

OPERATING INSTRUCTIONS

FOR THE
AUTOMATIC
RADIOTELEPHONE



1944
AUGUST ISSUE

LORAIN COUNTY RADIO CORPORATION
LORAIN, OHIO, U.S.A.

Summary Of Operating Instructions For Automatic Radiotelephone

1. To Start the Radiotelephone and Call

Pick up the handset, dial the first digit of the desired channel and listen. If the channel is free, dial the second digit, and then say "Hello (desired station), Steamer (your ship) calling."

2. To Stop the Radiotelephone

Hang up the handset.

To remove all power from set, operate switch in top center of cabinet. Do not do this unless telephone is completely out of order or ship is laid up.

3. To Change Channels

Hang up the handset, pick it up again and dial the new channel.

4. To Answer Calls

When you hear your telephone bell pick up the handset and dial the channel indicated by the number of rings

1 ring—means dial channel 10

2 rings—mean dial channel 20

3 rings—mean dial channel 30

Voice call—means dial channel 51

One short, one long—means dial channel 60

5. When You Cannot Start Your Set Because Channel Is Busy

Wait for the shore station operator to complete the call in progress, and when the channel is free again dial the second digit (0). In an emergency break the seal.

6. When You Call

Be sure to name the desired station and your own ship's name. DO NOT CALL ON CHANNEL 51 WHEN YOU SHOULD USE CHANNELS 10, 20, or 60. If you are more than 100 miles from a desired station, you will probably have better results if you call them on Channels 60 or 20; and if the distance is over 200 miles, Channel 10 will probably be best.

7. Further Information

When you are in doubt about anything concerning the telephone, ask the shore station operator at Lorain, Port Washington, or Duluth. They are there to help you.

INTRODUCTION

The ship-to-shore telephone is based on the same principles that are used in broadcast radio. Each ship has a transmitter or "broadcasting station" and a number of receivers. Various distances are covered by using different frequencies. The Lorain sets are equipped with two long range frequencies known as channel 10 and channel 20, two or three short range channels known as channels 30, 40 and 51, and a medium range channel known as channel 60.

Equipment built before 1939 has only four channels. On these sets there usually is no channel 40.

All other ships with Lorain equipment are arranged for operation on five or six channels.

How To Operate The Automatic Radio Telephone

Selecting A Channel The proper channel to use is dependent upon the distance between your ship and the desired shore station, and also the time of day.

As a general thing "daytime" conditions prevail from about 8:00 o'clock in the morning to 5:00 or 6:00 o'clock in the afternoon. (0900 to 1800 or 1900 War Time.)

Normally, during the daytime, channel 10 is useful over distances between two hundred and six hundred miles. In other words, if your ship is in Lake Superior, St. Mary's River, upper Lake Michigan or upper Lake Huron, channel 10 should give you the best results to the shore station at Lorain, Ohio.

Channel 20 is usually best over distances between one hundred and four hundred miles during the daytime. In other words, channel 20 could be used to talk to Lorain from anywhere on Lake Michigan, Lake Huron, Lake Ontario, the eastern part of Lake Superior, or the eastern part of Lake Erie.

Channel 60 is a medium range channel. It is generally useful over distances up to three hundred miles, airline, during the daytime. At night it is useful over the entire lakes, and usually will give excellent results between ships on Lake Superior and Lorain.

The three short range channels, 30, 40, and 51, have a useful range of up to one hundred and fifty miles during the daytime. Normally, ships on Lake Michigan, for instance, can reach the station at Port Washington on channels 51 and 30 whenever they are south of Point Betsie. Ships on western Lake Superior generally can reach Duluth on these channels and ships on Lake Erie can reach Lorain.

The Lorain County Radio Corporation operates stations at Lorain, Ohio; Port Washington, Wisconsin; and, Duluth, Minnesota. Lorain offers service on all channels. Duluth and Port Washington operate on channels 51, 30, 38, 39, and 60. The Illinois Bell Telephone Co. operates a station at Lake Bluff. Illinois and the Central Radio Telegraph Company operates one at Rogers City, Michigan. Radio Marine Corp. of America operates a station in Buffalo, N. Y.; and the Michigan Bell Telephone Company has a station at Detroit.

