

WOR

WFAA

WBBM

KMOX

WBZ

KDKA

KNX

WMAQ

WXYZ

WLM

WENR

KGO

KOA

WGR

WJZ

# CONVERSATIONAL *Facts* *About the*



## MAGIC KEYBOARD

*An Exclusive*  
**STEWART-WARNER**  
*Radio DEVELOPMENT!*

WOR

WFAA

WBBM

KMOX

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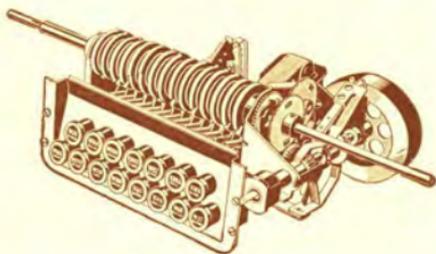
KOA

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WJZ

## *The Magic Sales Power of the Magic Keyboard*

- ★ Most people are PICTURE-MINDED. They can understand something more easily when it is translated in terms of what can be seen.
- ★ The Magic Keyboard is a feature that can be seen — and THE PROSPECT CAN PICTURE TO HIMSELF THE ADVANTAGES RESULTING FROM ITS USE!
- ★ The salesman doesn't have to ask the prospect to take his word for what the Magic Keyboard will do — IT OFFERS SERVICES HE CAN'T POSSIBLY IGNORE!
- ★ Every salesman knows that if you get your prospect to think of the GOOD that the use of the service will do him, he will sell himself!
- ★ Always remember the prospect is not interested in the Magic Keyboard for what it is, BUT RATHER WHAT IT WILL DO FOR HIM!
- ★ The Magic Keyboard CREATES A TREMENDOUS NEW FIELD OF RADIO PROSPECTS, by immediately obsoleting all radios without this automatic tuning mechanism!



## THIS IS A MECHANICAL AGE

This is a mechanical age. The trend of modern design is entirely toward automatic and fool-proof operation. You and I now have, for example, many automatic features in our automobiles such as automatic spark advance, automatic choke, automatic thermostat control, automatic over-drive, automatic shock absorber control and even automatic gear shift; in our heating systems we have automatic temperature control; in our refrigerators we have automatic cold control; in our kitchen ranges we have automatic oven control; and in our normal day-in and day-out living, we have become accustomed to relying upon so many types of automatic devices that we hardly think of them as being "automatic" any more than we consider the time and trouble they save us.

In purchasing a piece of mechanical equipment today you and I EXPECT AND DEMAND that manual operations which were formerly tedious and often somewhat complicated, now be performed for us instantly and perfectly by an automatic device which we can operate by the mere touch of a button or pressure of a lever.

Stewart-Warner, a manufacturer of precision-built mechanical equipment for almost a half-century, has become known the world-over as a leader in the development of many automatic mechanical-type devices that have had a far-reaching influence in our modern manner of living. In the automotive industry Stewart-Warner contributed first the speedometer, then the vacuum tank which made it possible for manufacturers to build their cars closer to the ground permitting increased speed and streamlining, Alemite pressure lubricating systems, mechanical and electrical fuel pumps, and recently the South-Wind gasoline car-heater. In their refrigerators are likewise exclusive automatic features which make for greater ease and flexibility in use, and economy in operation.

In step with the many important mechanical advances, automatic operation in the field of radio reception is now a NECESSITY and Stewart-Warner with the Magic Keyboard again leads by making this necessity first available to you in a simple, dependable manner.

Stewart-Warner began the manufacture of radios in 1925 — at the time of the first inception of radio for the home — and are one of the few leaders today who have a continuous record of performance in this field! Their research and experimental laboratories conducted under the devoted technical skill of their engineers, have added many brilliant new advancements to the history of radio.

Stewart-Warner pioneered short-wave for the home — their short-wave converter brought out in 1930, introduced the field of short-waves for the first time to the general public. In 1931, they were the first to bring out a complete chassis designed especially for both standard and short-wave reception — two sets in one! Here was a simplified radio with a far reaching development — the first radio with the original MAGIC-DIAL — which until the advent of the MAGIC KEYBOARD this year was a symbol of the finest in radio reception, domestic and foreign.

