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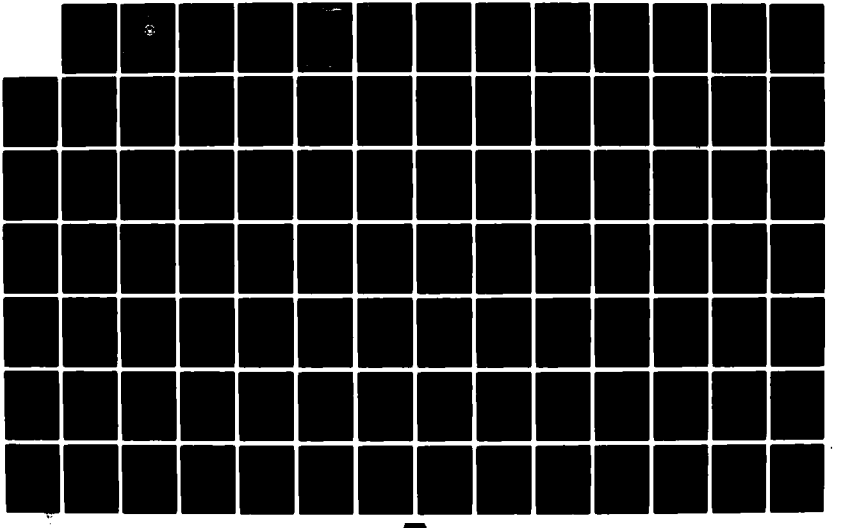

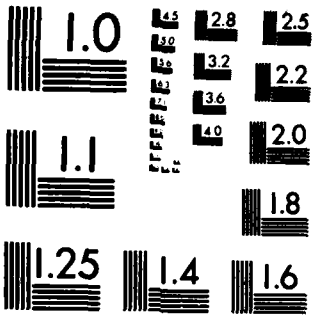

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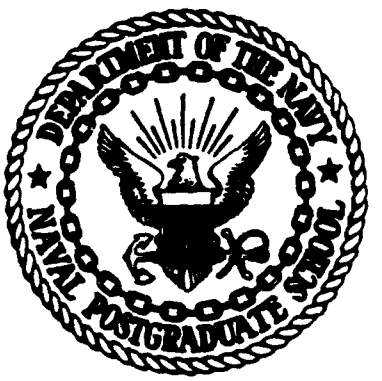

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VOICE RECOGNITION VOCABULARY LISTS FOR THE ARMY'S TACFIRE SYSTEM

by

G. K. Poock

E. F. Roland

January 1983

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Prepared for:
9th Infantry Division
Fort Lewis, WA 98433

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This report was prepared by:

G. K. Poock, Professor
Department of Operations Research

E. F. Roland
Rolands and Associates

Reviewed by:

K. T. Marshall, Chairman
Department of Operations Research

Released by:

William M. Tolles
Dean of Research

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Within the last year, the Naval Postgraduate School has been investigating the feasibility of using voice recognition technology as a possible input methodology to the Army's tactical fire direction system, TACFIRE. A major reason behind considering voice data entry was the desire to increase the speed and accuracy in which data could be entered into the system. In order to evaluate the effectiveness of voice data entry to TACFIRE, the speed and accuracy advantages of voice recognition technology had to be weighed agains numerous performance characteristics of available state of the art.

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recognition equipment. One such performance factor was vocabulary size limitation. This report analyzes the vocabulary requirements needed to operate the Artillery Control Console from a Division artillery display group shelter. It also presents the suggested vocabulary organization within the constraints of a specific recognizer which tested to be best suited for the TACFIRE environment.

ABSTRACT

Within the last year, the Naval Postgraduate School has been investigating the feasibility of using voice recognition technology as a possible input methodology to the Army's tactical fire direction system, TACFIRE. A major reason behind considering voice data entry was the desire to increase the speed and accuracy in which data could be entered into the system. In order to evaluate the effectiveness of voice data entry to TACFIRE, the speed and accuracy advantages of voice recognition technology had to be weighed against numerous performance characteristics of available state of the art recognition equipment. One such performance factor was vocabulary size limitation. This report analyzes the vocabulary requirements needed to operate the Artillery Control Console from a Division artillery display group shelter. It also presents the suggested vocabulary organization within the constraints of a specific recognizer which tested to be best suited for the TACFIRE environment.

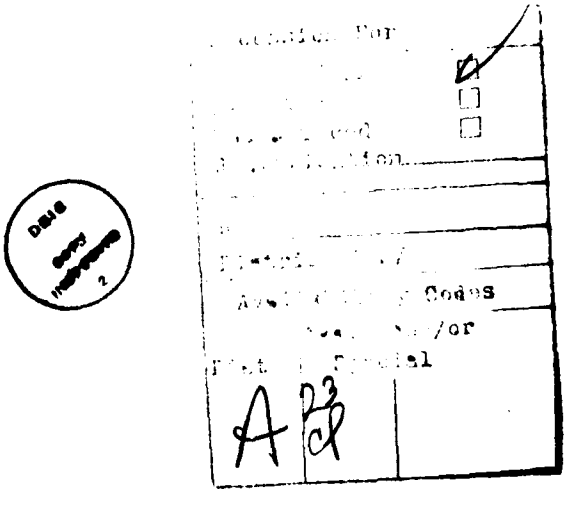


TABLE OF CONTENTS

		Page
I.	Introduction	1
II.	Voice Recognition Technology	4
III.	Design Considerations	10
IV.	TACFIRE Vocabulary	20
V.	Vocabulary Test	117
VI.	Conclusions	119
	Appendix A	120

VOICE RECOGNITION VOCABULARY FOR THE ARMY'S TACFIRE SYSTEM

I. Introduction

Over the last several years the Army has developed a computerized tactical fire direction system, TACFIRE. TACFIRE is a battlefield computer network which along with other field artillery (FA) equipment provides a manuever commander with a system capable of detecting targets, allocating firepower, and providing fire support within seconds. The computer and communication network provides a means to receive targeting information, calculate necessary firepower, compute ballistic firing data and send firing orders to FA weapons. In a way it can be considered a very large, real time, management information system which can quickly and efficiently make allocation decisions according to a set of preplanned criteria established by a manuever commander. In order to maintain its real time capability the system must be constantly updated and provided the current assessment of friendly and enemy combat units. This data must be input to the computer system. Therefore, the effectiveness of TACFIRE is directly proportional to the accuracy and currency of the information held by the TACFIRE database.

Presently the majority of the information held by TACFIRE is input through 90 highly formatted message templates. An operator calls up a template display, and proceeds to fill in the necessary information. The message is then sent to the TACFIRE computer for analysis. If the format is filled out properly the data is automatically entered and the

database updated. If the message is improperly filled out an error message is returned to the entry device.

During the summer of 1981 officers from the Army's High Technology Testbed Project at Fort Lewis, Washington observed a demonstration of voice data entry in which an individual could run a computer system by voice commands instead of the more typical keyboard entry. During the spring of 1982 the Naval Postgraduate School under an Army research contract started to formally investigate the possibilities of using presently available voice recognition technology equipment in conjunction with TACFIRE.

The research concentrated on the numerous questions about the capability of the presently available equipment. One of the major questions was the vocabulary size limitations encountered with available recognition units. This report will discuss the TACFIRE vocabulary requirements and analyze the capability of currently available equipment to fulfill those requirements.

This research report will first present a brief description of voice recognition technology and the type of equipment which is readily available, accurate and reliable. It will then discuss the various aspects of vocabulary design which were considered when developing the vocabulary and vocabulary organization. This will be done by presenting a variety of vocabulary possibilities for one specific order, the Update Fire Unit order. Thirdly, the report will describe in detail the vocabularies for the majority of the TACFIRE orders, and the method in which they should be organized. Next a description is given along with the results of a series of tests which were conducted on the vocabulary. Finally, the paper will close with a summary analysis of the developed vocabulary and its usefulness in

running TACFIRE by voice commands.

II. Voice Recognition Technology

There are numerous types and manufacturers of voice recognition equipment available in today's market. Before the vocabulary could be developed a requirements analysis for the TACFIRE system was performed to determine what equipment characterisitics were most important for TACFIRE, and which available recognizer fulfilled the majority of the needs for this application. To better understand the differences a few definitions will first be discussed

Template matching versus pattern analysis

There are two major methods available to accomplish voice recognition. The first is referred to as template matching. In this method of recognition, the recognition microcomputer holds on to a series of templates of voice patterns. When user presents an utterance to the recognizer the utterance is compared to all of the templates which are held in computer memory. If there is a template which matches close enough, an associated ASCII character string is sent to the computer system which is connected to the recognizer.

The other method, which is not as well developed at this point in time, is called pattern analysis. The voice pattern of a spoken phrase is analyzed and compared to known wave form characteristics for the various phonetic sounds. From this analysis the word or phrase is deciphered and spelling rules applied to result in the phrase which was spoken.

The template method of voice recognition always results in a system which has a limited vocabulary. The recognizer runs on a microcomputer and there is a limited number of utterance templates which can be held in memory at a given

time. Naturally, memory could be expanded, but the larger the number of templates which must be checked the longer the computation time will be to find the best template match. There are systems available which have internal template storage for 1000 templates, but these have typically been extremely expensive. The majority of the template matching recognizers available are in the 100 to 300 template range, and have a means to interact with developed software to download new sets of templates as needed.

Pattern analysis systems do not have the vocabulary limitation. They simply analyze the wave form of the spoken utterance and if they are good will produce the word or words which were spoken. These recognizers are still in the experimental stage, but even if available would not suit the TACFIRE requirements. Pattern analysis systems output to the attached computer system exactly what was said. In the TACFIRE application this is not what is desired. Voice input will be used in such a way that a spoken utterance will initiate a series of computer commands. For example, one possible utterance will be "transmit message". A pattern analysis system if working properly will output "transmit message", but a template matching system if working properly will match "transmit message" with the "transmit message" template in memory and output the single ASCII character needed by TACFIRE to send the message.

Therefore, the first characteristic of the voice recognizer for TACFIRE is that it be of the readily available template matching type. This then leads straight to the problem of vocabulary limitations and ultimately the voabulary design discussed in this research report.

Discrete utterance versus continuous speech recognizers

One characteristic of the template matching recognizers is the need for the recognition system to distinguish when a complete utterance has been spoken. A discrete utterance recognizer requires that the speaker pause for a short period of time between utterances. This is the indication to the recognition unit that the utterance has been completed and the internally held template can be searched for. A continous speech recognizer does not require a short pause between utterances. This type of recognizer does some rudimentary pattern analysis and determines where the end of an utterance is possible. It then searches through the available templates. If it does not find a template it will reanalyze the demarkation point it chose and look for another point in the voice pattern where the utterance could have ended.

Discrete utterance recognizers have been readily available for the last five years and have proven to be extremely accurate and reliable. On the other hand, the continuous recognition capability has just been made available within the last year and a half. It is extremely useful when inputting a long series of digits as would be necessary when entering target or unit coordinates in TACFIRE. The problem with continuous recognizers is that they are still a relatively new technology. They are improving at a tremendous rate, but at the time of this research study the follcwing problems were noted with the continuous recognizers.

First, the continuous recognizer usually had a limited vocabulary around 100 words which was on the border line of acceptability for some of the more complicated TACFIRE messages. Secondly, these recognizers worked best when the templates which were held were short 1, 2 or 3 syllable utterances. If the templates were long phrases the

recognizer had numerous possible break points to check while looking for the best combination of possible utterances. This increased the processing time, and there was a definite lag between the time an utterance was spoken and the output associated with the series of utterances was sent to the computer system.

For these reasons, only discrete utterance systems were considered for the TACFIRE application. Because of this decision there was no need to consider the effect of what the authors call subset utterances when developing the vocabulary. For example there are several vocabularies which have an utterance "one fifty five millimeter" and the utterance "one". With a continuous recognizer it appears as if it is very possible for the recognizer to pick a break point after the "one" in "one fifty five millimeter" thereby causeing the output of a numeral "1" when it was not wanted. With the discrete utterance system this could not happen; therefore, it did not have to be considered when developing the vocabulary.

User dependent versus user independent systems

This characterisitc of the system has no impact on vocabulary design, but is included for completeness because it does effect the time required to prepare the system for use by an individual. A user dependent system requires that each person who will use the voice recognition system must train the recognizer. Train the recognizer means that each utterance must be spoken by the individuals who plan to use the system in order that the system can create and store the necessary utterance templates. This training period can be time consuming especially when the vocabulary is extremely large. Once done though it will never have to be done again. Every person who would use the system would have

their voice templates stored for quick recall. A user independent system does not require that users train the system to recognize their voices. As with continous speech recognizers, great advancements in user independent systems are being made. There are user independent systems available which recognize the ten digits and various other phrases such as "yes" and "no", but these systems are not advanced enough to recognize the large and diverse vocabulary necessary for TACFIRE. Therefore, the systems considered for TACFIRE were of the user dependent variety. As a side note, numerous studies were conducted under the auspices of this research project to investigate group independence capability of the user dependent systems. These reports will also be available in the near future from the Naval Postgraduate School.

Set Definition

The majority of available recognizers have a capability to use what are called vocabulary sets to increase the speed and accuracy with which utterance template matching can be accomplished. A vocabulary set is an utteracne subset of the total vocabulary stored in the recognizer's memory. When initiated it tells the recognizer to only search through this subset of utterance templates for the proper match. Subsets are initiated either by system software control or by the computer system (in this case TACFIRE) sending an appropriate character string to the recognizer to change vocabulary sets. It is not a trivial task to get any highly specialized computer system such as TACFIRE to do this.

For this reason it was initially determined that sets would not be used within the TACFIRE vocabulary development. Therefore, this capability is not built in to the vocabulary

design. It should be noted that it became apparent as the research team was developing and using an actual recognition system with TACFIRE that it was inappropriate to try and retrofit a voice recognition unit to TACFIRE. If voice input technology is determined beneficial, a recognizer should be developed and internally integrated into the TACFIRE system. If this is the case the associated development plan should consider using the set capability. This aspect of the vocabulary design will be discussed with an example later in this research report.

In summary, the vocabulary which was developed and organized assumed that a user dependent, discrete utterance, template matching system would be used in conjunction with TACFIRE. The only characteristic of the recognition system, which if changed, could possibly affect the vocabulary design is the discrete utterance capability.

III. Design Considerations

Two individual discrete utterance, user dependent voice recognition systems were considered for the demonstration implementation of voice recognition technology to TACFIRE. The first recognizer was the Threshold Technology Inc. model T600. The second possible recognizer was a board level recognizer which was incorporated into a Heath-Zenith, Z89 based microcomputer. The recognizer was manufactured by Interstate Corporation, and was called the VRT101.

The T600 had a 256 utterance capacity, but required that vocabularies be stored on an external data tape cartridge. Threshold also has a model T500 which allows voice pattern templates and the vocabulary to be stored on the host computer. Since it was impossible to change in any way the TACFIRE system the T600 was the only Threshold model which could be considered.

The Interstate VRT101 has a 100 word capacity, but allowed the vocabulary and pattern templates to be stored on either a hard disk or floppy disk which could be automatically downloaded through software resident on the microcomputer. The software would have to be especially developed for the TACFIRE system, but would not have to be resident on the TACFIRE computer.

It was realized from the beginning that there were numerous TACFIRE message templates, and therefore more vocabulary words than either recognizer could hold in memory at once. The 256 word capacity of the Threshold was more than sufficient for any one message template, but the 100 word capacity of the Interstate was insufficient for some of the longer more complicated messages. Furthermore, the T600

appeared to have a better recognition capability during some pilot runs on test vocabularies. On the other hand, the VRT101 did have a much nicer capability to automatically down load vocabularies instead of manually loading a tape as needed with the T600 available for the demonstration. The VRT101 also had the capability to output up to 80 ASCII characters when a voice template was matched. The Threshold only had a 16 character output capability.

Since each system had advantages and disadvantages, a decision had to be made with respect to the quality which was of most importance to the demonstration. It was felt that recognition accuracy was most important and the T600 was chosen. Therefore, the vocabulary was initially designed with the T600 constraints of a 256 word capacity and a 16 character maximum output string.

The vocabulary was redesigned numerous times in an attempt to take advantage of as many of the characteristics of voice input technology as possible. The following vocabulary was designed for one of the more important TACFIRE messages, the Update Fire Unit message. First, the entire message vocabulary will be specified. Immediately following the vocabulary list are the major advantages and considerations taken in the design of the vocabulary. Thirdly, the implementation problems encountered will be discussed. Because of the implementation problems, some of the original assumptions of the recognizer characteristics had to be changed.

The following vocabulary list will give the word number, the phrase which should be spoken and the output that will result if a correct match is made with the pattern template held by the recognition unit. The following convention will be used when describing the output stream.

1. The lower case letter "d" will stand for down cursor. This results in the cursor moving down one line on the TACFIRE screen but does not change the column position.
2. The lower case letter "c" will stand for cursor reset. This results in the cursor being repositioned to the top left hand corner of the TACFIRE message template.
3. The lower case letter "t" will stand for tab. This results in the cursor automatically moving to the column immediately following the next encountered ":" in the message template.
4. The lower case "n" will stand for a null character. A null character has no affect on TACFIRE and it will do nothing on the TACFIRE screen.
5. The lower case letter "r" will represent right cursor. This will move the cursor one space to the right on the TACFIRE screen.
6. The lower case letter "l" will represent left cursor.
7. All upper case letters in the output string will appear on the TACFIRE screen just as if they were entered through the keyboard. TACFIRE in fact only accepts upper case ASCII characters.
8. An underline character ("_") represents a blank space and is equivalent to depressing the space bar on the TACFIRE keyboard. This result in erasing what is presently located at that position on the message template.

Update Fire Unit

Word number	Phrase Spoken	Output string
0	Zero	0

1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	plan Name	cdt
11	Fire Unit	cdtt
12	1 0 5 millimeter	cdttt105MMt
13	Mike 1 0 1	M101c
14	Mike 1 0 1 Alpha 1	M101A1c
15	Mike 1 0 2	M102c
16	Mike 1 0 8	M108c
17	1 5 5 millimeter	cdttt155MMt
18	Mike 1 0 9	M109c
19	Mike 1 0 9 Alpha 1	M109A1c
20	Mike 1 1 4 Alpha 1	M114A1c
21	Mike 1 1 4 Alpha 2	M114A2c
22	1 7 5 millimeter	cdttt175MMt
23	Mike 1 0 7	M107c
24	Mike 1 0 7 Echo 1	M107E1c
25	Eight Inch	cdttt8INt
26	Mike 1 1 0	M110c
27	Mike 1 1 0 Alpha 1	M110A1c
28	Mike 1 1 0 Alpha 2	M112A2c
29	Honest John	cdtttHJtM386c
30	Lance	cdttt LANCEt
31	Xray Mike 7 4 0	XM740c
32	Xray Mike 7 5 2	XM752c
33	Hercules	cdtttHERCtHERCc
34	M 9 1	cdtttM91tM91c
35	3 inch 50	cdttt3IN50t3IN50
36	5 inch 38	cdttt5IN38t5IN38
37	5 inch 54	cdttt5IN54t5IN54
38	6 inch 47	cdttt6IN47t6IN47
39	8 inch 55	cdttt8IN55t8IN55
40	Foxtrot 4 Delta	cdtttF4DtF4Dc
41	Foxtrot 4 Echo	cdtttF4EtF4Ec
42	Foxtrot 100	cdttt F100tF100c
43	Foxtrot 1 11	cdtttF111tF111c
44	Foxtrot 1 0 5	cdttt F105tF105c
45	Alpha 7 Charlie	cdtttA7CtA7Cc
46	Alpha 7 Echo	cdtttA7EtA7Ec
47	Alpha 4 Echo	cdtttA4EtA4Ec
48	Alpha 4 Foxtrot	cdtttA4FtA4Fc
49	Alpha 4 Mike	cdtttA4MtA4Mc
50	Alpha 6 Alpha	cdtttA6AtA6Ac
51	Alpha 6 Echo	cdtttA6EtA6Ec
52	Alpha 10	cdtttA10tA10c
53	Foxtrot 4 Charlie	cdtttF4CtF4Cc
54	Alpha 7 Delta	cdtttA7DtA7Dc
55	Foxtrot 4 Bravo	cdtttF4BtF4Bc
56	Foxtrot 4 Juliet	cdtttF4JtF4Jc
57	General Support	cdttttttGSc
58	Direct Support	cdttttttDSc
59	General Support Reinforcing	cdtttttGSRc
60	Reinforcing	cdttttttRc
61	Coordinate East	cddt
62	Coordinate North	cddtrrrrrrr
63	Altitude	cddtt11111111
64	Grid Zone	cddtt
65	Northern	+
66	Southern	-
67	Spheroid	cddttt

68	Ammunition	cddttttl
69	High Explosive	rHE
70	Chemical	rCH
71	Nuclear	rNU
72	All weapon types	rALc
73	All plans	cd+ALLc
74	32 hundred mil sight	cddttttt1c
75	64 hundred mil sight	cddttttt2c
76	Bearing Sight	cddttttt3c
77	Zone of Responsibility	cdd+ttttt
78	Weapon strength	cdddt
79	Azimuth	cddddtt
80	Response Time	cddddttt
81	Cannon	cddddttttCc
82	Missile Rocket	cddddttttMc
83	Air	cddddttttAc
84	Navy	cddddttttNc
85	Reinforced Unit	cddddttttt
86	Force supported	cddddttttt+t
87	Delete request	cddddtXc
88	Fire Unit Reaction Time	cddddtt
89	Radiation	cddddttt
90	Unit Ready	cddddttttXc
91	Out until	cddddttttt
92	Basic load	cddddtttttt
93	Minimum Range	cddddttttttt
94	Date Time Group	cddddddt
95	Cursor reset	c
96	Right	r
97	Left	l
98	Erase Plan	cdt_____c
99	Erase unit	_/__/__7___c
100	Erase weapon	cdttt_____c
101	Erase model	cdttttt_____c
102	Erase mission	cdttttt___c
103	Erase ammunition	cddttttt__7__c
104	Erase sight	cddttttt_c
105	Erase zone	cddttttttt_____c
106	Do Not Delete	cddddt_c
107	Unit Not ready	cddddttttt_c
108	Pershing	cdtttPERSHtXM790c

The remaining words should be filled with specific names of fire units, forces which could be supported and units being reinforced. From discussions with some Army officers this could be as many as 90 different unit names. Each unit name would output the entire 12 alpha numeric designator with all appropriate spacing, and "/" marks which TACFIRE expects. The remaining words should also include the Plan names and Zone of Responsibility names.

Before explaining the implementation problems encountered with the above vocabulary, it is appropriate to explain some of the reasoning behind developing the output as indicated in the above list. Appendix A has a copy of the Update Fire

Unit message template and can be referred to in the follcwing discussion.

First, all words started out with a cursor reset and ended with a cursor reset if appropriate. This was done to minimize any possible errors due to misrecognitions. Keywords and necessary punctuation in TACFIRE message templates can easily be written over. In fact this is one of the major difficulties encountered by TACFIRE operators. If the template format is altered in any way the operator must either recreate the correct format from memory or by referring to an appropriate reference manual. The cursor reset therefore insures that if a misrecognition does occur the misrecognized word will likely be put in its correct template location thus not inadvertantly erasing another portion of the template. The erase commands provided could then be used to correct the error.

The first ten words are the digits and do not have the cursor reset. They will be used to input coordinates, OUT UNTIL times, minimum range values and the date time group values. A cursor reset word is also given so the operator can reset the cursor after these numeric fields have been entered, but is not always necessary because of the cursor resets done at the beginning of the majority of the other vocabulary words.

There are several words such as "Plan name" which do not end with a cursor reset. These phrases result in the cursor being positioned within the message template and serve as a prompt to the operator that further input is needed. A good example of this is the input of weapon and model types. For example, there are numerous possible model types for the 105 MM gun. When the operator says "1 0 5 millimeter", the cursor is reset, then positioned after the WPN heading on

the template, and next the field filled in with "105MM". The cursor is then moved to the position needed to fill in the model type. This will then serve as the prompt to the operator that a model type is needed. As an alternate example, the Honest John weapon does not need a special model type. Therefore, when the operator says "Honest John", the cursor is reset, positioned to the appropriate field and "HJ" output. The output string also contains the ASCII characters needed to move the cursor to the model field, fill in the model type "HJ", and then reset the cursor ready for the next input.

Because of the 16 character output limitation words 35 thrcugh 39 had to have the final cursor reset character dropped. The cursor reset was chosen to occur at the beginning of the output string to make sure that if any of those words were chosen as a result of a misrecognition they would not erase an inappropriate portion of the template. The cursor remaining at the end of the model field should serve as a prompt to the operator to reset the cursor through the voice command, Word 95.

The coordinate field of the update fire unit message expects as an input the east coordinate, north coordinate and altitude. Word 62 and 63 are unique in that they were formulated so the operator did not need to input the northern coordinates or altitude at the same time the east coordinate is input. All three values can be input in any order desired. If the operaor so chooses the altitude can be placed in first by saying "Altitude". This will position the cursor after the second "/" mark in the coordinate field ready for the numeric entry of altitude. The same is true for both the easting and northing coordinates.

The ammunition field allows for a series of one or two

legal entries. To allow for any serial combination of the legal entries the following scheme was devised. The operator will say "ammunition", this will place the cursor one column to the left of where the first ammunition type is to be input. Then the ammunition types can be entered. For example, the phrase "High Explosive" will result in the cursor moving one space to the right and outputting the "HE" required by TACFIRE. The cursor is then positioned on the "/" mark in the ammunition field. Again this is a prompt to the operator that an additional ammunition type can be input if desired. If another ammunition type is desired it can be entered. This phrase will also move the cursor one position right, in order that the "/" mark is not erased and enter the next ammunition type. This scheme therefore allows the ammunition types to be placed in any desired order in the ammunition field. It is again suggested that the operator give the "cursor reset" command when finished entering data in this field.

Another advantage associated with the voice entry methodology given in the above vocabulary is exemplified in words 74 through 76. These words are used to fill the sight type field. This field is numerically coded. For example, a numeral 1 means 3200 sight; therefore, when the operator says "32 Hundred Sight", the cursor is positioned in the appropriate place, the numeral 1 is output, and the cursor is reset awaiting the next input. This method eliminates any need for the operators to memorize any numerical coding schemes inherent to TACFIRE.

A similar advantage is seen in the "Delete Request" and "Unit Ready" words, number 87 and 90 respectively. These two fields are boolean on/off switches. By placing an "X" in the field the appropriate switch is set to represent the desire to delete a request or set a unit to ready. The

output from these two utterances will be to position the cursor appropriately, place the X in the field, and as always, when possible, reset the cursor awaiting the next input.

Finally, there are a series of words used to erase entire fields in case an error was made or the operator changed his mind. The erase unit command is intended to be used for the three unit identifying fields associated with the Update Fire Unit message. The erase weapon command could not erase both the weapon and model field at once because of the 16 character output limitation so two separate commands were formed.

Implementation Problems

When the above vocabulary was implemented using the Threshold T600 one major problem was encountered. TACFIRE expects a 250 millisecond delay after the down cursor command and reset cursor command. The Threshold unit does not allow for such a delay. Because of this situation the 2 or 3 characters immediately following either the down cursor or rest cursor commands were never received by TACFIRE because TACFIRE was not prepared to receive them. The only way available to insure that characters were not lost was to place 3 null characters after each down cursor and cursor reset command. For example Word 10, "Plan Name", would require an output string "cnnndnnnt". This is irritating but for this specific word there is no degradation in the vocabulary capability. Unfortunately, that is not true for the majority of the rest of the words. The 16 character output limitation had already caused some inconvenience and with the additional need to add 3 null character after each down cursor the problem would expand greatly. Of the 108 word list given above 63 words would have to change because

they would no longer fit within the 16 character limitation. The changes necessary would require that additional words be created and this was deemed inefficient and contradictory to the reasons for considering the implementation of voice control to TACFIRE.

Threshold Inc. was contacted and the researchers were told that there was nothing prohibiting the expansion of the output character stream. It was a manufacturing change which could easily be accomodated if the need ever arose. For this reason the 16 character limit associated with the output string was ignored throughout the remaining vocabulary development. The impact of this decision will be discussed during the final analysis of the vocabulary.

IV. TACFIRE Vocabulary

The following vocabulary was developed for use with the TACFIRE system. The Department of the Army Operator's Manuals for the Division Fire Direction Center, dated March 1980, (TM 11-7440-241-10-5 through TM 11-7440-241-10-9) were used as references in the vocabulary development.

The vocabulary which should be loaded as soon as TACFIRE is brought on line is the vocabulary needed to access the major TACFIRE functions. Each word in this vocabulary will bring up the message directory for the specific function and at the same time bring in a new vocabulary list necessary for the operation of the function directory.

Function vocabulary

The output string necessary to bring up the specific function directories was not documented. The output string needed for this small vocabulary list will need to be determined if ever implemented into TACFIRE.

Word number	Phrase Spoken
0	Support Directory
1	Ammunition and Fire Unit Directory
2	Meteorological Directory
3	Tactical Fire Control Directory
4	Non-nuclear Fire Planning Directory
5	Artillery Target Intelligence Directory
6	Survey Directory

Each of these phrases would then output the necessary command to call the appropriate directory and place it on the TACFIRE screen. Each of these specific function directories has a list of the available message templates to support the function. The following vocabulary lists are the words necessary to display the individual message templates from each of the TACFIRE function directories. It

is assumed that each vocabulary would be automatically downloaded when the directory is placed on the TACFIRE display.