At night, conditions are different than during the daytime. The distance that can be covered by the short range channels is greatly increased, and any of the stations listed above may be heard from any place on the lakes on 30 or 51. It is often possible, due to the extended range of short range channels at night, to hear a distant station better than you can hear a nearby one.

At night, channel 20 is usually useful into Lorain from any of the upper lakes and sometimes channel 10 will work from Lake Superior to Lorain.

The short range channels are sometimes handicapped by static, especially if there is a thunderstorm at the ship or at the shore station. Static is usually much heavier at night on these channels than in the daytime.

The effectiveness of the long range channels is sometimes quite poor, due to sun spot disturbance. Sun spot activity is usually indicated by brilliant northern lights, so in general, when the northern lights are brilliant, the radiotelephone will not work well on channels 10, 20, and 60.

Thunderstorms and night static also affect the long range channels, but to a lesser degree than the short range.

If the results are poor on one channel, try another. If you cannot get through immediately, wait a few minutes and try again.

To Answer The loud-speaker used in connection with the radiotelephone, is connected to Channel 51.

A Call You will hear calls from other ships, shore stations, and Coast Guard stations on it. If you hear your ship being called, answer it by picking up the telephone, dialing 51, and saying "Steamer . . . (your ship) answering on 51." If the call is from a commercial shore station, the operator will probably ask you to "go to Channel 30." In this case, you hang up the telephone, pick it up, and dial 30. After you have dialed 30 say "Steamer . . . (your ship) on Channel 30."

If a Coast Guard Station or vessel calls you, it will be necessary to handle the communication on Channel 51 since the Coast Guard does not use the other channels. Communications to and from Coast Guard Stations, are invariably related to the safety of the ship or someone aboard it, and can be properly handled on 51. There is a five minute limit on 51 for safety traffic however, that should be remembered in cases of this sort.

If another ship calls you on 51, he should ask you to shift to Channel 40 when you answer him. The Commission's Rules do not provide for any communication between ships, except that relating to distress, safety, navigational information, and business, on any channel.

Short safety messages can be transferred directly on Channel 51 if the five minute limit is remembered. If the ship-to-ship call is related to business matters it should be handled on Channel 40. Either 51 or 40 may be used for safety traffic, but the calling must be done on Channel 51.

In addition to the loudspeaker, you may be called by bell. Commercial shore stations can operate the bell on your telephone, and call you on Channels 10, 20, 30 and 60 with it.

If the bell rings once, answer by dialing 10.

If the bell rings twice, answer by dialing 20.

If the bell rings three times, answer by dialing 30.

If the bell rings a short and a long, answer by dialing 60.

In order to avoid interference, you should pause for a moment, after you dial the first digit and listen. If you hear a shore station talking to another ship, or if you hear the busy tone, it is best to wait until the Channel is clear before dialing the second digit (the zero).

Always be sure to answer your call promptly whenever you hear it. Your office may be trying to get you with a message of great importance where delay may have grave consequences. It is a good idea to answer calls that sound as though they might be for your ship, if not perfectly clear, in order to avoid missing important calls.

***To Call Lorain on
Channel 10, 20 or 60***

To call Lorain on either 10, 20 or 60, pick up the telephone and dial the first digit and listen for a moment. If the channel selected is busy you will hear the shore party talking or the busy tone. If you do not hear this, dial the zero to complete the channel number. In other words, dial 1, listen, if the channel is free dial zero for channel 10. To dial 20; dial 2, listen, if free dial the zero or for 60; dial 6, listen, if free dial the zero. If one channel is busy you can often get through on another channel. If you find the channels busy you should hang up and wait a few moments and try again.

