

## NATIONAL TRAFFIC SYSTEM TRAINING

### PURPOSE OF THIS TRAINING:

When training on the subject on the NTS, the instructor usually loses about 90% of his students in the first ten minutes. As a rule of thumb, instructors simply go into too much detail too fast. The NTS is not a difficult service to understand. There are, unfortunately, a lot of little details concerning the Radiogram forms. Most instructors get side-tracked by these details and they drone on and on about details making their students feel overwhelmed. Most students seldom become involved in the NTS because they have been led to feel that there is too much to absorb.

My belief about this is that there is a need to keep it simple. The lesson material I will attempt to present to you over the next few weeks has been prepared to apply the KISS (Keep It Simple, Stupid!) principle.

The National Traffic System (NTS) seems, to a lot of operators, to be this big difficult operation that is very complicated to understand. Some of you may feel that you have to be an Extra with years of experience as a Ham to get involved in NTS because it's all done on the HF bands and they use a language so different that you need 20 years of just listening to understand it. This is simply not true!!

After we have gone over this material, you will understand that it is not complicated or difficult to be involved in the NTS. Its members are operators just like you. You do not have to hold an Extra, Advanced, or General License. There is a place for everyone in the NTS. The materials I will be presenting are designed to teach you not only how to get involved, but how to be effective once you do get involved.

The subject of the NTS will be broken down simply. As we start at the beginning and work our way through, you will have absorbed enough simple background information to make sense out of the rest.

The most important part of the NTS is the part that I can not furnish. That part is you. The material we will be studying means nothing unless you use it to improve yourself and your operating skills. We welcome the opportunity to help you do that.

### I. So, What is NTS?

The NTS is a relay messaging system developed for content accuracy. Whatever message is sent through the NTS, it is received exactly as it was

originated and there is no margin for error.

The National Traffic System consists of ARRL affiliated and Independent amateur radio nets which pass non-commercial messages on behalf of third parties as a public service. That's it in a nutshell.

The NTS has been in operation since 1949 and was established by the ARRL in response to membership demand. It carries on a tradition of message relaying, established by Hiram Percy Maxim when he founded the ARRL for the purpose of handling message traffic in 1914.

## II. Traffic, What is that?

NTS messages are formalized using the "ARRL RADIOGRAM" format. Once a message has been formalized and entered into the NTS that is called "Traffic".

Non-formalized messages relayed over Amateur Radio frequencies are not "traffic" as defined within the NTS.

NTS messages may be sent to, or by, anyone. You do not have to be a ham to initiate or receive a message. A licensed ham must, of course, handle the transmission of the traffic.

## III. THE RADIOGRAM:

Explanations of this simple form have probably stopped more people from participating in the NTS than anything else. It is just a piece of paper. It is not a confusing IRS tax form, It's simple. If you can remember your name and call-sign, know what you want to say, and who you want to send it to, you are already 3/4 done with this form. There is NO Mysticism or Rocket Science involved.

OK, LET'S LOOK AT THE FOUR PARTS OF A RADIOGRAM and the basics of what to do with each one of them. The first part we will be dealing with is the very top of the Radiogram which is called the PREAMBLE. You should have a copy of the Radiogram in front of you. This won't make much sense without it.

### The Preamble:

The top part of the form, with all the little boxes, is called the Preamble. Look for the heading on the Radiogram form and read the description for that area.

### Message Number:

This is the number assigned by the first Amateur that is putting the traffic into NTS. It never changes, no matter how many operators handle the message. All messages have to have a number. If you are originating the message, you can put any number in this box. What numbering system you use does not matter. If you are receiving the message, you must use the number given to you by the sender.

DO NOT say the words "my number 001". DO say "Message Number One".

### Precedence:

This part tells the importance of, or how urgent your traffic is.

99% of all traffic is listed as "Routine." Put an "R" here.

We won't worry about this right now. There is more detailed discussion of this later.

### Handling Instructions:

This is an Optional set of specific instructions dealing with methods of delivery. Most, but not all of the time, this area is ignored. Don't worry about it!