Support Directory

Word number	Phrase Spoken	Output string
0	Map mod	d
1	D P M orientation	dt
2	Alter geometry file	dtt
3	Zone of responsibility	dttt
4	Air corridor	dtttt
5	Weapon descriptor table	dttttt
6	Display position	dtttttt
7	User commands	dttttttt
8	Build a plan	dttttttttt
9	Damage avoidance area	dd
10	Not that one	c

Ammunition and Fire Unit Directory

Word number	Phrase Spoken	Output string
0	Fire unit update	d
1	Launch site update	dt
2	Ammunition update	dtt
3	Ammunition level	dttt
4	Available supply rate	dtttt
5	Nonnuclear mission report	dttttt
6	Nuclear mission report	dtttttt
7	Build a plan	dttttttt
8	User commands	dtttttttt
9	Situation report	dd
10	Not that one	c

There is an important point to notice about the first two directory vocabularies. Each vocabulary has the phrases "Build a plan" and "User commands", but the output is different for both of them. To call up a specific message from a directory the cursor is placed under the first letter of the message type. In the Support Directory the "Build a plan" message type is listed in the eighth position. That is why the output string tabs over eight times. On the other hand, "Build a plan" is seventh on the Ammunition and Fire Unit list, thus the output string has seven tabs

output. This is why each directory needed a separate vocabulary because the same phrases could not be used by two different directories. Ironically, "User commands" requires 7 tabs in the Support function directory and eight tabs in the Ammunition and Fire Unit Directory. If voice is ever implemented into TACFIRE a redesign of the directory and message templates could allow for a simpler vocabulary design.

Meteorological Directory

Word number	Phrase Spoken	Output string
0	Send met data	d
1	Fallout prediction	dt
2	Met forecast	dtt
3	User commands	dttt
4	Not that one	c

Tactical Fire Control Directory

Word number	Phrase Spoken	Output string
0	Request for additional fire	d
1	Capability analysis	dt
2	User commands	dtt
3	Modify commander's criteria	dttt
4	Fire unit selection criteria	dtttt
5	Fire unit exclusions	ttttt
6	Attack method	dttttt
7	Subsequent commands	dtttttt
8	Message to observor	dttttttt
9	Forward observor command	dd
10	Not that one	c

Non-Nuclear Fire Planning Directory

Word number	Phrase Spoken	Output string
0	Compute a fire plan	d
1	Scheduling instructions	dt
2	Reserve fire unit	dtt
3	Fire planning target update	dttt
4	Fire plan alteration	dtttt
5	User commands	ttttt
6	Modification criteria	dttttt
7	Fire unit selection criteria	dtttttt
8	Fire unit exclusions	dttttttt
9	Attack method	dd
10	Not that one	c

Artillery Target Intelligence Directory

Word number	Phrase Spoken	Output string
0	Coordinate report	d
1	Azimuth distance report	dt
2	Target report	dtt
3	Shelling report	dttt
4	Nonnuclear mission report	dtttt
5	Surveillance report	dttttt
6	Combat information report	dttttttt
7	Query	dtttttttt
8	S R I	dttttttttt
9	Prepare a fire plan	dd
10	User commands	ddt
11	Search	ddtt
12	Trial solution	ddttt
13	Combine targets	ddtttt
14	Split target	ddttttt
15	Database modification	ddtttttt
16	Standard value criteria	ddttttttt
17	Fire mission criteria	ddtttttttt
18	Target buildup criteria	ddd
19	Data print criteria	iiidt
20	Not that one	c

Survey Directory

Word number	Phrase Spoken
0	Assembly
1	Access
2	Storage
3	Save
4	Retrieval
5	Survey data transmission
6	Print survey date
7	Delete survey data
8	Azmuith and distance
9	Geo to U T M
10	U T M to Geo
11	True tc grid
12	Zone tc zone coordinates
13	Survey criteria
14	Traverse data input
15	Traverse to common control
16	Traverse scheme adjustment
17	Combine traverse adjustment
18	Intersection data
19	Intersection with base points
20	Triangulation data
21	Trilateration data
22	Quadrilateral data
23	Two point resection data
24	Three point resection data
25	Azimuth by altitude
26	Azimuth by hour angle
27	Final astronomic azimuth
28	Not that one

The documentation did not include the Survey directory;

therefore, the specific output could not be determined. It would be similar to the output provided for all of the other directory vocabularies. It is assumed that the cursor must be placed under the first letter of the message template name. This can always be done with a series of down cursor and tab commands.

Next each of the message template vocabularies will be presented. There are 91 vocabularies and they will be organized within each major function. When a directory calls up a specific message template a special vocabulary for that template will have to be loaded into the voice recognition unit. Hopefully, the system would be integrated into TACFIRE so the loading of the vocabulary would be automatic.

Support Function - Map Mod

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Eastern edge	cdt
11	Western edge	cdtrrrrrrr
12	Northern edge	cdtt
13	Southern edge	cdttrrrrrrrr
14	Grid Zone	cdttt
15	Spheroid	cdttt+
16	Latitude northern edge	cddt
17	Latitude southern edge	cddtrrrrrrrrrrrr
18	Longitude eastern edge	cddtt
19	Longitude western edge	cddttrrrrrrrrrrrr
20	Degrees	r
21	Minutes	r
22	Seconds	r
23	Major axis	cddit
24	Minor axis	cdditt
25	Cursor reset	c
26	Erase eastern edge	cdt_____c
27	Erase western edge	cdtrrrrrr/_____c
28	Erase northern edge	cdtt_____c
29	Erase southern edge	cdttrrrrrrr/_____c

30	Erase grid zone	cdttt__c
31	Erase latitude north	cddt_/__/__/__._c
32	Erase latitude south	cddtrrrrrrrrrrrr/_/__/__/__._c
33	Erase longitude east	cddtt_/___/__/__.c
34	Erase longitude west	cddttrrrrrrrrrrrr/_/___/__/__._c
35	Erase major axis	cdddit_____.__c
36	Erase minor axis	cddittt_____.__c
37	Right	r
38	Left	l
39	Erase it	-

Support Function - DPM Orientation

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Delete request	cdtXc
11	Spheroid	cdtt
12	Do not delete	cddt_c
13	Right	r
14	Left	l
15	Reset cursor	c
16	Coordinate one	ddt
17	Coordinate 2	ddtt

The specific eastern, northern and grid zone sub-fields of the COORD1 and COCRD2 fields were not made accessable by voice commands in this vocabulary. This was possible, but the wording of the phrases for coordinate one east first iteration, and coordinate one east second iteration etc. became very cumbersome, and it was felt that voice control was not helping the input process at all in this circumstance. Therefore, the operator should just state which field is to be filled such as "coordinate one", and then either by keyboard or voice, enter all six sub-fields of COORD1 at once.

Support Function - Alter Geometry

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Plan Name	cdt
11	Name of specified geometry	cdtt
12	Date time group	cdttt
13	Day	r
14	Hour	:
15	Minute	c
16	Fire unit	cdtttt
17	Delete request	cdttttXc
18	Line of departure	cddtXc
19	FEBA	cddtXc
20	Coordinate fire line	cddttXc
21	Restrictive fire line	cddtttXc
22	Free fire area	cddttttXc
23	No fire area	cddttttXc
24	Restrictive fire area	cddtttttXc
25	Dead space area	cddttttttXc
26	Damage avoidance area	cddtttttttXc
27	Fire support coordination	cddttttttttXc
28	Chemical hazard area	cddtttttttttXc
29	Ammunition restriction	cddttttttttt1
30	High explosive	rHE
31	Chemical	rCH
32	Nuclear	rNU
33	All weapon types	rALc
34	Target type	cddtttttttttt
35	Air defense artillery	ADAc
36	Armor	ARMORc
37	Artillery	ARTYc
38	Assembly areas	ASSYc
39	Building	BLDGc
40	Bridge	BRIDGEc
41	Center	CENc
42	Equipment	EQUIPc
43	Mortars	MORTc
44	Personnel	PERSc
45	Rockets or Missiles	RKTMSLc
46	Special missions	SPECc
47	Supply dump	SUPPLYc
48	Terrain features	TERc
49	Vehicle	VEHc
50	Weapons	WPNc
51	Coordinating agency	cdddt
52	Limit factor type	cdddt1
53	Damage fixed bridge	rB
54	Friendly Aircraft	rD
55	Pines blown down	rE
56	Trees blown down	rF
57	Fires green	rG
58	Fires dry	rH
59	Radiation	rR
60	Circular area	cddddttt
61	Troop safety	cddddttttXc
62	Point coordinate one	cddddddt
63	Point coordinate two	cddddddt
64	Point coordinate three	cddddddt

65	Grid zone	cddddtt_
66	Spheroid	cddddddtt
67	Additional points	cddddddttXc
68	Erase plan name	cdt_____c
69	Erase specified geometry	cdtt_____c
70	Erase fire unit	cdttttt_/__/___c
71	Do not delete	cdttttt_c
72	Erase line of departure	cddt_c
73	Erase FEBA	cddt_c
74	Erase coordinate fire line	cddtt_c
75	Erase restrictive fire line	cddttt_c
76	Erase free fire area	cddtttt_c
77	Erase no fire area	cddttttt_c
78	Erase restrictive fire area	cddttttt_c
79	Erase dead space area	cddttttt_c
80	Erase damage avoidance area	cddttttttt_c
81	Erase fire support	cddttttttt_c
82	Erase chemical hazard area	cddttttttttt_c
83	Erase ammunition restriction	r_
84	Erase target type	cddttttttttttt_____c
85	Erase limit factor	r_
86	Erase troop safety	cddttttt_c
87	Erase additional points	cddddddtt_c
88	Erase	
88	Cursor reset	c

The remaining words would be used for plan names, names of specified geometries, fire unit names, and coordinating agencies. The subfields of the circular area field could have been individually accessible by voice commands, but they were not. This was done because it was very cumbersome to access the point coordinate subfields individually. The vocabulary developers felt that confusion would result if some subfields were accessible in a given message while others were not.

Another interesting aspect of the above vocabulary is that two and sometimes three phrases access the same template field. For example Words 18 and 19 both access the field "FRLT". This was done because that field takes on a different meaning whether geometry about a defensive or offensive position is being given. It was felt that the field was easier to remember given what it would stand for in any given situation, and not the generalized title associated with the field name.

Support Function - Zone of Responsibility

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Plan Name	cdt
11	Zone name	cdtt
12	Adjacent zone one	cdttt
13	Adjacent zone two	cdttt[illegible]
14	Date time group	cdtttt
15	Day	r
16	Minute	r
17	Hour	r
18	Point coordinate one	cddt
19	Point coordinate two	cdddt
20	Point coordinate three	cddddt
21	Point coordinate four	cdddddt
22	Delete request	cddttXc
23	Do not delete	cddtt_c
24	Grid zone	cddtt-
25	Spheroid	cdddtt
26	Additional points	cddddddtttXc
27	Erase additional points	cddddddttt_c
28	Overlap distance	cddddddtt
29	Boundry number one	cddddddt
30	Boundry name	r
31	Boundry number two	cddddddt[illegible]
32	Erase boundry name	r------
33	Cursor reset	c
34	Erase	-

The remaining words should consist of plan names, zone names and boundry names. Each name should end in a cursor reset for maximum efficiency and reliablity.

Support Function - Air Corridor

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6

7	Seven	7
8	Eight	8
9	Nine	9
10	Plan Name	cdt
11	Name	cdtt
12	Date time group	cdttt
13	Delete request	cdtttrXc
14	Do not delete request	cdtttr_c
15	Day	r
16	Minute	r
17	Hour	r
18	East start point	cddt
19	North	r
20	East end point	cdddt
21	Start grid zone	cddtt
22	End grid zone	cdddtt
23	Start spheroid	cddttt
24	End spheroid	cdddttt
25	Minimum altitude	cddddt
26	Maximum altitude	cdddddt
27	Corridor width	cddddttt
28	Cursor reset	c
29	Erase plan name	cdt_____c
30	Erase corridor name	cdtt_____c
31	Erase	-

Support Function = Weapon Descriptor Table Maintenance

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Traverse limits	cdttt
11	Maximum rate of fire	cddt
12	1 0 5 millimeter	cdt105MMrr
13	Mike 1 0 1	M101rrr
14	Mike 1 0 1 Alpha 1	M101A1r
15	Mike 1 0 2	M102rrr
16	Mike 1 0 8	M108rrr
17	1 5 5 millimeter	cdt155MMrr
18	Mike 1 0 9	M109rrr
19	Mike 1 0 9 Alpha 1	M109A1r
20	Mike 1 1 4 Alpha 1	M114A1r
21	Mike 1 1 4 Alpha 2	M114A2r
22	1 7 5 millimeter	cdt175MMrr
23	Mike 1 0 7	M107rrr
24	Mike 1 0 7 Echo 1	M107E1r
25	Eight Inch	cdt8INrrrr
26	Mike 1 1 0	M110rrr
27	Mike 1 1 0 Alpha 1	M110A1r
28	Mike 1 1 0 Alpha 2	M112A2r
29	Honest John	cdtHJrrrrrrM386rrr
30	Lance	cdtLANCErr
31	Xray Mike 7 4 0	XM740rr
32	Xray Mike 7 5 2	XM752rr
33	Hercules	cdtHERCrrrHERCrrr

34	M 9 1	cdtM91rrrrM91rrrr
35	3 inch 50	cdt3IN50rr3IN50rr
36	5 inch 38	cdt5IN38rr5IN38rr
37	5 inch 54	cdt5IN54rr5IN54rr
38	6 inch 47	cdt6IN47rr6IN47rr
39	8 inch 55	cdt8IN55rr8IN55rr
40	Foxtrot 4 Delta	cdtF4DrrrrF4Drrrr
41	Foxtrot 4 Echo	cdtF4ErrrrF4Errrr
42	Foxtrot 100	cdtF100rrrF100rrr
43	Foxtrot 1 11	cdtF111rrrF111rrr
44	Foxtrot 1 0 5	cdtF105rrrF105rrr
45	Alpha 7 Charlie	cdtA7CrrrrA7Crrrr
46	Alpha 7 Echo	cdtA7ErrrrA7Errrr
47	Alpha 4 Echo	cdtA4ErrrrA4Errrr
48	Alpha 4 Foxtrot	cdtA4FrrrrA4Frrrr
49	Alpha 4 Mike	cdtA4MrrrrA4Mrrrr
50	Alpha 6 Alpha	cdtA6ArrrrA6Arrrr
51	Alpha 6 Echo	cdtA6ErrrrA6Errrr
52	Alpha 10	cdtA10rrrrA10rrrr
53	Foxtrot 4 Charlie	cdtF4rrrCrF4Crrrr
54	Alpha 7 Delta	cdtA7DrrrrA7Drrrr
55	Foxtrot 4 Bravo	cdtF4BrrrrF4Brrrr
56	Foxtrot 4 Juliet	cdtF4JrrrrF4Jrrrr
57	Rocket	cdttllllllllllROCKETc
58	Cannon	cdttllllllllllCANNONc
59	Missile	cdttllllllllllMISSLEc
60	Air	cdttllllllllllAIRc
61	NAVY	cdttllllllllllNAVYc
62	Sustained rate of fire	cddtt
63	Erase weapon type	cdt_____/_____/_____c
64	High explosive indicator	cddtttttXc
65	Chemical indicator	cddttttttXc
66	Nuclear indicator	cddttttttXc
67	Erase high explosive	cddttttt_c
68	Ammunition	cdtl
69	High Explosive	rHE
70	Chemical	rCH
71	Nuclear	rNU
72	All weapon types	rALc
73	Erase chemical indicator	cddtttttt_c
74	Erase nuclear indicator	cddttttttt_c
75	Maximum range	cddt
76	Minimum range	cddtt
77	Radius of effects	cddttt
78	Nuclear ammunition mark	cdddtttt
79	Nuclear ammunition mod	r
80	Nuclear yield	r
81	Circular error	cddddt
82	Range error	cddddtrrrrtMc
83	Deflection error	cddddtrrrrrrrr
84	Height error	cddddtrrrrrrrrrrrr
85	Range of errors	cddddtt
86	Pershing	cdtPERSHrrXM790rr

It was not known whether a specific weapon and model always had the same weapon classification. If this is the situation then the weapon description can be changed to immediately output the proper classification for each of the weapon types and/or model voice command. For example, if an

A7C is always classified an "AIR" type weapon, the output string associated with the voice command "Alpha 7 Charlie" should be "cdtA7CrrrrA7CrrrrAIRc". This would increase efficiency and reduce the vocabulary. If a weapon or model type can in fact have more than one classification under different circumstances then the vocabulary as stated above is needed

Support Function = Display Friendly/Enemy Position

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	View indicator	cdtXc
11	Erase view indicator	cdt_c
12	Show indicator	cdttXc
13	Erase show indicator	cdtt_c
14	Enemy indicator	cdtttXc
15	Erase enemy indicator	cdttt_c
16	Coordinate east	cdtttt
17	Coordinate north	cdttttrrrrrrr
18	Grid zone	cdttttt
19	Sheroid	cdtttttt
20	Unit symbol	cddtUNITc
21	Outpost symbol	cddtOPc
22	Headquarters symbol	cddtHQc
23	Logistic symbol	cddtLOGc
24	Erase symbol	cddt____c
25	Branch	cdttI
26	Air Cavalry	rACAVrr
27	Air defense	rADEFrr
28	Armor	rARMORr
29	Artillery	rARTYrr
30	Army security agency	rASArrr
31	Aviation	rAVrrrr
32	Coast artillery	rCARTYr
33	Cavalry	rCAVrrr
34	C B R	rCBRrrr
35	Engineer	rENGrrr
36	Nike Hercules	rHERCrr
37	Infantry	rINFrrr
38	Medical	rMEDrrr
39	Military intelligence	rMIrrrr
40	Military police	rMPrrrr
41	Ordance	rORDrrr
42	Finance	rPAYrrr
43	Quartermaster	QRTrrr
44	Special forces	rSFrrrr

45	Signal	rSIGrrr
46	Topographic	rTOPOrr
47	Transportation	rTRANrr
48	Transportation aviation	rTRANAV
49	Transporation helicopter	rTRANHE
50	Transporation medium air	rTRANMA
51	Erase branch	cddtt_____/_____c
52	Display type	cddttt
53	Unknown	UNKr
54	Right	r
55	Mobile	MBLEc
56	Mortar	MRTRc
57	Self propelled	SPc
58	Towed	TOWc
59	Main	MAINc
60	Honest John	H-Jc
61	Artillery caliber	ARTc
62	Hercules	HERCc
63	Army	cddttttARMYc
64	Army group	cddttttARGRc
65	Brigade	cddttttBDEc
66	Battalion	cddttttBNc
67	Battery	cddttttBTRYc
68	Company	cddttttCOc
69	Corps	cddttttCORPSc
70	Division	cddttttDIVc
71	Group	cddttttGRc
72	platoon	cddttttPLTc
73	Regiment	cddttttREGc
74	Section	cddttttSECTc
75	Squad	cddttttSQc
76	Squadron	cddttttSQNc
77	Erase unit size	cddttttt_____c
78	Unit name	cdddt
79	Parent unit name	cdddtt
80	Erase unit name	cdddt____/____/____c
81	Erase parent unit	cdddtt____/____/____c

The remaining words should be made up of unit names and parent unit names.

Support Function - Build a Plan

Word number	Phrase Spoken	Output string
0	New plan name	cdtt
1	Specified geometry	cdttt
2	Erase new name	cdtt_____c
3	Erase geometry name	cdttt_____c
4	Zone of responsibility	cddtXc
5	Erase zone of responsibility	cddt_c
6	Line of departure	cddtXc
7	Erase line of departure	cddtt_c
8	FEBA	cddtXc
9	Erase FEBA	cddtt_c
10	Plan Name	cdt
11	Air space coordination	cddtttXc
12	Erase air space coordination	cddttt_c
13	Free fire area	cddttttXc

14	Erase fire area	cddtttt_c
15	No fire area	cddtttttXc
16	Restrictive fire area	cddtttttXc
17	Restrictive fire line	cddttttttXc
18	Erase restrictive fire line	cddttttt_c
19	Coordinated fire line	cddtttttttXc
20	Erase coordinated fire line	cddttttttt_c
21	Dead space area	cddtttttttttXc
22	Erase dead space area	cddttttttttt_c
23	Fire support coordination	cddtttttttttXc
24	Erase fire support	cddttttttttt_c
25	Chemical hazard area	cddtttttttttttXc
26	Erase chemical hazard area	cddttttttttttt_c
27	Damage avoidance area	cddtttttttttttXc
28	Erase damage avoidance area	cddttttttttttttt_c

This message allows the user to create new plan names. When this is done, a new word for that plan name must be placed in the vocabulary list along with the phrase template created through training. This will add the plan name only to the vocabulary list for this message. In other words, once trained the new plan name would only be known by this specific message vocabulary. Therefore, if ever implemented the voice system designed for TACFIRE should have the capability to place the new plan name, the associated voice pattern template, and the output string on all the vocabularies which will need the plan name.

Support Function - User Commands

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Plan Name	cdt
11	Specified geometry name	cdtt
12	Erase plan name	cdt_____cMt
13	Erase specified geometry	cdt_____c
14	Abort	cdtttXc
15	Erase abort	cdttt_c
16	Show nuc d	cdttttXc
17	Erase show nuc d	cdttttt_c

18	Edit request	cddtXc
19	Erase edit request	cddt_c
20	Print request	cddtTXc
21	Erase print request	cddtt_c
22	View request	cddttTXc
23	Erase view request	cddttt_c
24	Show request	cddttttXc
25	Erase show request	cddttttt_c
26	Delete request	cddtttttTXc
27	Do not delete	cddttttttt_c
28	Transmit request	cddttttttTXc
29	Do not transmit	cddtttttttt_c
30	Addressee	cddttttttTE
31	erase addressee	cddttttttt_/_/_/__/___c
32	Zone of responsibility	cdddtXc
33	Erase zone of responsibility	cdddt_c
34	Line of departure	cddddtTXc
35	Erase line of departure	cddddtt_c
36	FEBA	cddddttXc
37	Erase FEBA	cddddtt_c
38	Air space coordination	cddddttTXc
39	Erase air space coordination	cddddtt_c
40	Free fire area	cddddtttTXc
41	No fire area	cddddtttt_c
42	Restrictive fire area	cddddttttXc
43	Erase fire area	cddddttttt_c
44	Restrictive fire line	cddddtttttTXc
45	Erase restrictive fire line	cddddttttttt_c
46	Coordinated fire line	cddddtttttTXc
47	Erase coordinated fire line	cddddtttttt_c
48	Dead space area	cddddttttttTXc
49	Erase dead space area	cddddtttttttt_c
50	Fire support coordination	cddddtttttttTXc
51	Erase fire support	cddddttttttt_c
52	Chemical hazard area	cddddtttttttttTXc
53	Erase chemical hazard area	cddddttttttttt_c
54	Damage avoidance area	cddddtttttttttTXc
55	Erase damage avoidance area	cddddttttttttt_c
56	Map mod indicator	cddddtttttttttTXc
57	erase map mod indicator	cddddttttttttt_c
58	Check request	cddddtXc
59	Erase check request	cddddt_c
60	Weapon descriptor table	cddddtTXc
61	Erase weapon descriptor	cddddtt_c
62	1 0 5 millimeter	cddddttT05MMrr
63	Mike 1 0 1	M101rrr
64	Mike 1 0 1 Alpha 1	M101A1r
65	Mike 1 0 2	M102rrr
66	Mike 1 0 8	M108rrr
67	1 5 5 millimeter	cddddtt155MMrr
68	Mike 1 0 9	M109rrr
69	Mike 1 0 9 Alpha 1	M109A1r
70	Mike 1 1 4 Alpha 1	M114A1r
71	Mike 1 1 4 Alpha 2	M114A2r
72	1 7 5 millimeter	cddddtt175MMrr
73	Mike 1 0 7	M107rrr
74	Mike 1 0 7 Echo 1	M107E1r
75	Eight Inch	cddddtt8INrrrr
76	Mike 1 1 0	M110rrr
77	Mike 1 1 0 Alpha 1	M110A1r
78	Mike 1 1 0 Alpha 2	M112A2r
79	Honest John	cddddttHJrrrrrM386rrr
80	Lance	cddddttLANCErr
81	Xray Mike 7 4 0	XM740rr
82	Xray Mike 7 5 2	XM752rr
83	Hercules	cddddttHERCrrrHERCrrr
84	M 9 1	cddddttM91rrrrM91rrrr

85	3 inch 50	cddddtt3IN50rr3IN50rr
86	5 inch 38	cddddtt5IN38rr5IN38rr
87	5 inch 54	cddddtt5IN54rr5IN54rr
88	6 inch 47	cddddtt6IN47rr6IN47rr
89	8 inch 55	cddddtt8IN55rr8IN55rr
90	Foxtrot 4 Delta	cddddttF4DrrrrF4Drrrr
91	Foxtrot 4 Echo	cddddttF4ErrrrF4Errrrr
92	Foxtrot 100	cddddttF100rrrF100rrr
93	Foxtrot 1 11	cddddttF111rrrF111rrr
94	Foxtrot 1 0 5	cddddttF105rrrF105rrr
95	Alpha 7 Charlie	cddddttA7CrrrrA7Crrrr
96	Alpha 7 Echo	cddddttA7ErrrrA7Errrr
97	Alpha 4 Echo	cddddttA4ErrrrA4Errrr
98	Alpha 4 Foxtrot	cddddttA4FrrrrA4Frrrr
99	Alpha 4 Mike	cddddttA4MrrrrA4Mrrrr
100	Alpha 6 Alpha	cddddttA6ArrrrA6Arrrr
101	Alpha 6 Echo	cddddttA6ErrrrA6Errrr
102	Alpha 10	cddddttA10rrrrA10rrrr
103	Foxtrot 4 Charlie	cddddttF4rrrCrF4Crrrr
104	Alpha 7 Delta	cddddttA7DrrrrA7Drrrr
105	Foxtrot 4 Bravo	cddddttF4BrrrrF4Brrrr
106	Foxtrot 4 Juliet	cddddttF4JrrrrF4Jrrrr
107	Rocket	cddddtrrrr

This concludes the description of the vocabulary necessary for the Support function. The Ammunition and Fire Unit function will be described next. The first message template is the Update fire unit message type which was described earlier as the sample message template. The vocabulary is exactly the same except for the few changes which are now possible because of the unlimited character output assumption.

Ammunition and Fire Unit Function - Update Fire Unit

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Plan Name	cdt
11	Fire Unit	cdtt
12	1 0 5 millimeter	cdttt105MMt
13	Mike 1 0 1	M101c
14	Mike 1 0 1 Alpha 1	M101A1c
15	Mike 1 0 2	M102c
16	Mike 1 0 8	M108c
17	1 5 5 millimeter	cdttt155MMt
18	Mike 1 0 9	M109c
19	Mike 1 0 9 Alpha 1	M109A1c
20	Mike 1 1 4 Alpha 1	M114A1c
21	Mike 1 1 4 Alpha 2	M114A2c
22	1 7 5 millimeter	cdttt175MMt
23	Mike 1 0 7	M107c
24	Mike 1 0 7 Echo 1	M107E1c
25	Eight Inch	cdttt8INt
26	Mike 1 1 0	M110c
27	Mike 1 1 0 Alpha 1	M110A1c
28	Mike 1 1 0 Alpha 2	M112A2c
29	Honest John	cdtttHJtM386c
30	Lance	cdtttLANCEt
31	Xray Mike 7 4 0	XM740c
32	Xray Mike 7 5 2	XM752c
33	Hercules	cdtttHERCtHERCc
34	M 9 1	cdtttM91tM91c
35	3 inch 50	cdttt3IN50t3IN50c
36	5 inch 38	cdttt5IN38t5IN38c
37	5 inch 54	cdttt5IN54t5IN54c
38	6 inch 47	cdttt6IN47t6IN47c
39	8 inch 55	cdttt8IN55t8IN55c
40	Foxtrot 4 Delta	cdtttF4DtF4Dc

41	Foxtrot 4 Echo	cdtttF4EtF4Ec
42	Foxtrot 100	cdtttF100tF100c
43	Foxtrot 1 11	cdtttF111tF111c
44	Foxtrot 1 0 5	cdtttF105tF105c
45	Alpha 7 Charlie	cdtttA7CtA7Cc
46	Alpha 7 Echo	cdtttA7EtA7Ec
47	Alpha 4 Echo	cdtttA4EtA4Ec
48	Alpha 4 Foxtrot	cdtttA4FtA4Fc
49	Alpha 4 Mike	cdtttA4MtA4Mc
50	Alpha 6 Alpha	cdtttA6AtA6Ac
51	Alpha 6 Echo	cdtttA6EtA6Ec
52	Alpha 10	cdtttA10tA10c
53	Foxtrot 4 Charlie	cdtttF4CtF4Cc
54	Alpha 7 Delta	cdtttA7DtA7Dc
55	Foxtrot 4 Bravo	cdtttF4BtF4Bc
56	Foxtrot 4 Juliet	cdtttF4JtF4Jc
57	General Support	cdtttttGSc
58	Direct Support	cdtttttDSc
59	General Support Reinforcing	cdtttttGSRc
60	Reinforcing	cdtttttRc
61	Coordinate East	cddt
62	Coordinate North	cddtrrrrrrr
63	Altitude	cddttllllllll
64	Grid Zone	cddtt
65	Northern	+
66	Southern	-
67	Spheroid	cddttt
68	Ammunition	cddttttl
69	High Explosive	rHE
70	Chemical	rCH
71	Nuclear	rNU
72	All weapon types	rALc
73	All plans	cdtALLc
74	32 hundred mil sight	cddttttt1c
75	64 hundred mil sight	cddttttt2c
76	Bearing Sight	cddttttt3c
77	Zone of Responsibility	cddtttttt
78	Weapon strength	cdddt
79	Azimuth	cdddtt
80	Response Time	cdddttt
81	Cannon	cdddttttCc
82	Missile Rocket	cdddttttMc
83	Air	cdddttttAc
84	Navy	cdddttttNc
85	Reinforced Unit	cdddttttt
86	Force supported	cdddtttttt
87	Delete request	cddddtXc
88	Fire Unit Reaction Time	cddddtt
89	Radiation	cddddttt
90	Unit Ready	cddddttttXc
91	Out until	cddddttttt
92	Basic Load	cddddtttttt
93	Minimum Range	cddddttttttt
94	Date Time Group	cdddddt
95	Cursor reset	c
96	Right	r
97	Left	l
98	Erase Plan	cdt_____c
99	Erase unit	_/_/_/__/___c
100	Erase weapon	cdttt_____c
101	Erase model	cdtttt_____c
102	Erase mission	cdttttt___c
103	Erase ammunition	cddtttt__/__c
104	Erase sight	cddttttt_c
105	Erase zone	cddtttttt_____c
106	Do Not Delete	cddddt_c
107	Unit Not ready	cddddtttt_c

108 Pershing cdtttPERSHtXM790c

Ammunition and Fire Unit Function = Ammunition Update

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Plan Name	cdt
11	Fire Unit	cdtt
12	Erase plan name	cdt___c
13	Erase fire unit	cdtt__/__/___c
14	Ammunition received	cdtttXc
15	Erase ammunition received	cdttt_c
16	Ammunition expended	cdttttXc
17	Erase ammunition expended	cdtttt_c
18	Ammunition on hand	cdttttttXc
19	Erase ammunition on hand	cdttttt_c
20	Projectile	cddtl
21	Fuze	cdddtl
22	Mark	cddddtl
23	Date time group	cddddtt
24	Day	r
25	Hour	r
26	Minute	r
27	Right	r
28	Cursor reset	c

There is an entire table of valid shell types and fuze types which are legal entries in the "PROJ" and "FZES" field of the Ammunition Update message type. These can definitely be placed as words in the vocabulary list, but only the three letter mnemonics were given in the documentation. Therefore, it was not possible to develop a reasonable suggestion for the utterance without knowledge of what the mnemonic code stood for. If there are everyday standard references to the different shell and fuze types they should be added to the vocabulary list. For example, one fuze type is "HEA". It is possible to have the user say "H E A", but the recognition accuracy will be low since there is an "HEB" and an "HEC" etc. It is suggested that the utterance be

associated with the everyday reference to the mnemonic. The output string for the shells should be "rHEAr" to place the cursor in the proper position for the entry of the quantity subfield. The fuze output should be the same. For example, "PDA" should have an output of "rPDAr", and an appropriate spoken phrase to relate to the output string.

