Red Ball sinks when 90% of Battery Capacity has been discharged.

On charging the balls appear in reverse order.

The battery is fully charged when all three of the indicator balls have appeared in the opening of the Metal Cover.

Check the Water Level of the Battery.

To add Water remove the metal Cover, unscrew the Battery Filler Plug, and add Distilled Water from the Bottle of Distilled Water with the Eye Dropper on the Shelf.

Do Not Fill above the Water Line.

Replace the Battery Filler Plug and replace the Metal Cover.

Inspect inside the Receiver for loose or broken connections.

See that all tubes are securely in sockets and grid caps tightly connected.

Replace the back cover of the Receiver.

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Open the top cover of the Receiver.

Turn Knob on left side of Receiver to "BAT." Position.

Tune over entire Broadcast Band of the Receiver.

Listen for quality, and extraneous noises in the receiver while tuning or operating the Controls.

Plug Headphones into the Jack on the Right side of Receiver and check quality.

Plug the A.C. Cord from inside rear of the receiver into the A.C. Outlet on the Basement Workbench.

Turn the left Knob of the Receiver to "AC" Position and again check operation of the Receiver.

If Storage Battery is OK, turn left Knob of Receiver "OFF" and remove and replace AC Cord from receptacle.

If Battery is in need of Charging, turn left Knob to "Charge" position and make entry on reverse of 50 KW M.O.L. that Receiver Type G.R. LB-530 #1 is on Charge.

When Battery is Fully Charged, TURN THE SELECTOR SWITCH TO "OFF".

NEVER LEAVE THIS SWITCH ON "CHARGE" POSITION WHEN UNIT IS NOT ON CHARGE.

Enter Date, Tested (OK or NG), and Signature on Metal Rimmed Tag and attach to the Receiver Handle.

Book No. (116) () () () () () ()

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

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(1) "Basement": Inspect Service and Test G.E. LB-530 Receivers #2 - 3 -
4 - 5.

Procedure: See Friday Item 5, Page No. (32) to (33) Paragraph (k).

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(m) "Basement": Inspect, Service and Test G.E. LB-530 Receiver Power Units #1 - 2 - 3 - 4 - 5 - 6 - 7.

Procedure: See Friday Item No. (5) Sec. No. (G) Page No. (32) to Page No. (33) Paragraph No. (k) except as follows:

Power Supply Switch may be turned to choose one of three Positions.

Turn Shaft fully Clockwise to Charge, and fully Counter-Clockwise to "OFF".

Book No. (116) () () () () ()

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

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(n) "Basement": Inspect, Service and Test R.C.A. Portable Receiver #1.

Place this receiver on the Workbench.

Remove the 4 Screws on the back of the receiver.

Inspect all parts and connections for looseness.

See that all tubes are securely in sockets and Grid Caps tightly secured.

Test the Batteries with the Weston 506 Weston Dry Battery Test Meter.

Procedure: See 5th Monday Item No. (15) Page No. (75) Par. (a).

Replace Batteries which have dropped below the Minimum Voltage.

See Battery Chart in Book No. (6) Sec. No. (C) Page No. (80).

Replace the Back Cover.

Turn the center knob on the front of the Receiver to "BATT." as indicated in the small square above the Knob.

Tune over the Broadcast Band, checking for quality and noise.

Plug headphones into the Jack on the left side of the receiver and check quality.

Open tab on upper right rear corner of back and pull out A.C. Cord and plug into the A.C. Receptacle on Work Bench.

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Turn Center Knob on Receiver to "Power Line" as indicated in the small square above the Knob.

Check operation of Receiver by tuning over Broadcast Band.

Listen for Quality, Noise, or Hum.

Remove A.C. Plug and replace in compartment at rear of receiver and refasten tab.

Turn Center Knob to "OFF" Position.

Enter Date, Tested (OK or NG) Battery Voltages, and Signature on Metal Rimmed Tag and attach to Handle of Receiver.

Place receiver on "Short Wave Shelves".

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(o) "Basement": Inspect, Service and Test R.C.A. Portable Receivers #2, and #3.

Procedure: See Friday Item No. (5) Page No. (34) to (35)

Paragraph (n)

(p) "Basement": Inspect, Service and Test Motorola Receiver #1.

Place the receiver on the Workbench.

Remove the 4 Screws on the back of the Receiver.

Inspect all parts and connections for looseness.

See that all tubes are securely in sockets and Grid Caps tightly secured.

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Test the Batteries with the Weston 506 Dry Battery Test Meter.

Procedure: See 5th Monday Item No. (15) Sec. No. (C) Paragraph (a).

Replace Batteries which have dropped below the Minimum Voltage.

See Battery Chart in Book No. (6) Sec. No. (C) Page No. (80).

Replace the Back Cover.

Turn "ON" Receiver Power Switch by turning the Left Knob Clockwise.

This also increases the Volume.

Tune over the Broadcast Band noting Quality and Noise.

Plug headphones in Jack on right side of Receiver and Check the Quality.

Remove the Headphones and turn Volume Control Knob counter Clockwise until the Cover Plate snaps over the dial indicating Power is "OFF".

Enter Date, Tested (OK or NG), Battery Volts, and Signature on metal rimmed tag and attach to Receiver Handle.

Put receiver back on "Short Wave Shelves".

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(q) "Basement": Inspect, Service and Test the WOR I.F. Monitor.

Place this I.F. Monitor on the Workbench.

Remove the Cloth Cover.

Remove the Front Cover of the Monitor.

Remove the Thumb Screws from the Front Panel and take the Monitor out of the Cabinet.

Check carefully for loose or broken Connections.

Check Tubes and Crystals to see that they are securely in Sockets.

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ITEM 5

Test the Batteries with the Weston 506 Dry Battery Test Meter.

Procedure: See 5th Monday Item No. (15) Page No. (75) Paragraph (a).

Replace Batteries which have dropped below the Minimum Voltage.

See Battery Chart in Book No. (6) Sec. No. (C) Page No. (80).

Replace the Monitor in Cabinet and tighten all Thumbscrews.

See that the Monitor Antenna Rod is in Cover Compartment.

Put "ON" all three Switches on the Front Panel.

Plug the Headphones in Jack on Front Panel and tune until a Beat note is heard.

This indicates that both the Crystal Oscillator and Variable Oscillator are operating.

Put "OFF" all three Switches on the Front Panel.

Clean the receiver Front Panel and polish the Knobs with Staffords Polish.

Replace the Front Cover.

Clean the Stafford's Polish the Cabinet and if necessary, touch up with proper paint any chipped or scratched Finish.

Enter Date, Tested (OK or NG), Battery Voltage, and Signature on metal rimmed tag and attach same to the handle of the Case.

