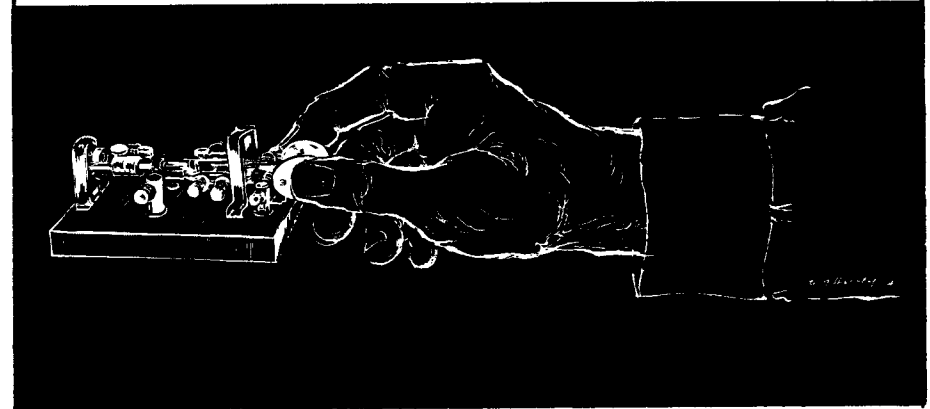


PRICE \$1.00



ELEKTRA CODE COURSE



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A division of THE ELEKTRA CORPORATION

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INTRODUCTION

To be able to send and receive code requires patience and skill: This course will help you develop both! There are many occasions when atmospheric conditions will all but obliterate voice transmission, and under these unfavorable circumstances code (c.w.) usually can knife its way through the QRM. There is great satisfaction in being able to swap messages back and forth while the phone boys are snowed under.

The government requires a code speed of five words per minute for the novice and technician class licenses. As with all government code requirements, you must be able to send and receive intelligibly at the speed required. The general and conditional class licenses require a code speed of thirteen words per minute. Code requirements for the second class radio telegraph examination are a sending-receiving rate of sixteen words per minute. All these speeds can be obtained by playing the ELEKTRA Code Course at speeds upwards of 33-1/3 RPM, as indicated on the back jacket and with each lesson.

It is advisable that you be proficient at seven words per minute before attempting to take either your novice or technician class examination. Likewise, a comfortable sending and receiving rate for the general and conditional class license should be fifteen words per minute. Acquiring this extra speed will offset the nervousness and "buck fever" that practically all would-be hams experience at examination time. Remember to practice on a regular schedule. There is no substitute for applied effort.

The Code Language. Each letter, number and punctuation mark, familiar to us in our own alphabet, has been given a specific sequence of dots and dashes which form its own unique code signature. It is our purpose to learn these various signatures so that upon hearing dit-dah-dit, for example, you will instantly recognize it as the letter "r". It is important that you think of the code in terms of its sound rather than its visual counterpart--the written dot and dash. For convenience in learning the code, we have broken down the letters, numbers and punctuation marks into seven groups. Learn each group thoroughly before proceeding to the next group.

Group I

E dit
I dit-dit
S dit-dit-dit
H dit-dit-dit-dit

Group II

T dah
M dah-dah
Ø dah-dah-dah

Group III

A dit-dah
W dit-dah-dah
J dit-dah-dah-dah
G dah-dah-dit
N dah-dit

Group IV

U dit-dit-dah
V dit-dit-dit-dah
B dah-dit-dit-dit
D dah-dit-dit

Group V

R dit-dah-dit
K dah-dit-dah
C dah-dit-dah-dit
P dit-dah-dah-dit
X dah-dit-dit-dah

Group VI

Q dah-dah-dit-dah
F dit-dit-dah-dit
Y dah-dit-dah-dah
L dit-dah-dit-dit
Z dah-dah-dit-dit