However, if you do not hear anyone talking to a ship, after you have dialed the 1 or 2, you may dial the zero that com-

pletes the channel 10 or 20. It may happen at the particular moment when you listened, before you dialed the zero, that another ship party was talking, which you would not hear.

In this case, however, your transmitter would not start when you dialed the zero, and the shore operator would not hear your call.

A "busy tone" is sent from the shore station when a ship is talking to it so that other vessels will know the circuit is in use. The signal consists of short, highpitched tones sent at about 60 pulses per minute.

If the channel is free your receiver will go dead while the dial is returning from zero, and your transmitter automatically sends a long blast to attract the shore operator's attention.

As soon as you have dialed the zero say "Hello Lorain, Steamer . . . (your ship) calling." When you hear the Lorain operator answer, you proceed to talk to him and place your call just as on any telephone on land.

If the static or noise is heavy, it may be necessary to dial two or three zeros to get your transmitter started. In other words, you may dial a 2, hear considerable static or noise but nobody talking, then dial zero and say "Hello Lorain, Steamer . . . (your ship) calling, "without getting a reply. If this happens, dial another zero and say "Hello Lorain" again. This may be repeated two or three times.

When listening before you dial the zero, do not confuse stray music or broadcast programs, which can sometimes be heard on channel 10 or channel 20 at night, with the station at Lorain.

- * *At the end of every message, you should announce the name of your ship before you hang up. Simply say "This is the Steamer . . . (your ship)."*

Channel 51 Channel 51 has been designated as a calling and safety channel. All ships on the Great Lakes regardless of size or nationality must, if they have a telephone, be equipped to use this channel.

Before using channel 51, you must follow the listening procedure outlined for channels 10 and 20. Dial 5 and listen for a moment. If the channel is free, dial the 1, and your transmitter is ready for use for calling. If you want to call a ship say "Hello Steamer . . . (desired ship), Steamer . . . (your ship) calling." This may be repeated several times, but no longer than for one minute. If the desired ship has

not answered at the end of one minute, it is required that you wait 15 minutes before calling that ship again. When you hear the called ship party answer, you should ask him to go to channel 40. By pressing down your switch hook or hanging up, lifting the telephone handset again, and then dialing 40, you shift from channel 51 to 40. **You must hang up** before you dial the 40 or you will still be on channel 51.

If your ship or the one you called is not equipped for channel 40, you may talk for **not more than five minutes** on channel 51 **about** matters relative to the **safety** of the ship. **Conversations not directly related to the safety of the ship are strictly prohibited on channel 51.**

Requests for hydrographic information of any kind are regarded as safety measures and may be handled on channel 51.

To call a shore station on Channel 51, follow the above procedure. That is, dial 5, listen, if the channel is free, dial the 1. Then say "Hello . . . (shore station), Steamer . . . (your ship's name) calling." For example, the Steamer Thomas Wilson might call Port Washington by saying: "Hello Port Washington, Thomas Wilson calling."

Rules of the Federal Communications Commission require that you must call other ships on 51 before using 40. It is useless to call other ships directly on Channel 40 because they do not listen for calls on that channel. They can only hear on 40 in the handset after they have dialed 40.

Shore stations may be called on 51 if you are within a reasonable distance (150 miles daytime or anywhere at night). If you have a notice on board to the effect that a certain shore station is equipped to monitor Channels 30 and 51 simultaneously and is properly authorized by the Federal Communications Commission to receive calls on Channel 30, you may originate a call for that station on Channel 30 without first using 51. Shore stations in this group may be called on any channel, except 40. The only consideration to be followed is to estimate the distance to the desired station and select the best channel for the time of day and distance.

DO NOT CALL ON CHANNEL 51 WHEN YOU SHOULD USE CHANNELS 10, 20, or 60. If you are more than 100 miles from a desired station, you will probably have better results if you call them on Channels 60 or 20; and if the distance is over 200 miles, Channel 10 will probably be best.

All American and Canadian shore stations listen for calls on channel 51. Numerous coast guard stations are also equipped to use channel 51. Therefore, it is important that you state clearly just what station or ship you want when you call on this channel.