We will go into more details later on.

### Station of Origin:

This is the Call-Sign of the Amateur who first put the traffic into the NTS system.

### Check:

This is a count of the number of words in the text part of the form. (The area with all the little horizontal lines.) This does not include anything in the preamble, address and signature. When you use the word "X-Ray" to indicate punctuation, it counts as one word. When you use the word "Break" it is a courtesy to the receiving operator and it does not count as a word.

DO NOT say "Check 25, Station of Origin K5WTH". It is bad form to say the headings. DO say "25, K5WTH".

### Place of Origin:

This is the City and State of the party who initiated the traffic, not the

Station of Origin location.

Explanation: If you are initiating the message for someone in Little Rock, Arkansas and you live in Mississippi, then Little Rock, Arkansas would be the Place of origin. Your call-sign would be the Station of origin.

Time Filed:

This is the UTC or ZULU time the traffic is placed into NTS system, not the time written. You may have written the message last week. What is important here is the time you actually put it into the NTS. Many NTS operators ignore this field on the form for Routine traffic but I feel that we should always fill in every blank if for no other reason but to keep in practice.

Date:

This is the date the traffic is first placed into NTS system. DO NOT say "3/16" for date. DO say "March 16". You do not have to use the year. If the receiving station taking your message doesn't know what year it is, perhaps you should find someone else?

The Address:

This is the address of the person to whom the traffic is going to be delivered. It goes under the word "TO" on the Radiogram.

Name: Full name, including Jr., Sr., or call-sign if there is one.

Street address or P.O. Box, as complete as possible.

DO NOT send numbers as 3456. DO say "figures 3456".

City, State, Zip:

DO NOT say "Zip Code 45678". DO say "Zip figures 45678".

Phone number:

This part is very important because most traffic is ultimately delivered via local phone calls. Always get a phone number to assure the message will reach where it goes and not end up in a trash can. DO NOT say "phone number 501-123-4567". DO say "phone figures 501 123 4567". DO NOT say "Text to follow" after address. DO say "Break for text" after address before giving the "text". This will allow the receiving station to ask for fills if necessary.

The Text:

Keep it brief and to-the-point.

DO NOT say "ARL figure 61". DO say "ARL sixty one". More on these "ARL" things later.

DO keep the message to 25 words or less if possible.

Use "X-Ray" in place of periods and commas. "X-Ray" counts as a word.

DO NOT send "period" at the end of sentences. DO send "X-Ray" in place of punctuation.

DO NOT say "End of message" after text. DO say "Break for signature" and un-key after giving the text of the traffic. This allows the receiving station to ask for fills if necessary.

The Signature:

This can be a single name, a name and call-sign, or a name and title. Just enough information to enable the receiver to identify the sender. The Originating amateur should provide enough information, phone number, e-mail address or home address so that a reply can be sent.

DO say "David".

All right, now you are done . . . NOW WHAT?

Say, "End . . . No More."

That's all there is to filling out a basic NTS Routine message on a Radiogram form. It really is simple when you do not get bogged down in all the little details right away. Go over this a few times and actually fill out a blank form while you are doing it.

Sending Procedures:

The biggest mistake that most newcomers make is sending too fast. Those who seem to be aware of this fact go too far in the opposite direction and send too slow. Check into one of the Region 5 nets and listen to the sending pace of the experienced operators and try to emulate what they do.

DO NOT just keep going from one end of the message to the other. Pause between each section to allow the receiver to "Break" if necessary for fills. A "fill" means a repeat of a certain section. Send the message clearly and slowly, but not dragging it out. Practicing writing your own message down as you send it will help you learn the proper sending speed. This will also give you an idea how fast you can reasonably expect someone

else to copy it down.

How a "Fill" works. If a receiving operator misses copying part of the message, he or she can request that you repeat part of it by breaking back to you during one of your pauses and saying, "Break....fill from [last word of a string that he got ] to [the next word that he got]". Just back up and give him the part he missed by saying "Fill . . . [give him what he missed] pause and go on with your message.

