

# BOSCH RADIO



INSTRUCTIONS FOR  
OPERATING AND  
INSTALLING 'THE  
CRUISER RECEIVER'

Bosch Radio is manufactured  
under patent applications of  
the American Bosch Magneto  
Corporation and licensed  
under applications of the  
Radio Frequency Labora-  
tories, Inc.



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## FOREWORD

In the following pages we have given simplified instructions for setting up and connecting the Cruiser. We have set forth simple operating suggestions for best results. Since Bosch Radio in its design and construction has been built to be free from trouble as it is possible for advanced engineering to make it, it is needless to burden the owner with any unnecessary details.

It is our desire to have the Bosch Radio owner enjoy his set; to enjoy its quality of reception and its unusual performance without adjustment or tinkering so often associated with radio.

Should you feel, however, the need for more detailed information on the operation of your Bosch Radio, the authorized Bosch Radio Dealer or our Service Division will gladly assist you.



AMERICAN BOSCH MAGNETO CORP.

SPRINGFIELD, MASSACHUSETTS





## COMPLETE INSTRUCTIONS FOR OPERATING AND INSTALLING THE BOSCH CRUISER RECEIVER

It is important to have in mind that the instructions given throughout this manual are intended to provide the easiest and best means of operating your Cruiser to obtain the best performance.

The most suitable accessories, such as tubes, batteries, etc., should be used. Experience proves that it is false economy to use inferior accessories after investing in a receiver as good as the Bosch Cruiser.

It is also important that regardless of the previous experience you may have had with radio, that you digest the following instructions before starting the actual installation. This is advisable that you may obtain in advance a comparative idea of what is necessary to be done.

Before leaving the Bosch Factory each part of the Cruiser is thoroughly inspected and tested by radio experts to assure its giving complete satisfaction. Should your set fail to respond after the installation has been completed, review in detail each step of the operation to assure yourself that each connection has been made according to instruction—then if your receiver fails to operate notify immediately the authorized Bosch Radio dealer from whom you purchased the set.

The Bosch Cruiser Receiver employing two stages of radio frequency amplification, a detector and two stages of audio amplification should be operated on an antenna not less



than 50 feet, in conjunction with a good ground. An aerial in excess of 100 feet will seldom be required. For your first radio experience we suggest using a 60-foot antenna.

The necessary wires for harnessing your A and B batteries to the receiver, together with two "loud speaker" plug jacks for connecting the speaker are furnished with the set. In addition to the above the following material, which can be purchased from your Bosch Dealer, is necessary before you can make a complete installation: 60 feet of wire for your antenna; a ground clamp; two insulators for both ends of your aerial; a lightning arrester, and a lead-in insulator or window strip. The "A" battery equipment for the Cruiser may be of either the wet or dry type. While the instructions for installing both types are given it is most advisable that wet batteries be used.

The following instructions and equipment pertain to the wet battery installation. The dry battery instructions will be found on page 16. One 6-volt radio type "A" battery (wet) of at least 80 ampere hour capacity; three blocks of heavy duty 45 volt dry "B" batteries or if the Nobattery is used, "B" batteries are not necessary; sufficient wire to make a satisfactory ground connection. For best results, the following 5-volt filament tubes, or their equivalent are recommended: one UX200A for the detector stage; one UX112 for the 2nd audio stage and three UX201A tubes for the 1st audio and 1st and 2nd radio frequency stages.

The authorized Bosch Radio Dealer will gladly assist you in securing the most satisfactory equipment.

Before deciding upon the permanent location of the Bosch Cruiser Receiver it is im-

portant that you read the necessary specifications relative to the most suitable location of the receiver in your home.

Do not locate your set near a radiator—the farther away you can conveniently place your receiver the better will be its performance. While this may seem contrary to popular conception, experiments have proven that a radiator interferes to a considerable degree with radio reception. It is a very unsatisfactory "ground" and should not be used if a better connection can be made.

The most efficient "ground" connection and one that will give excellent results is the ground to the nearest water pipe, preferably ahead of the water meter. Make such a connection if possible.

Another problem to carefully consider before finally determining upon location of your receiver is the situation of your antenna. The receiver should be placed as near the antenna "lead-in" as possible. The lead-in is the wire connecting the antenna with your set.