Replace Cloth Cover and put Monitor back on "Short Wave Shelves".

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(r) "Basement": Inspect, Set and Test the WOR - U.H.F. Monitor #2.

Procedure: See Friday Item No. (5) Paragraph (q) Page No. (36) to (37).

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

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(s) "Basement": Inspect, Service and Test the R.E.L. Field Strength Meter #1.

Place this Unit on the Workbench.

Remove the Cloth Cover and open the Front of Wooden Case.

Take out the F.S. Meter and remove the Screws on the edge of the Front Cover.

Take the F.S. Meter out of its cabinet and check carefully for loose or broken connections.

See that the Tube is securely in the Socket and that grid clip is tight.

Test the Batteries with the Weston 506 Dry Battery Test Meter.

Procedure: See 5th Monday Item No. (15) Page No. (75) Paragraph (a).

Replace any battery below the Minimum Voltage.

See Battery Chart in Book No. (6) Sec. No. (C) Page No. (80).

Replace the F.S. Meter in its cabinet.

Touch up with proper paint any scratches or clipped marks.

Enter Date, Tested (OK or NG), and Battery Voltages and Signature on metal tag and attach same to the Handle.

Book No. (11) () () () () ()

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

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(t) "Basement": Inspect, Service and Test the WOR 3-A Pre-Amplifiers
#5 - #6 - #7.

Place the WOR 3-A Pre-Amplifiers on the Basement Workbench.

Remove the Front Cover, then remove the 4 Corner Screws.

Remove the 3-A Amplifier from its case.

Carefully inspect for loose or broken connections.

See that all Tubes and Plug-in Type Audio Transformers are securely in their sockets.

Note that Grid Caps and Tube Shields are tightly in place.

Test all Batteries with the Weston Type 506 Battery Test Meter.

Procedure: See 5th Monday Item No. (15) Page No. (75) to (78)

Paragraph (a).

Replace Batteries whose Voltage has dropped below Minimum.

See Battery Chart in Book No. (6) Sec. No. (C) Page No. (80).

Replace the 3-A Amplifier in its Cabinet.

Plug the W.E. 633-A Microphone into Microphone Receptacle #1.

Plug the Headphones into the Phone Jack.

Put "ON" Power Switch.

Increase the #1 Gain Control until Back-Ground Noise is heard in the Phones.

Speak into the Microphone and check the Quality of the Amplifier.

Operate the High-Low Gain Switch and check its operation.

Remove the Microphone from Position #1 and Plug it into Position #2.

Increase the #2 Gain Control and check for Noise and Quality.

Remove the Microphone and the Headphones.

Put "OFF" the Amplifier Power Switch.

Clean the Front Panel and Polish the Knobs with rag dampened with Staffords Polish.

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Replace the Front Cover and Clean the Cabinet.

Enter Date, Tested (OK or NG), Battery Voltage, and Signature on metal rimmed tag and attach the same to the Handle of the Amplifier.

Replace each 3-A Amplifier on the "Short Wave Shelves".

Book No. (16) () () () () ()

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

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(u) "Basement": Inspect, Service and Test the WOR Short Wave Mixer

Place the Short Wave Mixer on the Work Bench.

Unsnap the Catches on the sides of the Mixer and remove the Front Cover.

Remove the 6 Machine Screws along the top and bottom of the Front Panel.

Carefully pull the Mixer out of its case and place it on the Workbench.

Clean out inside of cabinet with clean dry cloth.

Thoroughly Inspect inside of Mixer for loose or broken connections.

Make sure that Battery Terminals are securely connected.

See that tube and Transformer are securely plugged into sockets.

Note that the Battery Clamps are secure.

Check the "A" and "B" Battery with the Weston Type 506 Battery Test Meter.

Procedure: See 5th Monday Item No. (15) Page No. (75) to (78)

Paragraph (a).

Replace Batteries whose Voltage has dropped below Minimum.

See Battery Chart in Book No. (6) Sec. No. (C) Page No. (80).

If necessary to replace Batteries, unscrew the 2 Machine Screws holding the Wire
lite Clamp over the Batteries.

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Unplug the Connector of the Battery to be Replaced and remove the Battery.

Replace the defective Battery with a new one and plug the Battery connector into the Battery Receptacle.

Replace the Battery Clamp and tighten the Machine Screws holding same.

Put the Mixer back into its cabinet very carefully.

Replace the 6 machine screws holding the Front Panel in place.

Test for proper operation of the Mixer Unit.

To do this it is necessary to set up a 3-A Amplifier and a Hammarlund Receiver and Power Unit.

Take the front cover off the 3-A Amplifier and place the Amplifier on the Bench to the left of the Mixer Unit.

Place the Hammarlund Receiver on the floor in front of the Work Bench and remove the cover from the Wooden Cabenet.

Place the A.C. Power Unit alongside the Receiver and remove its Wooden Cover.

Plug the A.C. Cord from the Power Unit into the A.C. Receptacle under the Workbench.

Connect the "Jones" Plug on the Power Unit Cable to the Jone Plug on the Receiver Cable.

Put "ON" The Receiver Switch.

Connect an antenna lead from the Receiver Antenna Terminal to the Antenna Terminal under the Workbench adjacent to Drawer #9.

Plug a pair of headphones into the output jack of the receiver and tune in a Station in the Broadcast Band of the Receiver.

Adjust the Volume for Low Level output as heard in the headphones.

Get a 6 Ft Length of "O.G." Wire from the wire rack near the 5 KW Generator Sets in the Basement.

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Cut a 4 ft. length of the O.G. and clean one inch of insulation off the ends of each wire.

Connect the 2 Wires of one end to the 500 ohm Output Terminals of the Hammarlund Receiver.

Connect the 2 Wires of the other end to the "IN #1" Terminals on the left side of the Mixer Unit.

Turn the Mixer Unit Switch on the lower center of the Front Panel to "ON".

Plug the Headphones into one of the "Monitor" jacks above "Output No. 2" terminals on the right side of the Mixer Unit.

Turn all faders on the front Panel fully Counter Clockwise.

Put "OFF" all the Keys.

Turn the V.U. Meter Switch on the left of the Meter to "CH 1" Position.

Place the V.U. Meter Multiplier Switch directly below the Meter to "+8" Position.

Increase the Output of the Receiver until the Average Peaks read "100" on the V.U. Meter.

Set the V.U. Multiplier Switch to "+14" Position and note that the Peaks drop 6 VU.

Set the V.U. Multiplier Switch back to "+8" Position.

Place the Key directly above Fader #1 to "Mon" Position and check program in the Headphones.