Do not call on channel 51 for more than one minute except in case of emergency or distress.

Rule 8.50 of the Federal Communications Commission states that when you are using channels 51 or 30 in connection with a shore station you should call the nearest shore station whenever practicable. However, if you find that you have trouble getting or hearing a nearby station, you may call a station farther away. If the reception is better from the more distant station, you are permitted to call through it in preference to the nearby station. **This Rule does not apply** to channel 10 or channel 20 or channel 60. You may call on channels 10, 20, or 60 at any time from any place on the lakes.

At night, between sunset and sunrise, channels 10 and 20 should only be used in cases where 51, 30, or 60 have been tried and proven unsatisfactory.

General Calls

The general call will be three long blasts, a pause, and three long blasts. This signal will be used to precede announcements of general interest, such as weather forecasts, etc. You may use it from your ship if you wish to talk to any ship in your vicinity regarding weather or fog conditions. To send the general call, go to channel 51 and then dial 888, make a pause, and dial 888 again. After you have dialed the general call say "Steamer . . . (your ship) calling any vessel in the vicinity of . . . (your location or where you want to talk to)" and repeat these words a number of times, to give the other ships time to get ready to talk on channel 51. For instance, if you are in the St. Clair River and would like to get information on weather conditions at Detroit, you would dial 5, listen, dial 1, then dial 888-888 and say "This is the Steamer . . . (your ship) calling any vessel in the vicinity of Detroit."

On the other hand, if you hear a general call, dial 51 and see if you can be of assistance to the sender of the call.

The official weather forecasts, as prepared by the United States Weather Bureau, will be broadcast from the various Lorain-operated stations in accordance with schedules published by the Weather Bureau. These broadcasts will be

made in code. If you do not have the information necessary to decode these broadcasts, it is suggested that you contact the Weather Bureau at Cleveland, Ohio.

Emergency Calls The urgent signal will be six or more short blasts to correspond with the steamboat danger signal. To send the urgent signal, dial the channel and then dial six or more 2's in quick succession. Then announce the name of your ship and the nature of the emergency. Specify the shore station, coast guard station, or general location of ships that you wish to answer the urgent signal.

If you hear the urgent signal, dial 5 at once and listen. If you can be of assistance, dial 1 and answer the call by voice. If you are not the ship desired and another ship answers the call, be very careful not to interfere with the urgent traffic.

If you are not in the location specified and you do not hear a ship answer, you should then offer assistance to the sender of the urgent signal and find out if you can be of any help.

If you want to get in touch with a shore station in an emergency and the shore channel is busy, you may break the seal on the side of the telephone box and press the button under the seal while dialing the zero of the channel number. This will send an attention signal to the shore station operator, regardless of whether or not he is busy with another ship.

Do not break the seal except in an emergency.

On channels 51 and 40, you will always get in whether the channel is busy or not and, therefore, it is not necessary to break the seal except to use channels 10, 20, 30, or 60, in an emergency when the channel is busy.

Distress Calls The distress call SOS may be sent by dialing 222888222. Never use this signal except in cases of distress.

If you hear the ...---... (three short - three long - three short) signal answer by following the procedure outlined above for answering emergency calls.