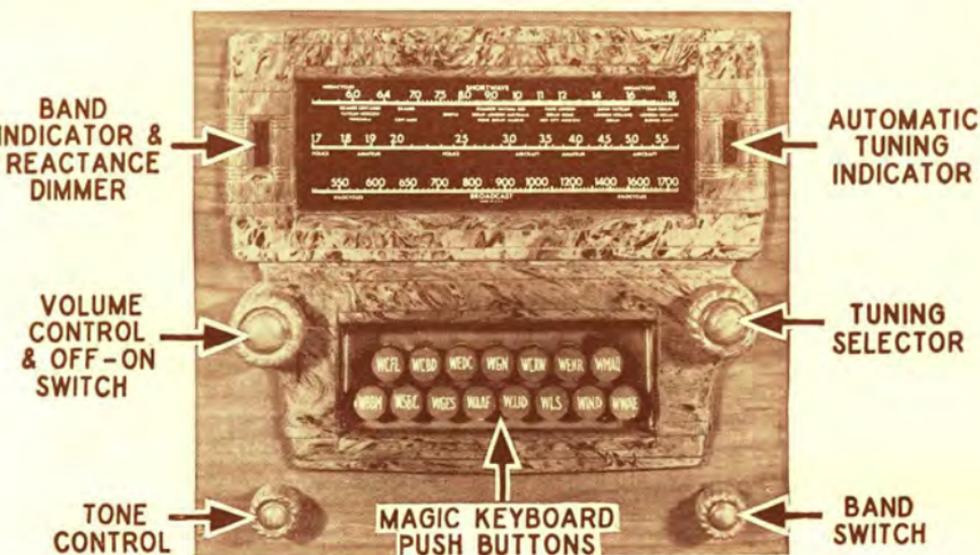
The latest and most sensational of all Stewart-Warner engineering and manufacturing triumphs in the field of radio is the precision-built Magic Keyboard — a mechanical device which affords fully automatic tuning!

## **JUST WHAT IS THE MAGIC KEYBOARD?**

Perhaps the simplest way to describe THE MAGIC KEYBOARD is to tell what it does. The Stewart-Warner Magic Keyboard is a precision-built mechanical device that upon the touch of a button INSTANTLY tunes in your selection of program or station — AUTOMATICALLY AND PERFECTLY! By instantly, we mean in less than one second — not 4 or 5 seconds! And the station buttons can be set-up from the front of the radio without any tools — it's as easy to set up the keyboard as it is to tune manually, in fact that is how it is done! THE MAGIC KEYBOARD CREATES AN ENTIRELY NEW CONCEPTION OF RADIO!

No hunting in the papers for the radio programs to find where certain stations come on (the radio section generally seems to be pretty well hidden, for some reason)! No scanning of the columns to see if your favorite programs are on that evening, and if so at what time over what stations! No bending over and searching of the dial to locate the stations! No tedious turning of control knobs to secure proper tuning (it's a fact that few people DO take care to tune a radio perfectly on a station)!

All this petty bother that is often so annoying is eliminated by the new Stewart-Warner Magic Keyboard which does all this work for you instantly and perfectly upon the touch of a button.



## IS AUTOMATIC TUNING JUST A RECENT DEVELOPMENT?

Automatic tuning is by no means new. Several manufacturers tried it a number of years ago but all were compelled to abandon it because automatic tuning was not practical until very recently. All the older types of automatic tuning devices consisted of some mechanical means of rotating the tuning dial to a certain fixed point. Building up the mechanical part of this particular arrangement was not so hard a task for sets with poor selectivity. However, the present demand for better selectivity made the mechanical problem increasingly difficult because stations do not always come in on exactly the same point on the dial. Variations in tuning, in temperature and humidity conditions, in line voltage, and temperature of tuned circuits as the set warms up, all effect the dial position so that the stations were never tuned in exactly right.