Group VII

1 dit-dah-dah-dah-dah
2 dit-dit-dah-dah-dah
3 dit-dit-dit-dah-dah
4 dit-dit-dit-dit-dah
5 dit-dit-dit-dit-dit
6 dah-dit-dit-dit-dit
7 dah-dah-dit-dit-dit
8 dah-dah-dah-dit-dit
9 dah-dah-dah-dah-dit
Ø dah-dah-dah-dah-dah *

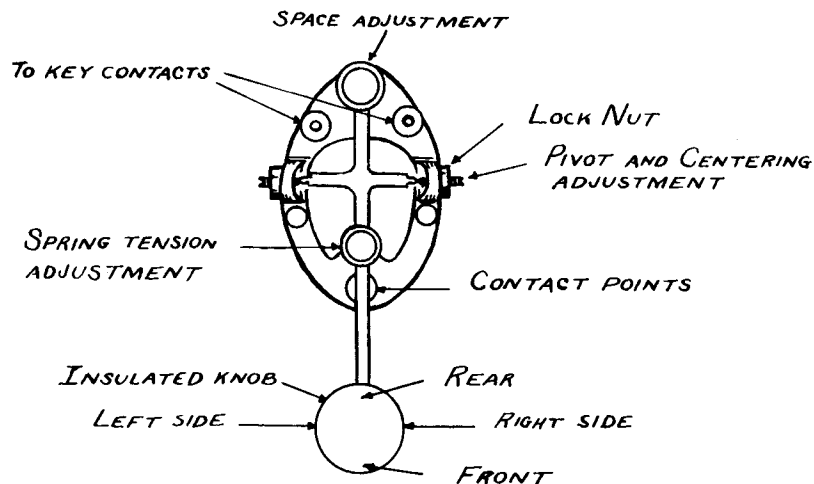
Period dit-dah-dit-dah-dit-dah
Comma dah-dah-dit-dit-dah-dah
Question Mark dit-dit-dah-dah-dit-dit
Error dit-dit-dit-dit-dit-dit-dit-dit

* The numeral zero is written as Ø to distinguish it from the letter "O".

Some good practice in translating letters, numbers and punctuation marks into their respective code sounds can be obtained by simply walking down the street and translating signs and billboards into code words. Thus, grocery would sound like this: dah-dah-dit/dit-dah-dit/dah-dah-dah/dah-dit-dah-dit/dit/dit-dah-dit/dah-dit-dah-dah. Always remember to accent the dah. You can also try this same stunt with signs in a bus, newspaper headlines, etc. Speak the code groups out loud whenever possible, but watch yourself in crowded places! Some people might not understand.

It is as important for you to learn to send code properly as it is for you to learn to receive. A poor "fist" will discourage other hams from answering your transmission. When you take the test for your license, the examiner will listen carefully to your sending, and if he is not satisfied that your "fist" is precise and easy to read, you will not pass.

The device used to send dits and dahs is called a key. It is nothing more than an extremely versatile switch which opens and closes a circuit in accordance with your wishes. When the key is depressed, the circuit is completed and if the key is properly connected to a code oscillator, a sound will then be heard. The following is a detailed drawing of a simple straight key:



In order to send properly, you must be completely relaxed. Your arm and elbow should be resting comfortably on the table and your fingers should grip the key knob so that your right thumb is on the left side of the knob and your forefinger and middle finger are on top of the knob (lefties can reverse this position). Your fingers should be curved toward your palm. If the key requires adjustment, this can be done easily. It is important that the key be given free play vertically. The two side screws can be adjusted so that the key moves up and down with ease and without any noticeable side play. Once this has been accomplished, tighten the two lock nuts securely. Spacing between the contact points can be altered by turning the "space adjustment screw" at the rear of the key. Its operation should be self-explanatory. At first it is advisable to keep the contacts a little further apart than normal. This is to insure positive action on your part while learning.

The pressure required to close the key can be altered by changing the spring tension adjustment in the center of the key. It is important that the spring is not too tight or fatigue might result if too much effort is required to close the key over a long period of time.