Place the Key back to "OFF" Position.

Remove the wires from "IN #1" Terminals and Connect them to "IN #2" Terminals.

Place the V.U. Meter Switch to "CH 2", and #2 Key to "MON".

Repeat the same procedure as with "IN #1".

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Repeat Procedure for "IN #3" and "IN #4".

After completing procedure on "IN #4", remove headphones from "Monitor"

Jack and plug into "Output" Jack over "Output No. 1" Terminals.

Place V.U. Meter Switch to "Line" Position.

Place Key above Fader #4 to "ON" Position and turn Fader #4 Clockwise until
Average Peaks on VU Meter read 100.

This should be about "20" Dial Divisions on the Fader.

Check the output in the headphones.

Repeat this procedure from "IN #4" through "IN #1", operating the corresponding
Keys and Faders.

Check the output at "Output #1" Terminals and Receptacle on the right side of
the Unit, with the Output Key #1, located to right of the VU Meter, set at
600 ohm" Position and then to "150 Ohm" Position.

Again place Key in "OFF" Position.

Check the output at "OUTPUT #2" Terminals with the Output Key #2 set at "150
ohm" Position.

Again place Key in "OFF" Position.

Clean insulation off both ends of the remaining 2 ft. of "O.G." Wire.

Connect one end of the Wire to the Output Terminals of the 3-A Amplifier.

Connect the other end of the wire to the "IN #2" Terminals of the Mixer.

Plug the Microphone into "Mic #1" of the 3-A Amplifier Receptacle.

Set VU Meter Selector Switch to "CH #2" Position.

Put "ON" The power switch of the 3-A Amplifier.

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Increase Fader #1 Control of the 3-A Amplifier until the Average Peaks read "100" on the Mixer Unit VU Meter when speaking into the Microphone.

Place the VU Selector Switch to "LINE" Position.

Test the Mixer for Program mixing by placing Keys over Fader #1 and #2 "ON" and operating Mixer Faders #1 and #2 to "Fade" inputs #1 and #2 in and out.

Note any Cross Talk, Balance, etc.

Check the operation of all switches and Faders.

Remove the headphone plug from Mixer Unit and plug into the Output Jacks of the Hamarlund Receiver.

Place Keys above Faders #1 and #2 to "MON" Position and speak into Microphone connected to input of the 3-A Amplifier.

The 3-A Amplifier Output should be heard at the output jack of the Receiver without reading any level on the Mixer Unit VU Meter.

Remove the Microphone Plug and Output Leads from the 3-A Amplifier.

Obtain a short Microphone Extension Cable from the Wire Racks adjacent to the 5 KW Transmitter Motor Generator Platform.

Plug the Male end into "MIC #1" Input of the 3-A Amplifier.

Plug the Female end of the Microphone Cord into "Low Level Out" Receptacle on the right side of the Mixer Unit.

Place "Output Key #2" to "50 Ohm" Position.

Place Key over Fader #1 of the Mixer Unit "ON".

Remove headphone plug from the Hammarlund and Plug it into the "Output" jack of the 3-A Amplifier.

Increase Fader #1 until a moderate level of the program from the Hammarlund Receiver is heard and check the Quality.

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Clean any noisy Keys or Faders.

Remove the Amplifier from its case as previously outlined.

Due to the compactness of the Mixer Unit, to Clean Faders it is necessary to remove the equipment to the rear of the Fader and then unscrew the thumb nut from the rear of the Fader Cover.

Carefully slide the cover off the Fader.

Apply a small amount of Walscolube Fader Cleaner found in Transfile # 44

to the Fader Contacts and rotate the fader from Maximum to Minimum several times.

Wipe off with clean cloth any excess Walscolube lubricant.

To Clean the Key Contacts take a 6 inch piece of #22 wire kept under the work bench at the right hand underside, and bend a small loop on one end.

Apply a small amount of Walscolube to the loop and apply it to the Switch Contacts.

Work Switch up and down several times to work in the Walscolube and then wipe off any excess.

Replace the Mixer unit in its cabinet and tighten the 6 screws at the top and bottom edge of the front panel.

Clean off the front panel with a clean dry cloth.

Clean off any dirt marks with Rag dampened with Carbon Tet.

Clean and Polish the VU Meter Case, Knobs, and Switch Handles with cloth dampened with Stafford's Polish.

Wipe off with second dry clean cloth.

Clean the VU Meter Glass with a cloth dampened in water.

Remove Plugs and Wires.

Put "OFF" all Keys and Switches.

Turn all Faders to Minimum (fully counter clockwise).

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Replace the front cover of the Mixer Unit.

Wipe off outside of Cabinet with cloth dampened in Stafford's Polish.

Wipe dry with a second clean dry cloth.

Touch up with proper paint any scratches or chips on Cabinet Finish.

Enter Date, Tested (OK or NG), Battery Voltages, and Signature on a metal rimmed tag and attach to the handle of the Mixer Unit.

Replace the Mixer Unit on the "Short Wave Shelves".

Turn "OFF" the 3-A Amplifier and remove all plugs and wires.

Replace Cover and place the Amplifier on the "Short Wave Shelves".

Put "OFF" The Hammarlund Receiver Power Switch.

Remove the A.C. Power Cord from the A.C. Receptacle on the Workbench.

Remove the Power Unit "Jones" Plug from the Receiver Unit "Jones" Plug.

Coil the Power Unit Cords neatly inside the wooden carrying case.

Replace the Wooden Cover on the Cabinet.

Place the unit on the "Short Wave Shelves".

Coil the Receiver Cable under the wooden carrying case and replace the Cover on the Case.

Put the Receiver on the "Short Wave Shelves".

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

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(v) "Basement": Inspect, Service and Clean Equipment in the "Radio" and "Audio" Short Wave Bags.

Check the equipment in these Bags to see that this equipment is in good condition and that it corresponds to the list of Equipment attached to one side of the Bag and to the attached list.

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RADIO BAG:

- 1 - Roll of OG Wire.
- 1 - Roll of #14 Wire
- 1 - Roll of Sash Cord.
- 1 - Reel of Antenna Wire.
- 1 - Ground Strip
- 1 - Key and Lead
- 1 - Set of Spare Transmitter Parts
- 1 - Set of Spare Transmitter Tubes (3 - 6L6G's, 2 - 807's)
- 1 - Kit of Insulators, Clips, etc.
- 1 - Wavemeter.
- 1 - Press-to-talk Microphone
- 1 - Pair of Headphones
- 1 - Spare Modulation Transformer
- 1 - Rubber Pad
- 1 - R.F. Choke assembly

Add or remove any equipment not corresponding to this list.