### *Antenna*

The length of your aerial or antenna will depend largely upon local conditions and also upon the particular kind of reception you are seeking. A short aerial will give greater selectivity and is advisable where many broadcasting stations are operating in one locality. A long antenna, while enabling you to "pick up" stations at great distances, will not give as excellent selectivity as the short antenna. Under no circumstances, however, have your aerial including the lead-in less than 50 feet long. Best results are obtained when a single antenna wire is used. The antenna should always be above the level of the receiver so that the lead-in



wire will come into the receiver as near a vertical position as possible. It is also advisable never to pass the antenna across or close to power wires. Set the antenna at least 10' above any metal work on the house.

#### *Connecting the Antenna*

Connect the lead-in wire from your antenna to the post marked "Short Ant"—it is located at the extreme left rear of the receiver. The connection is made thru the rear of the set. When an aerial longer than 100 feet is used connect the lead-in wire to the "Long Ant" tap.

#### *Ground Connection*

The ground connection terminal is also located at the extreme left rear of the set and is plainly marked "GND." One end of the wire connects to the "GND" terminal of the receiver, the other should be soldered to an approved type ground clamp. The best possible ground is the one made to the water intake pipe before it goes into the water meter. A fair substitute is any cold water pipe contact or radiator. The quality of reception depends to a great extent upon the type of ground used. A little experimenting with both the radiator and water pipe as a ground is suggested that you may experience the remarkable difference of reception between the two. All paint, enamel or rust should be removed from the pipe where the ground clamp is attached.

#### *Reproducer*

The two speaker connections are conveniently placed for quick connection at the back of the receiver. Simply plug in the reproducer connections through the back of the cabinet.

#### *Battery Connections*

The battery switch or Amplifier Control Knob should be turned to the "off" position before proceeding with the battery connections. A six volt wet radio type "A" battery of at least 80 ampere-hour capacity is recommended. The dry battery instructions and diagrams are given on page 16. The battery terminals are all plainly engraved and each wire marked by a colored tracer, so that you should have no difficulty in making the necessary connections. A wiring diagram shown on the following page will also be of assistance to you.

#### *"A" Battery Connections*

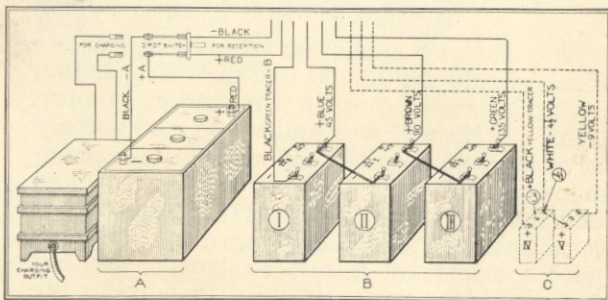
Connect the black wire to the negative or "minus" terminal and the red wire to the positive or "plus" terminal of the "A" battery.

#### *"B" Battery Connections*

If the Bosch Nobattery is used the instructions will be found in page fourteen.

Place three blocks of 45 volt "B" batteries side by side as shown in the accompanying diagram. Two short pieces of bell wire may be used for jumpers to connect blocks *one*, *two* and *three* together. Connect the first jumper from the (+) 45 clip of battery No. I to the minus (-) clip of battery No. II. Connect the second jumper from the (+45) clip of the battery No. II to the minus (-) clip of the Battery No. III. The three batteries may now be connected to the receiver. The black wire with the green tracer connects to the minus terminal of battery No. I. the blue cord to the positive or plus 45 volt terminal of battery No. I. The brown wire connects to the plus 45 volt terminal of battery No. II. The green wire is





connected to the plus 45 volt or positive terminal of battery No. III.