Ammunition and Fire Unit Function = Ammunition Level

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Plan Name	cdt
11	Fire Unit	cdtt
12	Erase plan name	cdt___c
13	Erase fire unit	cdtt__/__/__/___c
14	Shells	cdddtr
15	Fuzes	cdddtr
16	Cursor reset	c

The same comments apply to the shell and fuze names as was stated for the Ammunition Update message type.

Ammunition and Fire Unit Function = Available Supply Rate

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Plan Name	cdt
11	Fire Unit	cdtt
12	1 0 5 millimeter	cdttt105MMc
13	1 5 5 millimeter	cdttt155MMc

14	1 7 5 millimeter	cdttt175MMc
15	Eight Inch	cdttt8INc
16	Honest John	cdtttHJc
17	Lance	cdtttLANCEc
18	Pershing	cdtttPERSHc
19	Hercules	cdtttHERCc
20	M 9 1	cdttt M91c
21	3 inch 50	cdttt3IN50c
22	5 inch 38	cdttt5IN38c
23	5 inch 54	cdttt5IN54c
24	6 inch 47	cdttt6IN47c
25	8 inch 55	cdttt8IN55c
26	Foxtrot 4 Delta	cdtttF4Dc
27	Foxtrot 4 Echo	cdtttF4Ec
28	Foxtrot 100	cdtttF100c
29	Foxtrot 1 11	cdtttF111c
30	Foxtrot 1 0 5	cdtttF105c
31	Alpha 7 Charlie	cdtttA7Cc
32	Alpha 7 Echo	cdtttA7Ec
33	Alpha 4 Echo	cdtttA4Ec
34	Alpha 4 Foxtrot	cdtttA4Fc
35	Alpha 4 Mike	cdtttA4Mc
36	Alpha 6 Alpha	cdtttA6Ac
37	Alpha 6 Echo	cdtttA6Ec
38	Alpha 10	cdtttA10c
39	Foxtrot 4 Charlie	cdtttF4Cc
40	Alpha 7 Delta	cdtttA7Dc
41	Foxtrot 4 Bravo	cdtttF4Bc
42	Foxtrot 4 Juliet	cdtttF4Jc
43	Erase plan name	cdt_____c
44	Erase fire unit	cdtt_7_7_/__/___c
45	Erase weapon type	cdttt_____c
46	Supply rate	cdttttt
47	Cursor reset	c
48	Expended amount	cdttttt
49	Erase supply rate	cdttttt____c
50	Erase expended amount	cdttttt____c
51	Pershing	cdtttPERSHc

Ammunition and Fire Unit Function - Nonnuclear mission

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Target number	cdt
11	Erase target number	cdt_____c
12	Alpha	A
13	Bravo	B
14	Charlie	C
15	Delta	D
16	Echo	E
17	Foxtrot	F
18	Golf	G
19	Hotel	H
20	India	I

21	Juliet	J
22	Kilo	K
23	Lima	L
24	Mike	M
25	November	N
26	Oscar	O
27	Papa	P
28	Quebec	Q
29	Romeo	R
30	Sierra	S
31	Tango	T
32	Uniform	U
33	Victor	V
34	Whiskey	W
35	X ray	X
36	Yankee	Y
37	Zulu	Z
38	Left	[
39	Right	]
40	Erase	\
41	Forward observer	cdttFOc
42	FO without laser	cdttFOWOLc
43	Observer not artilleery	cdttOBSRc
44	Long range patrol	cdttLRRPc
45	Target base	cdttTGTBc
46	Air observer	cdttAOBSRc
47	Sound ranging	cdttSORNGc
48	Flash ranging	cdttFLRNGc
49	Counter motar radar	cdttCMRRc
50	Counter battery radar	cdttCBRRc
51	Photo interpratation	cdttPIc
52	Prisoner of war	cdttPOWc
53	Ground surveillance radar	cdttGSRAc
54	Side looking airborne radar	cdttSLARc
55	Airborne infrared	cdttIRc
56	Tactical air	cdttTACAIRc
57	Communications intelligence	cdttCOMINTc
58	Electronic intelligence	cdttELINTc
59	Erase originating agency	cdtt_____c
60	Coordinate east	cdttt
61	Coordinate north	cdtttrrrrrrr
62	Altitude	cdttttlllllll
63	Grid zone	cdtttt
64	Cursor reset	c
65	Spheroid	cddt
66	Air defense artillery	cddttADAc
67	Armor	cddttARMORc
68	Artillery	cddttARTYc
69	Assembly areas	cddttASSYc
70	Building	cddttBLDGc
71	Bridge	cddttBRIDGEc
72	Center	cddttCENc
73	Equipment	cddttEQUIPc
74	Mortars	cddttMORTc
75	Personnel	cddttPERSc
76	Rockets or Missiles	cddttRKTMSLc
77	Special missions	cddttSPECc
78	Supply dump	cddttSUPPLYc
79	Terrain features	cddttTERc
80	Vehicle	cddttVEHc
81	Weapons	cddttWPNc
82	Unknown	cddttrrrrrrrrUNKc
83	Light	cddttrrrrrrrrLTc
84	Medium	cddttrrrrrrrrMDMc
85	Heavy	cddttrrrrrrrrHVc
86	Missile	cddttrrrrrrrrMSLc
87	Position	cddttrrrrrrrrPOSc

88	Armored personnel carrier	cddttrrrrrrrrAPCc
89	Troops	cddttrrrrrrrrTRPc
90	Troops and vehicles	cddttrrrrrrrrTRPVEHc
91	Mechanized troops	cddttrrrrrrrrTRPARMc
92	Wood	cddttrrrrrrrrWOODc
93	Masonry	cddttrrrrrrrrMASNRYc
94	Concrete	cddttrrrrrrrrCONCc
95	Metal	cddttrrrrrrrrMETc
96	Special purpose	cddttrrrrrrrrSPCLc
97	Foot pontoon	cddttrrrrrrrrFTPONc
98	Vehicle pontoon	cddttrrrrrrrrVEHPONc
99	Steel	cddttrrrrrrrrSTEELc
100	Site	cddttrrrrrrrrSITEc
101	Raft	cddttrrrrrrrrRAFTc
102	Ferry	cddttrrrrrrrrFERRYc
103	Small	cddttrrrrrrrrSMALLc
104	Battalion	cddttrrrrrrrrBNc
105	Regiment	cddttrrrrrrrrREGTc
106	Division	cddttrrrrrrrrDIVc
107	Forward	cddttrrrrrrrrFWDc
108	Radar	cddttrrrrrrrrRADARc
109	Electronic warfare	cddttrrrrrrrrEWc
110	Searchlight	cddttrrrrrrrrSLTc
111	Guidance	cddttrrrrrrrrGDNCc
112	Loudspeaker	cddttrrrrrrrrLSc
113	Very heavy	cddttrrrrrrrrVHc
114	Infantry	cddttrrrrrrrrINFc
115	Observation post	cddttrrrrrrrrOPc
116	Patrol	cddttrrrrrrrrPTLc
117	Work party	cddttrrrrrrrrWKPTYc
118	Antipersonnel	cddttrrrrrrrrAPERSc
119	Light missile	cddttrrrrrrrrLTMSLc
120	Medium missile	cddttrrrrrrrrMDMSLc
121	Heavy missile	cddttrrrrrrrrHVMSLc
122	Antitank	cddttrrrrrrrrATANKc
123	Illumination one gun	cddttrrrrrrrrILL1c
124	Illumination two guns	cddttrrrrrrrrILL2c
125	Illumination with deflection	cddttrrrrrrrrILL2DFc
126	Illumination with range	cddttrrrrrrrrILL2RGc
127	Illumination four guns	cddttrrrrrrrrILL4c
128	Nonpersistent gas	cddttrrrrrrrrGASNONc
129	Persistent gas	cddttrrrrrrrrGASPERc
130	Leaflets	cddttrrrrrrrrLEAFc
131	Ammunition	cddttrrrrrrrrAMMOc
132	Petroleum	cddttrrrrrrrrPTLc
133	Bridge equipment	cddttrrrrrrrrBRGEQc
134	Class one	cddttrrrrrrrrCLIc
135	Class two	cddttrrrrrrrrCLIIc
136	Road	cddttrrrrrrrrROADc
137	Junction	cddttrrrrrrrrJCTc
138	Hill	cddttrrrrrrrrHILLc
139	Defile	cddttrrrrrrrrDEFILEc
140	Landing strip	cddttrrrrrrrrLDGSTRc
141	Railroad	cddttrrrrrrrrRRc
142	Light wheeled	cddttrrrrrrrrLTWHLc
143	Heavy wheeled	cddttrrrrrrrrHVWHLc
144	Reconnaissance	cddttrrrrrrrrRECONc
145	Boats	cddttrrrrrrrrBTc
146	Aircraft	cddttrrrrrrrrACFTc
147	Helicopter	cddttrrrrrrrrHELc
148	Light machine gun	cddttrrrrrrrrLTMGc
149	Antitank gun	cddttrrrrrrrrATGc
150	Heavy machine gun	cddttrrrrrrrrHVMGc
151	Recoilless rifle	cddttrrrrrrrrRCLRc
152	Erase target type	cddtt_____c
153	Erase target sub type	cddttrrrrrrr7_____c
154	Half prone half standing	cddttrPRANDc

155	Prone	cddttttPRONEc
156	Prone dug in	cddttttPRUGc
157	Prone overhead cover	cddttttPROVERc
158	Dug in	cddttttDUGINc
159	Under overhead cover	cddttttCOVERc
160	Erase degree of protection	cddtttt_____c
161	Target size	cddttttt
162	Erase	
163	Cursor reset	c
164	Attitude of target	cddttttt
165	Strength of target	cddtttttt
166	Report value	cdddt
167	Excellent reliability	cddddttEc
168	Good reliability	cddddttGc
169	Fair reliability	cddddttFc
170	Disposition neutralized	cddddtttNEUTc
171	Disposition burning	cddddtttBURNc
172	Burning and neutralized	cddddtttNEUT/BURNc
173	Target destroyed	cddddtttDESTc
174	Can not observe	cddddtttCNOc
175	Disposition unknown	cddddtttUNKc
176	Disposition none	cddddtttNONEc
177	Erase disposition of target	cddddttt_____c
178	Number of casualties	cddddtttt
179	Date time group	cddddttttt
180	Day	r
181	Hour	r
182	Minute	r
183	Plain text	cddddttttttt
184	Exclude target	cddddtttttttXc
185	Do not exclude target	cddddttttttt_c
186	Fire unit one	cddddt
187	Fire unit two	cddddddt
188	Fire unit three	cddddddddt
189	Shell type one	cddddttt
190	Fuze type one	cddddttt
191	Shell type two	cddddddttt
192	Fuze type two	cddddddtttt
193	Shell type three	cddddddttt
194	Fuze type three	cddddddtttt

Again the shell and fuze types have been left out of the vocabulary. The difference now is that this message type is slowly running out of the 256 word capacity associated with the Threshold 600. There are only 62 words left and it appears as if there are more than 50 shell and fuze descriptions. The phonetic alphabet was included to allow for the voice entry of the 2 alpha and 4 numeric target code number. This might be easier to put in by hand and thus save the 26 words needed for the alphabet. Without further information on shell and fuze possibilities a decision on this alternative could not be made.

Ammunition and Fire Unit Function = Nuclear fire mission

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Target number	cdt
11	Erase target number	cdt_____c
12	Alpha	A
13	Bravo	B
14	Charlie	C
15	Delta	D
16	Echo	E
17	Foxtrot	F
18	Golf	G
19	Hotel	H
20	India	I
21	Juliet	J
22	Kilo	K
23	Lima	L
24	Mike	M
25	November	N
26	Oscar	O
27	Papa	P
28	Quebec	Q
29	Romeo	R
30	Sierra	S
31	Tango	T
32	Uniform	U
33	Victor	V
34	Whiskey	W
35	X ray	X
36	Yankee	Y
37	Zulu	Z
38	Left	l
39	Right	r
40	Erase	
41	Forward observer	cdttFOc
42	FO without laser	cdttFOWOLc
43	Observer not artilleery	cdttOBSRc
44	Long range patrol	cdttLRRPc
45	Target base	cdttTGTBc
46	Air observer	cdttAOBSRc
47	Sound ranging	cdttSORNGc
48	Flash ranging	cdttFLRNGc
49	Counter mortar radar	cdttCMRRc
50	Counter battery radar	cdttCBRRc
51	Photo interpratation	cdttPIc
52	Prisoner of war	cdttPOWc
53	Ground surveillance radar	cdttGSRAc
54	Side looking airborne radar	cdttSLARc
55	Airborne infrared	cdttIRc
56	Tactical air	cdttTACAIRc
57	Communications intelligence	cdttCOMINTc
58	Electronic intelligence	cdttELINTc
59	Erase originating agency	cdtt_____c
60	Coordinate east	cdttt
61	Coordinate north	cdttrrrrrrr

62	Altitude	cdttttllllllll
63	Grid zone	cdttttt
64	Cursor reset	c
65	Spheroid	cddt
66	Air defense artillery	cddttADAc
67	Armor	cddttARMORc
68	Artillery	cddttARTYc
69	Assembly areas	cddttASSYc
70	Building	cddttBLDGc
71	Bridge	cddttBRIDGEc
72	Center	cddttCENc
73	Equipment	cddttEQUIPc
74	Mortars	cddttMORTc
75	Personnel	cddttPERSc
76	Rockets or Missiles	cddttRKTMSLc
77	Special missions	cddttSPECc
78	Supply dump	cddttSUPPLYc
79	Terrain features	cddttTERc
80	Vehicle	cddttVEHc
81	Weapons	cddttWPNc
82	Unknown	cddttrrrrrrrrUNKc
83	Light	cddttrrrrrrrrLTc
84	Medium	cddttrrrrrrrrMDMc
85	Heavy	cddttrrrrrrrrHVc
86	Missile	cddttrrrrrrrrMSLc
87	Position	cddttrrrrrrrrPOSc
88	Armored personnel carrier	cddttrrrrrrrrAPCc
89	Troops	cddttrrrrrrrrTRPc
90	Troops and vehicles	cddttrrrrrrrrTRPVEHc
91	Mechanized troops	cddttrrrrrrrrTRPARMc
92	Wood	cddttrrrrrrrrWOODc
93	Masonry	cddttrrrrrrrrMASNRYc
94	Concrete	cddttrrrrrrrrCONCc
95	Metal	cddttrrrrrrrrMETc
96	Special purpose	cddttrrrrrrrrSPCLc
97	Foot pontoon	cddttrrrrrrrrFTPONc
98	Vehicle pontoon	cddttrrrrrrrrVEHPONc
99	Steel	cddttrrrrrrrrSTEELc
100	Site	cddttrrrrrrrrSITEc
101	Raft	cddttrrrrrrrrRAFTc
102	Ferry	cddttrrrrrrrrFERRYc
103	Small	cddttrrrrrrrrSMALLc
104	Battalion	cddttrrrrrrrrBNc
105	Regiment	cddttrrrrrrrrREGTc
106	Division	cddttrrrrrrrrDIVc
107	Forward	cddttrrrrrrrrFWDc
108	Radar	cddttrrrrrrrrRADARc
109	Electronic warfare	cddttrrrrrrrrEWc
110	Searchlight	cddttrrrrrrrrSLTc
111	Guidance	cddttrrrrrrrrGDNCc
112	Loudspeaker	cddttrrrrrrrrLSc
113	Very heavy	cddttrrrrrrrrVHc
114	Infantry	cddttrrrrrrrrINFc
115	Observation post	cddttrrrrrrrrOPc
116	Patrol	cddttrrrrrrrrPTLc
117	Work party	cddttrrrrrrrrWKPTYc
118	Antipersonnel	cddttrrrrrrrrAPERSc
119	Light missile	cddttrrrrrrrrLTMSLc
120	Medium missile	cddttrrrrrrrrMDMSLc
121	Heavy missile	cddttrrrrrrrrHVMSLc
122	Antitank	cddttrrrrrrrrATANKc
123	Illumination one gun	cddttrrrrrrrrILL1c
124	Illumination two guns	cddttrrrrrrrrILL2c
125	Illumination with deflection	cddttrrrrrrrrILL2DFc
126	Illumination with range	cddttrrrrrrrrILL2RGc
127	Illumination four guns	cddttrrrrrrrrILL4c
128	Nonpersistent gas	cddttrrrrrrrrGASNONc

129	Persistent gas	cddttrrrrrrrrGASPERc
130	Leaflets	cddttrrrrrrrrLEAPc
131	Ammunition	cddttrrrrrrrrAMMOc
132	Petroleum	cddttrrrrrrrrPTLc
133	Bridge equipment	cddttrrrrrrrrBRGEQc
134	Class one	cddttrrrrrrrrCLIc
135	Class two	cddttrrrrrrrrCLIIc
136	Road	cddttrrrrrrrrROADc
137	Junction	cddttrrrrrrrrJCTc
138	Hill	cddttrrrrrrrrHILLc
139	Defile	cddttrrrrrrrrDEFILEc
140	Landing strip	cddttrrrrrrrrLDGSTRc
141	Railroad	cddttrrrrrrrrRRc
142	Light wheeled	cddttrrrrrrrrLTWHLc
143	Heavy wheeled	cddttrrrrrrrrHVWHLc
144	Reconnaissance	cddttrrrrrrrrRECONc
145	Boats	cddttrrrrrrrrBTc
146	Aircraft	cddttrrrrrrrrACFTc
147	Helicopter	cddttrrrrrrrrHELc
148	Light machine gun	cddttrrrrrrrrLTMGc
149	Antitank gun	cddttrrrrrrrrATGc
150	Heavy machine gun	cddttrrrrrrrrHVMGc
151	Recoilless rifle	cddttrrrrrrrrRCLRc
152	Erase target type	cddtttrrrrrrrrc
153	Erase target sub type	cddttrrrrrrrr7------c
154	Half prone half standing	cddtttPRANDc
155	Prone	cddtttPRONEc
156	Prone dug in	cddtttPRUGc
157	Prone overhead cover	cddtttPROVERc
158	Dug in	cddtttDUGINc
159	Under overhead cover	cddtttCOVERc
160	Erase degree of protection	cddttt------c
161	Target size	cddttttt
162	Erase	
163	Cursor reset	c
164	Attitude of target	cddttttt
165	Strength of target	cddtttttt
166	Report value	cdddt
167	Excellent reliability	cdddttEc
168	Good reliability	cdddttGc
169	Fair reliability	cdddttFc
170	Disposition neutralized	cddddtttNEUTc
171	Disposition burning	cddddtttBURNc
172	Burning and neutralized	cddddtttNEUT/BURNc
173	Target destroyed	cddddtttDESTc
174	Can not observe	cddddtttCNOc
175	Disposition unknown	cddddtttUNKc
176	Disposition none	cddddtttNONEc
177	Erase disposition of target	cddddttt--------c
178	Number of casualties	cddddtttt
179	Date time group	cddddttttt
180	Day	r
181	Hour	r
182	Minute	r
183	Plain text	cddddttttt
184	Exclude target	cddddtttttttXc
185	Fire unit	cddddt
186	Shell type	cddddtt
187	Fuze type	cddddttt
188	Mark quantity	cddddtt

Ammunition and Fire Unit Function - Launch Site Update

Word number	Phrase Spoken	Output string

0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Plan name	cdt
11	Erase plan name	cdt_____c
12	Delete request	cdtttXc
13	Do not delete	cdttt_c
14	Launch site one	cddt
15	Launch site two	cdddt
16	Launch site three	cddddt
17	Launch site four	cdddddt
18	left	l
19	Right	r
20	Erase	
21	Grid zone one	cddtt
22	Grid zone two	cdddtt
23	Grid zone three	cddddtt
24	Grid zone four	cdddddtt
25	Spheroid one	cddttt
26	Spheroid two	cdddttt
27	Spheroid three	cddddttt
28	Spheroid four	cdddddttt
29	Launch time one	cddtttt
30	Launch time two	cdddttttt
31	Launch time three	cddddttttt
32	Launch time four	cddddddtttt

Ammunition and Fire Unit Function - Build a Plan

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Plan Name	cdt
11	Fire Unit	cdttt
12	1 0 5 millimeter	cdttttt105MMc
13	1 5 5 millimeter	cdttttt155MMc
14	1 7 5 millimeter	cdttttt175MMc
15	Eight Inch	cdttttt8INc
16	Honest John	cdttttHJc
17	Lance	cdttttLANCEc
18	Hercules	cdttttHERCc
19	M 9 1	cdttttM91c
20	3 inch 50	cdttttt3IN50c
21	5 inch 38	cdttttt5IN38c
22	5 inch 54	cdttttt5IN54c
23	6 inch 47	cdttttt6IN47c
24	8 inch 55	cdttttt8IN55c
25	Foxtrot 4 Delta	cdttttF4Dc

26	Foxtrot 4 Echo	cdttttF4Ec
27	Foxtrot 100	cdttttF100c
28	Foxtrot 1 11	cdttttF111c
29	Foxtrot 1 0 5	cdttttF105c
30	Alpha 7 Charlie	cdttttA7Cc
31	Alpha 7 Echo	cdttttA7Ec
32	Alpha 4 Echo	cdttttA4Ec
33	Alpha 4 Foxtrot	cdttttA4Fc
34	Alpha 4 Mike	cdttttA4Mc
35	Alpha 6 Alpha	cdttttA6Ac
36	Alpha 6 Echo	cdttttA6Ec
37	Alpha 10	cdttttA10c
38	Foxtrot 4 Charlie	cdttttF4Cc
39	Alpha 7 Delta	cdttttA7Dc
40	Foxtrot 4 Bravo	cdttttF4Bc
41	Foxtrot 4 Juliet	cdttttF4Jc
42	Pershing	cdttttPERSHc
43	High explosive	cdttttHEc
44	Chemical	cdttttCHc
45	Nuclear	cdttttNUc
46	Erase ammunition type	cdttttt__c
47	New plan name	cdtt
48	Erase plan name	cdt_____c
49	Erase fire unit	cdttt_7_7_/__/___c

Ammunition and Fire Unit Function - User Commands

Word number	Phrase Spoken	Output string
0	Check request	cddtXc
1	Erase check request	cddt_c
2	Edit request	cddttXc
3	Erase edit request	cddtt_c
4	Print request	cddtttXc
5	Erase print request	cddttt_c
6	View request	cddttttXc
7	Erase view request	cddtttt_c
8	Show request	cddttttXc
9	Erase show request	cddttttt_c
10	Plan Name	cdt
11	Fire Unit	cdtt
12	1 0 5 millimeter	cdttt105MMc
13	1 5 5 millimeter	cdttt155MMc
14	1 7 5 millimeter	cdttt175MMc
15	Eight Inch	cdttt8INc
16	Honest John	cdtttHJc
17	Lance	cdtttLANCEc
18	Hercules	cdtttHERCc
19	M 9 1	cdtttM91c
20	3 inch 50	cdttt3IN50c
21	5 inch 38	cdttt5IN38c
22	5 inch 54	cdttt5IN54c
23	6 inch 47	cdttt6IN47c
24	8 inch 55	cdttt8IN55c
25	Foxtrot 4 Delta	cdtttF4Dc
26	Foxtrot 4 Echo	cdtttF4Ec
27	Foxtrot 100	cdtttF100c
28	Foxtrot 1 11	cdtttF111c
29	Foxtrot 1 0 5	cdtttF105c
30	Alpha 7 Charlie	cdtttA7Cc
31	Alpha 7 Echo	cdtttA7Ec
32	Alpha 4 Echo	cdtttA4Ec
33	Alpha 4 Foxtrot	cdtttA4Fc
34	Alpha 4 Mike	cdtttA4Mc

35	Alpha 6 Alpha	cdtttA6Ac
36	Alpha 6 Echo	cdtttA6Ec
37	Alpha 10	cdtttA10c
38	Foxtrot 4 Charlie	cdtttF4Cc
39	Alpha 7 Delta	cdtttA7Dc
40	Foxtrot 4 Bravo	cdtttF4Bc
41	Foxtrot 4 Juliet	cdtttF4Jc
42	Pershing	cdtttPERSHc
43	High explosive	cdtttHEc
44	Chemical	cdttttCHc
45	Nuclear	cdttttNUc
46	Erase ammunition type	cdttttt_c
47	All ammunition types	cdtttXLc
48	Erase plan name	cdt_____c
49	Erase unit	/_____/_c
50	Transmit request	cddttttttXc
51	Erase transmit request	cddttttttt_c
52	Destination addressee	cddttttttt
53	Situation report	cdddtXc
54	Erase situation report	cdddt_c
55	Ammunition inventory summary	cddddtXc
56	Erase ammunition summary	cdddd_c
57	Fan of coverage	cddddtXc
58	Erase fan of coverage	cdddttt_c

Ammunition and Fire Unit Function - Situation Report

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Period covered	cdtt
11	Day	r
12	Hour	r
13	Minute	r
14	Right	r
15	Left	l
16	Erase	
17	Command post location	cdttt
18	Propose new position	cddt
19	Helipad east	cddtt
20	Helipad north	cddtrrrrrrr
21	Helipad altitude	cddttlllllll
22	Enemy casualties	cddttt
23	Personnel killed	cddddt
24	Personnel wounded	cddddtrrrrr
25	Shortages	cddddt
26	Combat efficiency	cddddddt
27	Future plans	cddddddt
28	Artillery	cdddtARTYr
29	Assembly areas	cdddtASSYr
30	Building	cdddtBLDGr
31	Bridge	cdddtBRIDGEr
32	Center	cdddtCENr
33	Equipment	cdddtEQUIPr
34	Mortars	cdddtMORTr

35	Personnel	cdddtPERSr
36	Rockets or Missiles	cdddtRKTMSLr
37	Special missions	cdddtSPECr
38	Supply dump	cdddtSUPPLYr
39	Terrain features	cdddtTERr
40	Vehicle	cdddtVEHr
41	Weapons	cdddtWPNr
42	Air defense artillery	cdddtADAr
43	Armor	cdddtARMORr
44	Erase material destroyed	cdddt_____/c

The unit which sends this message should have one more word which is the identifier for their unit. This will be placed in the field labeled "A". The output should look as follows "cdt??/???c" where the "?" are replaced by the unit identifier.

This concludes the presentation of the message types for the Ammunition and Fire Unit function. The next section will cover the Meteorological Function.

Meteorological Function = MET Computer

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Octant	cdt
11	Position	cdtt
12	Right	r
13	Left	l
14	Erase	
15	Valid time period	cdttt
16	Height of station	cdtttt
17	Atmospheric pressure	cdttttt

The octant field uses numeric codes for the various octants in which the global coordinates have been divided for TACFIRE. Numerous phrases were tested to establish an

easy to remember and easy to say phrase to represent the octants. None of the possibilities was acceptable. Therefore, this field will be filled by saying the numeric code zero through eight. Hopefully, the individuals entering the meteorological data are familar enough with their specialty that this will make little difference in the efficiency of voice input for this message type.

This message also requires a heavy numeric data input. Each of the fields which were not listed in the vocabulary have numerous subfields for all 20 altitude levels in which meteorological data is collected. To efficiently input this type of information through voice data entry, a continuous speech recognizer would most definitely be needed. This applies to the next meteorological message type too.