With any selective receiver, if the set is off the station in tuning to even the slightest degree, a very noticeable and detrimental effect upon tone quality is observed. Now, however, with the development of Automatic Frequency Control, known generally as AFC, this problem is overcome.

## WHAT IS AUTOMATIC FREQUENCY CONTROL AND HOW DOES IT WORK?

AFC is a radio circuit which works somewhat as follows: When a radio is tuned to a close approximate station setting, AFC takes hold and automatically tunes the electrical circuits of the set right to a pin point on the station. This means that a station can never be off tune. It is either in tune or completely out. With AFC functioning in connection with automatic tuning, therefore, it is no longer necessary to worry about slight off-tuning due to the conditions mentioned. In other words, AFC may be thought of as a magic hand that comes in and tunes the radio set exactly to the station once an approximate setting has been secured.

To follow through the automatic tuning process: You push a button for your choice of program and the Magic Keyboard automatically sets the radio instantly to the station setting; then, at that point AFC takes hold and tunes the set exactly on a pin-point to the station. The two work together instantaneously so that it is not perceptible where one lets off and the other begins. The result, however, is a radio program of your selection tuned perfectly within one second after you push the button. Truly, Aladdin with his magic lamp could do no more!

## HOW YOU OPERATE THE MAGIC KEYBOARD

With the Magic Keyboard set-up, just press one of the buttons and automatic tuning instantly goes into operation. The station selector pointer moves by the most direct route to the desired program — instantly, and silently. AFC simultaneously sees to it that the station selected is tuned in perfectly. Another button is touched and the first key automatically pops out, the new station riding in immediately, perfectly tuned.

Notice that on the Stewart-Warner Magic Keyboard the pointer always goes by the most direct route to the station selected — there is no scanning across the dial and then back again until it comes to a stop at the proper station. This direct Stewart-Warner method assures SILENT, instant tuning — a station is perfectly tuned, IN LESS THAN ONE SECOND!

Also observe that with the Stewart-Warner Magic Keyboard it is not necessary to keep the button depressed until the station comes in — a quick push is all that is required, then the finger may be instantly removed. Our button stays depressed so that later you can see what station is being received without scanning the dial and then trying to remember what station comes in at that point.

And here's a safety factor — if more than one button is pressed at the same time, no harm can be done to the Magic Keyboard mechanism. All that happens is that you get the first station reached after the pointer starts moving. All the other buttons pressed in simultaneously do not necessarily pop out — all may stay depressed but no damage is done, and only one station will be tuned in. Simply touch another button which was not pressed and all of the others pop right out.

We mention this because with children around, these things do sometimes occur and you want to know that the radio you buy has a keyboard mechanism that is fool-proof and cannot easily be damaged.

## THE IMPORTANT ADVANTAGE OF HAVING 15 BUTTONS ON THE MAGIC KEYBOARD

ON THE STEWART-WARNER MAGIC KEYBOARD THERE ARE FIFTEEN KEYS OR BUTTONS WHICH MAY BE SET-UP AND LABELED TO INDICATE YOUR SELECTION OF EITHER RADIO BROADCASTING STATIONS OR FAVORITE PROGRAMS.

This gives FAVORITE PROGRAM SELECTION, in addition to FAVORITE STATION SELECTION. For example, four buttons (or as many more or less as desired) may be set up for station WBBM Chicago. Here are four different button settings you may desire if this station is one of your favorites:

- (1) "WBBM", the station itself.
- (2) "LUX 8 MON." — The Lux Radio Hour which comes on at 8:00 P. M. over WBBM on Monday evening.
- (3) "PEARCE 9 TUES." — Al Pearce "Watch the Fun Go By", on at 8:00 P. M. Tuesday over the same station; followed by the Packard Hour with Johnny Green and Trudy Wood.
- (4) "HEIDT 7 MON." — Horace Heidt and his Brigadiers over the same station at 7:00 P. M. Monday.

With the fifteen buttons on your keyboard set up in this manner for your choice of stations and programs, no hunting or looking up the station and time of your favorite programs is necessary. They are there on the keyboard marked on separate buttons, enabling

you to ride in instantly at the correct time! This gives you planned radio reception, according to the programs of your choice!