### "C" Battery Connections

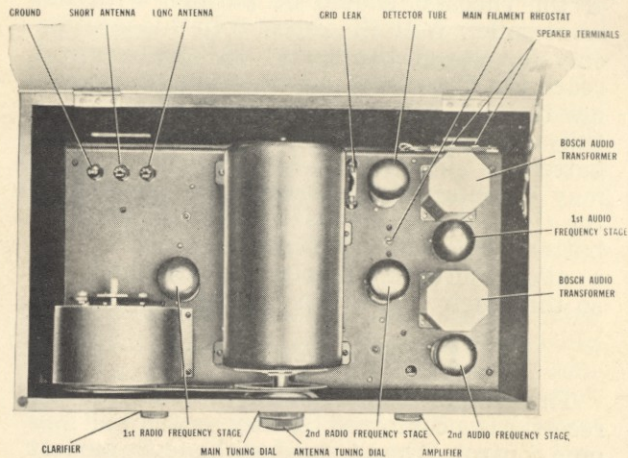
If "C" batteries are used, the following connections should be made. When using two  $4\frac{1}{2}$  "C" batteries, join the connecting wire or jumper from the  $-4\frac{1}{2}$  volt terminal of battery No. IV to the + clamp of battery No. V. The black wire with the yellow tracer may now be attached to + terminal of No. IV "C" battery. and the white wire to the  $-4\frac{1}{2}$  volt terminal of the same battery. The remaining yellow wire should be coupled to the  $-4\frac{1}{2}$  volt terminal of battery No. V.

If "C" batteries are not used connect the bare ends of the three wires together. When this is done the joined ends should be insulated with electrician tape.

### Tubes

Set the Amplifier Control a half turn to the right and insert the tubes in the following order:

In the socket at the extreme right forward corner, between the front of the cabinet and the octagonal audio transformer, place a UX-112 power tube or its equivalent.



This is called the second audio frequency stage. The next tube, a UX201A, can now be inserted. This is to be placed in the socket located at the extreme right between the two octagonal transformers. This is called the first audio frequency stage.

The UX200A tube can now be inserted in the detector stage socket at the right of the grid leak. By slightly tapping the detector tube a "booming" sound will be heard in the speaker.

The two remaining UX-201A tubes may now be inserted. On the left of the receiver is the first radio frequency stage, and the one directly in front of the detector tube is the second radio frequency stage. It is immaterial which stage you insert the tube in first.

### Main Filament Rheostat

Directly in front of the detector tube is the Main Filament Rheostat. When the "A" battery is fully charged the screw driver slot



of the rheostat should be parallel with the front panel. With the rheostat in this position only 5 volts of the 6 volt "A" battery will reach the filament of all the tubes. Never allow the "A" battery to run down, but keep it fully charged at all times. When the "A" battery is slightly run down a louder signal may be obtained by turning the rheostat to the right, thus compensating for the low "A" battery condition. Be careful, however, not to allow more than 5 volts to reach the tubes so that their life will not be shortened.

### *The Amplifier Control*

The Amplifier Control on the right of the receiver is a combined battery switch and volume control. When turned to the extreme left the tube filaments are off and the broadcast program cannot be received. The knob should always be in this position when the set is not being used. By turning the Amplifier slowly to the right the volume of the broadcast program is gradually increased—when turned to the left the volume is decreased.

### *The Clarifier Control*

At the left of the receiver, directly opposite the Amplifier, is the Clarifier control or antenna switch. The purpose of this Clarifier is to clarify the incoming signal. The four graduations which correspond to four antenna capacities or lengths govern the selectivity of your receiver. When set at the No. 1 position your antenna is automatically grounded. When tuning in strong local stations the control may be set at this position. When the control is turned to position No. 2, a third of the antenna capacity or length is connected to the set. The finest or sharpest tuning for "cutting out"

local interferences is obtained at this setting.

Position No. 3 increases the antenna to about two-thirds of its total capacity, and position No. 4 exposes it to full capacity. These two positions are for tuning-in long distance reception. A little experimenting with the Clarifier control will give you a clearer understanding of its operation.

### *The Unified Station Control*

Among the many distinguishing features of the Cruiser which give Bosch an enviable position in radio construction and leadership none is more unique than the double control single vision station selector. Through this ingenious construction both dials may be operated as one for most tuning, with two dial advantages when "cruising" the air.

The graduated scale in the upper section of the tuning shield is the main tuning scale and is controlled by the main tuning dial, which is the inner knob. The lower or antenna tuning scale is controlled by the antenna tuning dial, which is the outer knob.