Log Book THE LORAIN COUNTY RADIO CORPORATION will provide you with a book to be used in keeping a radiotelephone log. These books have the sheets in alternate three colors. The white sheet is the original, and is fast in the book. It should be kept aboard ship until the end of the season. The second sheet should be sent to your office, if they want a copy of the phone log, and the third sheet should be sent to Lorain where it will be kept on file. The second and third sheets are perforated to permit easy removal from the book. Original sheets of the log book should be numbered in sequence at the top, one series of numbers to be used throughout one season. Show your ship's name and call letters. These call letters can be found by examining your radio station license. Don't erase—cross out mistakes. Make an entry every time you use the telephone whether you talk to someone else or not. Show your position. This can be very brief. For example: "Off Sanilac" or "abreast Devils Island" or "Western. Superior." If you talk to another ship, get his call letters and enter them in your log. If you hear a distress call, enter it and all pertinent facts about it in the log even if you do not participate in the traffic. If you have trouble with the equipment, make a log entry to show the trouble experienced, and the time noted. The time entered in the radiophone log should be in four figures, Eastern War Time; i.e. 2 P. M. would be written 1400 and 2 A. M. would be written 0200. Sign your name to each log entry in the column provided. If you use Channel 51 and 30 in talking to a shore station, it is permissible to make one entry in the log, but show both 51 and 30 in the "Channel Used" column. Example: 51/30. If you use several channels to complete one contact, be sure all of them are shown in the log. Do not try to confine log entries to one line in the log book. If there is considerable information to be entered, write it in on several lines and sign the last line used. If there is any elapsed time between calls, make two separate entries—one for each contact.

Posting of License The station license for your radiotelephone should be posted in the pilothouse. The operator's licenses for the captain and the mates should be posted in the room where they customarily use the telephone. (Please do not bore holes in the radio cabinet to mount licenses on the cabinet. Small metal chips will cripple the equipment).

According to the Rules of the Federal Communications Commission, all calls should be first established by a licensed operator. Any person **without** a license may talk over the phone **after** the connection has been started by a licensed operator. The licensed operator should stay nearby and identify the ship station at the end of the call.

***The Frequencies Used for the Various Channels
Are As Follows:***

Channel 10 - 8820 KC ship-to-shore - 8585 KC shore-to-ship

Channel 20 - 6660 KC ship-to-shore - 6470 KC shore-to-ship

Channel 30 - 2158 KC ship-to-shore - 2550 KC shore-to-ship

Channel 39 - 2118 KC ship-to-shore - 2514 KC shore-to-ship *

Channel 38 - 2206 KC ship-to-shore - 2582 KC shore-to-ship †

Channel 40 - 2738 KC ship-to-ship

Channel 51 - 2182 KC ship-to-shore, shore-to-ship, and ship-
to-ship

Channel 60-4422.5KC ship-to-shore - 4282.5KC shore-to-ship

* (Small ships)

† (Canadian)

Helpful Hints For Using The Ship - To - Shore Radiotelephone

The greatest difference between ship telephone calls and ordinary land calls is that only one person can talk at a time. This fact must be kept in mind in order to avoid confusion. It means that if the ship party is talking and the land party attempts to interrupt, the ship party will not know that the land party is talking at all, nor will the land party hear the rest of what the ship party has to say. This condition also exists in the opposite direction. In other words, if the shore party is talking and the ship party interrupts, he will miss the rest of the shore party's statement and the shore party will not hear what he said either.

If either party disregards this restriction and interrupts the other party, the latter will not be aware of the interruption and both parties may stop talking at about the same time. When this happens both are awaiting the other's answer and the conversation is at a standstill. After a few moments both parties begin to wonder and usually both will then say "Hello" at the same time, with the result that neither hears the other.

Follow These Suggestions for Best Results

The rule to follow to prevent the above situation is never to interrupt the other party. At the shore end, you will notice that when he stops talking the line sounds as though it had gone dead. This is a peculiarity of the radiotelephone and means that the equipment is ready for you to talk. This dead line effect sometimes is disconcerting to persons using the radiotelephone for the first time and often causes them to say "Hello" or "Do you hear me?" without necessity.

The second rule is to avoid one word statements, particularly short words such as "No" and "Yes". It is very much better to say "No, I don't" or "Yes, I understand" or some such phrase. The reason for this rule is similar to that for the first rule. If you would always wait until the line sounds dead, even a short word will usually be received on the ship, but during a conversation it is very easy to let a "Yes" or "No" slip out before the circuit is ready for you to talk. If you make it a rule always to answer more than one word, the party on the ship will at least hear some of the words and know that you have answered.

MEMORANDA

Pages 15-24, a study guide for the FCC's 3rd Class Radiotelephone Operators License, have been omitted.