Naturally the stations and programs set-up on the Magic Keyboard in each home will vary, depending upon those which come in well according to the preference of the owner. That is a beautiful part of the FLEXIBILITY AND ADAPTABILITY IN USE of the Stewart-Warner Magic Keyboard. Once the radio is in your home and the Magic Keyboard set-up for the stations and programs which are your favorites, it is no longer "just another good radio" but it is YOUR PERSONAL RADIO, individualized to you by being set-up to deliver automatically and instantly YOUR PERSONAL SELECTION OF PROGRAMS!

## **IS IT STILL POSSIBLE TO TUNE FOR A STATION BY HAND?**

Certainly! The new Stewart-Warner Magic Keyboard Radios can be tuned by two separate and distinct methods. These are (1) the "standard" or manual type of tuning by hand for those who wish to dial every station on the band; and (2) the NEW AND THRILLING MAGIC KEYBOARD AUTOMATIC TUNING WHICH DOES ALL OF THE WORK FOR YOU AND SELECTS INSTANTLY THE STATION OF YOUR CHOICE BY THE PUSH OF A BUTTON!

It is recommended but not essential that you set up local or strong nearby stations on the keyboard for automatic tuning. Moderately distant stations can also be tuned automatically.

To tune manually for weak or distant stations, simply spin the large Hi-Speed Station Selector Knob in the desired direction and tune in the usual way. No switching of any sort is required to go from automatic to manual tuning.

At the slightest twist of the tuning selector knob for manual operation of the set, AFC clicks out, for a characteristic of the AFC circuit is that in operation it tends to drag the set to the strong stations. To be more explicit, if you try to get a weak station near a strong one, AFC will cause the strong station to drag the tuned circuits to its own frequency, preventing you from getting the weak station. Consequently, we eliminate AFC for manual tuning, which means when tuning manually you can cut through the local or stronger stations and pull in clearly the distant, weaker stations.

The instant you turn the tuning knob for manual operation of the set, the light signal reading "AUTOMATIC" switches off (mean-

ing that automatic tuning is, no longer being employed), and the combined Automatic Band Indicator and Visual Tuning Indicator lights up. This indicator is located just to the left of the dial scale.

The Visual Tuning Indicator is of the "reactance dimmer" type — a new engineering feature — which gives a visual indication of the point at which the receiver is most accurately tuned to a station. When the receiver is tuned to a station properly, the light which illuminates the Automatic Band Indicator will dim down or go out entirely depending upon the strength of the signal being received. As the receiver is tuned away from the station the illumination of the indicator will become brighter. The correct setting of the tuning dial is the point which gives the least illumination.

In manual tuning, observe the "spinner" action of the tuning knob. This "spinner type" Hi-Speed Station Selector Knob greatly simplifies rapid tuning. Give the knob a sharp spin in any one direction and it will continue traveling by its own momentum for some distance. This obviously makes for easier manual tuning of the set. The tuning ratio approximates 75-to-1, providing the most precise control of station selection. The Hi-Speed Station Selector Knob does not turn when the set is being tuned automatically — there are no knobs spinning on the receiver panel when Magic Keyboard tuning is employed.

## **HOW DO YOU CHANGE FROM MANUAL TO AUTOMATIC TUNING?**

The moment that automatic tuning is again desired after concluding manual tuning, it is only necessary to push in your selection of station or program button. No switch manipulation is required to go from automatic to manual tuning, or from manual to automatic. AFC is thrown in automatically when a button is pressed for return to Magic Keyboard tuning. **THUS THE STEWART-WARNER KEYBOARD IS FULLY AUTOMATIC, AND THE NECESSITY FOR AN ADDITIONAL KNOB ON THE CONTROL PANEL IS ELIMINATED.**

## **HOW DO YOU SET UP THE STATION BUTTONS?**

One of the most outstanding features of the Stewart-Warner Magic Keyboard aside from its ease and flexibility in use, is the easy manner of setting up station or program buttons with this mechanism. Complete instructions on how this is done is given in a booklet enclosed with every Magic Keyboard model shipped from the factory.