### *Tuning*

Refer to the tuning scale chart shown on the next page.

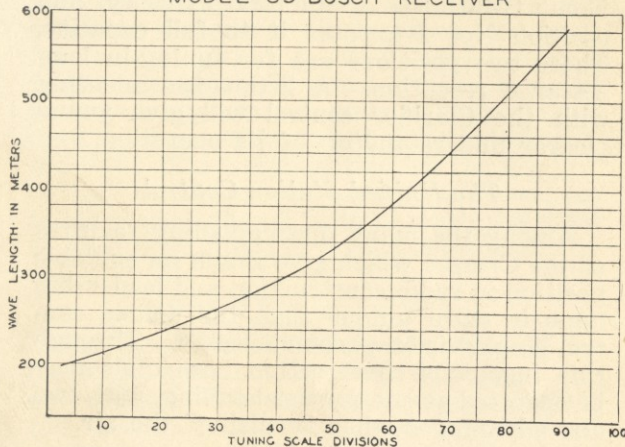
The figures given on the left of the tuning chart represent the wave lengths in meters of the various broadcasting stations, and those at the bottom correspond to the graduations given on the main tuning scale of the Cruiser.

From your newspaper select for your first tuning experience a nearby broadcasting station, observing its meter wave length as given in the newspaper.

Let us suppose that its wave length is 300 meters. Run your finger across the chart



TUNING CURVE  
FOR  
MODEL 35 BOSCH RECEIVER



on the 300 meter line until it reaches the point where the main tuning curve intersects the 300 meter line. At the bottom of the chart, and in a direct line with the main tuning curve intersecting point above will be found the approximate dial setting—which is 43.

Turn both dials until the graduated scales on the receiver are set at point 43 in the center of the tuning shield. Due to the many varying types of antennæ and also the common occurrence of broadcasting stations to "swing" out of their wave length, it can be readily seen that to design a chart which could be followed as an infallible guide, would be an absolute impossibility. Either of these two conditions will necessitate a variance of from 1 to 5 degrees between the upper and lower dials. This variance is usually made on the antenna tuning scale which is controlled by the outer knob. The main

tuning scale will remain set in accordance with the reading given on the tuning chart.

If the station broadcasting cannot be heard, advance the Amplifier by turning it to the right until the program is brought in to the desired volume.

When tuning to a local station, as suggested, set the Amplifier Control about midway in its movement and turn the Clarifier from point to point until the desired volume is secured. The majority of your tuning will be done, however, when the Clarifier Control is set at either position 2 or 3; consequently the Clarifier need seldom be advanced above this position except of course when long distance stations are sought.

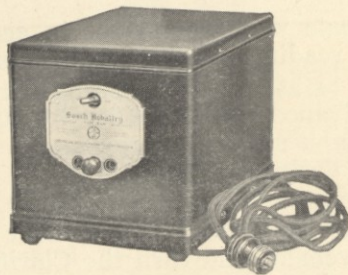
When two stations seem to conflict, the Clarifier may be set back until this annoyance is eliminated—the Clarifier, theoretically, shortens the antenna thereby making it more selective. But remember that when the Clarifier is changed the antenna tuning scale must also be adjusted by turning it slightly to the right.

Once having found the desired setting for the Clarifier and antenna tuning scale that setting becomes the established location for that particular station and may be recorded in the temporary log given in the back of the book. A permanent Bosch Radio Log Book will be sent to you upon the return of the postcard attached to the back cover of this manual.

#### *The Bosch Nobattery*

There are two sources from which you can draw the necessary plate voltage for your vacuum tubes to operate your Bosch Receiver. The use of "B" batteries is one, and has already been explained in the installation section of this manual. The other





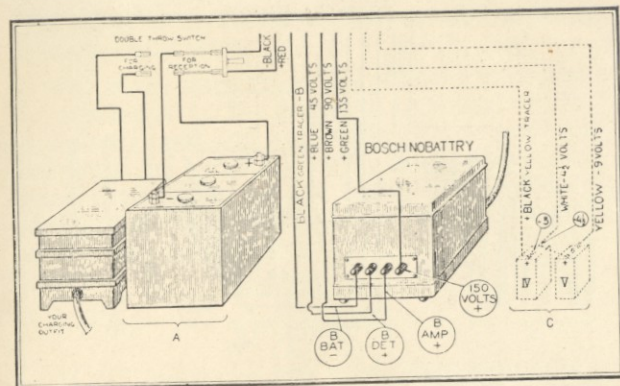
and more dependable source is the electric current in your home. It is necessary to use "B" batteries where house current is not available.