Grasping the key firmly, as instructed previously, send a long series of dits spaced evenly apart. Follow this by a series of dahs, also spaced evenly. A dah should be exactly three times as long as a dit. Keep your fingers on the knob of the key at all times. It is important that all motion be in the wrist and not in the fingers. Now intersperse dits and dahs, making sure that the ratio of three to one (the dah to the dit) is exactly maintained. Once you are satisfied that you can form dits and dahs, you may start to send the letters contained in each of the seven groups. After you have listened critically to your sending in Group I, go on to Group II, and so on until you have completed all seven groups. Spacing between the elements of a letter should be equal to one dit; spacing between each completed letter should be equal to three dits. Words are separated by a pause equal to five dits in duration. It is advisable to send very slowly at first, and to be as accurate and precise as possible. Your sending speed should increase at the same rate as your receiving speed. Each practice session should devote some time to sending.

How to Use the Record After seating yourself comfortably, place the code record on the turntable and lower the tone arm onto Lesson 1. If your phonograph is equipped with a bass tone control, turn it all the way down so that extraneous noise due to turntable rumble is minimized. Set the volume so that the code transmissions are comfortable to your ear, neither too loud nor too soft. You are ready to begin Lesson 1.

LESSON 1 (3, 4, or 7 wpm depending on turntable speed)

This lesson contains the alphabet, all numbers and the most commonly used punctuation marks. The letters of the alphabet are in their proper order so that no guesswork is required on your part. Listen to this lesson several times. Pay as much attention to the numbers and punctuation marks as you do to the individual letters. Lesson 1 is excellent for learning the proper sound of each letter, number and punctuation mark. There is sufficient space between each character for you to practice your sending simultaneously with the record. For example, after hearing the letter "F" there is enough space for you to make an "F" of your own. This will give you good practice in the perfect formation of characters. Although punctuation marks are not used too often in on-the-air transmission, the F.C.C. requires that you know them.

A B C D E F G H I J K L M N O P Q R S T U V
W X Y Z
1 2 3 4 5 6 7 8 9 0
period question mark comma

LESSON 2 (3, 4, or 7 wpm depending on turntable speed)

Lesson 2 consists of some of the easier letters, intermixed. Practice this lesson until you can identify each letter. There are no numbers or punctuation marks in Lesson 2. There is sufficient time for you to practice your sending once again after each character has been sounded.

E T I M S O H D G K P X N A U
W J R K C G D B X S T M I Z E
T J P U V L N C Z A H O M D R

LESSON 3 (3, 4, or 7 wpm depending on turntable speed)

This lesson consists of some of the more difficult letters plus all of the numbers and punctuation marks. It is sent at the same speed as the first two lessons. Make sure that you are completely familiar with this lesson before proceeding to Lesson 4.

B C J W P R Y Q F L W B R P K
Q Y C 1 0 9 7 3 L
Z ? F , A N E 4 5 H .

LESSON 4 (3½, 5, or 8½ wpm depending on turntable speed)

Lesson 4 is made up of single letters, numbers and punctuation marks at a speed slightly increased over Lesson 3.

R 4 N G P I O L C Y 6 B E M T
A Z S K U V 8 0 ? W D I ,
7 J X T E . C Q K L P B H M F

LESSON 5 (4, 5, or 9½ wpm depending on turntable speed)

This lesson consists of two-letter code groups at 4 words per minute. There are no numbers or punctuation marks in this lesson. We have used code groups extensively throughout this course, because, on repeated hearings, regular words would be too easily remembered. Besides, it is almost certain that if you can master code groups at a given speed, regular words will be no problem.

GN OM QR KP YL DF AN BE
CQ OM DP HS JR UT XC IF
WO ZL RA VM IS NT DX GE
KU QJ CL FM AZ BV

LESSON 6 (4, 5, or 9½ wpm depending on turntable speed)

Here we have some more two-letter code groups consisting of some of the more difficult letters, numbers and punctuation marks at the same speed as Lesson 5. Lesson 6 is the last band on Side One of this code course.