5. Push any button you wish to set up for a station. There need be no relationship between the position of the button on the keyboard and the station on the dial. Be sure the button is pushed all the way in. You will note that as the button is pushed in, the word "Automatic" will appear illuminated on the small indicator at the right side of the dial, and the keyboard mechanism will instantly move the station indicator to some position on the dial scale, depending upon the previous setting of the mechanism. This need have no relation, however to the station for which you desire to set the button.



6. Grasp the set-up knob again and tune the receiver to the desired station. TUNE CAREFULLY AND WATCH THE VISUAL TUNING INDICATOR FOR THE POINT OF MINIMUM ILLUMINATION SO THAT THE RECEIVER WILL BE CORRECTLY TUNED TO THE STATION.

7. The depressed button is now set to the station and should be labeled at once with the proper tab. The next step is to release the button set-up, and this is done by simply pushing in the next button you desire to set-up.

8. Then tune in with the set-up knob the next station you wish to receive for the button that is now depressed, again making use of the Visual Tuning Indicator to be sure that you are correctly tuned to the station.

9. Continue to set up as many other buttons as desired in the same manner; that is, push in the button, tune in the desired station, then

push in the next button, etc. All or only part of the buttons may be set up.

10. In order to release the button which last remains depressed (the last one you desire to have set up), grasp the set-up knob and **PUSH IT BACK INTO THE CABINET AS FAR AS IT WILL GO AND THEN PULL IT OUT AGAIN.** Do not forget to "rock" the set-up knob slightly when pulling it out, in order that the mechanism gears may mesh properly.



11. Then turn the set-up knob to the **LEFT** (counter clockwise). The knob will turn rather stiffly and the dial pointer will travel over to the extreme left side of the dial scale. **CONTINUE TO TURN THE SET-UP KNOB TO THE LEFT** even after the pointer reaches the end of the dial scale. **APPLY A FIRM PRESSURE UNTIL THE KNOB REACHES A DEFINITE STOP.**

12. Push the set-up knob back into the cabinet again and put on the large knob that was originally pulled off. **YOUR MAGIC KEYBOARD IS NOW COMPLETELY SET UP FOR OPERATION.**



## TO LABEL THE PUSH BUTTONS

We recommend that you place the labels bearing the call letters of the station you desire on the buttons immediately after they are set up as explained previously, or preferably BEFORE setting up the keyboard buttons. This will eliminate the possibility of forgetting which button was set up to any particular station.

Labels bearing the call letters and city names of all stations are supplied for use in labelling the push buttons. To label the push buttons you must first remove the cap of the push button. The cap should be removed BY PULLING IT OFF FROM THE TOP END which has a small hump that holds on the cap. THEN REMOVE THE BLANK WHITE CARDBOARD TAB, leaving the celluloid cover in the cap, and insert the tab for the station to which the button is set. In replacing the cap, FIT THE BOTTOM FIRST and then press on the top.

## HOW TO RESET ONE OR MORE BUTTONS

AFTER SETTING UP THE MAGIC KEYBOARD YOU DO NOT NEED TO ADJUST THE MECHANISM AGAIN UNLESS YOU DESIRE TO RESET ANY ONE OR MORE BUTTONS TO OTHER STATIONS.

In order to reset one or more buttons of the Magic Keyboard to other stations, it is only necessary to repeat operations No. 2, 3 and 4; then push in the button you wish to reset and tune in the new station. Repeat this operation with any other buttons to be changed and then "lock up" the mechanism in the manner explained in operations No. 10, 11 and 12. THE REMAINING BUTTONS WHICH YOU HAVE NOT DISTURBED WILL REMAIN "SET UP" TO THEIR ORIGINAL STATIONS.

## HOW TO USE THE MAGIC KEYBOARD FOR EASIER TUNING ON SHORT WAVE OR POLICE BANDS

The Magic Keyboard is not to be set up for station selection on short wave or police bands. However, buttons may be set for the center of each important short wave band where interesting programs are most frequently found. In this case the keyboard mechanism will only serve to give quickly the approximate location of a station or group of stations — to receive the particular short-wave station desired, it is necessary to tune manually from the close point on the dial reached by the automatic tuner after the proper button has been pressed.