Meteorological Function - MET Fallout

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Octant	cdt
11	Position	cdtt
12	Right	r
13	Left	l
14	Erase	
15	Valid time period	cdttt
16	Height of station	cdtttt

Meteorological Function - Forecast

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4

5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Date time group	cdt
11	Day	d
12	Hour	r
13	Minute	r
14	Left	l
15	Right	r
16	Erase	E
17	Valid time period	Edtt
18	Coordinate east	cdttt
19	Coordinate north	cdttttrrrrrrr
20	Altitude	cdtttt111111111
21	Grid zone	cdttttt
22	Cursor reset	C
23	Spheroid	cddt
24	Wind	cdddtt
25	Lapse	cdddttt LAPSEc
26	Neutral	cddddttNEUTc
27	Inverted	cddddttINVERc
28	Temperature	cddddt
29	Relative humidity	cddddtt
30	Light rain	cddddttt LRc
31	Moderate rain	cddddtttMRc
32	Heavy rain	cddddtttHRc
33	Light snow	cddddtttLSr
34	Moderate snow	cddddtttMSr
35	Heavy snow	cddddtttHSr
36	Clear	cddddttttCLEATc
37	Scattered clouds	cddddttttSCATTRc
38	Clouds broken	cddddttttBROKNc
39	Overcast	cddddttttOVRCSTc
40	Low clouds	cddddttttt LOWc
41	Medium clouds	cddddttttt MIDLc
42	High clouds	cddddttttt HIGHc

Metaorological Function - User Commands

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Edit request	cdtXc
11	Erase edit request	cdt_c
12	Print request	cdttXc
13	Erase print request	cdtt_c
14	Transmit request	cdtttXc
15	Erase transmit request	cdttt_c
16	Destination addressee	cdtttt
17	Erase addressee	cdtttt_/_/_/__/___c
18	Delete request	cdttttttXc
19	Do not delete	cdttttt_c
20	Line designator	cdttttt

21	Grid declaration	cdttttttt
22	Current met indicators	cddtXc
23	Erase current met indicators	cddt_c
24	Fallout indicator	cddttXc
25	Erase fallout indicator	cddtt_c
26	Forecast indicator	cddtttXc
27	Erase fallout indicator	cddttt_c
28	Date time group	cddtttt
29	Day	r
30	Hour	r
31	Minute	r
32	Right	r
33	Left	l
34	Erase	
35	Cursor reset	c

This completes the Meteorological Function vocabularies. The next section will cover the vocabularies needed for the Tactical Fire Control Function.

Tactical Fire Control Function - Request for Additional Fire

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Target number	cdttt
11	Erase target number	cdttt_____c
12	Alpha	A
13	Bravo	B
14	Charlie	C
15	Delta	D
16	Echo	E
17	Foxtrot	F
18	Golf	G
19	Hotel	H
20	India	I
21	Juliet	J
22	Kilo	K
23	Lima	L
24	Mike	M
25	November	N
26	Oscar	O
27	Papa	P
28	Quebec	Q
29	Romeo	R
30	Sierra	S
31	Tango	T

32	Uniform	U
33	Victor	V
34	Whiskey	W
35	X ray	X
36	Yankee	Y
37	Zulu	Z
38	Left	l
39	Right	r
40	Erase	
41	Request for fire	cdtXc
42	Erase request for fire	cdt c
43	Observer to target direction	cdddtt
44	Coordinate east	cdttttt
45	Coordinate north	cdttttrrrrrrr
46	Altitude	cdttttt111111111
47	Grid zone	cdttttt
48	Spheroid	cddtt
49	Target radius	cdddttttt
50	Target length	cdddttttt
51	Target width	cdddttttrrrrr
52	Attitude	cdddtt
53	Strength of target	cdddtt
54	Report value	cddddttt
55	Initial shell type	cddddtttt
56	Subsequent shell type	cddddtttrrrr
57	Initial fuze type	cddddttttt
58	Subsewquent fuze type	cddddtttrrrrr
59	Date time group	cddddttttt
60	Day	r
61	Hour	r
62	Minute	r
63	Time on target	cddddttttttt
64	Cursor reset	c
65	Fire units	cddddt
66	Air defense artillery	cddtttADAc
67	Armor	cddtttARMORc
68	Artillery	cddtttARTYc
69	Assembly areas	cddtttASSYc
70	Building	cddtttBLDGc
71	Bridge	cddtttBRIDGEc
72	Center	cddtttCENc
73	Equipment	cddtttEQUIPc
74	Mortars	cddtttMORTc
75	Personnel	cddtttPERSc
76	Rockets or Missiles	cddtttRKTMSLc
77	Special missions	cddtttSPECc
78	Supply dump	cddtttSUPPLYc
79	Terrain features	cddtttTERc
80	Vehicle	cddtttVEHc
81	Weapons	cddtttWPNc
82	Unknown	cddttrrrrrrrrUNKc
83	Light	cddttrrrrrrrLTc
84	Medium	cddttrrrrrrrrMDMc
85	Heavy	cddttrrrrrrrrHVc
86	Missile	cddttrrrrrrrrMSLc
87	Position	cddttrrrrrrrrPOSc
88	Armored personnel carrier	cddttrrrrrrrrAPCc
89	Troops	cddttrrrrrrrrTRPc
90	Troops and vehicles	cddttrrrrrrrrTRPVEHc
91	Mechanized troops	cddttrrrrrrrrTRPARMc
92	Wood	cddttrrrrrrrrWOODc
93	Masonry	cddttrrrrrrrrMASNRYc
94	Concrete	cddttrrrrrrrrCONCc
95	Metal	cddttrrrrrrrrMETc
96	Special purpose	cddttrrrrrrrrSPCLc
97	Foot pontoon	cddtrrrrrrrrFTPONc
98	Vehicle pontoon	cddtttrrrrrrrrVEHPONc

99	Steel	cddtttrrrrrrrrSTEELc
100	Site	cddtttrrrrrrrrSITEc
101	Raft	cddtttrrrrrrrrRAFTc
102	Ferry	cddtttrrrrrrrrFERRYc
103	Small	cddtttrrrrrrrrSMALLc
104	Battalion	cddtttrrrrrrrrBNc
105	Regiment	cddtttrrrrrrrrREGTc
106	Division	cddtttrrrrrrrrDIVc
107	Forward	cddtttrrrrrrrrFWDc
108	Radar	cddtttrrrrrrrrRADARc
109	Electronic warfare	cddtttrrrrrrrrEWc
110	Searchlight	cddtttrrrrrrrrSLTc
111	Guidance	cddtttrrrrrrrrGDNCc
112	Loudspeaker	cddtttrrrrrrrrLSc
113	Very heavy	cddtttrrrrrrrrVHc
114	Infantry	cddtttrrrrrrrrINFc
115	Observation post	cddtttrrrrrrrrOPc
116	Patrol	cddtttrrrrrrrrPTLc
117	Work party	cddtttrrrrrrrrWKPTYc
118	Antipersonnel	cddtttrrrrrrrrAPERSc
119	Light missile	cddtttrrrrrrrrLTMSLc
120	Medium missile	cddtttrrrrrrrrMDMSLc
121	Heavy missile	cddtttrrrrrrrrHVMSLc
122	Antitank	cddtttrrrrrrrrATANKc
123	Illumination one gun	cddtttrrrrrrrrILL1c
124	Illumination two guns	cddtttrrrrrrrrILL2c
125	Illumination with deflection	cddtttrrrrrrrrILL2DFc
126	Illumination with range	cddtttrrrrrrrrILL2RGc
127	Illumination four guns	cddtttrrrrrrrrILL4c
128	Nonpersistent gas	cddtttrrrrrrrrGASNONc
129	Persistent gas	cddtttrrrrrrrrGASPERc
130	Leaflets	cddtttrrrrrrrrLEAFc
131	Ammunition	cddtttrrrrrrrrAMMOc
132	Petroleum	cddtttrrrrrrrrPTLc
133	Bridge equipment	cddtttrrrrrrrrBRGEQc
134	Class one	cddtttrrrrrrrrCLIc
135	Class two	cddtttrrrrrrrrCLIIc
136	Road	cddtttrrrrrrrrROADc
137	Junction	cddtttrrrrrrrrJCTc
138	Hill	cddtttrrrrrrrrHILLc
139	Defile	cddtttrrrrrrrrDEFILEc
140	Landing strip	cddtttrrrrrrrrLDGSTRc
141	Railroad	cddtttrrrrrrrrRRc
142	Light wheeled	cddtttrrrrrrrrLTWHLc
143	Heavy wheeled	cddtttrrrrrrrrHVWHLc
144	Reconnaissance	cddtttrrrrrrrrRECONc
145	Boats	cddtttrrrrrrrrBTc
146	Aircraft	cddtttrrrrrrrrACFTc
147	Helicopter	cddtttrrrrrrrrHELc
148	Light machine gun	cddtttrrrrrrrrLTMGc
149	Antitank gun	cddtttrrrrrrrrATGc
150	Heavy machine gun	cddtttrrrrrrrrHVMGc
151	Recoilless rifle	cddtttrrrrrrrrRCLRc
152	Erase target type	cddttt_____c
153	Erase target sub type	cddttt=====7------c
154	Half prone half standing	cddtttPRANDc
155	Prone	cddtttPRONEc
156	Prone dug in	cddtttPRUGc
157	Prone overhead cover	cddtttPROVERc
158	Dug in	cddtttDUGINc
159	Under overhead cover	cddtttCOVERc
160	Erase degree of protection	cddttt_____c
161	Erase fire unit	////////=
162	Save fire unit	rrrrrrrrrrrr
163	When ready	cddddddWRc
164	At my command	cddddddAMCc
165	Fire per effect	cddddddrrrrrFFEc

156	Repeat fire for effect	cddddddtrrrrrRFFEc
167	Desired effects	cddddddtt
168	Desired volleys	cddddddttt
169	End of mission	cddddddttttXc
170	Erase end of mission	cddddddtttt c
171	Add data	cddddddttttADDc
172	Alter data	cddddddtttttALTc
173	Delete data	cddddddttttDELc
174	Mission number one	cddddddttttt1c
175	Mission number two	cddddddttttt2c
176	Urgent priority	cddddddtttttt1c
177	Priority	cddddddtttttt2c
178	Observer's identity number	cddddddt
179	Additional text	cddddddttt

As in previous fire mission messages the shell and fuze types have not been included in the vocabulary, but would need to be developed to create the message totally through voice input.

The unit names must also be added to the vocabulary list. Since the message template allows the input of a serial string of fire unit names the output for each possible unit should be in the form "?/?/?/??/???r". This would allow unit designators to be serially listed in the unit fifth line of the message template. To facilitate the serial list there are two phrases listed in the above vocabulary. These phrases, "save unit" and "erase unit" can be used to move across the fire unit line to any specific unit and easily erase it from the line.

Tactical Fire Control Function - Criteria Modifications

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Date time group	cdt
11	Day	r

12	Hour	r
13	Minute	r
14	Zone of responsibility	cdtt
15	Delete request	cdtttXc
16	Do not delete	cdttt c
17	Ignore ammunition designator	cddtXc
18	Erase ammunition designator	cddt c
19	Effect cutoff factor	cddtt
20	Maximum number of battalions	cddttt

Tactical Fire Control Function - Fire unit exclusion

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Delete request	cdttXc
11	Do not delete	cdtt c
12	1 0 5 millimeter	cdddt105MMc
13	1 5 5 millimeter	cdddt155MMc
14	1 7 5 millimeter	cdddt175MMc
15	Eight Inch	cdddt8INc
16	Honest John	cdddtHJc
17	Lance	cdddtLANCEc
18	Pershing	cdddtPERSHc
19	Hercules	cdddtHERCc
20	M 9 1	cdddtM91c
21	3 inch 50	cdddt3IN50c
22	5 inch 38	cdddt5IN38c
23	5 inch 54	cdddt5IN54c
24	6 inch 47	cdddt6IN47c
25	8 inch 55	cdddt8IN55c
26	Foxtrot 4 Delta	cdddtF4Dc
27	Foxtrot 4 Echo	cdddtF4Ec
28	Foxtrot 100	cdddtF100c
29	Foxtrot 1 11	cdddtF111c
30	Foxtrot 1 0 5	cdddtF105c
31	Alpha 7 Charlie	cdddtA7Cc
32	Alpha 7 Echo	cdddtA7Ec
33	Alpha 4 Echo	cdddtA4Ec
34	Alpha 4 Foxtrot	cdddtA4Fc
35	Alpha 4 Mike	cdddtA4Mc
36	Alpha 6 Alpha	cdddtA6Ac
37	Alpha 6 Echo	cdddtA6Ec
38	Alpha 10	cdddtA10c
39	Foxtrot 4 Charlie	cdddtF4Cc
40	Alpha 7 Delta	cdddtA7Dc
41	Foxtrot 4 Bravo	cdddtF4Bc
42	Foxtrot 4 Juliet	cdddtF4Jc
43	Date time group	cdt
44	Day	r
45	Hour	r
46	Minute	r
47	Fire units	cddt
48	Save fire unit	rrrrrrrrrrrrr
49	Erase fire unit	_/_/_/__/___r

50	Shell type	cdddt
51	Fuze type	cddddtt
52	Erase shell type	r
53	Save this shell	rrrrr
54	Erase fuze type	r
55	Save this fuze	rrrrrr

Tactical Fire Control Function - Fire unit selection

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Delete request	cdttXc
11	Do not delete	cdtt c
12	1 0 5 millimeter	cddtttt105MMc
13	1 5 5 millimeter	cddtttt155MMc
14	1 7 5 millimeter	cddtttt175MMc
15	Eight Inch	cddtttt8INc
16	Honest John	cddtttHJc
17	Lance	cddtttLANCEc
18	Pershing	cddtttPERSHc
19	Hercules	cddtttHERCc
20	M 9 1	cddtttM91c
21	3 inch 50	cddtttt3IN50c
22	5 inch 38	cddtttt5IN38c
23	5 inch 54	cddtttt5IN54c
24	6 inch 47	cddtttt6IN47c
25	8 inch 55	cddtttt8IN55c
26	Foxtrot 4 Delta	cddtttF4Dc
27	Foxtrot 4 Echo	cddtttF4Ec
28	Foxtrot 100	cddtttF100c
29	Foxtrot 1 11	cddtttF111c
30	Foxtrot 1 0 5	cddtttF105c
31	Alpha 7 Charlie	cddtttA7Cc
32	Alpha 7 Echo	cddtttA7Ec
33	Alpha 4 Echo	cddtttA4Ec
34	Alpha 4 Foxtrot	cddtttA4Fc
35	Alpha 4 Mike	cddtttA4Mc
36	Alpha 6 Alpha	cddtttA6Ac
37	Alpha 6 Echo	cddtttA6Ec
38	Alpha 10	cddtttA10c
39	Foxtrot 4 Charlie	cddtttF4Cc
40	Alpha 7 Delta	cddtttA7Dc
41	Foxtrot 4 Bravo	cddtttF4Bc
42	Foxtrot 4 Juliet	cddtttF4Jc
43	Date time group	cdt
44	Day	r
45	Hour	r
46	Minute	r
47	Fire units	cdddt
48	Save fire unit	rrrrrrrrrrrrr
49	Erase fire unit	r/r/r/--/---r
50	Battalion order number	cddtt
51	Maximum volleys	cddttt
52	Fire unit ordering	cddttttt

The remaining vocabulary words will be made up of unit names and battalion names if desired.

Tactical Fire Control Function - Attack Method

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Date time group	cdt
11	Day	r
12	Hour	r
13	Minute	r
14	Delete request	cdttXc
15	Do not delete	cdtt c
16	Desired effects	cddttt
17	Desired volley factor	cddtttt
18	Cursor reset	c
19	Left	l
20	Air defense artillery	cddtADAc
21	Armor	cddtARMORc
22	Artillery	cddtARTYc
23	Assembly areas	cddtASSYc
24	Building	cddtBLDGc
25	Bridge	cddtBRIDGEc
26	Center	cddtCENc
27	Equipment	cddtEQUIPc
28	Mortars	cddtMORTc
29	Personnel	cddtPERSc
30	Rockets or Missiles	cddtRKTMSLc
31	Special missions	cddtSPECc
32	Supply dump	cddtSUPPLYc
33	Terrain features	cddtTERc
34	Vehicle	cddtVEHc
35	Weapons	cddtWPNc
36	Unknown	cddtrrrrrrrrUNKc
37	Light	cddtrrrrrrrrLTc
38	Medium	cddtrrrrrrrrMDMc
39	Heavy	cddtrrrrrrrrHVc
40	Missile	cddtrrrrrrrrMSLc
41	Position	cddtrrrrrrrrPOSc
42	Armored personnal carrier	cddtrrrrrrrrAPCc
43	Troops	cddtrrrrrrrrTRPc
44	Troops and vehicles	cddtrrrrrrrrTRPVEHc
45	Mechanized troops	cddtrrrrrrrrTRPARMc
46	Wood	cddtrrrrrrrrWOODc
47	Masonry	cddtrrrrrrrrMASNRYc
48	Concrete	cddtrrrrrrrrCONCc
49	Metal	cddtrrrrrrrrMETc
50	Special purpose	cddtrrrrrrrrSPCLc
51	Foot pontoon	cddtrrrrrrrrFTPONc
52	Vehicle pontoon	cddtrrrrrrrrVEHPONc
53	Steel	cddtrrrrrrrrSTEELc
54	Site	cddtrrrrrrrrSITEc

55	Raft	cddtrrrrrrrrRAFTc
56	Ferry	cddtrrrrrrrrFERRYc
57	Small	cddtrrrrrrrrSMALLc
58	Battalion	cddtrrrrrrrrBNc
59	Regiment	cddtrrrrrrrrREGTc
60	Division	cddtrrrrrrrrDIVc
62	Forward	cddtrrrrrrrrFWDc
63	Radar	cddtrrrrrrrrRADARc
64	Electronic warfare	cddtrrrrrrrrEWc
65	Searchlight	cddtrrrrrrrrSLTc
66	Guidance	cddtrrrrrrrrGDNCc
67	Loudspeaker	cddtrrrrrrrrLSc
68	Very heavy	cddtrrrrrrrrVHc
69	Infantry	cddtrrrrrrrrINFc
70	Observation post	cddtrrrrrrrrOPc
71	Patrol	cddtrrrrrrrrPTLc
72	Work party	cddtrrrrrrrrWKPTYc
73	Antipersonnel	cddtrrrrrrrrAPERSc
74	Light missile	cddtrrrrrrrrLTMSLc
75	Medium missile	cddtrrrrrrrrMDMSLc
76	Heavy missile	cddtrrrrrrrrHVMSLc
77	Antitank	cddtrrrrrrrrATANKc
78	Illumination one gun	cddtrrrrrrrrILL1c
79	Illumination two guns	cddtrrrrrrrrILL2c
80	Illumination with deflection	cddtrrrrrrrrILL2DFc
81	Illumination with range	cddtrrrrrrrrILL2RGc
82	Illumination four guns	cddtrrrrrrrrILL4c
83	Nonpersistent gas	cddtrrrrrrrrGASNONc
84	Persistent gas	cddtrrrrrrrrGASPERc
85	Leaflets	cddtrrrrrrrrLEAFc
86	Ammunition	cddtrrrrrrrrAMMOc
87	Petroleum	cddtrrrrrrrrPTLc
88	Bridge equipment	cddtrrrrrrrrBRGEQc
89	Class one	cddtrrrrrrrrCLIc
90	Class two	cddtrrrrrrrrCLIIc
91	Road	cddtrrrrrrrrROADc
92	Junction	cddtrrrrrrrrJCTc
93	Hill	cddtrrrrrrrrHILLc
94	Defile	cddtrrrrrrrrDEFILEc
95	Landing strip	cddtrrrrrrrrLDGSTRc
96	Railroad	cddtrrrrrrrrRRc
97	Light wheeled	cddtrrrrrrrrLTWHLc
98	Heavy wheeled	cddtrrrrrrrrHVWHLc
99	Reconnaissance	cddtrrrrrrrrRECONc
100	Boats	cddtrrrrrrrrBTc
101	Aircraft	cddtrrrrrrrrACFTc
102	Helicopter	cddtrrrrrrrrHELc
103	Light machine gun	cddtrrrrrrrrLTMGc
104	Antitank gun	cddtrrrrrrrrATGc
105	Heavy machine gun	cddtrrrrrrrrHVMGc
106	Recoilless rifle	cddtrrrrrrrrRCLRc
107	Erase target type	cddt_____c
108	Erase target sub type	cddtrrrrrrr_____c
109	Half prone half standing	cddttPRANDc
110	Prone	cddttPRONEc
111	Prone dug in	cddttPRUGc
112	Prone overhead cover	cddttPROVERc
113	Dug in	cddttDUGINc
114	Under overhead cover	cddttCOVERc
115	Erase degree of protection	cddtt_____c

Tactical Fire Control Function - User commands

Word number	Phrase Spoken	Output string

0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Target number	cdt
11	Erase target number	cdt_____c
12	Alpha	A
13	Bravo	B
14	Charlie	C
15	Delta	D
16	Echo	E
17	Foxtrot	F
18	Golf	G
19	Hotel	H
20	India	I
21	Juliet	J
22	Kilo	K
23	Lima	L
24	Mike	M
25	November	N
26	Oscar	O
27	Papa	P
28	Quebec	Q
29	Romeo	R
30	Sierra	S
31	Tango	T
32	Uniform	U
33	Victor	V
34	Whiskey	W
35	X ray	X
36	Yankee	Y
37	Zulu	Z
38	Left	l
39	Right	r
40	Erase	
41	Target file	cdttXc
42	Erase target file	cdtt_c
43	Modification file	cdtttXc
44	Erase modification file	cdttt_c
45	Delete request	cdtttXc
46	Do not delete	cdttt_c
47	Edit request	cddtXc
48	Erase edit request	cdd_c
49	Print request	cddtXc
50	Erase print request	cddt_c
51	View request	cddtttXc
52	Erase view request	cddttt_c
53	Show request	cddttttXc
54	Erase show request	cddtttt_c
55	Transmit request	cddtttttXc
56	Erase transmit request	cddttttt_c
57	Plain text	cddttttttt

Tactical Fire Control Function - Capability Analysis

Word number	Phrase Spoken	Output string
0	Zero	0

1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Target number	cdtt
11	Erase target number	cdtt_____c
12	Alpha	A
13	Bravo	B
14	Charlie	C
15	Delta	D
16	Echo	E
17	Foxtrot	F
18	Golf	G
19	Hotel	H
20	India	I
21	Juliet	J
22	Kilo	K
23	Lima	L
24	Mike	M
25	November	N
26	Oscar	O
27	Papa	P
28	Quebec	Q
29	Romeo	R
30	Sierra	S
31	Tango	T
32	Uniform	U
33	Victor	V
34	Whiskey	W
35	X ray	X
36	Yankee	Y
37	Zulu	Z
38	Left	l
39	Right	r
40	Erase	-
41	Plan name	cdt
42	Erase subtype	cddtrrrrrrrr_____c
43	Fire unit	cdddt
44	Coordinate east	cdttt
45	Coordinate north	cdtttrrrrrrr
46	Altitude	cdtttt111111111
47	Grid zone	cdtttt
48	Spheroid	cddt
49	Target radius	cddtttt
50	Target length	cddtttt
51	Target width	cddttttrrrrr
52	Erase unit	/_/_/__/___r
53	Erase plan name	cdt_____c
54	Erase type	cddt_____c
55	Initial shell type	cddddt
56	Subsequent shell type	cddddtrrrr
57	Initial fuze type	cddddtt
58	Subsequent fuze type	cddddttrrrrr
59	Date time group	cddddttt
60	Day	:
61	Hour	r
62	Minute	r
63	Erase degree of protection	cddttt_____c
64	Cursor reset	c
65	Erase weapon type	cddttttt_____c
66	Air defense artillery	cddttADAc
67	Armor	cddttARMORc

68	Artillery	cddttARTYc
69	Assembly areas	cddttASSYc
70	Building	cddttBLDGc
71	Bridge	cddttBRIDGEc
72	Center	cddttCENc
73	Equipment	cddttEQUIPc
74	Mortars	cddttMORTc
75	Personnel	cddttPERSc
76	Rockets or Missiles	cddttRKTMSLc
77	Special missions	cddttSPECc
78	Supply dump	cddttSUPPLYc
79	Terrain features	cddttTERc
80	Vehicle	cddttVEHc
81	Weapons	cddttWPNc
82	Unknown	cddttrrrrrrrrUNKc
83	Light	cddttrrrrrrrrLTc
84	Medium	cddttrrrrrrrrMDMc
85	Heavy	cddttrrrrrrrrHVc
86	Missile	cddttrrrrrrrrMSLc
87	Position	cddttrrrrrrrrPOSc
88	Armored personnel carrier	cddttrrrrrrrrAPCc
89	Troops	cddttrrrrrrrrTRPc
90	Troops and vehicles	cddttrrrrrrrrTRPVEHc
91	Mechanized troops	cddttrrrrrrrrTRPARMc
92	Wood	cddttrrrrrrrrWOODc
93	Masonry	cddttrrrrrrrrMASNRYc
94	Concrete	cddttrrrrrrrrCONCc
95	Metal	cddttrrrrrrrrMETc
96	Special purpose	cddttrrrrrrrrSPCLc
97	Foot pontoon	cddttrrrrrrrrFTPONc
98	Vehicle pontoon	cddttrrrrrrrrVEHPONc
99	Steel	cddttrrrrrrrrSTEELc
100	Site	cddttrrrrrrrrSITEc
101	Raft	cddttrrrrrrrrRAFTc
102	Ferry	cddttrrrrrrrrFERRYc
103	Small	cddttrrrrrrrrSMALLc
104	Battalion	cddttrrrrrrrrBNc
105	Regiment	cddttrrrrrrrrREGTc
106	Division	cddttrrrrrrrrDIVc
107	Forward	cddttrrrrrrrrFWDc
108	Radar	cddttrrrrrrrrRADARc
109	Electronic warfare	cddttrrrrrrrrEWc
110	Searchlight	cddttrrrrrrrrSLTc
111	Guidance	cddttrrrrrrrrGDNCc
112	Loudspeaker	cddttrrrrrrrrLSc
113	Very heavy	cddttrrrrrrrrVHc
114	Infantry	cddttrrrrrrrrINFc
115	Observation post	cddttrrrrrrrrOPc
116	Patrol	cddttrrrrrrrrPTLc
117	Work party	cddttrrrrrrrrWKPTYc
118	Antipersonnel	cddttrrrrrrrrAPERSc
119	Light missile	cddttrrrrrrrrLTMSLc
120	Medium missile	cddttrrrrrrrrMDMSLc
121	Heavy missile	cddttrrrrrrrrHVMSLc
122	Antitank	cddttrrrrrrrrATANKc
123	Illumination one gun	cddttrrrrrrrrILL1c
124	Illumination two guns	cddttrrrrrrrrILL2c
125	Illumination with deflection	cddttrrrrrrrrILL2DFc
126	Illumination with range	cddttrrrrrrrrILL2RGc
127	Illumination four guns	cddttrrrrrrrrILL4c
128	Nonpersistent gas	cddttrrrrrrrrGASNONc
129	Persistent gas	cddttrrrrrrrrGASPERc
130	Leaflets	cddttrrrrrrrrLEAFc
131	Ammunition	cddttrrrrrrrrAMMOc
132	Petroleum	cddttrrrrrrrrPTLc
133	Bridge equipment	cddttrrrrrrrrBRGEQc
134	Class one	cddttrrrrrrrrCLIc

135	Class two	cddttrrrrrrrrCLIIc
136	Road	cddttrrrrrrrrROADc
137	Junction	cddttrrrrrrrrJCTc
138	Hill	cddttrrrrrrrrHILLc
139	Defile	cddttrrrrrrrrDEFILEc
140	Landing strip	cddttrrrrrrrrLDGSTRc
141	Railroad	cddttrrrrrrrrRRc
142	Light wheeled	cddttrrrrrrrrLTWHLc
143	Heavy wheeled	cddttrrrrrrrrHVWHLc
144	Reconnaissance	cddttrrrrrrrrRECONc
145	Boats	cddttrrrrrrrrBTc
146	Aircraft	cddttrrrrrrrrACFTc
147	Helicopter	cddttrrrrrrrrHELc
148	Light machine gun	cddttrrrrrrrrLTMGc
149	Antitank gun	cddttrrrrrrrrATGc
150	Heavy machine gun	cddttrrrrrrrrHVMGc
151	Recoilless rifle	cddttrrrrrrrrRCLRc
152	Erase date time group	cddddttt__/__/__c
153	Erase sphere	cddt_c
154	Half prone half standing	cddtttPRANDc
155	Prone	cddtttPRONEc
156	Prone dug in	cddtttPRUGc
157	Prone overhead cover	cddtttPROVERc
158	Dug in	cddtttDUGINc
159	Under overhead cover	cddtttCOVERc
160	1 0 5 millimeter	cdt105MMc
161	1 5 5 millimeter	cdt155MMc
162	1 7 5 millimeter	cdt175MMc
163	Eight Inch	cdt8INc
164	Honest John	cdtHJc
165	Lance	cdtLANCErr
166	Hercules	cdtHERCc
167	M 9 1	cdtM91c
168	3 inch 50	cdt3IN50c
169	5 inch 38	cdt5IN38c
170	5 inch 54	cdt5IN54c
171	6 inch 47	cdt6IN47c
172	8 inch 55	cdt8IN55c
173	Foxtrot 4 Delta	cdtF4Dc
174	Foxtrot 4 Echo	cdtF4Ec
175	Foxtrot 100	cdtF100c
176	Foxtrot 1 11	cdtF111c
177	Foxtrot 1 0 5	cdtF105c
178	Alpha 7 Charlie	cdtA7Cc
179	Alpha 7 Echo	cdtA7Ec
180	Alpha 4 Echo	cdtA4Ec
181	Alpha 4 Foxtrot	cdtA4Fc
182	Alpha 4 Mike	cdtA4Mc
183	Alpha 6 Alpha	cdtA6Ac
184	Alpha 6 Echo	cdtA6Ec
185	Alpha 10	cdtA10c
186	Foxtrot 4 Charlie	cdtF4Cc
187	Alpha 7 Delta	cdtA7Dc
188	Foxtrot 4 Bravo	cdtF4Bc
189	Foxtrot 4 Juliet	cdtF4Jc