The Bosch Nobattery is a device which converts any 110 to 125 volt alternating current of 40 to 60 cycles—the ordinary house lighting circuit—to a current of the type, voltage and capacity required for radio receiving sets.

The Nobattery is neat and attractive and substantially built throughout by Bosch. There are no acids or other objectionable materials used in its construction that necessitate testing or charging at frequent intervals. It maintains a constant and steady supply of current to the vacuum tubes, thereby eliminating the annoyances frequently caused by other sources of "B" power. The Bosch Nobattery assures a constant supply of "B" power, improving both distant and local reception.

While the first cost of the Nobattery is higher than "B" batteries, it is an investment for a period of years. It consumes less current than the ordinary house bulb and, while it improves the performance of all radio receivers, it is particularly adaptable to your Bosch Cruiser Receiver.

The Nobattery requires very little storage space, measuring only 7"x7"x12". Price \$55.00.



### Nobattery Instructions

The following instructions pertain to the installation of the Bosch Nobattery if used in place of "B" batteries. The four terminals on the Nobattery are all plainly engraved so that you should have no difficulty in making the necessary connections.

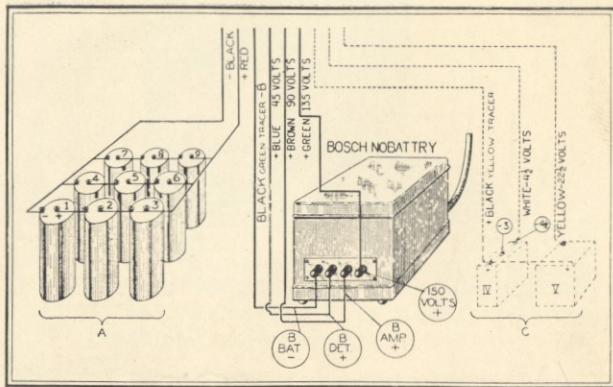
The Nobattery installation should be made after the "A" battery has been connected. Set the Amplifier at the "off" position before making the installation.

Connect the black wire with the green tracer to the first terminal post on the Nobattery marked *B Bat*—. Connect the blue wire to the second post marked *B Det*+. Connect the brown wire to the *B Amp*+ post, and the green wire to the 150 volt+ post.

### Dry "A" Battery Instructions ...

The use of dry "A" batteries for your Cruiser receiver is not recommended, although the instructions for their installation are given. If this is your first experience with radio, it is advisable that you use either wet batteries or the Bosch Nobattery. The





wet battery instructions are to be found on page 7—the Nobattery instructions on page 14.

These instructions apply to the dry "A" battery installation as well as the "C" battery installation if they are used. With the exception of the change in the type of tubes used, all other instructions given on the preceding pages remain unchanged.

The batteries should be arranged as shown in the diagram above, and are connected together in accordance with the following instructions:

Nine No. 6 dry "A" batteries connected in series of three blocks, three each to a block are required. Join the positive terminal of battery No. 1 to the negative terminal of battery No. 2 by a short piece of jumper wire. Connect the positive terminal of the No. 2 battery to negative of the No. 3 battery. Repeat the operation on the other two series by connecting batteries 4, 5 and 6 together and batteries 7, 8 and 9 together. Couple the three blocks together by connecting the negative terminals of 1, 4 and 7 together, and

the positive terminals of 3, 6, and 9 together with jumper wire.

The black wire from the receiver may now be connected to the negative terminal of No. 7 battery and the red cable to the positive terminal on No. 9 battery. Make absolutely sure that all wires are firmly connected to the batteries. Even a single loose wire will effect the reproducing qualities of the receiver.