## **IN WHAT MANNER IS THE STEWART-WARNER MAGIC KEYBOARD DIFFERENT FROM OTHER TYPES OF AUTOMATIC TUNING DEVICES?**

THE MAGIC KEYBOARD IS A MECHANICAL, NOT AN ELECTRICAL TYPE MECHANISM. It is a MECHANICAL MARVEL of watch-like precision — not an ELECTRICAL NOVELTY. The station selection contacts, as controlled by buttons on the Magic Keyboard, are made mechanically and consequently are much more accurate in station selection. In a mechanical device, tolerances can be held to ten-thousandths of an inch and contact-stops are made precisely, whereas electrical type contacts are subject to many variables and are never as accurate in station selection.

Electrical contacts in an electrical-type automatic tuning mechanism are subject to movement or "carry-over", which means the electrical contact will often over-ride the station gap and that a strong AFC is required to correct this inherent deficiency by reaching out and pulling in the desired station.

In contrast, the mechanical type precision-built Stewart-Warner Magic Keyboard assures an extremely accurate mechanical stop for every station set-up on the keyboard, permitting the design and construction of tuning circuits with a small amount of AFC. The station selected is mechanically set almost on the head so that only a limited AFC is needed to tune the station in perfectly to a pin point. In fact, it may be said that AFC is used in Stewart-Warner Magic Keyboard Radios only as a safeguard against careless initial setting of the station buttons.

## **WHAT ARE THE DISADVANTAGES OF USING A STRONG AFC?**

We emphasize the fact that the Stewart-Warner Magic Keyboard requires only a small amount of AFC, and the question doubtless arises in your mind as to why this is so important. The disadvantages of using a strong AFC such as is required with electrical type automatic tuning devices are:

1. Where two powerful stations are close together on the dial, any inaccuracy of the electrical type tuner in moving even slightly beyond the proper stop, may give you the wrong station. A strong AFC may pull in the "other" station when the electrical contact rides over.

2. A large amount of AFC results in a broad tuning effect which causes local or powerful nearby stations to pull over a large area on the scale. Consequently automatic tuning on an electrical-type keyboard is much more restricted. You cannot set-up keys for as many different stations, for a strong AFC pulls too broadly over the scale.
3. Sets requiring a great deal of AFC are subject to more noise in relation to the signal strength of the station.
4. A large amount of AFC induces special types of interference such as "tweets", etc.—all characteristics of cross-modulation.

These disadvantages of a strong AFC are apparent and account for the superior performance of the Stewart-Warner Radios with the mechanical-type Magic Keyboard, an exclusive Stewart-Warner automatic tuning development which requires only a small amount of AFC!

## HOW ARE BUTTONS ON OTHER TYPES OF AUTOMATIC TUNING DEVICES SET-UP?

In order to fully appreciate the simple, easy manner in setting up the buttons on the Stewart-Warner mechanical-type Magic Keyboard, it is only necessary to investigate the complicated procedure of setting up stations on a typical electrical-type automatic tuning device as used by others. A special key must be properly placed in the automatic tuner requiring two trips from the front of the radio, to the mechanism in the rear, for every button set up.

Very briefly, the electrical-type automatic tuner is set up as follows: turn a knob to switch from manual to electric tuning; push in No. 1 button; go to the back of the set and put a small pin into a hole labeled No. 1. (care must be exercised in the placing of the pin, otherwise the proper setting will not be secured); go back to the front of the set and turn the knob for manual tuning; then tune in the desired station; go again to the back of the set (your SECOND trip) and pull out the pin; dash around to the front of the set again and turn the switch to electric tuning; then push in the next button; go to the rear of the set once more and put a pin in the hole labeled No. 2; keep on running back and forth this way until all stations are set up; etc.

## WHAT MOTIVE POWER IS USED FOR THE MAGIC KEYBOARD MECHANISM?

To furnish motive power for the automatic tuning mechanism which is operated by the Magic Keyboard, Stewart-Warner uses a silent, long-life, brushless-type motor which creates absolutely no electrical disturbances either in the set itself or in other radios, even at close proximity.