See that all wire, cords, Tubes and Parts are neatly packed and wrapped.

Microphones should be wrapped in clean polishing cloths.

If necessary, repair any broken wood partitions.

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AUDIO BAG:

- 1 - 50 Ft. Microphone Extension
- 1 - 35 Ft. " "
- 1 - Roll of OG Wire
- 1 - 3-A Pre-Amplifier
- 1 - Set of Spare Tubes for 3-A Amplifier.
- 1 - 632-A Microphone and Microphone Handle
- 1 - 618-A " and " "
- 1 - Chest Harness
- 3 - Sets of Headphones
- 1 - 4-Way Jack Box
- 1 - Rubber Pad
- 1 - 10 Ft. Headphone Extension Cord
- 1 - 20 Ft. " " "
- 1 - 30 Ft. " " "
- 1 - Flashlight.

Add or remove any equipment not corresponding to this list.

See that all Wire, Cords, Tubes and Parts are neatly packed and wrapped.

Microphones should be wrapped in clean polishing cloths.

If necessary, repair any broken wood partitions.

Check the Flashlight for proper operation.

Be sure that the 3-A pre-Amplifier has been serviced as per Friday Item No. (5)

Paragraph (t) Page No. (39) to (40)

If necessary, service the latches and locks on these "Audio" and "Radio" bags.

If operation is bad, a few drops of "3-in-1" Oil may be the remedy.

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same to the Handles of the "Audio" and "Radio" Bags.

Replace these Bags on the "Short Wave Shelves"

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(w) Inspect, Service and Test the following Short Wave Transmitters
and Power Supplies:

Make entry on Form in Book No. (6) Sec. No. (G) Page No. (67).

WBAM - Serial #1

WBAN - Serial #2

WBAQ - Serial #3

WBAO - Serial #4

WEGN - Serial #5

WBAR - Serial #7

WBAS - Serial #8

Transmitter Dynamotor Power Units #1 - 2 - 3 - 4

Transmitter A.C. Power Units #1 - 2.

Place the Intermediate Frequency 30 Watt Transmitter, WBAM on Workbench.

Remove the Cloth Cover from the Transmitter Case.

Unsnap the Catches on the side of the Transmitter Front Cover and remove
the Cover.

Inspect the Material attached to the inside of the Cover.

This includes Scratch Paper, Transmitter Instructions, Transmitter Schematic,
Antenna Information, Transmitter License Facsimile, and Crystal Frequencies.

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Remove the 2 Thumb Screws on the sides and one on the Top and slide the Transmitter out of the Case. Vi

Inspect all wiring for loose or broken connections.

See that all Tubes and Crystals are securely in their sockets.

Check the Contacts of the Coil Tap Switches, one on the upper Panel and one on the Lower Panel.

If Dirty, apply a small amount of Walscolube to the Contacts and work in by Rotating Switch ~~af~~ several times over all Contacts.

Wipe off excess Walscolube.

See that the Plate Caps are tightly connected to the 807 Tubes.

Replace the Transmitter in its Case and screw in the three thumb screws.

Remove the Brass Antenna Post from the "Mon" Jack and set it aside.

Set the Transmitter Dynamotor Power Unit #1 in front of the Work Bench.

Remove the Cloth Cover from the Case.

Unsnap the 2 catches holding the hinged cover.

Open cover and pull out the 2 Rubber Covered Battery Leads, The Rubber Covered Battery Jumper and the Shielded Cable.

The Shielded Cable is terminated with a Jones Female Plug.

Connect this to the Male Receptacle on the right side of the Transmitter.

Put "OFF" the Transmitter Filament and Plate Switch.

Thoroughly inspect the inside of the Dynamotor Unit for loose or broken connections.

Inspect the Relay in the upper right side of the Dynamotor Unit.

If dirty, clean contacts with Fine Sandpaper.

Obtain 2 Six Volt Storage Batteries from the Battery Storage Room, and set them on Basement Floor next to Dynamotor Unit.

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Use the Rubber Covered Battery Jumper and Connect these 2 Storage Batteries in Series.

Connect the 2 Rubber Covered Battery Leads to the Storage Batteries, the Battery Clip marked "+" to the remaining Positive Battery Post and the other Battery Clip to the remaining Negative Battery Post.

Connect the "Ohmite" Dummy Antenna between the Antenna Terminal and Ground of the Transmitter.

Place switch "D11" on "PA" Position.

Place switch "D8" to "MIN PLATE" Position.

Set the Crystal Selector Switch "D10" to "2790 KC" Position.

Set Condenser "C8" to 20 Div. on the Dial.

Put "ON" Filament Switch "D7".

Put "OFF" Switch "D9".

While Transmitter Filaments are heating, place a 3-A Amplifier near the Transmitter.

Obtain this 3-A Amplifier from the "Audio Bag".

Connect the Output of the Amplifier to the Input of the Transmitter with a short piece of "OG" Wire.

Plug the Microphone into the Input of the 3-A Amplifier.

Put "ON" Transmitter Plate Switch "D6".

Note that Transmitter Dynamotor is Operating.

Put "ON" Transmitter Switch "D9" and quickly retune Condensers "C5" and "C8" for Minimum Plate Current as read on Plate Current Meter "M2".

Set Condensers "C9" and "C10" to Zero and set "D1" to Step "1".

Advance switch "D8" clockwise, retuning Condenser "C8" on each step

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until approximately 110 MA are read on Meter "M2".

Plug headphones into "MON" Jack on Transmitter.

Put "ON" 3-A Amplifier Power Switch.

Put Switch "D4", on rear of Transmitter, to "LINE" Position and speak into the Microphone.

Listen on Headphones to Quality of speech.

Set up the I.F. Cue Receiver.

Procedure: Friday Item 5 Sec. No. (G) Page No. (27).

Use this Receiver to check the output quality of the Transmitter.

Plug a Single Button Carbon Microphone (Kept on Wire Rack near 5 KW Transmitter Motor-Generator Sets) into Jack "J1".

Place Switch "D4" to "MIC" Position.

Put "OFF" Switch "D6", and press the Microphone Button.

Dynamotor Should start and Transmitter Operate as with Switch "D6" "ON".

Speak into the Microphone and check the Quality in the I.F. Cue Receiver Output.

Repeat the Tuning and output Tests on 2150 KC, 2058 KC, and 1622 KC Positions of Switch "D10", retuning as with "D10" on 2790 KC Position.

For Further information refer to Data and Schematic inside the front Cover of the Transmitter.

Put "OFF" all Switches.

Clean the front panel of the Transmitter, Polish all Knobs with Staffords Polish, and clean Meter Glass with cloth dampened with Water.