When and Where to send a "Radiogram":

Local Traffic: In your home town or county:

During a Net on your local repeater.

Anytime on the repeater or by local telephone.

Out of town or county traffic:

During any Net on your local repeater ask for a station who may take "traffic" to the area it needs to go into. Check with your Local Net Manager or Emergency Coordinator for stations who take relays of traffic for other areas and counties.

Long distances within same state:

During a Net on your local repeater, see if there are any stations that operate on the HF Nets operating within the state that can pass to a "Higher Net". If you have the privileges, check in to one of the state wide nets and pass traffic to a station that is local to the intended receiver. Check with your Local Net Manager or Emergency Coordinator to find who the Local Liaison is for HF Nets, if you do not have the privileges or the equipment.

Out of State or Country:

Pass it to an NTS Area or Region Net that you have the privileges for.

Pass your traffic to the Local Liaison via repeater or telephone.

If the message is going out of the Country, check to ensure that the United States has a third party agreement with the country it is going to. If not sure, check with your Emergency Coordinator or your local Net liaison.

IV. METHODS OF HANDLING "TRAFFIC":

RADIOGRAMS can be passed by any means available to an Amateur Radio Operator, Repeaters, simplex, VHF, UHF, HF, as long as you have the privileges to operate on a frequency, you can pass messages there.

You may use:

Phone (Voice) anywhere it is legal for you to operate.

CW. NTS messages can be passed using CW on VHF, UHF, HF, any frequency that the operator is authorized to use.

Packet. VHF and HF are the most common. Packet can be the ideal means of passing formalized message traffic in certain circumstances. It is especially useful when a "secure" method is needed to safeguard the privacy of disaster victims. It is also very handy whenever a "hard copy" is needed for record keeping.

Packet Bulletin Board Systems provide a looser structure for getting messages from the sender to the area of destination. This looseness has its advantages and disadvantages. One advantage is that participants can have more flexible schedules. A disadvantage is that the sender does not know if there is a human receiver on the other end that will deliver the message. For the system to work efficiently, each BBS should have someone, or some group, responsible for delivering NTS messages.

RTTY/AMTOR/WINLINK/APRS. HF is the most common. Another digital mode(s) available for passing of traffic.

#### Traffic Nets:

There are specific times and days of the week and a variety of frequencies available for formal "Traffic Nets". Check with your local Net Manager, Emergency Coordinator or Net Liaison to find out when and where they meet. The ARRL Net Directory is an excellent source of information.

During a Club Net, ARES Net, District Net, etc. is the ideal time to pass some traffic, even if just for practice. You can usually find someone who will accept the traffic and will also work with you on your technique. Don't worry about getting everything perfect. Practice makes us all better. If you listen to an NTS net you will hear some of the old-timers make some blunders. It's no big deal! The most important thing to do is to listen to how the traffic is handled and passed, then practice what you know is

correct out of what you hear. People who are involved in the NTS nets always welcome newcomers. Just tell them you are new to the system and they will coach you. Of course, there is always the net "Grump". Don't worry about him.

If you never learn any more than this about the Radiogram, you will do fine passing traffic in the NTS with what you have learned so far. By the time you compose and send several messages using the standard ARRL Radiogram form, these simple procedures, and what to say, will be permanently imprinted on your brain.

#### IV. SOME MORE ADVANCED STUFF ON THE NTS AND How it works:

Local Nets. This is the lowest level of an NTS Net. These Nets usually meet on local repeaters and are the first level of the NTS system. This is where traffic will be passed between cities, counties and sometimes within Districts or multi county areas. If the traffic needs to go any further or to the next step, it may be passed on to an operator who will take it to the Section Net.

