

MORSE CODE & PHONETICS:

SECTION ONE: THE 'PHONETIC' ALPHABET LIST

Introduction:

In this section we'll take a look at the official 'phonetic' alphabets used by utility stations. When using transmission modes such as Single Sideband on frequencies, which are often very noisy due to the effects of static or electrical interference, the use of phonetics can greatly assist communications. Likewise when signals paths are disturbed due to poor propagation conditions, or the operators trying to communicate are using a language which is probably not their native tongue, a phonetic spelling of a word can make a significant contribution to ensuring that messages passed between them are correctly understood.

To give an example of this, letters such as B,C,D, or T could easily be confused under poor conditions. By use of the more 'distinctive' 'phonetic' pronunciations it is less likely that letters such as these will be confused with each other. The 'Official' alphabet given below is the one that should be used, but in reality poor operating skills abound, and many other non-standard codes may well be used instead. The exception to this rule is usually the military, which often tend to be far more precise in their procedures and standards of operation.

The (Standard English) Phonetic Alphabet:

PHONETIC LETTERS:

<u>Letter:</u>	<u>Phonetic:</u>	<u>Pronunciation:</u>
A	Alpha	Al Fah
B	Bravo	Brah Voh
C	Charlie	Char Lee
D	Delta	Dell Tah
E	Echo	Eck Oh
F	Foxtrot	Foks Trot
G	Golf	Golf
H	Hotel	Hoh Tell
I	India	In Dee Ah
J	Juliet	Jew Lee Ett
K	Kilo	Key Loh
L	Lima	Lee Mah
M	Mike	Mike
N	November	No Vem Ber
O	Oscar	Oss Cah
P	Papa	Pah Pah
Q	Quebec	Keh Bek
R	Romeo	Row Me Oh
S	Sierra	See Air Rah
T	Tango	Tang Go
U	Uniform	You (or Oo) Nee Form
V	Victor	Vik Tah
W	Whiskey	Wiss Key
X	X-Ray	Ecks Ray
Y	Yankee	Yang Key
Z	Zulu	Zoo Loo

PHONETIC NUMERALS: (Aviation System)

<u>Number:</u>	<u>Phonetic:</u>	<u>Pronunciation:</u>
0	Zero	Ze-ro
1	One	Wun
2	Two	Too
3	Three	Tree
4	Four	Fower
5	Five	Fife
6	Six	Six
7	Seven	Seven
8	Eight	Ait
9	Nine	Niner
Decimal	Point Decimal	Day See Mal
1000	Thousand	Tousand

PHONETIC NUMERALS: (Marine System)

<u>Number:</u>	<u>Phonetic:</u>	<u>Pronunciation:</u>
0	Nadazero	Nah Dah Zay Roh
1	Unaone	Oo Nah Wun
2	Bissotwo	Bees Soh Too
3	Terrathree	Tay Rah Tree
4	Kartefour	Kar Tay Fower
5	Pantafive	Pan Tah Five
6	Soxisix	Sok See Six
7	Settseven	Say Tay Seven
8	Oktoeight	Ok Toh Ait
9	Novenine	No Vay Niner
Decimal Point	Decimal	Day See Mal
Full Stop	Stop	STOP

As you can see the Phonetic Alphabet is fairly standard, but in the case of numerals it's not uncommon to hear two completely different systems in use. For Marine Band traffic the lower of the two lists shown is the one that is usually recommended. For aviation (and beacon, or Ham use) the upper 'aviation' system will normally be used.

SECTION TWO: MORSE CODE – (STANDARD ENGLISH LETTERS & NUMERALS)

Introduction:

Below you will find a list of the most commonly used Morse characters. Due to the slow nature and repetition of the Morse transmissions used by most Non Directional Beacons it is quite possible for someone with even a very basic knowledge of the code to work out what the callsign is that you are hearing. By using the 'phonetic' sound of the Morse character, it should be possible to get a good idea of the rhythm that you should be hearing. To assist anyone who might like to take a stab at cracking the code a short 'tutorial' is given at the end of this document.