Replace the Brass Antenna Post in the "MON" Jack.

Replace front cover on the Transmitter.

Clean outside of Transmitter Case with Stafford's Polish.

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Touch up any Scratched or Chipped Marks with Proper Paint.

Inspect the "Lord" Shock Mounts supporting the Transmitter Case on its base.

Replace the Cloth Cover on the Transmitter.

Enter Date, Tested (OK or NG) and Signature on a Metal Rimmed Tag and attach it to the Handle.

Make Entry on Form in Book No. (6) Sec. No. (G) Page No. (67)

Replace the Transmitter on the Shelf.

Coil the leads of the Dynamotor Unit neatly in the Box and close the Cover.

Touch up any Scratched or Chipped Marks with Proper Paint.

Wipe off the Box with clean dry cloth, and replace the Cloth Cover.

Enter Date, Tested (OK or NG) on a Metal Rimmed Tag and attach to Handle.

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WBAN: Inspect, Service and Test Transmitter WBAN.

Procedure: Same as Friday Item No. (5) (w) Page No. (49).

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WBAQ: Inspect, Service and Test Transmitter WBAQ.

Procedure: Same as Friday Item No. (5) (w) Page No. (49).

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WEGN: Inspect, Service and Test Transmitter ~~WEGN~~. KA 9612

Place the High Frequency 30 Watt Transmitter WEGN on the Workbench.

Remove the cloth cover from the Transmitter.

Unsnap the Catches on the side of the Transmitter front Cover and remove the Cover.

Inspect the Material fastened to the Front Cover inside.

This includes Scratch Paper, Transmitter Instructions, Transmitter Schematic, Antenna information, Transmitter License Facsimile, Crystal Frequencies and Tuning Settings.

Remove the Thumbscrews on the top and sides of the Case and slide the Transmitter out.

Visually inspect all wiring and parts for loose or broken connections.

See that all tubes are in their sockets tightly.

See that the plate caps of the 807 Tubes are on securely.

Remove the 4 Crystals from the lower left shelf and plug in the Crystal marked 31,620 KC in the Crystal Socket located in the middle of the top Chassis.

Replace the Transmitter in its case but do not replace the Thumbscrews.

Place the Dynamotor Unit #4 in front of the Workbench.

Inspect same per Friday Item No. (5) (w) Page No. (49).

Plug the Jones Plug into the Male receptacle on the right side of the Transmitter.

Put "OFF" Transmitter Switches "D6" and "D2".

Use Short Battery Jumper from inside Dynamotor Unit and Connect 2 Storage Batteries in Series.

Connect the 2 Rubber Covered Battery Leads of the Dynamotor to the 2 free Terminals of the Storage Batteries.

Observe proper Polarity.

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Connect the "Ohmite" Dummy Antenna to the "75 Ohm" Terminals on the upper right corner of the Front Panel.

Put "ON" Filament Switch "D7".

Connect the output of the 3-A Amplifier to the input terminals of the Transmitter lower left corner of the Front Panel.

Set the Transmitter Tuning Controls at settings indicated on the "Tuning Settings" Chart on the inside of the Front Cover.

Adjust the Tuning for 31,600 KC.

Set Switch "D5" on Grid Current Position.

Put "ON" Plate Switch "D6".

Note that dynamotor unit is operating.

Put "ON" Switch "D2" and carefully retune the "OSC." and "DBLER" Condensers for Maximum Grid Current on Meter "M3".

Retune "P.A." Condenser for Minimum Plate Current on Meter "M2".

Set Switch "D4" to "LINE" Position.

Put "ON" the 3-A Amplifier Power Switch.

Set up the U.H.F. Cue Receiver as per Friday Item No. (5) (e) Page No. (27).

Modulate the Transmitter by speaking into the Microphone and increasing the Gain of the 3-A Amplifier.

Listen on Headphones plugged into the Cue Receiver for Transmitter Output Quality.

Put "OFF" the Transmitter Plate and Filament Switches "D6" and "D7".

Remove the "Jones" Plug from the Transmitter.

Remove the Transmitter from its case.

Remove the 31,600 KC Crystal from the Crystal Socket and replace with the 35,260 KC

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Test the Transmitter as previously outlined for 31,600 KC.

In the same manner Test the Transmitter using the Crystals marked 35,260 KC, and 37,340 KC, and 39,620 KC.

After Completion of these Tests, remove "Jones Plug from Transmitter and Battery Cables from the Storage Batteries.

Neatly coil all Cables and replace them in the Dynamotor Unit.

Replace the Cloth Cover.

Clean and Polish the outside case of the Transmitter with Stafford's Polish.

Enter Date, Test (OK or NG) on the Metal Rimmed Tag and attach to the Handle of the Dynamotor Unit.

Replace the Dynamotor Unit on the Short Wave Shelf.

Obtain the Transmitter A.C. Power Unit #1 from the Short Wave Shelf and Place it on floor in front of Workbench.

Unscrew the 4 thumb screws on the top lid and remove the cover.

Inspect the Power Unit Wiring and Parts for loose and Broken Connections.

See that the Tubes are securely in their sockets and the clamp holding them in is securely fastened.

Check the Battery in the Power Unit using the Weston 506 Battery Tester.

Renew Battery if voltage has fallen below minimum.

See Battery Chart in Book No. (6) Item No. (C) Page No. (80).

Put "OFF" Both Switches on front of the Power Unit.

Take out the Rubber covered A.C. Cord and the Shielded Power Cord from the Unit.

Plug the "Jones" plug into the Male Receptacle on the side of WEGN Transmitter.

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Plug the A.C. Power Plug into the A.C. Receptacle under the Workbench.

Put "ON" the Filament Switch of Transmitter WEGN.

Put "ON" The Filament Switch of the A.C. Power Unit (left front).

Allow the Filaments to heat for several minutes.

Proceed to test the Operation of the Transmitter in same manner as previously described...on Page No. (54).

After completion of tests, coil the Power Cords neatly in the Power Unit on the clips.

Replace the Cover of the Power Unit.

Clean the outside of the Box and touch up any scratches with proper paint.

Replace the Power Unit on the Short Wave Shelves.

Power Unit #2: Inspect Service and Test the Transmitter A.C. Power Unit #2.

Procedure: Same as for Power Unit #1 as previously described on Page No. (56).

Except that there is no Battery in this Unit.

Also use Transmitter WEGN to test this Unit.

Clean and Polish the front panel of the Transmitter and the Knobs with Stafford's Polish.

Clean the Meter Glasses with cloth dampened with Water.

Replace the front cover on the Transmitter.

Touch up any scratches with proper paint.

Replace the cloth cover on the Transmitter.