Tactical Fire Control Function - Forward Observer Command

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3

4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Target number	cdtt
11	Erase target number	cdtt_____c
12	Alpha	A
13	Bravo	B
14	Charlie	C
15	Delta	D
16	Echo	E
17	Foxtrot	F
18	Golf	G
19	Hotel	H
20	India	I
21	Juliet	J
22	Kilo	K
23	Lima	L
24	Mike	M
25	November	N
26	Oscar	O
27	Papa	P
28	Quebec	Q
29	Romeo	R
30	Sierra	S
31	Tango	T
32	Uniform	U
33	Victor	V
34	Whiskey	W
35	X ray	X
36	Yankee	Y
37	Zulu	Z
38	Left	l
39	Right	r
40	Erase	-
41	Check fire all	cdtCHKALLc
42	Check firing	cdtCKFIREc
43	Command to fire	cdtFIREc
44	Observer identity number	cdttt
45	Cursor reset	c

Tactical Fire Control Function - Subsequent Commands

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Target number	cdt
11	Erase target number	cdt_____c
12	Alpha	A
13	Bravo	B
14	Charlie	C
15	Delta	D
16	Echo	E

17	Foxtrot	F
18	Golf	G
19	Hotel	H
20	India	I
21	Juliet	J
22	Kilo	K
23	Lima	L
24	Mike	M
25	November	N
26	Oscar	O
27	Papa	P
28	Quebec	Q
29	Romeo	R
30	Sierra	S
31	Tango	T
32	Uniform	U
33	Victor	V
34	Whiskey	W
35	X ray	X
36	Yankee	Y
37	Zulu	Z
38	Left	l
39	Right	r
40	Erase	
41	End of mission	cdttXc
42	Erase subtype	cddttrrrrrrr_____c
43	Erase end of mission	cdtt_c
44	Observer to target direction	cdttt
45	Shift right	cdttttRr
46	Shift left	cdttttLr
47	Drop	r-r
48	Add	r+r
49	Up	rUr
50	Down	rDr
51	When ready	cddtWRc
52	At my command	cddtAMCc
53	Fire for Effect	cddtrrrrrFFEc
54	Repeat fire for effect	cddtrrrrrRFFEc
55	Initial shell type	cddttt
56	Subsequent shell type	cddtttrrrr
57	Initial fuze type	cddttt
58	Subsequent fuze type	cddttttrrrrr
59	Erase target type	cddtt_____c
60	Erase target sub-type	cddttrrrrrr_____c
61	Erase shell	cddttt___/__c
62	Erase fuze	cddtttt___/__c
63	Erase target number	cdt_____c
64	Cursor reset	c
65	Erase control	cddt____/____c
66	Air defense artillery	cddttADAc
67	Armor	cddttARMORc
68	Artillery	cddttARTYc
69	Assembly areas	cddttASSYc
70	Building	cddttBLDGc
71	Bridge	cddttBRIDGEc
72	Center	cddttCENc
73	Equipment	cddttEQUIPc
74	Mortars	cddttMORTc
75	Personnel	cddttPERSc
76	Rockets or Missiles	cddttRKTMSLc
77	Special missions	cddttSPECc
78	Supply dump	cddttSUPPLYc
79	Terrain features	cddtttTERc
80	Vehicle	cddttVEHc
81	Weapons	cddttWPNc
82	Unknown	cddtrrrrrrrrUNKc
83	Light	cddtrrrrrrrrLTc

84	Medium	cddttrrrrrrrrMDMc
85	Heavy	cddttrrrrrrrrHVc
86	Missile	cddttrrrrrrrrMSLc
87	Position	cddttrrrrrrrrPOSc
88	Armored personnel carrier	cddttrrrrrrrrAPCc
89	Troops	cddttrrrrrrrrTRPc
90	Troops and vehicles	cddttrrrrrrrrTRPVEHc
91	Mechanized troops	cddttrrrrrrrrTRPARMc
92	Wood	cddttrrrrrrrrWOODc
93	Masonry	cddttrrrrrrrrMASNRYc
94	Concrete	cddttrrrrrrrrCONCc
95	Metal	cddttrrrrrrrrMETc
96	Special purpose	cddttrrrrrrrrSPCLc
97	Foot pontoon	cddttrrrrrrrrFTPONc
98	Vehicle pontoon	cddttrrrrrrrrVEHPONc
99	Steel	cddttrrrrrrrrSTEELc
100	Site	cddttrrrrrrrrSITEc
101	Raft	cddttrrrrrrrrRAFTc
102	Ferry	cddttrrrrrrrrFERRYc
103	Small	cddttrrrrrrrrSMALLc
104	Battalion	cddttrrrrrrrrBNc
105	Regiment	cddttrrrrrrrrREGTc
106	Division	cddttrrrrrrrrDIVc
107	Forward	cddttrrrrrrrrFWDc
108	Radar	cddttrrrrrrrrRADARc
109	Electronic warfare	cddttrrrrrrrrEWc
110	Searchlight	cddttrrrrrrrrSLTc
111	Guidance	cddttrrrrrrrrGDNCc
112	Loudspeaker	cddttrrrrrrrrLSc
113	Very heavy	cddttrrrrrrrrVHc
114	Infantry	cddttrrrrrrrrINFc
115	Observation post	cddttrrrrrrrrOPc
116	Patrol	cddttrrrrrrrrPTLc
117	Work party	cddttrrrrrrrrWKPTYc
118	Antipersonnel	cddttrrrrrrrrAPERSc
119	Light missile	cddttrrrrrrrrLTMSLc
120	Medium missile	cddttrrrrrrrrMDMSLc
121	Heavy missile	cddttrrrrrrrrHVMSLc
122	Antitank	cddttrrrrrrrrATANKc
123	Illumination one gun	cddttrrrrrrrrILL1c
124	Illumination two guns	cddttrrrrrrrrILL2c
125	Illumination with deflection	cddttrrrrrrrrILL2DFc
126	Illumination with range	cddttrrrrrrrrILL2RGc
127	Illumination four guns	cddttrrrrrrrrILL4c
128	Nonpersistent gas	cddttrrrrrrrrGASNONc
129	Persistent gas	cddttrrrrrrrrGASPERc
130	Leaflets	cddttrrrrrrrrLEAFc
131	Ammunition	cddttrrrrrrrrAMMOc
132	Petroleum	cddttrrrrrrrrPTLc
133	Bridge equipment	cddttrrrrrrrrBRGEQc
134	Class one	cddttrrrrrrrrCLIc
135	Class two	cddttrrrrrrrrCLIIc
136	Road	cddttrrrrrrrrROADc
137	Junction	cddttrrrrrrrrJCTc
138	Hill	cddttrrrrrrrrHILLc
139	Defile	cddttrrrrrrrrDEFILEc
140	Landing strip	cddttrrrrrrrrLDGSTRc
141	Railroad	cddttrrrrrrrrRRc
142	Light wheeled	cddttrrrrrrrrLTWHLc
143	Heavy wheeled	cddttrrrrrrrrHVWHLc
144	Reconnaissance	cddttrrrrrrrrRECONc
145	Boats	cddttrrrrrrrrBTc
146	Aircraft	cddttrrrrrrrrACFTc
147	Helicopter	cddttrrrrrrrrHELc
148	Light machine gun	cddttrrrrrrrrLTMGc
149	Antitank gun	cddttrrrrrrrrATGc
150	Heavy machine gun	cddttrrrrrrrrHVMGc

151	Recoilless rifle	cddttrrrrrrrrRCLRc
152	Erase date time group	cddddttt__/__/__c
153	Erase sphere	cddt_c

This concludes the section on the Tactical Fire Control Function. The next section will establish the vocabulary for the message associated with the Non-nuclear Fire Planning Function.

Non-nuclear Fire Planning Function - Commander's Criteria

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Plan Name	cdt
11	Erase Plan name	cdt_____c
12	Date Time Group	cdtt
13	Day	r
14	Hour	r
15	Minute	r
16	Cursor reset	c
17	Zone of responsibility	cdttt
18	Delete request	cdttttXc
19	Do not delete request	cdttttc
20	Ignore ammunition designator	cddtXc
21	Erase ammunition designator	cddt_c
22	Effects cutoff factor	cdtt
23	Maximum battalions	cdttt

Non-nuclear Fire Planning Function - Fire Unit Exclusions

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Plan Name	cdt
11	Erase Plan name	cdt_____c

12	Date Time Group	cdtt
13	Day	r
14	Hour	r
15	Minute	r
16	Cursor reset	c
17	Fire units	cddt
18	Delete request	cdtttXc
19	Do not delete request	cdttt_c
20	First shell type	cdddtr
21	Second shell type	cdddttrrrr
22	First fuze type	cddddttt
23	Second fuze type	cddddtttrrrr
24	1 0 5 millimeter	cdddt105MMc
25	1 5 5 millimeter	cdddt155MMc
26	1 7 5 millimeter	cdddt175MMc
27	Eight Inch	cdddt8INc
28	Honest John	cdddtHJc
29	Lance	cdddtLANCErr
30	Hercules	cdddtHERCc
31	M 9 1	cdddtM91c
32	3 inch 50	cdddt3IN50c
33	5 inch 38	cdddt5IN38c
34	5 inch 54	cdddt5IN54c
35	6 inch 47	cdddt6IN47c
36	8 inch 55	cdddt8IN55c
37	Foxtrot 4 Delta	cdddtF4Dc
38	Foxtrot 4 Echo	cdddtF4Ec
39	Foxtrot 100	cdddtF100c
40	Foxtrot 1 11	cdddtF111c
41	Foxtrot 1 0 5	cdddtF105c
42	Alpha 7 Charlie	cdddtA7Cc
43	Alpha 7 Echo	cdddtA7Ec
44	Alpha 4 Echo	cdddtA4Ec
45	Alpha 4 Foxtrot	cdddtA4Fc
46	Alpha 4 Mike	cdddtA4Mc
47	Alpha 6 Alpha	cdddtA6Ac
48	Alpha 6 Echo	cdddtA6Ec
49	Alpha 10	cdddtA10c
50	Foxtrot 4 Charlie	cdddtF4Cc
51	Alpha 7 Delta	cdddtA7Dc
52	Foxtrot 4 Bravo	cdddtF4Bc
53	Foxtrot 4 Juliet	cdddtF4Jc

Non-nuclear Fire Planning Function - Commander's Attack Method

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Plan Name	cdt
11	Erase Plan name	cdt_____c
12	Date Time Group	cdtt
13	Day	r
14	Hour	r
15	Minute	r

16	Cursor reset	c
17	Desired effects	cddttt
18	Delete request	cdtttXc
19	Do not delete request	cdttt_c
20	Standard volley factor	cddtttt
21	Erase degree of protection	cddt+_____c
22	Cursor reset	c
23	Erase target type	cddt_____c
24	Air defense artillery	cddtADAc
25	Armor	cddtARMORc
26	Artillery	cddtARTYc
27	Assembly areas	cddtASSYc
28	Building	cddtBLDGc
29	Bridge	cddtBRIDGEc
30	Center	cddtCENc
31	Equipment	cddtEQUIPc
32	Mortars	cddtMORTc
33	Personnel	cddtPERSc
34	Rockets or Missiles	cddtRKTMSLc
35	Special missions	cddtSPECc
36	Supply dump	cddtSUPPLYc
37	Terrain features	cddtTERc
38	Vehicle	cddtVEHc
39	Weapons	cddtWPNc
40	Unknown	cddtrrrrrrrrUNKc
41	Light	cddtrrrrrrrrLTc
42	Medium	cddtrrrrrrrrMDMc
43	Heavy	cddtrrrrrrrrHVc
44	Missile	cddtrrrrrrrrMSLc
45	Position	cddtrrrrrrrrPOSc
46	Armored personnel carrier	cddtrrrrrrrrAPCc
47	Troops	cddtrrrrrrrrTRPc
48	Troops and vehicles	cddtrrrrrrrrTRPVEHc
49	Mechanized troops	cddtrrrrrrrrTRPARMc
50	Wood	cddtrrrrrrrrWOODc
51	Masonry	cddtrrrrrrrrMASNRYc
52	Concrete	cddtrrrrrrrrCONCc
53	Metal	cddtrrrrrrrrMETc
54	Special purpose	cddtrrrrrrrrSPCLc
55	Foot pontoon	cddtrrrrrrrrFTPONc
56	Vehicle pontoon	cddtrrrrrrrrVEHPONc
57	Steel	cddtrrrrrrrrSTEELc
58	Site	cddtrrrrrrrrSITEc
59	Raft	cddtrrrrrrrrRAFTc
60	Ferry	cddtrrrrrrrrFERRYc
61	Small	cddtrrrrrrrrSMALLc
62	Battalion	cddtrrrrrrrrBNc
63	Regiment	cddtrrrrrrrrREGTc
64	Division	cddtrrrrrrrrDIVc
65	Forward	cddtrrrrrrrrFWDc
66	Radar	cddtrrrrrrrrRADARc
67	Electronic warfare	cddtrrrrrrrrEWc
68	Searchlight	cddtrrrrrrrrSLTc
69	Guidance	cddtrrrrrrrrGDNCc
70	Loudspeaker	cddtrrrrrrrrLSc
71	Very heavy	cddtrrrrrrrrVHc
72	Infantry	cddtrrrrrrrrINFc
73	Observation post	cddtrrrrrrrrOPc
74	Patrol	cddtrrrrrrrrPTLc
75	Work party	cddtrrrrrrrrWKPTYc
76	Antipersonnel	cddtrrrrrrrrAPERSc
77	Light missile	cddtrrrrrrrrLTMSLc
78	Medium missile	cddtrrrrrrrrMDMSLc
79	Heavy missile	cddtrrrrrrrrHVMSLc
80	Antitank	cddtrrrrrrrrATANKc
81	Illumination one gun	cddtrrrrrrrrILL1c
82	Illumination two guns	cddtrrrrrrrrILL2c

83	Illumination with deflection	cddtrrrrrrrrILL2DFc
84	Illumination with range	cddtrrrrrrrrILL2RGc
85	Illumination four guns	cddtrrrrrrrrILL4c
86	Nonpersistent gas	cddtrrrrrrrrGASNONc
87	Persistent gas	cddtrrrrrrrrGASPERc
88	Leaflets	cddtrrrrrrrrLEAFc
89	Ammunition	cddtrrrrrrrrAMMOc
90	Petroleum	cddtrrrrrrrrPTLc
91	Bridge equipment	cddtrrrrrrrrBRGEQc
92	Class one	cddtrrrrrrrrCLIc
93	Class two	cddtrrrrrrrrCLIIc
94	Road	cddtrrrrrrrrROADc
95	Junction	cddtrrrrrrrrJCTc
96	Hill	cddtrrrrrrrrHILLc
97	Defile	cddtrrrrrrrrDEFILEc
98	Landing strip	cddtrrrrrrrrLDGSTRc
99	Railroad	cddtrrrrrrrrRRc
100	Light wheeled	cddtrrrrrrrrLTWHLc
101	Heavy wheeled	cddtrrrrrrrrHVWHLc
102	Reconnaissance	cddtrrrrrrrrRECONc
103	Boats	cddtrrrrrrrrBTc
104	Aircraft	cddtrrrrrrrrACFTc
105	Helicopter	cddtrrrrrrrrHELc
106	Light machine gun	cddtrrrrrrrrLTMGc
107	Antitank gun	cddtrrrrrrrrATGc
108	Heavy machine gun	cddtrrrrrrrrHVMGc
109	Recoilless rifle	cddtrrrrrrrrRCLRc
110	Erase target subtype	cddtrrrrrrrr_____c

Non-nuclear Fire Planning Function - Fire Unit Selection

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Plan Name	cdt
11	Erase Plan name	cdt_____c
12	Date Time Group	cdtt
13	Day	r
14	Hour	r
15	Minute	r
16	Cursor reset	c
17	Fire units	cdddt
18	Delete request	cdtttXc
19	Do not delete request	cdttt_c
20	Battalion name	cddt
21	Battalion order number	cddtt
22	Maximum volleys	cddttt
23	Ordering of fire units	cddtttt
24	105 millimeter	cddttt105MMc
25	155 millimeter	cddttt155MMc
26	175 millimeter	cddttt175MMc
27	Eight Inch	cddttt8INc
28	Honest John	cddtttHJc
29	Lance	cddtttLANCErr
30	Hercules	cddtttHERCc

31	M 9 1	cdddtttM91c
32	3 inch 50	cdddttt3IN50c
33	5 inch 38	cdddttt5IN38c
34	5 inch 54	cdddttt5IN54c
35	6 inch 47	cdddttt6IN47c
36	8 inch 55	cdddttt8IN55c
37	Foxtrot 4 Delta	cdddtttF4Dc
38	Foxtrot 4 Echo	cdddtttF4Ec
39	Foxtrot 100	cdddtttF100c
40	Foxtrot 1 11	cdddtttF111c
41	Foxtrot 1 0 5	cdddtttF105c
42	Alpha 7 Charlie	cdddtttA7Cc
43	Alpha 7 Echo	cdddtttA7Ec
44	Alpha 4 Echo	cdddtttA4Ec
45	Alpha 4 Foxtrot	cdddtttA4Fc
46	Alpha 4 Mike	cdddtttA4Mc
47	Alpha 6 Alpha	cdddtttA6Ac
48	Alpha 6 Echo	cdddtttA6Ec
49	Alpha 10	cdddtttA10c
50	Foxtrot 4 Charlie	cdddtttF4Cc
51	Alpha 7 Delta	cdddtttA7Dc
52	Foxtrot 4 Bravo	cdddtttF4Bc
53	Foxtrot 4 Juliet	cdddtttF4Jc
54	Right	r
55	Left	l
56	Erase	-

The remaining words should be made up of battalion names, plan names, and fire unit names. The fire unit names should not end with a cursor reset because a series of fire units can be entered in this message format. The fire unit names should end with a right cursor.

Non-nuclear Fire Planning Function = Planning Target Instructions

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Target number	cddt
11	Erase target number	_____r
12	Alpha	A
13	Bravo	B
14	Charlie	C
15	Delta	D
16	Echo	E

17	Foxtrot	F
18	Golf	G
19	Hotel	H
20	India	I
21	Juliet	J
22	Kilo	K
23	Lima	L
24	Mike	M
25	November	N
26	Oscar	O
27	Papa	P
28	Quebec	Q
29	Romeo	R
30	Sierra	S
31	Tango	T
32	Uniform	U
33	Victor	V
34	Whiskey	W
35	X ray	X
36	Yankee	Y
37	Zulu	Z
38	Left	l
39	Right	r
40	Erase	
41	Plan name	cdt
42	Erase plan name	cdt_____c
43	Fire plan target list	cdttXc
44	Erase fire plan target list	cdtt_c
45	Cursor reset	c
46	Oncall	cdtttXc
47	Erase oncall	cdttt_c
48	Delete request	cdttttXc
49	Do not delete request	cdttttt_c
50	Priority of targets	cdddt
51	Phase of targets	cdddtt
52	Time from H hour	cdddttt
53	Group	cddddtttt
54	Series name	cddddttttt
55	Series order	cddddttttttrrrrrrr
56	Fire units	cddddt
57	Erase fire unit	/_/_/_/___r
58	Desired effects	cddddddt
59	Number of volleys	cddddddtt
60	Initial shell	cddddddttt
61	Subsequent shell	cddddddttrrrr
62	Initial fuze	cddddddtttt
63	Subsequent fuze	cddddddttttrrrrr
64	Low angle of fire	cddddddttttLOWc
65	High angle of fire	cddddddttttHIGHc
66	Erase angle of fire	cddddddttttt____c
67	Erase fuze	___r
68	Erase shell	____r

Non-nuclear Fire Planning Function = Planning Target Update

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5

6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Target number	cddt
11	Erase target number	_____r
12	Alpha	A
13	Bravo	B
14	Charlie	C
15	Delta	D
16	Echo	E
17	Foxtrot	F
18	Golf	G
19	Hotel	H
20	India	I
21	Juliet	J
22	Kilo	K
23	Lima	L
24	Mike	M
25	November	N
26	Oscar	O
27	Papa	P
28	Quebec	Q
29	Romeo	R
30	Sierra	S
31	Tango	T
32	Uniform	U
33	Victor	V
34	Whiskey	W
35	X ray	X
36	Yankee	Y
37	Zulu	Z
38	Left	l
39	Right	r
40	Erase	E
41	Plan name	cdt
42	Erase subtype	cdddtrrrrrrr_____c
43	Record target	cddddtttTc
44	Coordinate east	cdtt
45	Coordinate north	cdttrrrrrrr
46	Altitude	cdttt111111111
47	Grid zone	cdttt
48	Spheroid	cdtttt
49	Target radius	cddddttt
50	Target length	cddddttt
51	Target width	cddddtttrrrrr
52	Erase record	cddddttt_c
53	Erase plan name	cdt_____c
54	Erase strength	cdddttttt____c
55	Erase report value	cdddttttt___c
56	Attitude	cddddtttt
57	Strength of target	cddddttttt
58	Report value	cddddtttttt
59	Suspected target	cddddtXc
60	Erase suspected target	cddddt_c
61	Delete request	cddddtttXc
62	Do not delete request	cddddttt_c
63	Erase degree of protection	cddddtt_____c
64	Cursor reset	c
65	Erase target type	cdddt_____c
66	Air defense artillery	cdddtADAc
67	Armor	cdddtARMORc
68	Artillery	cdddtARTYc
69	Assembly areas	cdddtASSYc
70	Building	cdddtBLDGc
71	Bridge	cdddtBRIDGEc
72	Center	cdddtCENc

73	Equipment	cdddtEQUIPc
74	Mortars	cdddtMORTc
75	Personnel	cdddtPERSc
76	Rockets or Missiles	cdddtRKTMSLc
77	Special missions	cdddtSPECc
78	Supply dump	cdddtSUPPLYc
79	Terrain features	cdddtTERc
80	Vehicle	cdddtVEHc
81	Weapons	cdddtWPNc
82	Unknown	cdddtrrrrrrrrUNKc
83	Light	cdddtrrrrrrrrLTc
84	Medium	cdddtrrrrrrrrMDMc
85	Heavy	cdddtrrrrrrrrHVc
86	Missile	cdddtrrrrrrrrMSLc
87	Position	cdddtrrrrrrrrPOSc
88	Armored personnel carrier	cdddtrrrrrrrrAPCc
89	Troops	cdddtrrrrrrrrTRPc
90	Troops and vehicles	cdddtrrrrrrrrTRPVEHc
91	Mechanized troops	cdddtrrrrrrrrTRPARMc
92	Wood	cdddtrrrrrrrrWOODc
93	Masonry	cdddtrrrrrrrrMASNRYc
94	Concrete	cdddtrrrrrrrrCONCc
95	Metal	cdddtrrrrrrrrMETc
96	Special purpose	cdddtrrrrrrrrSPCLc
97	Foot pontoon	cdddtrrrrrrrrFTPONc
98	Vehicle pontoon	cdddtrrrrrrrrVEHPONc
99	Steel	cdddtrrrrrrrrSTEELc
100	Site	cdddtrrrrrrrrSITEc
101	Raft	cdddtrrrrrrrrRAFTc
102	Ferry	cdddtrrrrrrrrFERRYc
103	Small	cdddtrrrrrrrrSMALLc
104	Battalion	cdddtrrrrrrrrBNc
105	Regiment	cdddtrrrrrrrrREGTc
106	Division	cdddtrrrrrrrrDIVc
107	Forward	cdddtrrrrrrrrFWDc
108	Radar	cdddtrrrrrrrrRADARc
109	Electronic warfare	cdddtrrrrrrrrEWc
110	Searchlight	cdddtrrrrrrrrSLTc
111	Guidance	cdddtrrrrrrrrGDNCc
112	Loudspeaker	cdddtrrrrrrrrLSc
113	Very heavy	cdddtrrrrrrrrVHc
114	Infantry	cdddtrrrrrrrrINFc
115	Observation post	cdddtrrrrrrrrOPc
116	Patrol	cdddtrrrrrrrrPTLc
117	Work party	cdddtrrrrrrrrWKPTYc
118	Antipersonnel	cdddtrrrrrrrrAPERSc
119	Light missile	cdddtrrrrrrrrLTMSLc
120	Medium missile	cdddtrrrrrrrrMDMSLc
121	Heavy missile	cdddtrrrrrrrrHVMSLc
122	Antitank	cdddtrrrrrrrrATANKc
123	Illumination one gun	cdddtrrrrrrrrILL1c
124	Illumination two guns	cdddtrrrrrrrrILL2c
125	Illumination with deflection	cdddtrrrrrrrrILL2DFc
126	Illumination with range	cdddtrrrrrrrrILL2RGc
127	Illumination four guns	cdddtrrrrrrrrILL4c
128	Nonpersistent gas	cdddtrrrrrrrrGASNONc
129	Persistent gas	cdddtrrrrrrrrGASPERc
130	Leaflets	cdddtrrrrrrrrLEAFc
131	Ammunition	cdddtrrrrrrrrAMMOc
132	Petroleum	cdddtrrrrrrrrPTLc
133	Bridge equipment	cdddtrrrrrrrrBRGEQc
134	Class one	cdddtrrrrrrrrCLIc
135	Class two	cdddtrrrrrrrrCLIIc
136	Road	cdddtrrrrrrrrROADc
137	Junction	cdddtrrrrrrrrJCTc
138	Hill	cdddtrrrrrrrrHILLc
139	Defile	cdddtrrrrrrrrDEFILEc

140	Landing strip	cdddtrrrrrrrrLDGSTRc
141	Railroad	cdddtrrrrrrrrRRc
142	Light wheeled	cdddtrrrrrrrrLTWHLc
143	Heavy wheeled	cdddtrrrrrrrrHVWHLc
144	Reconnaissance	cdddtrrrrrrrrRECONc
145	Boats	cdddtrrrrrrrrBTc
146	Aircraft	cdddtrrrrrrrrACFTc
147	Helicopter	cdddtrrrrrrrrHELc
148	Light machine gun	cdddtrrrrrrrrLTMGc
149	Antitank gun	cdddtrrrrrrrrATGc
150	Heavy machine gun	cdddtrrrrrrrrHVMGc
151	Recoilless rifle	cdddtrrrrrrrrRCLRc
152	Erase grid zone	cdttt___c
153	Erase sphere	cdttt=_c
154	Half prone half standing	cdddttPRANDc
155	Prone	cdddttPRONEc
156	Prone dug in	cdddttPRUGc
157	Prone overhead cover	cdddttPROVERc
158	Dug in	cdddttDUGINc
159	Under overhead cover	cdddttCOVERc

Non-nuclear Fire Planning Function = Planning Target Update

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Target number	cddt
11	Erase target number	_____r
12	Alpha	A
13	Bravo	B
14	Charlie	C
15	Delta	D
16	Echo	E
17	Foxtrot	F
18	Golf	G
19	Hotel	H
20	India	I
21	Juliet	J
22	Kilo	K
23	Lima	L
24	Mike	M
25	November	N
26	Oscar	O
27	Papa	P
28	Quebec	Q
29	Romeo	R
30	Sierra	S
31	Tango	T
32	Uniform	U
33	Victor	V
34	Whiskey	W
35	X ray	X
36	Yankee	Y
37	Zulu	Z

38	Left	l
39	Right	r
40	Erase	
41	Plan name	cdt
42	Erase subtype	cdddtrrrrrrr_____c
43	Record target	cddddtttrc
44	Coordinate east	cdtt
45	Coordinate north	cdttrrrrrrr
46	Altitude	cdttt111111111
47	Grid zone	cdttt
48	Spheroid	cdttttt
49	Target radius	cddddttt
50	Target length	cdddtttt
51	Target width	cddddttrrrrr
52	Erase record	cddddttt_c
53	Erase plan name	cdt_____c
54	Erase strength	cddddttttt____c
55	Erase report value	cddddttttt___c
56	Attitude	cddddtttt
57	Strength of target	cddddttttt
58	Report value	cddddtttttt
59	Suspected target	cddddtXc
60	Erase suspected target	cddddt_c
61	Delete request	cddddtXc
62	Do not delete request	cddddttt_c
63	Erase degree of protection	cdddtt_____c
64	Cursor reset	c
65	Erase target type	cddd_____c
66	Air defense artillery	cddd tADAc
67	Armor	cdddtARMORc
68	Artillery	cdddtARTYc
69	Assembly areas	cdddtASSYc
70	Building	cdddtBLDGc
71	Bridge	cdddtBRIDGEc
72	Center	cdddtCENc
73	Equipment	cdddtEQUIPc
74	Mortars	cdddtMORTc
75	Personnel	cdddtPERSc
76	Rockets or Missiles	cdddtRKTMSLc
77	Special missions	cdddtSPECc
78	Supply dump	cdddtSUPPLYc
79	Terrain features	cdddtTERc
80	Vehicle	cdddtVEHc
81	Weapons	cdddtWPNc
82	Unknown	cdddtrrrrrrrrUNKc
83	Light	cdddtrrrrrrrrLTc
84	Medium	cdddtrrrrrrrrMDMc
85	Heavy	cdddtrrrrrrrrHVc
86	Missile	cdddtrrrrrrrrMSLc
87	Position	cdddtrrrrrrrrPOSc
88	Armored personnel carrier	cdddtrrrrrrrrAPCc
89	Troops	cdddtrrrrrrrrTRPc
90	Troops and vehicles	cdddtrrrrrrrrTRPVEHc
91	Mechanized troops	cdddtrrrrrrrrTRPARMc
92	Wood	cdddtrrrrrrrrWOODc
93	Masonry	cdddtrrrrrrrrMASNRYc
94	Concrete	cdddtrrrrrrrrCONCc
95	Metal	cdddtrrrrrrrrMETc
96	Special purpose	cdddtrrrrrrrrSPCLc
97	Foot pontoon	cdddtrrrrrrrrFTPONc
98	Vehicle pontoon	cdddtrrrrrrrrVEHPONc
99	Steel	cdddtrrrrrrrrSTEELc
100	Site	cdddtrrrrrrrrSITEc
101	Raft	cdddtrrrrrrrrRAFTc
102	Ferry	cdddtrrrrrrrrFERRYc
103	Small	cdddtrrrrrrrrSMALLc
104	Battalion	cdddtrrrrrrrrBNc