Handling of Local Messages. These are usually inside your own home county, city or within reach of your local repeater. If you receive a message, follow the delivery instructions to the party intended. If it is out of your area for phone delivery or you are the originating station, try to find a station on the repeater who can deliver the message and send the traffic to that station. You will find repeaters to be excellent resources for passing NTS traffic locally. Try during a Club Net or an ARES/RACES Net on the repeater if there is not an official NTS Traffic Net held on your local repeater, this is usually an excellent time to catch someone in the area where the traffic needs to go.

Section Nets. A Section is an area designated by the ARRL. Each Section has NTS Nets established for the purpose of transferring traffic or messages. This traffic normally stays within that Section and is received by stations in the area where it is intended to go. If the message is to go to the next level Net, it is usually received by a designated operator to relay to the Region Nets.

Handling of Section Messages. These are to be delivered within the ARRL designated Section. These are usually found on HF, but a few are found on wide coverage repeaters. If you do not have the ability or privileges to transmit the traffic yourself to the HF Net, ask your Emergency Coordinator who the NTS liaison is within your county and deliver the traffic to that operator for relay to the Section Net.

Region Nets. These Nets cover a larger area. A representative from each section takes messages to this Net that are intended for parties outside of the Section but within the Region. Traffic intended for parties outside of the Region will be passed on to operators designated to take them to the next level Net which is the Area Net.

Handling of Region Messages. These are intended for a party within an ARRL designated Region. The traffic will usually start off in a Section Net and be transmitted to the Region Net by the operator with that responsibility. Follow the same procedures as the Section Messages.

Area Nets. This is the top level Net of the NTS. Representatives from each Region will bring traffic to these Nets to be passed around the designated Area or into other Areas. Each of these Nets has one basic item in common; each will have an appointed Manager to oversee the operation of each level. These will all be covered in greater detail later in this material

Handling of Area Messages. These are intended for a party within one of the designated ARRL Areas. Normally it will be passed from Local to Section to Region to Area Net until it gets delivered to the intended party, regardless of where they are in the world as long as it is legal. The procedure on your end is the same, you introduce the traffic by the best means you have available. If you can take it to the Section Net, do so yourself. If you do not have the privileges, utilize the procedures drawn out above for the other Nets.

Handling of Out-of-U.S. (Country) Traffic. Remember to verify that the U.S. and the receiving country have a Third Party Agreement. A Third Party Agreement means that the U.S. and the other country have a legal agreement allowing U.S. Amateurs to pass traffic into that country.

One More Simplified Summary of the NTS Structure:

To make sure that we understand this structure, I'll try to explain it another way. The United States and Canada are divided into three Areas: Eastern Area, Central Area, and Western Area, we are in the Central Area. Inside each of these three Areas there are a total of twelve smaller Regions. Inside each of those Regions is an unknown number of Locales. Picture in your mind, two funnels with the big ends put together. These two funnels now represent the NTS System. The flow of traffic is always from one of the small ends to the other small end. The small ends are the Local Nets. Your message may rattle around in the funnel assembly for a while, but with enough movement it will eventually reach the other small end.

If you are sending a message out-of-state or country, when you list your traffic with a net, list it as: "One through for State of destination. If someone is on the net that can skip one or more of the normal steps of progression, they will pick up your message and get it through quicker. This just cuts out a number of "middle men".

SPECIAL HANDLING INSTRUCTIONS:

This information always applies regardless of the mode of message transmission. This is to explain what goes in the little box marked "HX" in the Radiogram Preamble. Again, there is no mystery to this if it is kept simple in your mind.

Sometimes there are some special things that need to happen to a message. Have you ever gotten a letter from the Post Office that you had to sign for? Someone wanted to make sure that their message was delivered. Have you ever sent a letter or package "Second-Day Air" so that the Post Office would rush it through? You can do exactly the same type things with an NTS message by plugging in some standard coding in the HX box of the Radiogram. The codes are pretty self-explanatory.

HANDLING INSTRUCTIONS:

HXA (Followed by number) Collect landline delivery authorized by addressee within \_\_\_\_\_ miles. (If no number, authorization is unlimited.)