TN J1 SW MC 29 KH 45 8?
NO LE YG I9 70 ,Z B6 CQ
73 2. AN DX EF RP JU

LESSON 7 (4½, 6, or 10½ wpm depending on turntable speed)

We are getting pretty sneaky at this point. Ostensibly, Lesson 7 is made up of three-letter code groups at 4½ words per minute. But, we have occasionally sprinkled ham phrases and abbreviations about.

QRM KN2 LOG ANT B?Z SHE PUC
GND IFC ,ON J3A W6V IT9 0XG
QST 6RY VFO ILC IF.

LESSON 8 (5, 7, or 12 wpm depending on turntable speed)

We are now working with four-letter code groups at 5 words per minute. Once again we have interspersed a few words and ham abbreviations throughout the lesson.

?LPT AGZB COIL 6, QE XMTR H5WK
J7NS VOLT .IAU CQDX TYRO
FHXE PEAK ?2NO LFCY 4582

LESSON 9 (5, 7, or 12 wpm depending on turntable speed)

If you can copy this lesson without any difficulty, you should do well on your novice or technician code examination. There are no punctuation marks or numbers in this lesson because the F.C.C. does not require them. However, since the F.C.C. has turned over the job of giving code exams for the novice and technician classes to other licensed amateurs, it is probable that your examiner will require that you know them. And too, how do you expect to send your own call or receive someone else's, as a novice, without being thoroughly familiar with the numbers?

ANRKB CLUNY EFSHI TFLOG INVUL
WPQRM BAEKC GDFJI OHNSZ KMVEN
QEPXJ FMAHS PCVOT

LESSON 10 (6, 8½, or 14 wpm depending on turntable speed)

Lesson 10 is perfect practice for your novice or technician exam. It consists entirely of five-letter words at a speed one word per minute more than that required by the F.C.C.

BANJO DAUNT METER TUNIC AXLES
HONOR AFTER WHITE CRUSH SKIER
FIXED LOADS PRONE FAVOR QUIET
GOUGE JADES HAZED

LESSON 11 (6½, 9, or 15 wpm depending on turntable speed)

We're back to single letters, numbers and punctuation, each character following the other at a pace more rapid than in Lesson 10. Again, make sure that you can read each character properly.

J 2 F P A X 3 7 ? B T C
R Ø K G 6 M S 5 , H Z L V
T A W E X O Q J 9 8 4 1
A N F H Y D I L G O E K U .

LESSON 12 (7, 9½, or 16½ wpm depending on turntable speed)

By now Lesson 12 should be easy as pie. These are words and abbreviations which are everyday expressions and thoroughly familiar to all hams. Good luck on that examination!

FREQUENCY DATA RECEIVER W2WFC KNØBCR
CRYSTAL ELEKTRA CODED BUG STATION
POWER MODULATION CARRIER WATT SIDEBAND
TICKET GALLON 8Ø7 FINAL RELAY CHOKE
BEAM FILTER NOVICE 73

You are now ready to take your novice or technician class examination. Remember to try and be as relaxed as possible. Seat yourself comfortably, take a deep breath, and it will all be over very soon. The licensed amateur who does the testing is a cooperative fellow (or girl, as the case may be) and he will do his best to relieve your fears.

Of course, after all the fine preparation and help this code course has given you, you have passed with ease. You will now be busy putting together your station and waiting for that day when your license arrives and you can go on the air. A word or two about the license--or the "ticket", as it is referred to in ham circles. Be patient! The number of exams that have to be corrected by the F.C.C. and the attendant congestion will determine when you will receive your ticket. You can wait four weeks or three months. Calling your local F.C.C. examiner will probably do you no good as the exams are corrected and the licenses issued by the F.C.C. offices in Washington. But the day will come when your operator and station license will arrive on a thin white sheet of paper. Take care of it. Post it in your shack where it will be protected from prying hands but still be visible.

Now comes something that is important but which many new hams overlook, and that is operating etiquette and procedure. You might as well start off properly because bad operating habits can be difficult to correct later on. We strongly urge that you write to the American Radio Relay League in Hartford, Connecticut for the booklet, "Operating an Amateur Radio Station." It costs only twenty-five cents but it is extremely worthwhile. Operating procedure, ham activities and awards, the "Q" signals and lots of other useful information is presented in a concise manner. Study this little book carefully and it will pay off in more completed QSO's and the satisfaction that you are a good operator.