105	Regiment	cdddtrrrrrrrrREGTc
106	Division	cdddtrrrrrrrrDIVc
107	Forward	cdddtrrrrrrrrFWDc
108	Radar	cdddtrrrrrrrrRADARc
109	Electronic warfare	cdddtrrrrrrrrEWc
110	Searchlight	cdddtrrrrrrrrSLTc
111	Guidance	cdddtrrrrrrrrGDNCc
112	Loudspeaker	cdddtrrrrrrrrLSc
113	Very heavy	cdddtrrrrrrrrVHc
114	Infantry	cdddtrrrrrrrrINFc
115	Observation post	cdddtrrrrrrrrOPc
116	Patrol	cdddtrrrrrrrrPTLc
117	Work party	cdddtrrrrrrrrWKPTYc
118	Antipersonnel	cdddtrrrrrrrrAPERSc
119	Light missile	cdddtrrrrrrrrLTMSLc
120	Medium missile	cdddtrrrrrrrrMDMSLc
121	Heavy missile	cdddtrrrrrrrrHVMSLc
122	Antitank	cdddtrrrrrrrrATANKc
123	Illumination one gun	cdddtrrrrrrrrILL1c
124	Illumination two guns	cdddtrrrrrrrrILL2c
125	Illumination with deflection	cdddtrrrrrrrrILL2DFc
126	Illumination with range	cdddtrrrrrrrrILL2RGc
127	Illumination four guns	cdddtrrrrrrrrILL4c
128	Nonpersistent gas	cdddtrrrrrrrrGASNONc
129	Persistent gas	cdddtrrrrrrrrGASPERc
130	Leaflets	cdddtrrrrrrrrLEAFc
131	Ammunition	cdddtrrrrrrrrAMMOc
132	Petroleum	cdddtrrrrrrrrPTLc
133	Bridge equipment	cdddtrrrrrrrrBRGEQc
134	Class one	cdddtrrrrrrrrCLIc
135	Class two	cdddtrrrrrrrrCLIIc
136	Road	cdddtrrrrrrrrROADc
137	Junction	cdddtrrrrrrrrJCTc
138	Hill	cdddtrrrrrrrrHILLc
139	Defile	cdddtrrrrrrrrDEFILEc
140	Landing strip	cdddtrrrrrrrrLDGSTRc
141	Railroad	cdddtrrrrrrrrRRc
142	Light wheeled	cdddtrrrrrrrrLTWHLc
143	Heavy wheeled	cdddtrrrrrrrrHVWHLc
144	Reconnaissance	cdddtrrrrrrrrRECONc
145	Boats	cdddtrrrrrrrrBTc
146	Aircraft	cdddtrrrrrrrrACFTc
147	Helicopter	cdddtrrrrrrrrHELc
148	Light machine gun	cdddtrrrrrrrrLTMGc
149	Antitank gun	cdddtrrrrrrrrATGc
150	Heavy machine gun	cdddtrrrrrrrrHVMGc
151	Recoilless rifle	cdddtrrrrrrrrRCLRc
152	Erase grid zone	cdttt---c
153	Erase sphere	cdttt---c
154	Half prone half standing	cdddttPRANDc
155	Prone	cdddttPRONEc
156	Prone dug in	cdddttPRUGc
157	Prone overhead cover	cdddttPROVERc
158	Dug in	cdddttDUGINc
159	Under overhead cover	cdddttCOVERc

Non-nuclear Fire Planning Function - Reserve Fire Unit

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3

4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Plan name	cdt
11	Erase plan name	cdt_____c
12	Fire unit	cdtt
13	Erase fire unit	cdtt_/_/_/__/___c
14	Reserve time start	cdttt
15	Reserve time end	cdttttrrrrr
16	Delete request	cdttttXc
17	Do not delete request	cdttttc

Non-nuclear Fire Planning Function - Compute a Fire Plan

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Plan name	cdt
11	Erase plan name	cdt_____c
12	H hour	cdtt
13	Minute	r
14	Oncall	cdtttXc
15	Erase oncall	cdttt_c
16	Priority	cdtttt
17	Erase priority	cdtttt_c
18	Preliminary target list	cdttttXc
19	Erase preliminary target list	cdttttc
20	Phase one	cddt
21	Phase two	cddtt
22	Phase three	cddttt
23	Phase four	cddttttt
24	Right	-
25	Left	l
26	Erase	_

Non-nuclear Fire Planning Function - Fire Plan Alteration

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9

10	Target number	cttt
11	Erase target number	cttt_____c
12	Alpha	A
13	Bravo	B
14	Charlie	C
15	Delta	D
16	Echo	E
17	Foxtrot	F
18	Golf	G
19	Hotel	H
20	India	I
21	Juliet	J
22	Kilo	K
23	Lima	L
24	Mike	M
25	November	N
26	Oscar	O
27	Papa	P
28	Quebec	Q
29	Romeo	R
30	Sierra	S
31	Tango	T
32	Uniform	U
33	Victor	V
34	Whiskey	W
35	X ray	X
36	Yankee	Y
37	Zulu	Z
38	Left	L
39	Right	R
40	Erase	E
41	Plan name	cdt
42	Erase plan name	cdt_____c
43	Fire plan target list	cdtttXc
44	Add data	cdtttXc
45	Cursor reset	c
46	Erase add data	cdttt c
47	H Hour	cdttttt
48	Delete request	cdttttXc
49	Do not delete request	cdttttc
50	Fire unit	cdttttttt
51	Erase fire unit	cdttttttt_/_/_/__/___c
52	Desired effects	cddt
53	Number of volleys	cdddt
54	Initial shell	cddttt
55	Subsequent shell	cddttttrrrr
56	Initial fuze	cddttttt
57	Subsequent fuze	cddttttrrrrr
58	Detonate on impact	cddttttttYESc
59	Other than impact	cddttttttNOc
60	High angle	cddttttttHIGHc
61	Low angle	cddttttttLOWc

Non-nuclear Fire Planning Function - User Commands

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6

7	Seven	7
8	Eight	8
9	Nine	9
10	Target number	cdddt
11	Erase target number	_____r
12	Alpha	A
13	Bravo	B
14	Charlie	C
15	Delta	D
16	Echo	E
17	Foxtrot	F
18	Golf	G
19	Hotel	H
20	India	I
21	Juliet	J
22	Kilo	K
23	Lima	L
24	Mike	M
25	November	N
26	Oscar	O
27	Papa	P
28	Quebec	Q
29	Romeo	R
30	Sierra	S
31	Tango	T
32	Uniform	U
33	Victor	V
34	Whiskey	W
35	X ray	X
36	Yankee	Y
37	Zulu	Z
38	Left	l
39	Right	r
40	Erase	
41	Plan name	cdt
42	Erase plan name	cdt_____c
43	New plan	cdtt
44	Default MOD	cdtttXc
45	Erase default MOD	cdttt_c
46	Abort request	cdtttTXc
47	Erase abort request	cdtttt_c
48	Purge	cdtttttXc
49	Erase purge	cdttttt_c
50	Delete request	cdttttttXc
51	Do not delete request	cdtttttt_c
52	Edit request	cddtXc
53	Erase edit request	cddt_c
54	Print request	cddttXc
55	Erase print request	cddtt_c
56	View request	cddttTXc
57	Erase view request	cddttt_c
58	Show request	cddtttTXc
59	Erase show request	cddttttt_c
60	Transmit request	cddttttTXc
61	Erase transmit request	cddtttttt_c
62	Destination	cddttttttT
63	Erase destination	cddttttttt_/_/_/__/___c
64	Override	cddttttttttXc
65	Erase override	cddtttttttt_c
66	Target count	cddttttttttTXc
67	Erase target count	cddtttttttttt_c
68	Preliminary list	cddddtXc
69	Erase preliminary list	cddddt_c
70	Fire plan list	cddddtTXc
71	Erase fire plan list	cddddtt_c
72	Targets in schedule	cddddttTXc
73	Erase targets in schedule	cddddttt_c

74	Oncall	cddddtttt^Xc
75	Erase oncall	cddddtttt_c
76	Phase of targets	cddddttttf
77	Erase phase of targets	cddddttttt_c
78	Zone of responsibility	cddddtttttf
79	Erase zone of responsibility	cddddttttttt_____c
80	Overlap distance	cddddtttttttf
81	Erase overlap distance	cddddttttttt____c
82	All files	cddddddfXc
83	Erase all files	cddddddt_c
84	Schedule of fires	cddddddfXc
85	Erase schedule of fires	cddddddt_c
86	Group of fires	cddddddtfXc
87	Erase group of fires	cddddddtt_c
88	Series of fires	cddddddttfXc
89	Erase series of fires	cddddddtttt_c
90	Ammunition report	cddddddttttfXc
91	Erase ammunition report	cddddddttttt_c
92	Fire plan summary	cddddddtttttfXc
93	Erase fire plan summary	cddddddttttt_c
94	Reserve fire units	cddddddtttttfXc
95	Erase fire units	cddddddttttttt_c
96	Modification data	cddddddtttttttfXc
97	Erase modification data	cddddddttttttt_c
98	Build a MOD file	cddddddtttttttfXc
99	Erase build a MOD file	cddddddttttttttt_c
100	Update nuclear targets	cddddddUc
101	All nuclear targets	cddddddAc
102	Specified nuclear targets	cddddddSc
103	Erase nuclear targets	cddddddd_c
104	Plain test	cddddddtt

This concludes the vocabulary lists for the Non-nuclear Fire planning Function. The next section will cover the vocabulary necessary to use voice data entry in correspondence to the Artillery Intelligence Function

Artillery Intelligence Function - Fire Mission Criteria

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Date time group	cdt
11	Erase date time group	cdt__/__/__c
12	Day	r
13	Hour	r

14	Minute	r
15	Delete request	cdttXc
16	Do not delete request	cdtt_c
17	Coordinate report	cddtXc
18	Erase coordinate report	cddt_c
19	Solution report	cddttXc
20	Erase solution report	cddtt_c
21	Report value	cddttt
22	Weight type target	cddtttt
23	Weight degree of protection	cddttttt
24	Weight target size	cddtttttt

Artillery Intelligence Function = Target Buildup Criteria

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Date time group	cdt
11	Erase date time group	cdt__/__/__c
12	Day	r
13	Hour	r
14	Minute	r
15	Delete request	cdttXc
16	Do not delete request	cdtt_c
17	Abort request	cdtttXc
18	Erase abort request	cdttt_c
19	Test criteria number	cdtttt
20	Erase test criteria number	cdttt_c
21	Search	cdttttXc
22	Erase search	cdtttt_c

Artillery Intelligence Function = Standard Value Criteria

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Date time group	cdt
11	Erase date time group	cdt__/__/__c
12	Day	r
13	Hour	r
14	Minute	r
15	Delete request	cdttXc
16	Do not delete request	cdtt_c

17	Max time difference X	cdttt
18	January	cdtttt31c
19	February	cdtttt28c
20	February leap year	cdtttt29c
21	March	cdtttt31c
22	April	cdtttt30c
23	May	cdtttt31c
24	June	cdtttt30c
25	July	cdtttt31c
26	August	cdtttt31c
27	September	cdtttt30c
28	October	cdtttt31c
29	November	cdtttt30c
30	December	cdtttt31c
31	Max time difference Y	cdttttt
32	Erase month	cdttttt_c
33	Report value	cddt
34	Erase report value	cddt__c
35	report value criteria	cddtt
36	Erase report value criteria	cddtt__c
37	Max protection difference	cddttt
38	Left	l
39	Right	r
40	Erase	
41	Combination difference	cddtttt
42	Relative proximity factor	cddttttt

The months of the year have been included in this vocabulary list so the operator will not have to determine the number of days in the previous month. The operator just has to say the name of the month and the proper days are output in the message template.

Artillery Intelligence Function - Data Print Criteria

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Date time group	cdt
11	Erase date time group	cdt__/__/__c
12	Day	r
13	Hour	:
14	Minute	r
15	Delete request	cdttXc
16	Do not delete request	cdtt_c
17	Recommend combination	cdtttXc
18	Erase recommend combination	cdttt_c
19	Recommend inspection	cdttttXc

20	Erase recommend inspection	cdttttc
21	In fan	cdttttfXc
22	Erase in fan	cdttttfc
23	Compatible	cdttttttXc
24	Erase compatible	cdtttttttc
25	Incompatible	cdttttttfXc
26	Erase incompatible	cdtttttttc

Artillery Target Intelligence - Data Base Modification

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	F O	cdtFOc
11	F O without laser	cdtFOWLc
12	Observer not artillery	cdtOBSRc
13	Long range recce patrol	cdtLRRPc
14	Target base	cdtTGTBc
15	Air observer	cdtAOBSRc
16	Sound ranging	cdtSORNGc
17	Flash ranging	cdtFLRNGc
18	Counter mortar radar	cdtCMRRc
19	Counter battery radar	cdtCBRRc
20	Photo interpretation	cdtPIc
21	Prisoner of war	cdtPOWc
22	Ground surveillance radar	cdtGSRAc
23	Side looking airborne radar	cdtSLARc
24	Airborne infrared	cdtIRc
25	Tactical air	cdtTACAIRc
26	Communication intelligence	cdtCOMINTc
27	Electronic intelligence	cdtELINTc
28	Erase agency	cdt_____c
29	Meter accuracy	cddtt
30	Mil accuracy	cddtt
31	Range to target	cddttt
32	Range error	cddtttrrrrrr
33	Location error	cddttttt
34	Left	l
35	Right	r
36	Air defense artillery	cdttADAc
37	Armor	cdttARMORc
38	Artillery	cdttARTYc
39	Assembly areas	cdttASSYc
40	Building	cdttBLDGc
41	Bridge	cdttBRIDGEc
42	Center	cdttCENc
43	Equipment	cdttEQUIPc
44	Mortars	cdttMORTc
45	Personnel	cdttPERSc
46	Rockets or Missiles	cdttRKTMSLc
47	Special missions	cdttSPECc
48	Supply dump	cdttSUPPLYc
49	Terrain features	cdttTERc
50	Vehicle	cdttVEHc
51	Weapons	cdttWPNc

52	Erase	
53	Erase target type	cdtt_____c

Artillery Target Intelligence - Coordinate Report

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	F O	cdtttFOc
11	F O without laser	cdtttFOWLc
12	Observer not artillery	cdtttOBSRc
13	Long range recce patrol	cdtttLRRPc
14	Target base	cdtttTGTBc
15	Air observer	cdtttAOBSRc
16	Sound ranging	cdtttSORNGc
17	Flash ranging	cdtttFLRNGc
18	Counter motar radar	cdtttCMRRc
19	Counter battery radar	cdtttCBRRc
20	Photo interpretation	cdtttPIc
21	Prisoner of war	cdtttPOWc
22	Ground surveillance radar	cdttttGSRAc
23	Side looking airborne radar	cdttttSLARc
24	Airborne infrared	cdtttIRc
25	Tactical air	cdttttTACAIRc
26	Communication intelligence	cdttttCOMINTc
27	Electronic intelligence	cdttttELINTc
28	Erase agency	cdtttt_____c
29	Target update	cdtXc
30	Erase target update	cdt_c
31	Delete request	cdttXc
32	Do not delete request	cdtt_c
33	Target number	cdttc
34	Left	l
35	Right	r
36	Erase	
37	Cursor reset	c
38	Delete target number	cdttt_____c
39	Do not adjust coordinates	cdtttttXc
40	Erase adjust coordinates	cdttttt_c
41	Do not combine description	cdtttttXc
42	Alpha	A
43	Bravo	B
44	Charlie	C
45	Delta	D
46	Echo	E
47	Foxtrot	F
48	Golf	G
49	Hotel	H
50	India	I
51	Juliet	J
52	Kilo	K
53	Lima	L
54	Mike	M
55	November	N
56	Oscar	O

57	Papa	P
58	Quebec	Q
59	Romeo	R
60	Sierra	S
61	Tango	T
62	Uniform	U
63	Victor	V
64	Whiskey	W
65	X ray	X
66	Yankee	Y
67	Zulu	Z
68	Erase combine description	cdttttttt_c
69	Fire request	cdttttttFtXc
70	Erase fire request	cdttttttt_c
71	Coordinate east	cddt
72	Coordinate north	cddtrrrrrrrr
73	Altitude	cddttllllllll
74	Grid zone	cddtt
75	Spheroid	cddttt
76	Target radius	cddtttt
77	Target length	cddtttt
78	Target width	cddttttrrrrrr
79	Attitude	cddttttt
70	Erase subtype	cdddtrrrrrrr_____c
71	Target latitude	cdddttt
72	Target longitude	cdddtttt
73	Erase target type	cdddt_____c
74	Air defense artillery	cdddtADAc
75	Armor	cdddtARMORc
76	Artillery	cdddtARTYc
77	Assembly areas	cdddtASSYc
78	Building	cdddtBLDGc
79	Bridge	cdddtBRIDGEc
80	Center	cdddtCENc
81	Equipment	cdddtEQUIPc
82	Mortars	cdddtMORTc
83	Personnel	cdddtPERSc
84	Rockets or Missiles	cdddtRKTMSLc
85	Special missions	cdddtSPECc
86	Supply dump	cdddtSUPPLYc
87	Terrain features	cdddtTERc
88	Vehicle	cdddtVEHc
89	Weapons	cdddtWPNc
90	Unknown	cdddtrrrrrrrrUNKc
91	Light	cdddtrrrrrrrrLTc
92	Medium	cdddtrrrrrrrrMDMc
93	Heavy	cdddtrrrrrrrrHVc
94	Missile	cdddtrrrrrrrrMSLc
95	Position	cdddtrrrrrrrrPOSc
96	Armored personnal carrier	cdddtrrrrrrrrAPCc
97	Troops	cdddtrrrrrrrrTRPc
98	Troops and vehicles	cdddtrrrrrrrrTRPVEHc
99	Mechanized troops	cdddtrrrrrrrrTRPARMc
100	Wood	cdddtrrrrrrrrWOODc
101	Masonry	cdddtrrrrrrrrMASNRYc
102	Concrete	cdddtrrrrrrrrCONCc
103	Metal	cdddtrrrrrrrrMETc
104	Special purpose	cdddtrrrrrrrrSPCLc
105	Foot pontoon	cdddtrrrrrrrrFTPONc
106	Vehicle pontoon	cdddtrrrrrrrrVEHPONc
107	Steel	cdddtrrrrrrrrSTEELc
108	Site	cdddtrrrrrrrrSITEc
109	Raft	cdddtrrrrrrrrRAFTc
110	Ferry	cdddtrrrrrrrrFERRYc
111	Small	cdddtrrrrrrrrSMALLc
112	Battalion	cdddtrrrrrrrrBNc
113	Regiment	cdddtrrrrrrrrREGTc

114	Division	cdddtrrrrrrrrDIVc
115	Forward	cdddtrrrrrrrrFWDc
116	Radar	cdddtrrrrrrrrRADARc
117	Electronic warfare	cdddtrrrrrrrrEWc
118	Searchlight	cdddtrrrrrrrrSLTc
119	Guidance	cdddtrrrrrrrrGDNCc
120	Loudspeaker	cdddtrrrrrrrrLSc
121	Very heavy	cdddtrrrrrrrrVHc
122	Infantry	cdddtrrrrrrrrINFc
123	Observation post	cdddtrrrrrrrrOPc
124	Patrol	cdddtrrrrrrrrPTLc
125	Work party	cdddtrrrrrrrrWKPTYc
126	Antipersonnel	cdddtrrrrrrrrAPERSc
127	Light missile	cdddtrrrrrrrrLTMSLc
128	Medium missile	cdddtrrrrrrrrMDMSLc
129	Heavy missile	cdddtrrrrrrrrHVMSLc
130	Antitank	cdddtrrrrrrrrATANKc
131	Illumination one gun	cdddtrrrrrrrrILL1c
132	Illumination two guns	cdddtrrrrrrrrILL2c
133	Illumination with deflection	cdddtrrrrrrrrILL2DFc
134	Illumination with range	cdddtrrrrrrrrILL2RGc
135	Illumination four guns	cdddtrrrrrrrrILL4c
136	Nonpersistent gas	cdddtrrrrrrrrGASNONc
137	Persistent gas	cdddtrrrrrrrrGASPERc
138	Leaflets	cdddtrrrrrrrrLEAFc
139	Ammunition	cdddtrrrrrrrrAMMOc
140	Petroleum	cdddtrrrrrrrrPTLc
141	Bridge equipment	cdddtrrrrrrrrBRGEQc
142	Class one	cdddtrrrrrrrrCLIc
143	Class two	cdddtrrrrrrrrCLIIc
144	Road	cdddtrrrrrrrrROADc
145	Junction	cdddtrrrrrrrrJCTc
146	Hill	cdddtrrrrrrrrHILLc
147	Defile	cdddtrrrrrrrrDEFILEc
148	Landing strip	cdddtrrrrrrrrLDGSTRc
149	Railroad	cdddtrrrrrrrrRRc
150	Light wheeled	cdddtrrrrrrrrLTWHLc
151	Heavy wheeled	cdddtrrrrrrrrHVWHLc
152	Reconnaissance	cdddtrrrrrrrrRECONc
153	Boats	cdddtrrrrrrrrBTc
154	Aircraft	cdddtrrrrrrrrACFTc
155	Helicopter	cdddtrrrrrrrrHELc
156	Light machine gun	cdddtrrrrrrrrLTMGc
157	Antitank gun	cdddtrrrrrrrrATGc
158	Heavy machine gun	cdddtrrrrrrrrHVMGc
159	Recoilless rifle	cdddtrrrrrrrrRCLRc
160	Half prone half standing	cddddttPRANDc
161	Prone	cddddttPRONEc
162	Prone dug in	cddddttPRUGc
163	Prone overhead cover	cddddttPROVERc
164	Dug in	cddddttDUGINc
165	Under overhead cover	cddddttCOVERc
166	Degrees	r
167	Minutes	r
168	Seconds	r
169	Erase degree of protection	cddddtt______c
170	Report value	cddddt
171	Excellent reliability	cddddttEc
172	Good reliability	cddddttGc
173	Fair reliability	cddddttFc
174	Erase reliability	cddddtt c
175	Strength of target	cddddttt
176	Target altitude	cddddtttt
177	Confirm target	cddddttttttXc
178	Erase confirm target	cddddttttttc
179	Date time group	cddddtttttt
180	Days	r

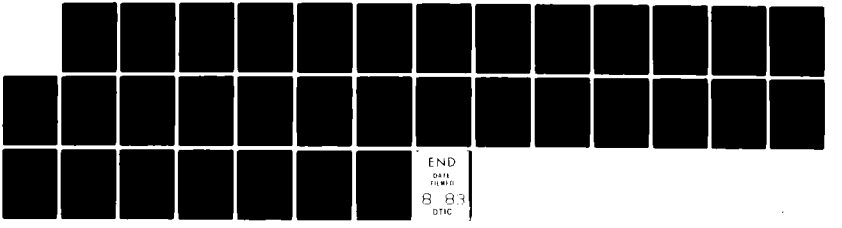
181	Hours	t
182	Tropical uniform	cddddddtAc
183	Summer uniform with mask	cddddddtBc
184	Body covered	cddddddtCc
185	Body heavily covered	cddddddtDc
186	Erase clothing	cddddddt c
187	15 second training	cddddddtt15Sc
188	30 second training	cddddddtt30Sc
189	No C B R training	cddddddttTODc
190	Erase training	cddddddtt c
191	Bare	cddddddtttBAREc
192	Shrubs	cddddddtttSHRUBc
193	Woods	cddddddtttWOODSc
194	Erase vegetation	cddddddttt c
195	0 to 1 hour	cddddddtttt0001c
196	1 to 3 hours	cddddddtttt0103c
197	3 to 12 hours	cddddddtttt0312c
198	12 to 24 hours	cddddddtttt1224c
199	more than 24 hours	cddddddtttt2400c
200	Erase target permanence	cddddddtttt c
201	Neutralized	cddddddttttNEUTc
202	Burning	cddddddttttBURNc
203	Neutralized and burning	cddddddttttNEUT/BURNc
204	Destroyed	cddddddttttDESTc
205	Can not observe	cddddddttttCNOc
206	Unknown	cddddddttttUNKc
207	None	cddddddttttNONEc
208	Erase disposition	cddddddttttt c
209	Casulaties	cddddddttttt
210	Mission fired	cddddddttX
211	Erase mission fired	cddddddtt c
212	Plain text	cddddddttt
213	Plain text message	cddddddtttt

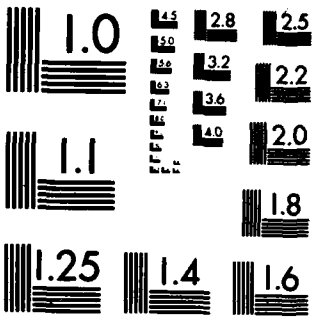
Artillery Target Intelligence - Azimuth Distance Report

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	F O	cdttttFOc
11	F O without laser	cdttttFOWLc
12	Observer not artillery	cdttttOBSRc
13	Long range recce patrol	cdttttLRRPc
14	Target base	cdttttTGTBc
15	Air observer	cdttttAOBSRc
16	Sound ranging	cdttttSORNGc
17	Flash ranging	cdttttFLRNGc
18	Counter mortar radar	cdttttCMRRc
19	Counter battery radar	cdttttCBRRc
20	Photo interpretation	cdttttPIc
21	Prisoner of war	cdttttPOWc
22	Ground surveillance radar	cdttttGSRAc
23	Side looking airborne radar	cdttttSLARc
24	Airborne infrared	cdttttIRc
25	Tactical air	cdttttTACAIRc

AD-A129 975 VOICE RECOGNITION VOCABULARY LISTS FOR THE ARMY'S TACFIRE SYSTEM(U) NAVAL POSTGRADUATE SCHOOL MONTEREY CA G K POOCK ET AL. JAN 83 NPS55-83-001 2/2

UNCLASSIFIED F/G 5/7 NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

26	Communication intelligence	cdtttt+COMINTc
27	Electronic intelligence	cdtttt+ELINTc
28	Erase agency	cdtttt+------c
29	Target update	cdtXc
30	Erase target update	cdt_c
31	Delete request	cdtttXc
32	Do not delete request	cdtt_c
33	Target number	cdttt
34	Left	l
35	Right	r
36	Erase	
37	Cursor reset	c
38	Delete target number	cdttt+---c
39	Do not adjust coordinates	cdttttttXc
40	Erase adjust coordinates	cdttttt_c
41	Do not combine description	cdttttttXc
42	Alpha	A
43	Bravo	B
44	Charlie	C
45	Delta	D
46	Echo	E
47	Foxtrot	F
48	Golf	G
49	Hotel	H
50	India	I
51	Juliet	J
52	Kilo	K
53	Lima	L
54	Mike	M
55	November	N
56	Oscar	O
57	Papa	P
58	Quebec	Q
59	Romeo	R
60	Sierra	S
61	Tango	T
62	Uniform	U
63	Victor	V
64	Whiskey	W
65	X ray	X
66	Yankee	Y
67	Zulu	Z
68	Erase combine description	cdttttttt_c
69	Surveyed location	cdttttttttXc
70	Erase surveyed location	cdttttttttt_c
71	Coordinate east	cddt
72	Coordinate north	cddtrrrrrrrr
73	Altitude	cddttllllllll
74	Grid zone	cdddtt
75	Spheroid	cdddttt
76	Target radius	cdddtttt
77	Target length	cdddttttt
78	Target width	cddttttrrrrr
79	Attitude	cddttttt
70	Erase subtype	cdddtrrrrrrr_____c
71	Azimuth	cdddttt
72	Distance	cddddtttt
73	Erase target type	cdddd+-----c
74	Air defense artillery	cdddd+ADAc
75	Armor	cdddd+ARMORc
76	Artillery	cdddd+ARTYc
77	Assembly areas	cdddd+ASSYc
78	Building	cdddd+BLDGc
79	Bridge	cdddd+BRIDGEc
80	Center	cdddd+CENc
81	Equipment	cdddd+EQUIPc
82	Mortars	cdddd+MORTc

83	Personnel	cddd+PERSc
84	Rockets or Missiles	cddd+RKTMSLc
85	Special missions	cddd+SPECc
86	Supply dump	cddd+SUPPLYc
87	Terrain features	cddd+TERc
88	Vehicle	cddd+VEHc
89	Weapons	cddd+WPNc
90	Unknown	cdddtrrrrrrrrUNKc
91	Light	cdddtrrrrrrrrLTc
92	Medium	cdddtrrrrrrrrMDMc
93	Heavy	cdddtrrrrrrrrHVc
94	Missile	cdddtrrrrrrrrMSLc
95	Position	cdddtrrrrrrrrPOSc
96	Armored personnel carrier	cdddtrrrrrrrrAPCc
97	Troops	cdddtrrrrrrrrTRPc
98	Troops and vehicles	cdddtrrrrrrrrTRPVEHc
99	Mechanized troops	cdddtrrrrrrrrTRPARMc
100	Wood	cdddtrrrrrrrrWOODc
101	Masonry	cdddtrrrrrrrrMASNRYc
102	Concrete	cdddtrrrrrrrrCONCc
103	Metal	cdddtrrrrrrrrMETc
104	Special purpose	cdddtrrrrrrrrSPCLc
105	Foot pontoon	cdddtrrrrrrrrFTPONc
106	Vehicle pontoon	cdddtrrrrrrrrVEHPONc
107	Steel	cdddtrrrrrrrrSTEELc
108	Site	cdddtrrrrrrrrSITEc
109	Raft	cdddtrrrrrrrrRAFTc
110	Ferry	cdddtrrrrrrrrFERRYc
111	Small	cdddtrrrrrrrrSMALLc
112	Battalion	cdddtrrrrrrrrBNc
113	Regiment	cdddtrrrrrrrrREGTc
114	Division	cdddtrrrrrrrrDIVc
115	Forward	cdddtrrrrrrrrFWDc
116	Radar	cdddtrrrrrrrrRADARc
117	Electronic warfare	cdddtrrrrrrrrEWc
118	Searchlight	cdddtrrrrrrrrSLTc
119	Guidance	cdddtrrrrrrrrGDNCc
120	Loudspeaker	cdddtrrrrrrrrLSc
121	Very heavy	cdddtrrrrrrrrVHc
122	Infantry	cdddtrrrrrrrrINFc
123	Observation post	cdddtrrrrrrrrOPc
124	Patrol	cdddtrrrrrrrrPTLc
125	Work party	cdddtrrrrrrrrWKPTYc
126	Antipersonnel	cdddtrrrrrrrrAPERSc
127	Light missile	cdddtrrrrrrrrLTMSLc
128	Medium missile	cdddtrrrrrrrrMDMSLc
129	Heavy missile	cdddtrrrrrrrrHVMSLc
130	Antitank	cdddtrrrrrrrrATANKc
131	Illumination one gun	cdddtrrrrrrrrILL1c
132	Illumination two guns	cdddtrrrrrrrrILL2c
133	Illumination with deflection	cdddtrrrrrrrrILL2DFc
134	Illumination with range	cdddtrrrrrrrrILL2RGc
135	Illumination four guns	cdddtrrrrrrrrILL4c
136	Nonpersistent gas	cdddtrrrrrrrrGASNONc
137	Persistent gas	cdddtrrrrrrrrGASPERc
138	Leaflets	cdddtrrrrrrrrLEAFc
139	Ammunition	cdddtrrrrrrrrAMMOc
140	Petroleum	cdddtrrrrrrrrPTLc
141	Bridge equipment	cdddtrrrrrrrrBRGEQc
142	Class one	cdddtrrrrrrrrCLIc
143	Class two	cdddtrrrrrrrrCLIIc
144	Road	cdddtrrrrrrrrROADc
145	Junction	cdddtrrrrrrrrJCTc
146	Hill	cdddtrrrrrrrrHILLc
147	Defile	cdddtrrrrrrrrDEFILEc
148	Landing strip	cdddtrrrrrrrrLDGSTRc
149	Railroad	cdddtrrrrrrrrRRc