HXB (Followed by number) cancel message if not delivered within \_\_\_\_\_ hours of filing time; service originating station.

HXC Report date and time of delivery (TOD) to originating station.

HXD Report to originating station the identity of station from which received, plus date and time. Report identity of station to which relayed,

plus date and time, or if delivered report date, time and method of delivery.

HXE Delivering station get reply from addressee, originate message back.

HXF (Followed by number) Hold delivery until\_\_\_\_\_ (date).

HXG Delivery by mail or landline toll call not required. If toll or other expense involved, cancel message and service originating station.

### THE ARRL ARL PRE-FORMATTED MESSAGES:

Numbered messages have been established for some of the more common texts sent during emergencies and holiday seasons. When this common text can be used, an ARL NUMBER is substituted for the text and sent. The delivering station reads the actual text to the address, not the ARL NUMBER.

The letters ARL are inserted in the preamble in the check and in the text before spelled out numbers, which represent texts from this list. Note that some ARL texts include and in the text before spelled out numbers, which represent texts from this list.

If you listen to NTS nets, you will soon discover that many messages that you hear are very common and identical. To cover this fact, the NTS uses sixty-nine different pre-formatted messages. The first 26 are emergency related messages. Numbers 46 through 69 are common greetings.

Using the ARL messages saves everyone time. The next time you want to send someone a "Merry Christmas" greeting, instead of putting "Wishing you a very Merry Christmas and a Happy New Year" in the text area of a Radiogram, you would simply put "ARL Sixty One". The person who eventually takes the message for delivery to the message recipient has to dig out his little chart of ARL numbered messages and call that person then read the words of the message to them over the telephone. Simple Multiples of the ARL messages can be strung together in sequence on a single Radiogram to form a pretty impressive message that would be much longer than the recognized maximum of 25 words.

OK, that's it. But now how do you put it on the Radiogram. What do you say?

First, when you are using ARL messages you always put "ARL" in the "Check" Box of the Preamble. No numbers. Just "ARL".

A list of the standard ARL messages can be found on the ARRL web site.

LETS GO BACK TO THOSE PRECEDENCES NOW FOR A FURTHER EXPLANATION OF USES:

Let's go back to the Radiogram form. This time let's look at the "Precedence" box in the Preamble. Earlier I mentioned that over 90% of NTS messages passed carry a "Routine" precedence. This is true but there are some other designations that can go in this box.

Welfare Messages: These messages are either an inquiry as to the health and welfare of an individual in a disaster area or an advisory from the disaster area that indicates the condition of an individual, family, or group. From a Disaster scene, Outgoing welfare messages usually are handled first, with Incoming welfare inquiries being handled second. Welfare traffic is handled only after emergency and priority traffic is cleared.

If you are dealing with Welfare messages, you may be using another form of the Radiogram, titled "Amateur Radio Disaster Welfare Message". This form is even simpler than the Radiogram. For the parts that are the same as on the Radiogram, it is filled out following exactly the same procedures as the Radiogram. There is one very important exception. The originating station must be working from a form that has actually been signed by the person who is requesting that the message be sent! The originating station is usually asked to turn these signed message forms in to someone of authority on a disaster scene.

Emergency Messages: An Emergency Message is any message having life and death urgency to any person or group of persons, which is transmitted by Amateur Radio in the absence of regular commercial facilities.

Emergency messages have top priority and must be handled before any other message is processed. These messages can include official messages of welfare agencies during emergencies requesting supplies, materials, or instructions vital to relief to stricken populace in emergency areas. During normal times, it will be very rare to hear one of these messages, as they are usually used in areas very close to the disaster scene, and on local nets.

Priority Messages: This is a second level priority used for important messages having a specific time limit, official messages that are not covered in the emergency category, dispatches and emergency-related traffic not of the utmost urgency. This is where the "Time Filed" box on

the Radiogram form becomes important to use.

Routine: Most common traffic during normal times. In disaster situations, this traffic should be handled last, or not at all when circuits are busy with higher-precedence traffic.