Enter Date, Test (OK or NG) and Signature on metal rimmed tag and attach to handle of Transmitter Case.

Make Entry on Form on Sec. No. (G)

Continued on next Page.

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WBAO: Inspect, Service and Test the Intermediate Frequency Pack Transmitter WBAO.

Place the Intermediate Frequency Pack Transmitter on the Workbench.

Open the top flap of the leather case.

Remove the three Knobs and shafts extending through the case and lay on Bench.

Carefully set the Transmitter Bottom-side-up on the Bench and lift the Case off the Transmitter.

Stand transmitter right side up and open top cover by removing thumb screws on top and lifting the Cover.

Visually inspect the wiring in the top of Transmitter Section for loose or broken connections.

If the top switch at the top front part of the Transmitter appears dirty, clean same by applying a small amount of "Walscolube" to the contacts.

Operate the Tap Switch several times to work in the Walscolube.

Wipe off any excess.

See that all tubes are securely set in their sockets and that the Crystal is tight in its socket.

Remove the screws holding the cover on the lower compartment on the Battery Section.

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ITEM 5

Test all Batteries using the Weston 506 Dry Battery Tester.

Procedure: See 5th Monday Item No. (15) Book No. (6) Page No. (75).

Renew any Battery whose voltage has fallen below Minimum.

See Battery Chart on Page No. (80) Book No. (6) Monday Item No. (15).

Replace the cover on the Battery Compartment and carefully slide the Transmitter back into the leather case.

Check that the Facsimile License for the Transmitter is attached to the Cover.

Replace the dials on the Transmitter in the same position as before removed.

Connect the "Ohmite" Dummy Antenna from the Antenna Post to the Case of the Transmitter.

Connect the output of the 3-A Amplifier to the 500 Ohm Input of the Transmitter.

Put "ON" Filament Switch "D3".

Put "ON" Plate Switch "D4".

Place Selector Switch "D1" to "P.A. Grid Cur." Position.

Tune the Oscillator Condenser at the rear of the Transmitter to read Maximum P.A. Grid Current on Meter "M1".

Tune the P.A. Condenser and Tap Switch at the front of the Transmitter for about half scale reading on "M1" with Selector Switch set to "P.A. Plate Cur.".

Set up the I.F. Cue Receiver as per Friday Item No. (5) Sec. No. (G) Page No. (28), and tune this Receiver to the Transmitter Frequency.

Increase the Transmitter input Control "R4" to about three-quarter maximum.

Speak into the Microphone and open the 3-A Gain Control.

Listen to the Quality of the Transmitter Output as heard in the headphones of the I.F. Cue Receiver.

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ITEM 5

Put "OFF" Plate and Filament Switches on Transmitter.

Disconnect the leads connecting the output of the 3-A Amplifier to the 500 Ohm input of the Transmitter.

Fasten the Cover of the Transmitter.

Enter Date, Test (OK or NG) and Signature and Battery Voltages on Metal Rimmed tag and attach to Transmitter Case Strap.

Make entry on Form in Book No. (6) Sec. No. (G) Page No. (67).

Wipe off Leather Case and replace the Transmitter on "Short Wave Shelves".

Book No. (18) () () () () ()

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

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

WBAR: Place the "WBAR" Mike-Mitter Relay Broadcast Transmitter on the Basement Workbench.

Remove the cloth cover and inspect same for tears and spots.

See that the WOR identification letters are in good condition.

Inspect the Top Antenna Bushing for looseness.

Inspect condition of Bakelite Identification Strip.

Check the microphone case on the upper front panel to see that it is securely fastened.

Check the Toggle Switch on the right center of the front panel.

When toggle switch is in down position it is "OFF". Up position is "ON".

Check the metal panels for any scratches - touch up with paint.

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Check side handles for looseness.

Inspect the under side of the Unit to see that the 4 rubber feet are secure and in good condition.

Remove the Transmitter Unit from the Case.

Unscrew the 4 screws on the front panel, grasp the front panel on the sides and gently pull the Unit out of the Case.

Check inside the Transmitter Case to see that the Facsimile License is securely fastened therein.

Thoroughly check inside the Unit for loose or broken connections.

See that the tubes are securely in their sockets.

Check the Crystal for tightness in its socket.

Check the Metal Shield on the 1st A.F. Tube to see that it is tight.

Observe that the Batteries are held securely in place.

Check the flexible antenna connector, that is located on the top of the Polystyrene rod, for tightness and proper tension.

This Transmitter Unit contains 1 - type 2FBP "A" Battery and 2 - type 455 "B" Batteries.

Check the "A" and "B" Battery Voltages with the Weston 506 Battery Testor
Procedure: See Book No. (6) Sec. No. (C) Page No. (75).

Renew any Battery whose voltage is below the Minimum.

See Battery Chart in Book No. (6) Sec. No. (C) Page No. (80).

Make entry on form in Book No. (6) Sec. No. (G) Page No. (67).

Insert the Unit in the Case and fasten the 4 front panel screws.

Unscrew the Chromium Pillar on the top of the Unit.

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Screw the WBAR Antenna Rod to this Machine Screw.

The WBAR Antenna Rod is kept on the Antenna Rack in the Basement.

This Rod is 20 inches long and is stamped "WBAR" on the bottom metal shoulder.

Set up the U.H.F. Program Receiver per Book No. (6) Sec. No. (G)
Page No. (25).

Tune the receiver to a Frequency of 31,620 KCs.

Put "ON" Transmitter Toggle Switch (up position) and allow about 1 minute
for the tubes to reach operating temperatures.

Talk into the Microphone in a normal manner and check the signal strength
and quality of speech in the U.H.F. Program Receiver.

If distortion or poor signal strength is encountered, check the tubes in
the Weston #773 Tube Tester per Book No. () Sec. No. () Page No. ()

If this does not indicate the difficulty, proceed to check the individual
stages for correct tuning.

Plug a 0 to 100 MA Meter into the Pin Jacks on the front of the Unit.

There are 4 pin jacks, one red and three black.

The Red is the Common Negative Terminal.

The Black #2 - 3 - 4 Pin Jacks are to read the Plate Current of the "Osc.",
"Doubler", and "Final" Stages respectively.

Connect the Positive lead of the Meter into the Red #1 Pin Jack.

Connect the negative lead of the Meter into the Black #2 Pin Jack.

This will measure the plate current of the Oscillator Stage containing
a type 1A5GT Tube.

Across the center of the front panel there are 3 screwdriver adjustments.

These adjustments, from left to right, control the tuning of the "OSC", "DBLER",
and "FINAL" Stages.

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Use insulated Screw Driver and adjust for Minimum Plate Current.