150	Light wheeled	cddd+rrrrrrrrLTWHLc
151	Heavy wheeled	cddd+rrrrrrrrHVWHLc
152	Reconnaissance	cddd+rrrrrrrrRECONc
153	Boats	cddd+rrrrrrrrBTc
154	Aircraft	cddd+rrrrrrrrACFTc
155	Helicopter	cddd+rrrrrrrrHELc
156	Light machine gun	cddd+rrrrrrrrLTMGc
157	Antitank gun	cddd+rrrrrrrrATGc
158	Heavy machine gun	cddd+rrrrrrrrHVMGc
159	Recoilless rifle	cddd+rrrrrrrrRCLRc
160	Half prone half standing	cdddd+tPRANDc
161	Prone	cdddd+tPRONEc
162	Prone dug in	cdddd+tPRUGc
163	Prone overhead cover	cdddd+tPROVERc
164	Dug in	cdddd+tDUGINc
165	Under overhead cover	cdddd+tCOVERc
166	Degrees	r
167	Minutes	r
168	Seconds	r
169	Erase degree of protection	cdddd+t_____c
170	Report value	cddddd+
171	Excellent reliability	cddddd+tEc
172	Good reliability	cddddd+tGc
173	Fair reliability	cddddd+tFc
174	Erase reliability	cddddd+t_c
175	Strength of target	cddddd+tf
176	Target altitude	cddddd+t+t
177	Confirm target	cddddd+t+t+tXc
178	Erase confirm target	cddddd+t+t+t_c
179	Date time group	cddddd+t+t+t+f
180	Days	r
181	Hours	r
182	Tropical uniform	cddddd+tAc
183	Summer uniform with mask	cddddd+tBc
184	Body covered	cddddd+tCc
185	Body heavily covered	cddddd+tDc
186	Erase clothing	cddddd+t_c
187	15 second training	cddddd+tf15Sc
188	30 second training	cddddd+tt30Sc
189	No C B R training	cddddd+ttTODc
190	Erase training	cddddd+t___c
191	Bare	cddddd+t+tBAREc
192	Shrubs	cddddd+t+tSHRUBc
193	Woods	cddddd+t+tWOODSc
194	Erase vegetation	cddddd+t+t_____c
195	0 to 1 hour	cddddd+t+tf0001c
196	1 to 3 hours	cddddd+t+tt0103c
197	3 to 12 hours	cddddd+t+ttt0312c
198	12 to 24 hours	cddddd+t+t+t1224c
199	more than 24 hours	cddddd+t+t+t2400c
200	Erase target permanence	cddddd+t+t+t_____c
201	Neutralized	cddddd+t+t+t+tNEUTc
202	Burning	cddddd+t+t+t+tBURNc
203	Neutralized and burning	cddddd+t+t+t+tNEUT/BURNc
204	Destroyed	cddddd+t+t+t+tDESTc
205	Can not observe	cddddd+t+t+t+tCNOc
206	Unknown	cddddd+t+t+t+tUNKc
207	None	cddddd+t+t+t+tNONEc
208	Erase disposition	cddddd+t+t+t+t_____c
209	Casualties	cddddd+t+t+t+t
210	Mission fired	cddddddd+tXc
211	Erase mission fired	cddddddd+t_c
212	Plain text	cddddddd+tf
213	Plain text message	cddddddd+ttt
214	Vertical shift	cddd+t+t+t

Artillery Target Intelligence - Shell Report

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	F O	cdttttFOc
11	F O without laser	cdttttFOWLc
12	Observer not artillery	cdttttOBSRc
13	Long range recce patrol	cdttttLRRPc
14	Target base	cdttttTGTBc
15	Air observer	cdttttAOBSRc
16	Sound ranging	cdttttSDRNGc
17	Flash ranging	cdttttFLRNGc
18	Counter mortar radar	cdttttCMRRc
19	Counter battery radar	cdttttCBRRc
20	Photo interpretation	cdttttPIc
21	Prisoner of war	cdttttPOWc
22	Ground surveillance radar	cdttttGSRAc
23	Side looking airborne radar	cdttttSLARc
24	Airborne infrared	cdttttIRc
25	Tactical air	cdttttTACAIRc
26	Communication intelligence	cdttttCOMINTc
27	Electronic intelligence	cdttttELINTc
28	Erase agency	cdttttt_____c
29	Target update	cdtXc
30	Erase target update	cdt_c
31	Delete request	cdtfXc
32	Do not delete request	cdtt_c
33	Target number	cdttf
34	Left	l
35	Right	r
36	Erase	
37	Cursor reset	C
38	Delete target number	cdttt_____c
39	Do not adjust coordinates	cdtttttXc
40	Erase adjust coordinates	cdttttt_c
41	Do not combine description	cdttttfXc
42	Alpha	A
43	Bravo	B
44	Charlie	C
45	Delta	D
46	Echo	E
47	Foxtrot	F
48	Golf	G
49	Hotel	H
50	India	I
51	Juliet	J
52	Kilo	K
53	Lima	L
54	Mike	M
55	November	N
56	Oscar	O
57	Papa	P
58	Quebec	Q
59	Romeo	R
60	Sierra	S
61	Tango	T

62	Uniform	U
63	Victor	V
64	Whiskey	W
65	X ray	X
66	Yankee	Y
67	Zulu	Z
68	Erase weapon type	cdddt_____c
69	Erase weapon subtype	cdddtrrrrrrr_____c
70	Azimuth	cdddtt
71	Coordinate east	cddt
72	Coordinate north	cddtrrrrrrrr
73	Altitude	cddtt111111111
74	Grid zone	cddtt
75	Spheroid	cddtttt
76	Caliber	cddddttt
77	Rounds impacted	cddddtttt
78	Report value	cddddt
79	Excellent reliability	cddddttEc
80	Good reliability	cddddttGc
81	Fair reliability	cddddttFc
82	Mortar	cddddtMORTrrrr
83	Artillery	cddddtARTYrrrr
84	Unknown	UNKc
85	Light	Lmc
86	Medium	MDMc
87	Heavy	HVc
88	Very heavy	VHc
89	Excellent reliability	cddddddttEc
90	Good reliability	cddddddttGc
91	Date time group	cddddttt
92	Days	rr
93	Hours	rr
94	Minutes	rr
95	Plain text	cddddddtt
96	Plain text message	cddddddttt

Artillery Target Intelligence - Surveillance Report

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Target number	cdt
11	Erase target number	cdt_____c
12	Date time group	cdtt
13	Right	r
14	Left	l
15	Cursor reset	c
16	Day	r
17	Minute	r
18	Hour	r
19	Plain text message	cddt
20	Alpha	A
21	Bravo	B
22	Charlie	C
23	Delta	D

24	Echo	E
25	Foxtrot	F
26	Golf	G
27	Hotel	H
28	India	I
29	Juliet	J
30	Kilo	K
31	Lima	L
32	Mike	M
33	November	N
34	Oscar	O
35	Papa	P
36	Quebec	Q
37	Romeo	R
38	Sierra	S
39	Tango	T
40	Uniform	U
41	Victor	V
42	Whiskey	W
43	X ray	X
44	Yankee	Y
45	Zulu	Z

Artillery Target Intelligence - Combat information Report

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Right	r
11	Left	l
12	Date time group	cdtt
13	Cursor reset	c
14	Plain text message	cddt
15	Hour	r
16	Day	r
17	Minute	r

Artillery Target Intelligence - Mission Fired Report

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	F O	cdttFOc

11	F O without laser	cdttFOWLc
12	Observer not artillery	cdttOBSRc
13	Long range recce patrol	cdttLRRPc
14	Target base	cdttTGTBc
15	Air observer	cdttAOBSRc
16	Sound ranging	cdttSORNGc
17	Flash ranging	cdttFLRNGc
18	Counter motar radar	cdttCMRRc
19	Counter battery radar	cdttCBRRc
20	Photo interpretation	cdttPIc
21	Prisoner of war	cdttPOWc
22	Ground surveillance radar	cdttGSRAc
23	Side looking airborne radar	cdttSLARc
24	Airborne infrared	cdttIRc
25	Tactical air	cdttTACAIRc
26	Communication intelligence	cdttCOMINTc
27	Electronic intelligence	cdttELINTc
28	Erase agency	cdtt_____c
29	Plain text message	cddddttt
30	Plain text	cdddttttt
31	Date time group	cddddttttt
32	Day	rr
33	Target number	cdt
34	Left	l
35	Right	r
36	Erase	E
37	Cursor reset	C
38	Erase target number	cdt_____c
39	Hour	rr
40	Minute	rr
41	Casualties	cddddtttt
42	Alpha	A
43	Bravo	B
44	Charlie	C
45	Delta	D
46	Echo	E
47	Foxtrot	F
48	Golf	G
49	Hotel	H
50	India	I
51	Juliet	J
52	Kilo	K
53	Lima	L
54	Mike	M
55	November	N
56	Oscar	O
57	Papa	P
58	Quebec	Q
59	Romeo	R
60	Sierra	S
61	Tango	T
62	Uniform	U
63	Victor	V
64	Whiskey	W
65	X ray	X
66	Yankee	Y
67	Zulu	Z
68	Disposition none	cddddtttNONEc
69	Erase target disposition	cddddttt_____c
70	Disposition unknown	cddddtttUNKc
71	Coordinate east	cdtttt
72	Coordinate north	cdttttrrrrrrr
73	Altitude	cdttttIIIIIIIII
74	Grid zone	cdttttt
75	Spheroid	cdddt
76	Can not observe	cddddtttCNOc
77	Destroyed	cddddtttDESTc

78	Neutralized and burning	cdddtttNEUT/BURNc
79	Burning	cdddtttBURNc
70	Neutralized	cdddtttNEUTc
71	Excellent reliability	cdddtttEc
72	Good reliability	cdddtttGc
73	Erase target type	cddtt_____c
74	Air defense artillery	cddttADAC
75	Armor	cddttARMORc
76	Artillery	cddttARTYc
77	Assembly areas	cddttASSYc
78	Building	cddttBLDGc
79	Bridge	cddttBRIDGEc
80	Center	cddttCENc
81	Equipment	cddttEQUIPc
82	Mortars	cddttMORTc
83	Personnel	cddttPERSc
84	Rockets or Missiles	cddttRKTMSLc
85	Special missions	cddttSPECc
86	Supply dump	cddttSUPPLYc
87	Terrain features	cddttTERc
88	Vehicle	cddttVEHc
89	Weapons	cddttWPNc
90	Unknown	cddttrrrrrrrrUNKc
91	Light	cddttrrrrrrrrLTc
92	Medium	cddttrrrrrrrrMDMc
93	Heavy	cddttrrrrrrrrHVc
94	Missile	cddttrrrrrrrrMSLc
95	Position	cddttrrrrrrrrPOSc
96	Armored personnel carrier	cddttrrrrrrrrAPCc
97	Troops	cddttrrrrrrrrTRPc
98	Troops and vehicles	cddttrrrrrrrrTRPVEHc
99	Mechanized troops	cddttrrrrrrrrTRPARMc
100	Wood	cddttrrrrrrrrWOODc
101	Masonry	cddttrrrrrrrrMASNRYc
102	Concrete	cddttrrrrrrrrCONCc
103	Metal	cddttrrrrrrrrMETc
104	Special purpose	cddttrrrrrrrrSPCLc
105	Foot pontoon	cddttrrrrrrrrFTPONc
106	Vehicle pontoon	cddttrrrrrrrrVEHPONc
107	Steel	cddttrrrrrrrrSTEELc
108	Site	cddttrrrrrrrrSITEc
109	Raft	cddttrrrrrrrrRAFTc
110	Ferry	cddttrrrrrrrrFERRYc
111	Small	cddttrrrrrrrrSMALLc
112	Battalion	cddttrrrrrrrrBNc
113	Regiment	cddttrrrrrrrrREGTc
114	Division	cddttrrrrrrrrDIVc
115	Forward	cddttrrrrrrrrFWDc
116	Radar	cddttrrrrrrrrRADARc
117	Electronic warfare	cddttrrrrrrrrEWc
118	Searchlight	cddttrrrrrrrrSLTc
119	Guidance	cddttrrrrrrrrGDNCc
120	Loudspeaker	cddttrrrrrrrrLSc
121	Very heavy	cddttrrrrrrrrVHc
122	Infantry	cddttrrrrrrrrINFc
123	Observation post	cddttrrrrrrrrOPc
124	Patrol	cddttrrrrrrrrPTLc
125	Work party	cddttrrrrrrrrWKPTYc
126	Antipersonnel	cddttrrrrrrrrAPERSc
127	Light missile	cddttrrrrrrrrLTMSLc
128	Medium missile	cddttrrrrrrrrMDMSLc
129	Heavy missile	cddttrrrrrrrrHVMSLc
130	Antitank	cddttrrrrrrrrATANKc
131	Illumination one gun	cddttrrrrrrrrILL1c
132	Illumination two guns	cddttrrrrrrrrILL2c
133	Illumination with deflection	cddttrrrrrrrrILL2DFc
134	Illumination with range	cddttrrrrrrrrILL2RGc

135	Illumination four guns	cddttrrrrrrrrILL4c
136	Nonpersistent gas	cddttrrrrrrrrGASNONc
137	Persistent gas	cddttrrrrrrrrGASPERc
138	Leaflets	cddttrrrrrrrrLEAPc
139	Ammunition	cddttrrrrrrrrAMMOc
140	Petroleum	cddttrrrrrrrrPTLc
141	Bridge equipment	cddttrrrrrrrrBRGEQc
142	Class one	cddttrrrrrrrrCLIc
143	Class two	cddttrrrrrrrrCLIIc
144	Road	cddttrrrrrrrrROADc
145	Junction	cddttrrrrrrrrJCTc
146	Hill	cddttrrrrrrrrHILLc
147	Defile	cddttrrrrrrrrDEFILEc
148	Landing strip	cddttrrrrrrrrLDGSTRc
149	Railroad	cddttrrrrrrrrRRc
150	Light wheeled	cddttrrrrrrrrLTWHLc
151	Heavy wheeled	cddttrrrrrrrrHVWHLc
152	Reconnaissance	cddttrrrrrrrrRECONc
153	Boats	cddttrrrrrrrrBTc
154	Aircraft	cddttrrrrrrrrACFTc
155	Helicopter	cddttrrrrrrrrHELc
156	Light machine gun	cddttrrrrrrrrLTMGc
157	Antitank gun	cddttrrrrrrrrATGc
158	Heavy machine gun	cddttrrrrrrrrHVMGc
159	Recoilless rifle	cddttrrrrrrrrRCLRc
160	Half prone half standing	cddtttPRANDc
161	Prone	cddtttPRONEc
162	Prone dug in	cddtttPRUGc
163	Prone overhead cover	cddtttPROVERc
164	Dug in	cddttDUGINc
165	Under overhead cover	cddtttCOVERc
166	Fair reliability	cdddttFc
167	Erase reliability	cddddtt_c
168	Report value	cdddt
169	Erase degree of protection	cddttt_____c
170	Strength of target	cddttttttt
171	Attitude	cddttttt
172	Target radius	cddtttt
173	Target length	cddtttt
174	Target width	cddttttrrrrr

Artillery Target Intelligence - Target Report

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	F O	cdttttttFOc
11	F O without laser	cdttttttFOWLc
12	Observer not artillery	cdttttttOBSRc
13	Long range recce patrol	cdttttttLRRPc
14	Target base	cdttttttTGTBc
15	Air observer	cdttttttAOBSRc
16	Sound ranging	cdttttttSORNGc
17	Flash ranging	cdttttttFLRNGc
18	Counter mortar radar	cdttttttCMRRc

19	Counter battery radar	cdttttttCBRRc
20	Photo interpretation	cdttttttPIc
21	Prisoner of war	cdttttttPOWc
22	Ground surveillance radar	cdttttttGSRAc
23	Side looking airborne radar	cdttttttSLARc
24	Airborne infrared	cdttttttIRc
25	Tactical air	cdttttttTACAIRc
26	Communication intelligence	cdttttttCOMINTc
27	Electronic intelligence	cdttttttELINTc
28	Erase agency	cdttttttt_____c
29	Target update	cdtXc
30	Erase target update	cdt_c
31	Delete request	cdttXc
32	Do not delete request	cdtt_c
33	Target number	cdttt
34	Left	l
35	Right	r
36	Erase	
37	Cursor reset	c
38	Delete target number	cdttt_____c
39	Do not adjust coordinates	cdddttttXc
40	Erase adjust coordinates	cdddttttt_c
41	Do not combine description	cddddttttXc
42	Alpha	A
43	Bravo	B
44	Charlie	C
45	Delta	D
46	Echo	E
47	Foxtrot	F
48	Golf	G
49	Hotel	H
50	India	I
51	Juliet	J
52	Kilo	K
53	Lima	L
54	Mike	M
55	November	N
56	Oscar	O
57	Papa	P
58	Quebec	Q
59	Romeo	R
60	Sierra	S
61	Tango	T
62	Uniform	U
63	Victor	V
64	Whiskey	W
65	X ray	X
66	Yankee	Y
67	Zulu	Z
68	Erase combine description	cdddttttt_c
69	Surveyed location	cdttttttXc
70	Erase surveyed location	cdttttttt_c
71	Target coordinate east	cddt
72	Target coordinate north	cddtrrrrrrr
73	Target altitude	cddtttllllllll
74	Grid zone	cddtt
75	Spheroid	cddttt
76	Target radius	cddddt
77	Target length	cddddt
78	Target width	cddddtrrrrr
79	Attitude	cddddtt
70	Erase subtype	cddddttttttrrrrrrr_____c
71	Azimuth	cdddt
72	Distance	cdddtt
73	Erase target type	cdddttttttt_____c
74	Air defense artillery	cddddttttttADAc
75	Armor	cddddttttttARMORc

76	Artillery	cdddtttttARTYc
77	Assembly areas	cdddtttttASSYc
78	Building	cdddtttttBLDGc
79	Bridge	cdddttttttBRIDGEc
80	Center	cdddtttttCENc
81	Equipment	cdddtttttEQUIPc
82	Mortars	cdddttttttMORTc
83	Personnel	cdddtttttPERSc
84	Rockets or Missiles	cdddtttttRKTMSLc
85	Special missions	cdddtttttSPECc
86	Supply dump	cdddtttttSUPPLYc
87	Terrain features	cdddtttttTERc
88	Vehicle	cdddtttttVEHc
89	Weapons	cdddtttttWPNc
90	Unknown	cdddtttttrrrrrrrrUNKc
91	Light	cdddtttttrrrrrrrrLTc
92	Medium	cdddtttttrrrrrrrrMDMc
93	Heavy	cdddtttttrrrrrrrrHVc
94	Missile	cdddtttttrrrrrrrrMSLc
95	Position	cdddtttttrrrrrrrrPOSc
96	Armored personnel carrier	cdddtttttrrrrrrrrAPCc
97	Troops	cdddtttttrrrrrrrrTRPc
98	Troops and vehicles	cdddtttttrrrrrrrrTRPVE
99	Mechanized troops	cdddtttttrrrrrrrrTRPAF
100	Wood	cdddtttttrrrrrrrrWOODc
101	Masonry	cdddtttttrrrrrrrrMASNc
102	Concrete	cdddtttttrrrrrrrrCONCc
103	Metal	cdddtttttrrrrrrrrMETc
104	Special purpose	cdddtttttrrrrrrrrSPCLc
105	Foot pontoon	cdddtttttrrrrrrrrPTPONc
106	Vehicle pontoon	cdddtttttrrrrrrrrVEHPONc
107	Steel	cdddtttttrrrrrrrrSTEELc
108	Site	cdddtttttrrrrrrrrSITEc
109	Raft	cdddtttttrrrrrrrrRAFTc
110	Ferry	cdddtttttrrrrrrrrFERRYc
111	Small	cdddtttttrrrrrrrrSMALLc
112	Battalion	cdddtttttrrrrrrrrBNc
113	Regiment	cdddtttttrrrrrrrrREGTc
114	Division	cdddtttttrrrrrrrrDIVc
115	Forward	cdddtttttrrrrrrrrFWDc
116	Radar	cdddtttttrrrrrrrrRADARc
117	Electronic warfare	cdddtttttrrrrrrrrEWc
118	Searchlight	cdddtttttrrrrrrrrSLTc
119	Guidance	cdddtttttrrrrrrrrGDNCc
120	Loudspeaker	cdddtttttrrrrrrrrLSc
121	Very heavy	cdddtttttrrrrrrrrVHc
122	Infantry	cdddtttttrrrrrrrrINFc
123	Observation post	cdddtttttrrrrrrrrOPc
124	Patrol	cdddtttttrrrrrrrrPTLc
125	Work party	cdddtttttrrrrrrrrWKPTYc
126	Antipersonnel	cdddtttttrrrrrrrrAPERSc
127	Light missile	cdddtttttrrrrrrrrLTMSLc
128	Medium missile	cdddtttttrrrrrrrrMDMSLc
129	Heavy missile	cdddtttttrrrrrrrrHVMSLc
130	Antitank	cdddtttttrrrrrrrrATANKc
131	Illumination one gun	cdddtttttrrrrrrrrILL1c
132	Illumination two guns	cdddtttttrrrrrrrrILL2c
133	Illumination with deflection	cdddtttttrrrrrrrrILL2DFc
134	Illumination with range	cdddtttttrrrrrrrrILL2RGc
135	Illumination four guns	cdddtttttrrrrrrrrILL4c
136	Nonpersistent gas	cdddtttttrrrrrrrrGASNONc
137	Persistent gas	cdddtttttrrrrrrrrGASPERc
138	Leaflets	cdddtttttrrrrrrrrLEAFc
139	Ammunition	cdddtttttrrrrrrrrAMMOc
140	Petroleum	cdddtttttrrrrrrrrPTLc
141	Bridge equipment	cdddtttttrrrrrrrrBRGEQc
142	Class one	cdddtttttrrrrrrrrCLIc

143	Class two	cdddtttttttrrrrrrrrCLIIc
144	Road	cddd+++++++rrrrrrrrROADc
145	Junction	cdddtttttttrrrrrrrrJCTc
146	Hill	cddddttttttrrrrrrrrHILLc
147	Defile	cddddttttttrrrrrrrrDEFILEc
148	Landing strip	cddddttttttrrrrrrrrLDGSTRc
149	Railroad	cddddttttttrrrrrrrrRRc
150	Light wheeled	cddddttttttrrrrrrrrLTWHLc
151	Heavy wheeled	cddddttttttrrrrrrrrHVWHLc
152	Reconnaissance	cddddttttttrrrrrrrrRECONc
153	Boats	cddddttttttrrrrrrrrBTc
154	Aircraft	cddddttttttrrrrrrrrACFTc
155	Helicopter	cddddttttttrrrrrrrrHELc
156	Light machine gun	cddd+ttttttrrrrrrrrLTMGc
157	Antitank gun	cddddttttttrrrrrrrrATGc
158	Heavy machine gun	cddddttttttrrrrrrrrHVMGc
159	Recoilless rifle	cddddttttttrrrrrrrrRCLRc
160	Half prone half standing	cdddd+++++++tPRANDc
161	Prone	cddddttttttttPRONEc
162	Prone dug in	cddddttttttttPRUGc
163	Prone overhead cover	cdddd+++++++tPROVERc
164	Dug in	cddddttttttttDUGINc
165	Under overhead cover	cdddd+++++++tCOVERc
166	Degrees	r
167	Minutes	r
168	Seconds	r
169	Erase degree of protection	cddddttttttt_____c
170	Report value	cddddddttt
171	Excellent reliability	cddddddttttEc
172	Good reliability	cddddddttttGc
173	Fair reliability	cddddddttttFc
174	Erase reliability	cddddddttt_c
175	Strength of target	cddddddtt
176	Plain text message	cddddddddtttt
177	Plain text	cddddddddtttttttttXc
178	Rounds impacted	cddddddddt
179	Date time group	cddddddttt
180	Caliber	cddddddttttttt
181	Vertical shift	cddddtt
182	Tropical uniform	cddddddttttttAc
183	Summer uniform with mask	cddddddttttttBc
184	Body covered	cddddddttttttCc
185	Body heavily covered	cddddddttttttDc
186	Erase clothing	cddddddttttttt_c
187	15 second training	cddddddttttt15Sc
188	30 second training	cddddddttttt30Sc
189	No C B R training	cddddddttttTODc
190	Erase training	cddddddttttt___c
191	Bare	cddddddttttBARREc
192	Shrubs	cddddddttttSHRUBc
193	Woods	cddddddttttWOODSc
194	Erase vegetation	cddddddtttt_____c
195	0 to 1 hour	cdttttttt0001c
196	1 to 3 hours	cdttttttt0103c
197	3 to 12 hours	cdttttttt0312c
198	12 to 24 hours	cdttttttt1224c
199	more than 24 hours	cdttttttt2400c
200	Erase target permanence	cdttttttt___c
201	Neutralized	cddddttttttNEUTc
202	Burning	cddddttttttBURNc
203	Neutralized and burning	cddddttttttNEUT/BURNc
204	Destroyed	cddddttttttDESTc
205	Can not observe	cddddttttttCNOc
206	Unknown	cddddttttttUNKc
207	None	cddddttttttNONEc
208	Erase disposition	cddddttttttt________c
209	Casualties	cddddddt

210	Mission fired	cddddddttXc
211	Erase mission fired	cddddddtt_c
212	Confirm target	cddddttttttXc
213	Erase confirm target	cddddttttt_c
214	Observer location east	cddttttt
215	Observer location north	cddttttrrrrrrr
216	Observer altitude	cddttttrrrrrrrrrrrrrrr

Artillery Target Intelligence - Trial Solution

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Right	r
11	Left	l
12	Cursor reset	C
13	Combined target number	cdct
14	Coordinate east	cddtrrrrrrr
15	Coordinate north	cddtrrrrrrrrrrrrr
16	Altitude	cidttllllllll
17	Grid zone	cddtt
18	Spheroid	cidttt
19	Erase target number	_____r
20	Alpha	A
21	Bravo	B
22	Charlie	C
23	Delta	D
24	Echo	E
25	Foxtrot	F
26	Golf	G
27	Hotel	H
28	India	I
29	Juliet	J
30	Kilo	K
31	Lima	L
32	Mike	M
33	November	N
34	Oscar	O
35	Papa	P
36	Quebec	Q
37	Romeo	R
38	Sierra	S
39	Tango	T
40	Uniform	U
41	Victor	V
42	Whiskey	W
43	X ray	X
44	Yankee	Y
45	Zulu	Z

Artillery Target Intelligence - Combine Targets

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Right	+
11	Left	-
12	Cursor reset	c
13	Combined target number	cddt
14	Coordinate east	cddtrrrrrrr
15	Coordinate north	cddtrrrrrrrrrrrrr
16	Altitude	cddttttttttt
17	Grid zone	cddtt
18	Spheroid	cddttt
19	Erase target number	_____=
20	Alpha	A
21	Bravo	B
22	Charlie	C
23	Delta	D
24	Echo	E
25	Foxtrot	F
26	Golf	G
27	Hotel	H
28	India	I
29	Juliet	J
30	Kilo	K
31	Lima	L
32	Mike	M
33	November	N
34	Oscar	O
35	Papa	P
36	Quebec	Q
37	Romeo	R
38	Sierra	S
39	Tango	T
40	Uniform	U
41	Victor	V
42	Whiskey	W
43	X ray	X
44	Yankee	Y
45	Zulu	Z
46	Recombined target number	cdtt

Artillery Target Intelligence - Split Target

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9

10	Alpha	A
11	Bravo	B
12	Charlie	C
13	Delta	D
14	Echo	E
15	Foxtrot	F
16	Golf	G
17	Hotel	H
18	India	I
19	Juliet	J
20	Kilo	K
21	Lima	L
22	Mike	M
23	November	N
24	Oscar	O
25	Papa	P
26	Quebec	Q
27	Romeo	R
28	Sierra	S
29	Tango	T
30	Uniform	U
31	Victor	V
32	Whiskey	W
33	X ray	X
34	Yankee	Y
35	Zulu	Z
36	Target number	cdt
37	Erase target number	cdt_____c
38	Left	l
39	Right	r
40	Cursor reset	c
41	Erase	-