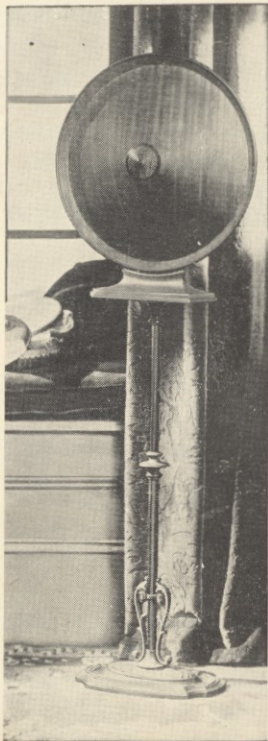
### "C" Batteries

If "C" batteries are used, your equipment will include a  $4\frac{1}{2}$  volt and a  $22\frac{1}{2}$  volt "C" battery, placed side by side as shown in the accompanying diagram. Connect a jumper wire from the + terminal of the No. IV battery to the + terminal of the No. V battery. The black wire with the yellow tracer may now be connected to the + terminal of the No. IV battery and the white wire to the (-) terminal of the same battery. The yellow wire connects to the (-) terminal of the No. V battery. When "C" batteries are not used, join the bare ends of the black, white and yellow wires together. When this is done be sure to completely cover the connected ends with electrician's tape. This is very important.

### Tubes

The procedure for installing the tubes required for dry "A" batteries will be the same as those given on page 9, the only change being in the type of tubes used. For the last audio frequency stage a UX-120 tube is recommended and for the remaining audio stage as well as the detector and radio frequency stages a UX-199 tube should be used.





The introduction of the Art Pedestal and Extension Cord is an innovation, immediately appealing to those who are desirous of locating the reproducer apart from their radio receiver.

While it is important that the receiver be placed as near the antenna lead-in as possible, the reproducer may now be situated where it will give a more pleasing effect to the appearance of your room.

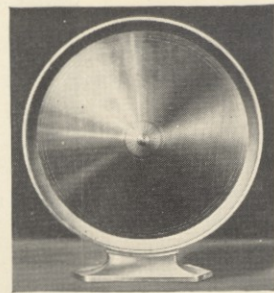
Better reception is likewise greatly improved when the reproducer is placed apart from the receiver and in a position where the best acoustical properties are in evidence.

The design of the Art Pedestal is charming. It has the stability and grace of a well-balanced bridge lamp and its height is in perfect proportion.

The Art Pedestal has been designed expressly for the Ambotone Reproducer, and when used with either the wicker or concert models the ensemble gives a most delightful and pleasing appearance.

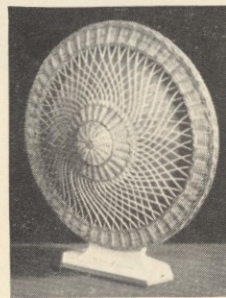
The Extension Cord is fitted with the necessary connections for coupling the reproducer to the receiver. It is 20' long. The Art Pedestal is \$11.50, and the Extension Cord \$1.75.

The Bosch Ambotone Reproducer with its tonal quality meets the most exacting requirements of music lovers. From its wood cone comes that mellowness found only in wood instruments. The mahogany finish of the wood cone is enhanced by the art bronze finish of the metal work. The indestructible rim of the Ambotone is a distinguishing feature that assures a lasting and beautiful appearance.



*The Ambotone Reproducer*

The low cost of the Ambotone Reproducer brings it within reach of every radio owner, desiring the finest in radio entertainment. Its price is \$27.50.



*The Wicker Ambotone*

Wicker — distinctive, graceful and refined, always in fashion's favor and decreed appropriate for either sun room or living room.

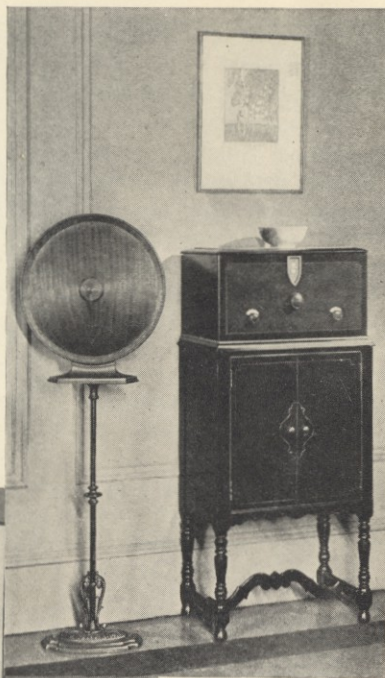
Enameled in bright, pleasing colors—the illustration at the left can give but a hint of the richness and elegance of wicker as embellished by Bosch in

the Wicker Ambotone Reproducer.