<u>Letter:</u>	<u>Code:</u>	<u>Sound:</u>
A	· _	di-dah
B	_ ···	dah-di-di-dit
C	_ · _ ·	dah-di-dah-dit
D	_ · ·	Dah-di-dit
E	·	dit
F	· · _ ·	di-di-dah-dit
G	_ _ ·	dah-dah-dit
H	· · · ·	di-di-di-dit
I	· ·	di-dit
J	· _ _ _	di-dah-dah-dah
K	_ · _	dah-di-dah
L	· _ · ·	di-dah-di-dit
M	_ _	dah-dah
N	_ ·	dah-dit
O	_ _ _	dah-dah-dah
P	· _ _ ·	di-dah-dah-dit
Q	_ _ · _	dah-dah-di-dah
R	· _ ·	di-dah-dit
S	· · ·	di-di-dit
T	_	dah
U	· · _	di-di-dah
V	· · · _	di-di-di-dah
W	· _ _	di-dah-dah
X	_ · · _	dah-di-di-dah
Y	_ · _ _	dah-di-dah-dah
Z	_ _ · ·	dah-dah-di-dit

<u>Numeral:</u>	<u>Code:</u>	<u>Sound:</u>
1	· _ _ _	di-dah-dah-dah
2	· · _ _ _	di-dah-dah-dah-dah
3	· · · _ _	di-di-di-dah-dah
4	· · · · _	di-di-di-di-dah
5	· · · · ·	di-di-di-di-dit
6	_ · · · ·	dah-di-di-di-dit
7	_ _ · · ·	dah-dah-di-di-dit
8	_ _ _ · ·	dah-dah-dah-di-dit
9	_ _ _ _ ·	dah-dah-dah-dah-dit
0	_ _ _ _ _	dah-dah-dah-dah-dah
0	_	Some operators will send a long dash for a zero!

SECTION THREE: MORSE PUNCTUATION AND ACCENTED CHARACTERS:

Accented Characters:

As I mentioned in the introduction, many 'accented' Morse characters can often be heard on some of the continental beacon IDs, and below you will find a list of the Morse characters relating to these. As you will note, some of the characters are common to several European languages, so assumptions about possible locations based purely on these accents should be made with great care. My thanks to **Väinö Lehtoranta, OH2LX**, of Finland, for the correct translations of many of the letters below.

<u>Letter:</u>	<u>Code:</u>	<u>Sound:</u>
Ä (German, Swedish, Finnish)	. _ . _	di-dah-di-dah
Æ (Danish, Norwegian)	. _ . _	di-dah-di-dah
Á (Spanish)	. _ _ . _	di-dah-dah-di-dah
Å (Swedish)	. _ _ . _	di-dah-dah-di-dah
Ch (German/Spanish)	_ _ _ _ _	dah-dah-dah-dah
Sh (Russian)	_ _ _ _ _	dah-dah-dah-dah
É (French)	. . _ . .	di-di-dah-di-dit
Ñ (Spanish)	_ _ . _ _	dah-dah-di-dah-dah
Ö (German, Swedish, Finnish)	_ _ _ . .	dah-dah-dah-dit
Ø (Danish, Norwegian)	_ _ _ . .	dah-dah-dah-dit
Ch (Russian)	_ _ _ . .	dah-dah-dah-dit
Ü (German)	. . _ _ _	di-di-dah-dah
Yu (Russian)	. . _ _ _	di-di-dah-dah

PUNCTUATION:

<u>Term:</u>	<u>Code:</u>	<u>Sound:</u>
Full Stop (period)	. _ . . . _	di-dah-di-dah-di-dah
Comma	_ _ . . _ _	dah-dah-di-di-dah-dah
Colon	_ _ _ . . .	dah-dah-dah-di-di-dit
Interrogation	. . _ _ . .	di-di-dah-dah-di-dit
Slash /	_	dah-di-di-dah-dit
Break =	_ . . . _	dah-di-di-di-dah
Error	di-di-di-di-di-di-dit
Hyphen -	_ _	dah-di-di-di-di-dah
Inverted Commas "	. _	di-dah-di-di-dah-dit
Apostrophe '	. _ _ _ _ .	di-dah-dah-dah-dah-dit
Colon :	_ _ _ . . .	dah-dah-dah-di-di-dit
Underline	_ . . _ _ . _	di-di-dah-dah-di-dah
Wait	. _	di-dah-di-di-dit
Bracket (_ . _ _ . .	dah-di-dah-dah-dit
Bracket)	_ . _ _ . .	dah-di-dah-dah-di-dah
AR (end of message)	. _	di-dah-di-dah-dit
VA (end of work)	. . . _ . _	di-di-di-dah-di-dah
VE (understood)	. . . _ .	di-di-di-dah-dit
K (invitation to transmit)	_ . _	dah-di-dah
R (received)	. _ .	di-dah-dit
CT (commence traffic)	_ . _ . _	dah-di-dah-di-dah
de (from)	_	dah-di-dit dit
SOS (Distress Call)	. . . _ _ _	di-di-dit-dah-dah-dah-di-di-dit
CQ (General Call)	_ . . _ _ _ . _	dah-di-dah-dit dah-dah-di-dah
73 (best wishes)	_ _ _ _	dah-dah-di-di-dit di-di-di-dah-dah
@ (Commat)	. _ _ . . .	di-dah-dah-di-dah-dit

SECTION FOUR: RUSSIAN MORSE:

Introduction:

The Russian language uses the Cyrillic alphabet, and you may occasionally come across the odd beacon using some of these more unusual characters, the table below should help with any identification problems.

<u>Letter:</u> (large)	<u>Letter:</u> (small)	<u>Code:</u>	<u>Sound:</u>	<u>Transliteration:</u>
А	а	. _	di-dah	a
Б	б	_ . . .	dah-di-di-dit	b
В	в	. _ _	di-dah-dah	v
Г	г	_ _ .	dah-dah-dit	g (<i>'v' when between two vowels as in ezo, -ozo.</i>)
Д	д	_ . .	dah-di-dit	d
Е	е	.	dit	ye (<i>ye as in yet</i>)
Ё	ё	.	dit	yo (<i>except after ch and shch</i>)
Ж	ж	. . . _	di-di-di-dah	zh (<i>like 's' in pleasure</i>)
З	з	_ _ . .	dah-dah-di-dit	z
И	и	. .	di-dit	l (<i>like 'ee' in sweet</i>)
Й	й	. _ _ _	di-dah-dah-dah	l or y (<i>like 'y' in boy</i>)
К	к	_ . _	dah-di-dah	k
Л	л	. _ . .	di-dah-di-dit	l
М	м	_ _	dah-dah	m
Н	н	_ .	dah-dit	n
О	о	_ _ _	dah-dah-dah	o
П	п	. _ _ .	di-dah-dah-dit	p
Р	р	. _ .	di-dah-dit	r <i>rolled (like Scottish)</i>
С	с	. . .	di-di-dit	s
Т	т	_	dah	t
У	у	. . _	di-di-dah	u (<i>like 'oo' in boot</i>)
Ф	ф	. . _ .	di-di-dah-dit	f
Х	х	di-di-di-dit	kh (<i>'h' but hard like Loch</i>)
Ц	ц	_ . _ .	dah-di-dah-dit	ts
Ч	ч	_ _ _ .	dah-dah-dah-dit	ch (<i>occasionally 'sh'</i>)
Ш	ш	_ _ _ _	dah-dah-dah-dah	sh
Щ	щ	_ _ . _	dah-dah-di-dah	shch
Ъ	ъ	_ . . _	dah-di-di-dah	hard sign
Ы	ы	_ . _ _	dah-di-dah-dah	y (<i>like 'y' in physio</i>)
Ь	ь	_ . . _	dah-di-di-dah	soft sign
Э	э	. . _ . .	di-di-dah-di-dit	e (<i>like E in Edward</i>)
Ю	ю	. . _ _	di-di-dah-dah	yu
Я	я	. _ . _	di-dah-di-dah	ya

This is not an exact guide to pronunciation, but should help in situations where you have a written call sign and can't quite work out what the translated call sign might read in Morse code.