If you have a strong stomach and just a bit of curiosity, the following declamation on how this code course was prepared might prove interesting:

HOW THE ELEKTRA CODE COURSE WAS PREPARED
(Or how to go crazy without half trying)

On the surface it would seem that a company which had specialized in the manufacture of quality musical phonograph records would find the publication of a code course simple, if not downright elementary. If it were only so! After the textual material was prepared (no mean job in itself) we had to get it on to disc.

We secured the services of W2WFC, Ray Antinolfi, an acknowledged expert with the electronic key--a device which forms dots and dashes in perfect relation, one to the other. It was our notion to originally make this record on tape, and that is where we encountered our first difficulties. As most of you are aware, tape has a nasty tendency to print-thru; i.e., by magnetic induction to transfer from one layer of tape a facsimile of the sound contained therein to the layer which is underneath it on the reel. In music this is not too serious, because the very continuity of the material tends to cover up or mask print-thru. However, when dealing with an absolutely silent background between characters, print-thru became obvious, despite all of our precautions. We recorded at a level far below standard and on two-mil Mylar* tape that we had cut to our specifications by Audio Devices. But the gods were still not with us. After much hair pulling and countless epithets, the level of the print-thru was far above that tolerable to us (even though I blush to say that certain code records produced by other companies had a level of print-thru that was positively embarrassing). With bowed heads, we approached the problem once again. It was decided that the only way to eliminate print-thru would be to key the master disc directly. Since it would be humanly impossible to get spacing and timing absolutely correct with such a method, and to be able to sustain correct spacing and timing for the length of a 12" LP at one sitting, we decided that the only solution was to key the record directly from an edited and accurately prepared tape. If you've lost me at this point, it will all be clear very soon. By means of a rectifier and dc relay, we were able to key an oscillator which fed the cutting amplifier, which in turn, fed the cutterhead. The output of the tape recorder amplifier was set so that it would enable the contacts of the relay to "make" but the relay would be inoperative when the print-thru (about 50 db. below signal level) passed over the heads. Complicated, isn't it? We contemplated enclosing a photo of the goulish set-up that was required to prepare the final master. Peter Bartok, recording engineer extraordinary, was aghast but secretly delighted at the maze of wires and insistent demands we made upon his world famous cutting equipment.

The thump that often appears on the make and break of other code records was eliminated by the judicious use of filters and equalizers. We selected a slightly lower tone in pitch than is usually employed on code records for several reasons. It approaches, to some extent, the pitch of the widely used buzzer practice set, and furthermore, any oscillator can be adjusted to match this pitch with ease. Our second consideration involved the playing of this record at high speeds. We still needed a pitch at 78 RPM that was entirely readable.

*Reg. trademark, Dupont Co.

These are just some of the problems encountered. A recital of more of our difficulties would only result in monetary contributions gratefully tendered by people who are in awe that we could put out such a well produced code course at this modest price. If you've had the guts to stick with me this far, a recital of the technical equipment employed in the preparation of this record might prove interesting. The electronic key was one of Mr. Antinolfi's own design, the tape recorder was an Ampex 400, the cutting amplifier was a Bartok home brew, and the cutter head was of the Grampian BBC type. An 8DG cutting table and lathe with numerous Bartok modifications was also used. This record was mastered with the grooves spread quite far apart and cut deeply so as to minimize the possibilities of the stylus in one groove modulating the adjoining groove, which gives the effect of print-thru, except that the print is then heard after the note rather than before it. In pressing the record a very hard vinyl compound was used so that after repeated playings your code course would show little sign of wear. It is our opinion that the present state of the recording art would not permit a more perfect finished record from the technical standpoint.

If all this does not mean anything to you now, remember to read it again in a year or so when the technical intricacies will then emerge clear and sunlit.

JAC HOLZMAN, K2VEH