Its sweet clear sonorous tones will instantly delight the most discriminating type of music lover. Your dealer will gladly show you this Bosch radio creation as an additional reproducer for the guest room or sun parlor. Price \$35.00.



Right—  
The Cruiser  
mounted on  
Model 11  
Cabinet. The  
Ambotone and  
its art pedestal  
are also shown



Left—  
The Cruiser  
mounted on  
Model 10  
Cabinet. The  
Ambotone is  
shown in the  
location pro-  
vided for it in  
this type cabi-  
net.

The two cabinets shown on the left will be a revelation to those desiring a suitable piece of furniture to enhance their Cruiser receiver.

Stately and dignified these two cabinets accentuate the beauty and character so manifest in the cabinet work of the Cruiser.

The top of both cabinets is moulded to conform to the base of the Cruiser, thereby giving the effect of a single cabinet type of receiver.

In the compartment of the Model 11 there is an abundance of room sufficiently large enough to accommodate all accessories, as well as providing ample working space for making the necessary battery connections. This space is 18½" high, 18½" wide, and 11⅝" deep.

At the front are two broad, wide swinging doors, assuring unobstructed access when installing the equipment or when subsequently charging or testing the batteries.

The price of the Model 11 Cabinet is \$22.50. Although standing equally as high as the Model 11 cabinet, the slightly shorter compartment space gives a more delicate and slender effect to the design of the Model 10 cabinet. The compartment provides ample room for housing battery equipment and in addition, space has been provided at the base of the cabinet for the Bosch Ambotone or other type of reproducer. Like the petit grand the model 10 cabinet is especially adaptable to small apartments when limited space is available. The entire ensemble has a most charming appearance.

The dimensions of the battery compartment on this model are 10½" high, 18½" wide, and 11⅝" deep. Both models without the Cruiser receiver are 33⅜" high.

The price of the Model 10 cabinet is \$18.00.







STANDARD RADIO GUARANTEE  
*of the*  
AMERICAN BOSCH MAGNETO CORPN.

The Bosch Guarantee is effective only when our records are complete. The agreement becomes binding when the owner's name and address, the dealer's name and address and the serial number on the set are properly filled out on the registration card provided, and returned to us.

The American Bosch Magneto Corporation agrees to correct any units of its manufacture which under normal installation, use and service become inoperative as a result of any defect in material or workmanship. The unit in question must be delivered intact by the owner or his accredited agent within 90 days from the date of sale to the first user, to an authorized Bosch Radio Dealer, or to any of the Corporation's branches, all transportation charges prepaid. The Corporation is not responsible for failure of any of its products due to ordinary wear, to neglect, misuse, accident or improper installation—when other than genuine Bosch parts are used or where any repair, replacement or adjustment has been made outside of its authorized Radio Dealer, Branches or Factory or when assemblies are delivered for examination independently of the units to which they belong.

This guarantee is void if the official seals placed upon the unit, are broken or if unauthorized adjustments are made in the wiring circuits or the working parts.

Any unit approved for correction hereunder, shall, without charge to the owner, be put in first class operative condition but any liability for expense incurred in the removal or installation of the unit, transportation, duty, tax, or to other contingent expense will not be assumed by the Corporation.

The Corporation does not assume any liability for damage or injury to any person or part resulting directly or indirectly from design, material, workmanship or installation of any of its units.

This guarantee supersedes all other guarantees of the Corporation, either expressed or implied, and no one is authorized to vary any of its terms or conditions.

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Magneto Corp'n  
Springfield, Mass.



THE  
BEST  
IN  
RADIO

**BOSCH  
RADIO**



*Blc 9-11-13  
New set  
given to  
Hans*