SECTION FIVE: CRACKING THE CODE:

Introduction:

MORSE CODE -- learning it is not as hard as you think! The thought of learning Morse Code can be a frightening prospect for many enthusiasts, but as anyone who has ever succeeded in doing this will tell you, it often proves to be well worth the pain, and in the case of the Utility Dxer, or the Non-Directional Beacon Enthusiast, it can open up a whole new world of radio listening pleasure for them.

Mechanical Means...

Of course there are many 'mechanical' means of reading Morse code available today in the form of dedicated decoding units. Units such as the ERA Microreader, or the Momentum Decoders, or even some of the very good 'shareware' computer programmes such as the excellent 'Hamcomm', 'Radio Raft' or 'CW Get' can prove useful in carrying out this task too. At the top end of the market, the more sophisticated and expensive devices such as the Hoka or Wavecom decoders can give excellent results, not just with CW, but also with many of the more 'exotic' transmission modes that you may come across too.

But Why Bother....

Why with such devices available would anyone want to go to the trouble and effort of learning Morse code then? Well the answer to that is quite simple, "have you ever tried to use a decoder on a frequency with two NDBs of equal signal strength on it?". The poor thing will very likely become perplexed, and unlike the human ears, which with experience can often 'filter out' a wanted signal from under a mix of several stations, it will very likely not prove to be at all reliable, or even worth the effort required. I have both methods available for use, but usually find that in the case of NDB Dxing, lots of patience, a good audio filter, and a well trained pair of ears usually win hands down every time!

The charts given in the previous sections aren't intended to turn you into a instant morse reading expert overnight, but they should at the very least give you a fighting chance of identifying some of the many NDBs which are to be found between 250 and 500 kHz, or the Amateur Propagation Beacons which can be found on 28 MHz, and a number of other Amateur Bands. Fortunately for us, many NDBs and propagation beacons usually give their call letters quite slowly and repeat them over and over continuously, so the enthusiast can listen to them over a long period, and a number of times until the whole message or callsign is eventually understood.

If you've never given these slow Morse beacons a try before now is the time to begin. Take the above charts, print them out, and then tune your receiver to one of the strongest signal that you can find between 285 and 435 kHz and see if you can manage to identify it. By trying your hand at one or two of the stronger beacons, which are quite close to your location, you will find them much easier to identify than any weak and noisy ones. Don't worry though, there'll be plenty of time for tackling the weaker ones later on when you're a bit more experienced!

How to get started...

In the charts above you will find all the letters of the alphabet. As well as each letter, you will also find the Morse equivalent, and also the 'phonetic pronunciation'. This last part is very important, since this is how the beacon you hear will sound to you.

When you do begin, do remember to try and get a feel for the 'rhythm' of a letter, rather than just trying to think of it as a dot or a dash. After a very short time you will find that you can begin to identify some of the letters in the callsigns (which are usually only two or three letters at most!). The important thing to listen for is the length of the space between each letter. If you follow the phonetic pronunciations given above you will soon get a feel for where one letter ends and another one begins. The usual rule of thumb is that one 'Dash' is equal in length to 5 'Dots', the spacing between two different letters is equal to the length of 3 'Dots', and the spacing between words should be equal to the length of 7 'Dots'.

So what's next?....

If by now you are really feeling serious about getting down to learning the code then you can download a number of programmes, which will help you greatly in this task.

Good luck, and 

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