The standard motor is 50-60 cycles, but one is also available for 25 cycle operation. The 25 cycle motor runs at about  $\frac{1}{2}$  normal speed, and can be operated on frequencies up to 80 cycles by making a simple change in the connections. This is an important feature for those living in 25 cycle current areas, who may later desire their radio to operate from 50-60 cycles, and vice versa.

## THE MAGIC KEYBOARD IS AN EXCLUSIVE STEWART-WARNER PRODUCT

The Magic Keyboard is manufactured in the Stewart-Warner factories, where for nearly a half-century precision mechanical equipment of all types has been produced. Consequently, Stewart-Warner is properly equipped to handle the careful precise type of mechanical manufacturing required to turn out this fine quality automatic tuning mechanism. No other radio manufacturer has the production facilities required to turn out a precision-built mechanism exactly like the exclusive Magic Keyboard.

For many months the Magic Keyboard has been submitted to continuous life tests of every possible type and description. The results of these severe break-down tests indicate that the keyboard mechanism will normally out-last tried and proven parts of the chassis itself.

It is with full confidence, therefore, that Stewart-Warner offers you this supreme engineering and manufacturing achievement — the Magic Keyboard of radio!



## MAGIC KEYBOARD QUESTIONS AND ANSWERS

Q. Just what is the Magic Keyboard?

A. The Stewart-Warner Magic Keyboard is a precision-built mechanical device that upon the touch of a button INSTANTLY tunes in your selection of program or station—AUTOMATICALLY AND PERFECTLY! (See P. 4)

Q. Is automatic tuning just a recent development?

A. Automatic tuning is by no means new. Several manufacturers tried it a number of years ago but were compelled to abandon it because automatic tuning was not practical until the recent development of Automatic Frequency Control—known generally as AFC. (See P. 5)

Q. What is AFC and what does it do?

A. AFC (Automatic Frequency Control) is a radio circuit. When the radio is tuned to a close approximate station setting, AFC takes hold and automatically tunes the set exactly to a pin point upon the station. (See P. 6)

Q. If more than one button is pressed at a time, will any harm be done to the mechanism?

A. No. All the buttons which are pressed at the same time may stay in but you get only the first station reached after the pointer starts moving. Simply push another button which has not been touched and all of the others pop out. (See P. 7)

Q. How do you go from automatic to manual tuning, and from manual to automatic tuning?

A. To go from automatic to manual tuning, simply turn the large tuning selector knob in the desired direction and tune manually in the usual way. Then to go back to automatic tuning, simply press the desired station button. No switching of any sort is required. (See P. 8)

Q. What changes takes place in the set when you turn the large tuning selector knob to go from automatic to manual tuning?

A. The light signal reading "AUTOMATIC" switches off, AFC clicks out, and the combined Automatic Band Indicator and the Visual Tuning Indicator lights up. (See P. 9)

Q. What is the Visual Tuning Indicator and how does it work?

A. The Visual Tuning Indicator is a new engineering feature of the "reactance dimmer" type located on the left side of the dial scale. The purpose of this device is to give a visual indication of the point at which the receiver is most accurately tuned to a station.

When the receiver is tuned to a station properly, the light which illuminates the Automatic Band Indicator will dim down or go out entirely depending upon the strength of the signals being received. As the receiver is tuned away from a station the illumination of the indicator will become brighter. The correct setting of the tuning dial is the point which gives the least illumination. (See P. 9)