The Oscillator Value should be .25 MA plus or Minus ____%

Place the negative lead of meter into Pin Jack #3, and read the Plate Current of the Doubler Stage containing a 1A5GT Tube.

The Doubler Value should be .50 MA plus or minus ____%.

Use insulated Screw Driver and adjust for Minimum Plate Current.

Place the negative lead of meter into Pin Jack #4, and read the Plate Current of the Final Stage containing a 1Q5GT Tube.

The Final Stage Value should be .40 MA Plus or Minus ____%.

Use insulated Screw Driver and adjust for Minimum Plate Current.

The 1st A.F. Stage contains a 1N5GT with a metal base, the 2nd A.F. is a 1H5GT and the 3rd A.F. is a 1Q5GT.

After checking and retuning these stages, remove the test leads from the Pin Jacks and again listen to the quality and check the Signal Strength of the Transmitter on the U.H.F. Program Receiver.

Set up the U.H.F. Monitor per Book No. (6) Sec. No. (G) Page No (37). Paragraph (r).

Check the Frequency of Transmitter WBAR.

Put "OFF" Mike-Mitter Toggle Switch (down position).

Unscrew the antenna Rod from the Unit and replace the Chromium Pillar on this post.

Replace the Cloth cover on the Unit.

Replace this Unit on the Short Wave Shelves.

Book No. (18) (18) (18.3) () () ()

Sec. No. (K) (B) (A) () () ()

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WBAS: Inspect, Service and Test Transmitter WBAS.

Procedure: See Friday Item No. (5) Book No. (6) Sec. No. (G)

Page No. (60) per WBAS.

Except as follows:

WBAS operates on a Frequency of 39,620 KC.

Length of Antenna Rod is 18 inches from base to tip.

Book No. (18) (18) (18.2) () () ()

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

(x) "Basement": Inspect, Service and Clean the following Miscellaneous Equipment:

Inspect and Clean the Antennas, Dipoles, etc. on the racks to the left side of the Basement Workbench.

See that all Screws and fittings are tight, and that the Threads on the Fittings are not damaged.

Inspect and clean all antenna rods on the rack .

Straighten out any Antenna Rods which may be bent.

Lubricate with Walscolube the joints of any rods which do not slide easily.

Check that the threaded ends are not damaged.

Inspect and clean all Antenna Transmission Lines.

These are on the Wire Rack adjacent to the 5 KW Transmitter Motor-Generator Platform.

Check the Continuity of the inside and outside conductors.

Check for possibility of a Short Circuit between the two conductors.

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Wipe off each Transmission Line with clean dry cloth.

Coil neatly and replace them on the Wire Racks.

Check all Spare Tube Kits in Transfile # 139-.#140

See that a label is on the outside of each Kit denoting contents and Equipment to which it belongs.

See that a Spare Set of Tubes is on hand for each piece of Short Wave Equipment.

If Necessary to replenish a Spare Kit, or to make up a new one, check with the Instruction Book kept in the Office Library for the Particular piece of Equipment.

In making up a Spare Set, wrap each tube in a piece of cloth, then wrap the complete set in heavy brown wrapping paper kept in the Storage Room.

Enter contents of Package (kit) and the Equipment with which it is to be used on a gummy label and attach same securely to the Kit.

Check the Spare Parts Kits on the Short Wave Shelves.

These Kits contain spare Resistors, Condensers, Chokes, Insulators, Battery Clips, Crystals, Push-to-Talk Microphones, etc.

Note that the contents agree with the list on the inside of the Cover of the Kit.

Inspect and test the Wavemeters on the Short Wave Shelves.

Test the Bulb in the Wave Meters using a 1.5 Volt Battery.

See that the knob on the Wave Meter is tight and rotates freely.

Touch up any scratches or chipped spots with proper paint.

REMEMBER: This Equipment must be ready to be used at a moments notice!

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End Item 5.

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TEST RECORD - S.W. EQUIPMENT

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TRANSMITTER	SERIAL No.	POWER SUPPLY		TEST	DATE & SIGN
		TYPE No.	SERIAL No.		
WBAN	2	DYNAMOTOR POWER UNIT	2	OK	1/28/45 JS
WMOR	1	DYNAMOTOR POWER UNIT	2	OK	1/28/45 JS
WBAQ	3	"	2	OK	1/28/45 JS
WEGN		DYNAMOTOR POWER UNIT	4	OK	1/29/45 JS
WBAR	7			N*	5/25/45 FG
WBAS	8			N*	5/25/45 FG
WMOR	1	DYNAMOTOR P. U.	2	OK	5/26/45 JS
WBAN	2	"	2	OK	5/26/45 JS
WBAQ	3	"	2	OK	5/26/45 JS
WEGN	5	"	1-3-4	OK	5/27/45 FG
WEGN	5	AC PWR PACK-1+2		OK	5/28/45 FG
WBAS	7			OK	6/17/45 RQ
WBAR	8			N*	6/17/45 RQ
WBAQ	3	DYNAMOTOR POWER UNIT	2	OK	8/13/45 RQ
WBAS	7			OK	9/2/45

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TEST RECORD - S.W. EQUIPMENT

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RECEIVER	SERIAL No.	POWER SUPPLY		TEST	DATE & SIGN
		TYPE No.	SERIAL No.		
Hammarlund	1049	AC Hammarlund	2	OK	2/26/43 JMC
"	1050	"	1	OK	2/26/43 JMC
"	3136	"	4	OK	2/26/43 JMC
"	1050	DC Hammarlund	1	OK	2/26/43 JMC
"	3136	"	3	OK	2/26/43 JMC
"	3136	"	4	OK	2/26/43 JMC
Hammarlund	1050	AC Hammarlund	1	OK	5/7/43 RP
"	3136	"	4	OK	5/7/43 RP
"	1050	DC Hammarlund	1	OK	5/7/43 RP
"	3136	"	4	OK	5/7/43 RP
WOR-UHF "Q" 1176F-3	1176F-3			N* OK	5/25/45 FC
WOR UHF Pgm	#1			N* OK	5/25/45
Hammarlund	#1049	DC HAND #1-2-3-4.	#1-2-3-4	OK	5/27
WOR-UHF "Q" 1176F-3	1176F-3			OK	6/17/45 RP
WOR UHF PGM.	#1			OK	6/17/45 RP

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[illegible]

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TYPE: 5.

[illegible]

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RECEIVER	SERIAL No.	POWER SUPPLY		TEST	DATE & SIGN
		TYPE No.	SERIAL No.		

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ITEM 5.

[illegible]

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MISCELLANEOUS S. W. EQUIPMENT	SERIAL No.	POWER SUPPLY		TEST	DATE & SIGN
		TYPE No.	SERIAL No.		

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ITEM 6

Proceed to the Basement, clean all Tools and Equipment on the Basement Work Bench.

Straighten out Tools on Work Bench and in Drawers.

Clean Basement Work Bench with Naptha.

Polish Top of Work Bench and Linoleum Covers with Floor Wax.

(a) "Basement": Proceed to the Work Bench in the Basement and perform the following maintenance Work.

Remove all the Glass Jars of Nuts, Bolts Etc., on top Ledge of "Display Board" and dust them, with a Soft Clean Cloth.

Wipe all Dust off top Ledge of "Display Board", then replace Glass Jars of Nuts Bolts etc.

Use a Soft Clean Cloth to get this Ledge clean.

Wipe the dust and Dirt off all Equipment and tools on the Work Bench with a Clean Cloth.

If this is insufficient to clean them dampen the Cloth in Naptha.

This means the Lathe, Vise, Drill Press also.

Wipe off the "Display Board" with a Clean Dry Cloth.

Empty the Metal Scrap Container beneath the Lathe.

Wipe off all dust, dirt and metal scrap from top of the Work Bench.

Clean top of work bench with Naptha, using a small amount on a clean cloth.

Open all Drawers beneath the Work Bench, wipe off tools, then straighten them out so that the next man may use them in a hurry if needed.

Remove all loose screws, bolts, nuts, papers etc., placing them in the proper jars, drawers or Bins.

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ITEM 6

All Spools and holders for Wires and cables under the Bench should not have any loose ends hanging down.

Wipe dust and dirt off all Spools of wire and cable beneath Work Bench, using dry cloth.

Wipe off fronts of Drawers and spaces beneath the Work Bench with clean dry Cloth.

Wipe off ends of Work Bench with clean dry cloth.

As the last operation, polish top of work Bench with Floor Wax.

About a table-spoonful on a clean cloth two or three times a week is sufficient.

Apply the Wax lightly, spread evenly over entire top of Work Bench (Remove pieces of Linoleum).

Allow a few moments to dry.

When Wax is dry, polish off with clean Cloth, rubbing vigorously.

Polish pieces of Linoleum in the same manner then replace in proper places on Top of Work Bench.

It is not necessary to apply Wax every day, best way to determin this is to polish top of Work Bench with Clean soft Cloth, also the pieces of Linoleum.

If they take a polish, that is appear clean and have new clean bright lustre, no Wax need be applied.

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ITEM 7

Test all "Ideal" type Flashlight Storage Batteries.

(a) "Basement": Proceed to the Basement and test all "Ideal" quick re-chargable Flashlight Storage Batteries, catalogue #44.

These are the semi-solid type and may be used in any position.

It is preferable however to keep this Flashlight upright.

Flashlights are placed throughout the building on holders for ready use.

They are located as follows:

"Portable Fuse and Test Unit".

"Maintenance Trays #1 and #2."

"Right Compartment of Control Desk in Audio Facilities Control Room".

"Table in Measuring Equipment Room".

Control Desk in Transmitter Room".

Measuring Bench in Basement".

"Basement Work Bench."

Spare Batteries are kept on shelf #2 of Battery Locker in the Basement.

Battery Locker is located adjacent to the Work Bench.

Proceed to gather all Flashlights and take to the Basement for Testing and renewing.

Meter for testing these "Ideal" Batteries is on Shelf##2 in "Battery Locker".

It is connected to Test Connections bolted to the side of the Locker.

Unscrew rear cap and remove Battery from the Flashlight.

Clean oxidation from Top and Bottom Battery Contacts, bottom spring contact, and

Switch Contacts with #000 Sandpaper and wipe off residue with dry cloth.

Place Battery between Test Clip connections to measure Voltage under load.

Recharge any battery measuring less than 1.8 Volts.

Put freshly charged battery in Flashlight and replace the cap; check operation.

If light is dim, replace Battery. If Bulb is burned out, replace it.

Return all Flashlights to proper places.

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ITEM 7.

When Battery requires charging.

Inspect for Water content.

Turn the Battery upside down and look through the top of Battery (now at bottom).

If the water is O.K., a few drops will be visible between the baffle and top of active portion of Battery.

If only one drop or no Water is visible, add Water as follows:

GENTLY unscrew plug on top of Battery, using Screw Driver or Gas Fliers.

Fill medicine dropper with Distilled Water.

Medicine Dropper is kept on "Short Wave Shelves" just below the two "Ideal Charger" Units.

Distilled Water is kept in the Pump Room.

Insert Medicine Dropper into Battery as far as it will go and squeeze 3 or 4 drops of water.

A few drops of free running liquid when the Battery is inverted, indicates the correct saturation. DO NOT ADD MORE.

Replace the plug and GENTLY tighten it in place. Tightening too tight will break the case.

Wipe off Battery Case with dry cloth.

Place Battery to be charged in "Ideal Charging Unit" and put "ON" 115 Volt A.C. Supply Toggle Switch.

Red Light "Pilot" will indicate power is "ON".

This circuit is fed from Switch #8 in 115 Volt Panel Box at entrance to Basement. Switch #8 is to remain "ON" at all times.

There are two "Ideal Charging Units" and both are controlled by these 2 Switches. Two Batteries may be charged at a time.

Put all Batteries waiting to be charged on the small shelf adjacent to the "Ideal Charging Units".

"Ideal Batteries" are numbered from 1 to 18.

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ITEM 7.

When a Battery is placed on charge or taken off charge, water added, enter the information on the reverse of the ~~50 KW Battery Operating Log~~ *"P & E Tally Sheet"* per example:

10:00 A.M. Ideal Flashlight Batteries #7 and #10 Water added and placed on Charge. - GR.

4:00 P.M. Ideal Flashlight Batteries #7 and #10 Taken off Charge. - FN.

When Batteries are on charge, remove and test every four hours. Continue charging if the reading is 1.8 Volts or less. If fully charged, put in "Spare Battery" locker.

Place next Battery in line to be charged in "Charging Unit". Technicians on following watches will continue charging and testing until all "Ideal Flashlight Batteries" are Charged.

Normal charging time is 12 to 16 hours.

A fully charged battery will read 1.9 to 2.0 Volts.

After Batteries are fully charged put them on the left side of Shelf #2 in "Battery Locker".

Check all "Ideal Batteries" kept on Shelf #2 in "Battery Locker" the same as those in the Flashlights.

Add Water if required.

Place in "Charging Units" or if same are in use, put Batteries on the Charging Shelf.

Only Batteries ready for use are to be kept in the "Battery Locker".

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End Item 7.