- Q. Why isn't AFC used on Stewart-Warner radios when the set is being tuned manually?
- A. A characteristic of the AFC circuit is that it tends to drag the set to the strong stations. This condition is not desirable when tuning manually as it is necessary to have sharp tuning in order to cut through the local or stronger stations and pull in clearly the distant weaker stations. (See P. 8)
- Q. In setting up the station or program buttons, need there be any relationship between the position of the button on the keyboard and the station on the dial?
- A. No. Any button may be set up for the station or program selected regardless of position relationship. (See P. 11)
- Q. Is it possible to reset one or two buttons without disturbing the others?
- A. Yes. Any button on our keyboard may be reset without disturbing any of the others. All or only part of the buttons may be set up. (See P. 13)
- Q. Are any tools necessary to set-up the Magic Keyboard?
- A. No service man—no tools, of any kind, are required to set up the Magic Keyboard. It is set up entirely from the front of the radio. It is as easy to set the buttons to your choice of programs and stations as it is to tune manually. In fact that is how it is done. (See P. 10)
- Q. Can the Magic Keyboard be set for weak or distant stations?
- A. It is recommended but not essential that you set up local or strong nearby stations on the keyboard for automatic tuning. However, moderately distant stations can also be tuned automatically. Weak or distant stations are not to be set up on the Keyboard. The reason for this is that AFC, which is used when tuning automatically, causes the strong station to drag the tuned circuits to its own frequency, preventing you from getting the weak station. (See P. 8)
- Q. In what manner does the Magic Keyboard individualize the radio to the owner?
- A. Once the radio is in your home and the Magic Keyboard set up for the stations and programs which are your favorites, it is no longer "just another good radio", but it is YOUR PERSONAL RADIO, individualized to you by being set-up to deliver automatically and instantly YOUR PERSONAL SELECTION OF PROGRAMS. It permits planned radio reception. (See P. 8)
- Q. What is the important advantage of having 15 buttons on the keyboard?
- A. As many buttons as desired may be set for the same station and labeled for your favorite selection of programs which come on over that station at different times. This affords FAVORITE PROGRAM SELECTION, in addition to FAVORITE STATION SELECTION.

With your keyboard set up in this manner no hunting or looking up the station and time of your favorite programs is necessary. They are there on the keyboard marked on separate buttons, enabling you to ride in instantly at the correct time. (See P. 7)

Q. In what manner can the keyboard be used for ease in tuning on short wave bands?

A. Buttons can be set — one for the center of each important short-wave band. Then, after the button has been pressed and the dial automatically shifted to approximately the desired frequency, actual short-wave station selection may be made quickly by manual training. (See P. 13)

Q. Is the Magic Keyboard a mechanical or an electrical type of automatic tuning device?

A. Mechanical. The Magic Keyboard is a mechanical marvel of watch-like precision — not an electrical novelty. Our station selection stops are made mechanically and are consequently more accurate in station selection. In a mechanical device tolerances can be held to ten-thousandths of an inch and contact-stops are made precisely, whereas electric type contacts are subject to many variables and are never as accurate in station selection. (See P. 14)

Q. Why does an electrical-type automatic tuning device require a strong AFC?

A. Electrical contacts in an electrical-type automatic tuning mechanism are subject to movement or "carry-over", which means the electrical contact may over-ride the station gap, and that a strong AFC is required to correct this inherent deficiency by reaching out and pulling in the desired station. (See P. 14)

Q. What are the disadvantages of using a strong AFC?

A. The disadvantages of using a strong AFC such as is required with electrical type automatic tuning devices are:

(1) When a strong AFC is used, you may get the wrong station if there are two powerful stations close together on the dial. Any inaccuracy of an electrical type tuner in moving even slightly beyond the proper stop, may result in AFC pulling in the "other" station.

(2) You cannot set-up keys on the automatic tuning device for as many different stations, for a strong AFC pulls too broadly over the scale making it necessary that you confine your selection to only strong nearby or local stations.

(3) There is more noise in relation the signal strength of the station when a strong AFC is used.

(4) Special types of interference such as "tweets", etc. — all characteristics of cross-modulation — are induced by a large amount of AFC. (See P. 14)

Q. Is the Magic Keyboard manufactured in the Stewart-Warner factories?

A. Yes. For nearly a half-century Stewart-Warner has engaged in the manufacture of precision mechanical equipment, and they are properly equipped to turn out this fine quality mechanism. No other radio manufacturer has the production facilities required to turn out a precision-built mechanism exactly like the exclusive Magic Keyboard. (See P. 16)