Artillery Target Intelligence - Query

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Destination addressee	cdt
11	Erase destination addressee	cdt_/_/_/__/___c
12	Abort request	cdtttXc
13	Erase abort request	cdtt_c
14	Count of targets	cdtttt1c
15	One line summary	cdtttt2c
16	Full report	cdtttt3c
17	Erase level of report	cdtttt_c
18	Coordinate report	cddtttXc
19	Erase coordinate report	cddtt_c
20	Shell report	cddtttXc
21	Erase shell report	cddtttt_c
22	Solution report	cddttttXc
23	Erase solution report	cddttttt_c
24	Location	cdddt
25	Circular search area	cdddtt
26	Grid zone second point	cddddttt

27	Spheroid second point	cddddttttt
28	Zone of responsibility	cddddttttt
29	Overlap distance	cddddttttt
30	Lower report value	cddddddttttt
31	Upper report value	cddddddttttrrrrr
32	Lower size factor	cddddddttt
33	Target number	cddt
34	Left	l
35	Right	r
36	Erase	e
37	Cursor reset	c
38	Delete target number	cddt_____c
39	Upper size factor	cddddddttrrr
40	Lower degree of protaction	cddddddtt
41	Upper degree of protaction	cddddddtrrr
42	Alpha	A
43	Bravo	B
44	Charlie	C
45	Delta	D
46	Echo	E
47	Foxtrot	F
48	Golf	G
49	Hotel	H
50	India	I
51	Juliet	J
52	Kilo	K
53	Lima	L
54	Mike	M
55	November	N
56	Oscar	O
57	Papa	P
58	Quebec	Q
59	Romeo	R
60	Sierra	S
61	Tango	T
62	Uniform	U
63	Victor	V
64	Whiskey	W
65	X ray	X
66	Yankee	Y
67	Zulu	Z
68	Lower type factor	cddddddt
69	Upper type factor	cddddddtrrrr
70	Lower strength limit	cddddddttt
71	Upper strength limit	cddddddtttrrrrr
72	Target size limits	cddddddttt
73	Date time group	cdttttt
74	Grid zone	cddddt
75	Spheroid	cddddtt
76	Mission fired	cddddttttttttXc
77	Erase mission fired	cddddttttttttc
78	Confirmed target	cddddtttttttXc
79	Erase confirmed target	cddddttttttttc
80	Erase subtype	cddddtrrrrrrr_____c
81	Day	d
82	Hour	h
83	Erase target type	cddddddt_____c
84	Air defense artillery	cddddddtADAc
85	Armor	cddddddtARMORc
86	Artillery	cddddddtARTYc
87	Assembly areas	cddddddtASSYc
88	Building	cddddddtBLDGc
89	Bridge	cddddddtBRIDGEc
90	Center	cddddddtCENc
91	Equipment	cddddddtEQUIPc
92	Mortars	cddddddtMORTc
93	Personnel	cddddddtPERSc

94	Rockets or Missiles	cddddddtRKTMSLc
95	Special missions	cddddddtSPECc
96	Supply dump	cddddddtSUPPLYc
97	Terrain features	cddddddtTERc
98	Vehicle	cddddddtVEHc
99	Weapons	cddddddtWPNc
100	Unknown	cddddddtrrrrrrrrUNKc
101	Light	cdddddttttttrrrrrrrrLTc
102	Medium	cddddddtrrrrrrrrMDMc
103	Heavy	cddddddtrrrrrrrrHVc
104	Missile	cddddddtrrrrrrrrMSLc
105	Position	cddddddtrrrrrrrrPOSc
106	Armored personnel carrier	cddddddtrrrrrrrrAPCc
107	Troops	cddddddtrrrrrrrrTRPc
108	Troops and vehicles	cddddddtrrrrrrrrTRPVEHc
109	Mechanized troops	cddddddtrrrrrrrrTRPARMc
110	Wood	cddddddtrrrrrrrrWOODc
111	Masonry	cddddddtrrrrrrrrMASNRYc
112	Concrete	cddddddtrrrrrrrrCONCc
113	Metal	cddddddtrrrrrrrrMETc
114	Special purpose	cddddddtrrrrrrrrSPCLc
115	Foot pontoon	cddddddtrrrrrrrrFTPONc
116	Vehicle pontoon	cddddddtrrrrrrrrVEHPONc
117	Steel	cddddddtrrrrrrrrSTEELc
118	Site	cddddddtrrrrrrrrSITEc
119	Raft	cddddddtrrrrrrrrRAFTc
120	Ferry	cddddddtrrrrrrrrFERRYc
121	Small	cddddddtrrrrrrrrSMALLc
122	Battalion	cddddddtrrrrrrrrBNc
123	Regiment	cddddddtrrrrrrrrREGTc
124	Division	cddddddtrrrrrrrrDIVc
125	Forward	cddddddtrrrrrrrrFWDc
126	Radar	cddddddtrrrrrrrrRADARc
127	Electronic warfare	cddddddtrrrrrrrrEWc
128	Searchlight	cddddddtrrrrrrrrSLTc
129	Guidance	cddddddtrrrrrrrrGDNCc
130	Loudspeaker	cddddddtrrrrrrrrLSc
131	Very heavy	cddddddtrrrrrrrrVHc
132	Infantry	cddddddtrrrrrrrrINFc
133	Observation post	cddddddtrrrrrrrrOPc
134	Patrol	cddddddtrrrrrrrrPTLc
135	Work party	cddddddtrrrrrrrrWKPTYc
136	Antipersonnel	cddddddtrrrrrrrrAPERSc
137	Light missile	cddddddtrrrrrrrrLTMSLc
138	Medium missile	cddddddtrrrrrrrrMDMSLc
139	Heavy missile	cddddddtrrrrrrrrHVMSLc
140	Antitank	cddddddtrrrrrrrrATANKc
141	Illumination one gun	cddddddtrrrrrrrrILL1c
142	Illumination two guns	cddddddtrrrrrrrrILL2c
143	Illumination with deflection	cddddddtrrrrrrrrILL2DFc
144	Illumination with range	cddddddtrrrrrrrrILL2RGc
145	Illumination four guns	cddddddtrrrrrrrrILL4c
146	Nonpersistent gas	cddddddtrrrrrrrrGASNONc
147	Persistent gas	cddddddtrrrrrrrrGASPERc
148	Leaflets	cddddddtrrrrrrrrLEAFc
149	Ammunition	cddddddtrrrrrrrrAMMOc
150	Petroleum	cddddddtrrrrrrrrPTLc
151	Bridge equipment	cddddddtrrrrrrrrBRGEQc
152	Class one	cddddddtrrrrrrrrCLIc
153	Class two	cddddddtrrrrrrrrCLIIc
154	Road	cddddddtrrrrrrrrROADc
155	Junction	cddddddtrrrrrrrrJCTc
156	Hill	cddddddtrrrrrrrrHILLc
157	Defile	cddddddtrrrrrrrrDEFILEc
158	Landing strip	cddddddtrrrrrrrrLDGSTRc
159	Railroad	cddddddtrrrrrrrrRRc
160	Light wheeled	cddddddtrrrrrrrrLTWHLc

161	Heavy wheeled	cddddddtrrrrrrrrHVWHLc
162	Reconnaissance	cddddddtrrrrrrrrRECONc
163	Boats	cddddddtrrrrrrrrBTc
164	Aircraft	cddddddtrrrrrrrrACFTc
165	Helicopter	cddddddtrrrrrrrrHELc
166	Light machine gun	cddddddtrrrrrrrrLTMGc
167	Antitank gun	cddddddtrrrrrrrrATGc
168	Heavy machine gun	cddddddtrrrrrrrrHVMGc
169	Recoilless rifle	cddddddtrrrrrrrrRCLRc
170	Half prone half standing	cddddddttPRANDc
171	Prone	cddddddttPRONEc
172	Prone dug in	cddddddttPRUGc
173	Prone overhead cover	cddddddttPROVERc
174	Dug in	cddddddttDUGINc
175	Under overhead cover	cddddddttCOVERc
176	Minutes	r
177	Erase degree of protection	cddddddt_____c
178	Excellent reliability	cddddttEc
179	Good reliability	cddddttGc
180	Fair reliability	cddddttFc
181	Erase reliability	cddddtt_c

Artillery Target Intelligence - Search

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Destination addressee	cdtt
11	Erase destination addressee	cdtt_/_/_/__/___c
12	Abort request	cdtttXc
13	Erase abort request	cdtt_c
14	Count of targets	cdttttt1c
15	One line summary	cdttttt2c
16	Full report	cdttttt3c
17	Erase level of report	cdttttt_c
18	Coordinate report	cddttttXc
19	Erase coordinate report	cddttttc
20	Shell report	cddttttXc
21	Erase shell report	cddttttt_c
22	Solution report	cddttttXc
23	Erase solution report	cddttttt_c
24	Location	cdddt
25	Circular search area	cddddtt
26	Grid zone second point	cddddttt
27	Spheroid second point	cddddtttt
28	Zone of responsibility	cddddttttt
29	Overlap distance	cddddtttttt
30	Lower report value	cddddddttttt
31	Upper report value	cddddddttttrrrr
32	Lower size factor	cddddddttt
33	Target number	cdtttt
34	Left	l
35	Right	r
36	Erase	c
37	Cursor reset	C

38	Delete target number	cdd+++_____c
39	Upper size factor	cddddddttrrrr
40	Lower degree of protection	cddddddtt
41	Upper degree of protection	cddddddttrrr
42	Alpha	A
43	Bravo	B
44	Charlie	C
45	Delta	D
46	Echo	E
47	Foxtrot	F
48	Golf	G
49	Hotel	H
50	India	I
51	Juliet	J
52	Kilo	K
53	Lima	L
54	Mike	M
55	November	N
56	Oscar	O
57	Papa	P
58	Quebec	Q
59	Romeo	R
60	Sierra	S
61	Tango	T
62	Uniform	U
63	Victor	V
64	Whiskey	W
65	X ray	X
66	Yankee	Y
67	Zulu	Z
68	Lower type factor	cddddddt
69	Upper type factor	cddddddtrrrr
70	Lower strength limit	cddddddtttt
71	Upper strength limit	cddddddttttrrrrr
72	Target size limits	cddddddttt
73	Transmit request	cd+Xc
74	Grid zone	cddddt
75	Spheroid	cddddtt
76	Mission fired	cddddtttttttttXc
77	Erase mission fired	cddddtttttttt_c
78	Confirmed target	cddddtttttttXc
79	Erase confirmed target	cddddtttttttt_c
80	Erase subtype	cddddddtrrrrrrr_____c
81	Erase transmit request	cdt_c
82	Edit request	cd+++++Xc
83	Erase target type	cddddddt_____c
84	Air defense artillery	cddddddtADAC
85	Armor	cddddddtARMORc
86	Artillery	cddddddtARTYc
87	Assembly areas	cddddddtASSYc
88	Building	cddddddtBLDGc
89	Bridge	cddddddtBRIDGEc
90	Center	cddddddtCENc
91	Equipment	cddddddtEQUIPc
92	Mortars	cddddddtMORTc
93	Personnel	cddddddtPERSc
94	Rockets or Missiles	cddddddtRKTMSLc
95	Special missions	cddddddtSPECc
96	Supply dump	cddddddtSUPPLYc
97	Terrain features	cddddddtTERRc
98	Vehicle	cddddddtVEHc
99	Weapons	cddddddtWPNc
100	Unknown	cddddddtrrrrrrrUNKc
101	Light	cddddttttttttttrrrLTc
102	Medium	cddddddtrrrrrrrrMDMc
103	Heavy	cddddddtrrrrrrrrHVc
104	Missile	cddddddtrrrrrrrrMSLc

105	Position	cddddd+rrrrrrrrPOSc
106	Armored personnel carrier	cddddd+rrrrrrrrAPCc
107	Troops	cddddd+rrrrrrrrTRPc
108	Troops and vehicles	cddddd+rrrrrrrrTRPVEHc
109	Mechanized troops	cddddd+rrrrrrrrTRPARMc
110	Wood	cddddd+rrrrrrrrWOODc
111	Masonry	cddddd+rrrrrrrrMASNRYc
112	Concrete	cddddd+rrrrrrrrCONCc
113	Metal	cddddd+rrrrrrrrMETc
114	Special purpose	cddddd+rrrrrrrrSPCLc
115	Foot pontoon	cddddd+rrrrrrrrFTPONc
116	Vehicle pontoon	cddddd+rrrrrrrrVEHPONc
117	Steel	cddddd+rrrrrrrrSTEELc
118	Site	cddddd+rrrrrrrrSITEc
119	Raft	cddddd+rrrrrrrrRAFTc
120	Ferry	cddddd+rrrrrrrrFERRYc
121	Small	cddddd+rrrrrrrrSMALLc
122	Battalion	cddddd+rrrrrrrrBNc
123	Regiment	cddddd+rrrrrrrrREGTc
124	Division	cddddd+rrrrrrrrDIVc
125	Forward	cddddd+rrrrrrrrFWDc
126	Radar	cddddd+rrrrrrrrRADARc
127	Electronic warfare	cddddd+rrrrrrrrEWc
128	Searchlight	cddddd+rrrrrrrrSLTc
129	Guidance	cddddd+rrrrrrrrGDNCc
130	Loudspeaker	cddddd+rrrrrrrrLSc
131	Very heavy	cddddd+rrrrrrrrVHc
132	Infantry	cddddd+rrrrrrrrINFc
133	Observation post	cddddd+rrrrrrrrOPc
134	Patrol	cddddd+rrrrrrrrPTLc
135	Work party	cddddd+rrrrrrrrWKPTYc
136	Antipersonnel	cddddd+rrrrrrrrAPERSc
137	Light missile	cddddd+rrrrrrrrLTMSLc
138	Medium missile	cddddd+rrrrrrrrMDMSLc
139	Heavy missile	cddddd+rrrrrrrrHVMSLc
140	Antitank	cddddd+rrrrrrrrATANKc
141	Illumination one gun	cddddd+rrrrrrrrILL1c
142	Illumination two guns	cddddd+rrrrrrrrILL2c
143	Illumination with deflection	cddddd+rrrrrrrrILL2DFc
144	Illumination with range	cddddd+rrrrrrrrILL2RGc
145	Illumination four guns	cddddd+rrrrrrrrILL4c
146	Nonpersistent gas	cddddd+rrrrrrrrGASNONc
147	Persistent gas	cddddd+rrrrrrrrGASPERc
148	Leaflets	cddddd+rrrrrrrrLEAFc
149	Ammunition	cddddd+rrrrrrrrAMMOc
150	Petroleum	cddddd+rrrrrrrrPTLc
151	Bridge equipment	cddddd+rrrrrrrrBRGEQc
152	Class one	cddddd+rrrrrrrrCLIc
153	Class two	cddddd+rrrrrrrrCLIIc
154	Road	cddddd+rrrrrrrrROADc
155	Junction	cddddd+rrrrrrrrJCTc
156	Hill	cddddd+rrrrrrrrHILLc
157	Defile	cddddd+rrrrrrrrDEFILEc
158	Landing strip	cddddd+rrrrrrrrLDGSTRc
159	Railroad	cddddd+rrrrrrrrRRc
160	Light wheeled	cddddd+rrrrrrrrLTWHLc
161	Heavy wheeled	cddddd+rrrrrrrrHVWHLc
162	Reconnaissance	cddddd+rrrrrrrrRECONc
163	Boats	cddddd+rrrrrrrrBTc
164	Aircraft	cddddd+rrrrrrrrACFTc
165	Helicopter	cddddd+rrrrrrrrHELc
166	Light machine gun	cddddd+rrrrrrrrLTMGc
167	Antitank gun	cddddd+rrrrrrrrATGc
168	Heavy machine gun	cddddd+rrrrrrrrHVMGc
169	Recoilless rifle	cddddd+rrrrrrrrRCLRc
170	Half prone half standing	cddddd+t+PRANDc
171	Prone	cddddd+t+PRONEc

172	Prone dug in	cddddddttPRUGc
173	Prone overhead cover	cddddddttPROVERc
174	Dug in	cddddddttDUGINc
175	Under overhead cover	cddddddttCOVERc
176	Erase edit request	cdttttt_c
177	Erase degree of protection	cddddddtt_____c
178	Excellent reliability	cdddttttEc
179	Good reliability	cdddttttGc
180	Fair reliability	cdddttttFc
181	Erase reliability	cdddttt_c
182	Print request	cdttttttXc
183	Erase print request	cdttttt_c
184	View request	cdttttttXc
185	Erase view request	cdttttttt_c
186	Show request	cddtXc
187	Erase show request	cddt_c
188	Delete request	cdddtXc
189	Do not delete request	cdddtt_c
190	Search by time	cddttttttt
191	Day	r
192	Hour	r
193	Minute	r
194	Newer	cddttttttrrrrrrrrrNc
195	Older	cddttttttrrrrrrrrrOc

Artillery Target Intelligence - Standing Request For Information

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Destination addressee	cdt
11	Erase destination addressee	cdt_/_/_/__/___c
12	Abort request	cdttXc
13	Erase abort request	cdtt_c
14	Count of targets	cdttttttt1c
15	One line summary	cdttttttt2c
16	Full report	cdttttttt3c
17	Erase level of report	cdttttttt_c
18	Coordinate report	cddtttXc
19	Erase coordinate report	cddttt_c
20	Shell report	cdddttttXc
21	Erase shell report	cddttttt_c
22	Solution report	cddttttttXc
23	Erase solution report	cddttttttt_c
24	Location	cdddt
25	Circular search area	cddddtt
26	Grid zone second point	cddddtttt
27	Spheroid second point	cddddttttt
28	Zone of responsibility	cddddtttttt
29	Overlap distance	cddddttttttt
30	Lower report value	cddddddttttt
31	Upper report value	cddddddttttrrrr
32	Lower size factor	cddddddttt
33	Add SRI	cdttXc

34	Left	l
35	Right	r
36	Erase	e
37	Cursor reset	c
38	Erase add SRI	cdttt_c
39	Upper size factor	cddddddttrrrr
40	Lower degree of protection	cddddddtt
41	Upper degree of protection	cddddddttrrr
42	SRI Number	cdttttt
43	Activate SRI	cdtttttttAc
44	Deactivate SRI	cdtttttttDc
45	Erase SRI	cdtttttttt_c
46	Search target file	cddtXc
47	Erase search target file	cddt_c
48	Date time group	cddtt
49	Hour	r
50	Day	r
51	Minute	r
52	Delete request	cdttttXc
53	Do not delete request	cdtttt_c
54	Lower type factor	cddddddt
55	Upper type factor	cddddddtrrrr
56	Lower strength limit	cddddddttt
57	Upper strength limit	cddddddtttrrrrr
58	Target size limits	cddddddttt
59	Grid zone	cddddt
60	Spheroid	cddddtt
61	Mission fired	cddddttttttttXc
62	Erase mission fired	cddddtttttttt_c
63	Confirmed target	cddddttttttttXc
64	Erase confirmed target	cddddttttttttt_c
65	Erase subtype	cddddddtrrrrrrrr_____c
66	Erase target type	cddddddt_____c
67	Air defense artillery	cddddddtADAc
68	Armor	cddddddtARMORc
69	Artillery	cddddddtARTYc
70	Assembly areas	cddddddtASSYc
71	Building	cddddddtBLDGc
72	Bridge	cddddddtBRIDGEc
73	Center	cddddddtCENc
74	Equipment	cddddddtEQUIPc
75	Mortars	cddddddtMORTc
76	Personnel	cddddddtPERSc
77	Rockets or Missiles	cddddddtRKTMSLc
78	Special missions	cddddddtSPECc
79	Supply dump	cddddddtSUPPLYc
80	Terrain features	cddddddtTERc
81	Vehicle	cddddddtVEHc
82	Weapons	cddddddtWPNc
83	Unknown	cddddddtrrrrrrrrUNKc
84	Light	cddddddtttttttttrrrrrrLTc
85	Medium	cddddddtrrrrrrrrMDMc
86	Heavy	cddddddtrrrrrrrrHVc
87	Missile	cddddddtrrrrrrrrMSLc
88	Position	cddddddtrrrrrrrrPOSc
89	Armored personnel carrier	cddddddtrrrrrrrrAPCc
90	Troops	cddddddtrrrrrrrrTRPc
91	Troobs and vehicles	cddddddtrrrrrrrrTRPVEHc
92	Mechanized troops	cddddddtrrrrrrrrTRPARMc
93	Wood	cddddddtrrrrrrrrWOODc
94	Masonry	cddddddtrrrrrrrrMASNRYc
95	Concrete	cddddddtrrrrrrrrCONCc
96	Metal	cddddddtrrrrrrrrMETc
97	Special purpose	cddddddtrrrrrrrrSPCLc
98	Foot pontoon	cddddddtrrrrrrrrFTPONc
99	Vehicle pontoon	cddddddtrrrrrrrrVEHPONc
100	Steel	cddddddtrrrrrrrrSTEELc

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101  Site                                cddddddtrrrrrrrrSITEc
102  Raft                                cddddddtrrrrrrrrRAFTc
103  Ferry                               cddddddtrrrrrrrrFERRYc
104  Small                               cddddddtrrrrrrrrSMALLc
105  Battalion                           cddddddtrrrrrrrrBNc
106  Regiment                            cddddddtrrrrrrrrREGTc
107  Division                            cddddddtrrrrrrrrDIVc
108  Forward                             cddddddtrrrrrrrrFWDc
109  Radar                               cddddddtrrrrrrrrRADARc
110  Electronic warfare                  cddddddtrrrrrrrrEWc
111  Searchlight                         cddddddtrrrrrrrrSLTc
112  Guidance                            cddddddtrrrrrrrrGDNCc
113  Loudspeaker                         cddddddtrrrrrrrrLSc
114  Very heavy                          cddddddtrrrrrrrrVHc
115  Infantry                            cddddddtrrrrrrrrINFc
116  Observation post                    cddddddtrrrrrrrrOPc
117  Patrol                              cddddddtrrrrrrrrPTLc
118  Work party                          cddddddtrrrrrrrrWKPTYc
119  Antipersonnel                       cddddddtrrrrrrrrAPERSc
120  Light missile                       cddddddtrrrrrrrrLTMSLc
121  Medium missile                      cddddddtrrrrrrrrMDMSLc
122  Heavy missile                       cddddddtrrrrrrrrHVMSLc
123  Antitank                            cddddddtrrrrrrrrATANKc
124  Illumination one gun                cddddddtrrrrrrrrILL1c
125  Illumination two guns               cddddddtrrrrrrrrILL2c
126  Illumination with deflection        cddddddtrrrrrrrrILL2DFc
127  Illumination with range             cddddddtrrrrrrrrILL2RGc
128  Illumination four guns              cddddddtrrrrrrrrILL4c
129  Nonpersistent gas                   cddddddtrrrrrrrrGASNONc
130  Persistent gas                      cddddddtrrrrrrrrGASPERc
131  Leaflets                            cddddddtrrrrrrrrLEAFc
132  Ammunition                          cddddddtrrrrrrrrAMMOc
133  Petroleum                           cddddddtrrrrrrrrPTLc
134  Bridge equipment                    cddddddtrrrrrrrrBRGEQc
135  Class one                           cddddddtrrrrrrrrCLIc
136  Class two                           cddddddtrrrrrrrrCLIIc
137  Road                                cddddddtrrrrrrrrROADc
138  Junction                            cddddddtrrrrrrrrJCTc
139  Hill                                cddddddtrrrrrrrrHILLc
140  Defile                              cddddddtrrrrrrrrDEFILEc
141  Landing strip                       cddddddtrrrrrrrrLDGSTRc
142  Railroad                            cddddddtrrrrrrrrRRc
143  Light wheeled                       cddddddtrrrrrrrrLTWHLc
144  Heavy wheeled                       cddddddtrrrrrrrrHVWHLc
145  Reconnaissance                      cddddddtrrrrrrrrRECONc
146  Boats                               cddddddtrrrrrrrrBTc
147  Aircraft                            cddddddtrrrrrrrrACFTc
148  Helicopter                          cddddddtrrrrrrrrHELc
149  Light machine gun                   cddddddtrrrrrrrrLTMGc
150  Antitank gun                        cddddddtrrrrrrrrATGc
151  Heavy machine gun                   cddddddtrrrrrrrrHVMGc
152  Recoilless rifle                    cddddddtrrrrrrrrRCLRc
153  Half prone half standing            cddddddttPRANDc
154  Prone                               cddddddttPRONEc
155  Prone dug in                        cddddddttPRUGc
156  Prone overhead cover                cddddddttPROVERc
157  Dug in                              cddddddttDUGINc
158  Under overhead cover                cddddddttCOVERc
159  Erase degree of protection          cddddddtt______c
160  Excellent reliability               cdddttttEc
161  Good reliability                    cdddttttGc
162  Fair reliability                    cdddttttFc
163  Erase reliability                   cdddtttt_c
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Artillery Target Intelligence - Prepare a Fire Plan

Word number	Phrase Spoken	Output string
0	Zero	0
1	One	1
2	Two	2
3	Three	3
4	Four	4
5	Five	5
6	Six	6
7	Seven	7
8	Eight	8
9	Nine	9
10	Destination addressee	cdtt
11	Erase destination addressee	cdtt_/_/_/__/___c
12	Abort request	cdtttXc
13	Erase abort request	cdttt_c
14	Count of targets	cdttttXc
15	Erase count of targets	cdttttt_c
16	Plan name	cdt
17	Erase plan name	cdt_____c
18	Location	cdddt
19	Circular search area	cdddtt
20	Grid zone second point	cddddttt
21	Spheroid second point	cddddtttt
22	Zone of responsibility	cddddttttt
23	Overlap distance	cdddddttttt
24	Lower report value	cddddddttttt
25	Upper report value	cddddddttttrrrr
26	Lower size factor	cddddddttt
27	Left	l
28	Right	r
29	Erase	
30	Cursor reset	c
31	Upper size factor	cddddddtttrrr
32	Lower degree of protection	cddddddtt
33	Upper degree of protection	cddddddttrrr
34	Date time group	cdttttt
35	Hour	r
36	Day	r
37	Minute	r
38	Lower type factor	cddddddt
39	Upper type factor	cddddddtrrrr
40	Lower strength limit	cddddddttt
41	Upper strength limit	cddddddtttrrrrr
42	Target size limits	cddddddttt
43	Grid zone	cddddt
44	Spheroid	cddddtt
45	Mission fired	cddddttttttttXc
46	Erase mission fired	cddddtttttttt_c
47	Confirmed target	cddddttttttXc
48	Erase confirmed target	cddddtttttt_c
49	Erase subtype	cddddddtrrrrrrr_____c
50	Erase target type	cddddddt_____c
51	Air defense artillery	cddddddtADAc
52	Armor	cddddddtARMORc
53	Artillery	cddddddtARTYc
54	Assembly areas	cddddddtASSYc
55	Building	cddddddtBLDGc
56	Bridge	cddddddtBRIDGEc
57	Center	cddddddtCENc
58	Equipment	cddddddtEQUIPc
59	Mortars	cddddddtMORTc
60	Personnel	cddddddtPERSc
61	Rockets or Missiles	cddddddtRKTMSLc

62	Special missions	cddddddtSPECc
63	Supply dump	cddddddtSUPPLYc
64	Terrain features	cddddddtTERRc
65	Vehicle	cddddddtVEHc
66	Weapons	cddddddtWPNc
67	Unknown	cddddddtrrrrrrrrUNKc
68	Light	cddddttttttrrrrrrrrLTc
69	Medium	cddddddtrrrrrrrrMDMc
70	Heavy	cddddddtrrrrrrrrHVc
71	Missile	cddddddtrrrrrrrrMSLc
72	Position	cddddddtrrrrrrrrPOSc
73	Armored personnel carrier	cddddddtrrrrrrrrAPCc
74	Troops	cddddddtrrrrrrrrTRPc
75	Troops and vehicles	cddddddtrrrrrrrrTRPVEHc
76	Mechanized troops	cddddddtrrrrrrrrTRPARMc
77	Wood	cddddddtrrrrrrrrWOODc
78	Masonry	cddddddtrrrrrrrrMASNRYc
79	Concrete	cddddddtrrrrrrrrCONCc
80	Metal	cddddddtrrrrrrrrMETc
81	Special purpose	cddddddtrrrrrrrrSPCLc
82	Foot pontoon	cddddddtrrrrrrrrFTPONc
83	Vehicle pontoon	cddddddtrrrrrrrrVEHPONc
84	Steel	cddddddtrrrrrrrrSTEELc
85	Site	cddddddtrrrrrrrrSITEc
86	Raft	cddddddtrrrrrrrrRAFTc
87	Ferry	cddddddtrrrrrrrrFERRYc
88	Small	cddddddtrrrrrrrrSMALLc
89	Battalion	cddddddtrrrrrrrrBNc
90	Regiment	cddddddtrrrrrrrrREGTc
91	Division	cddddddtrrrrrrrrDIVc
92	Forward	cddddddtrrrrrrrrFWDc
93	Radar	cddddddtrrrrrrrrRADARc
94	Electronic warfare	cddddddtrrrrrrrrEWc
95	Searchlight	cddddddtrrrrrrrrSLTc
96	Guidance	cddddddtrrrrrrrrGDNCc
97	Loudspeaker	cddddddtrrrrrrrrLSc
98	Very heavy	cddddddtrrrrrrrrVHc
99	Infantry	cddddddtrrrrrrrrINFc
100	Observation post	cddddddtrrrrrrrrOPc
101	Patrol	cddddddtrrrrrrrrPTLc
102	Work party	cddddddtrrrrrrrrWKPTYc
103	Antipersonnel	cddddddtrrrrrrrrAPERSc
104	Light missile	cddddddtrrrrrrrrLTMSLc
105	Medium missile	cddddddtrrrrrrrrMDMSLc
106	Heavy missile	cddddddtrrrrrrrrHVMSLc
107	Antitank	cddddddtrrrrrrrrATANKc
108	Illumination one gun	cddddddtrrrrrrrrILL1c
109	Illumination two guns	cddddddtrrrrrrrrILL2c
110	Illumination with deflection	cddddddtrrrrrrrrILL2DFc
111	Illumination with range	cddddddtrrrrrrrrILL2RGc
112	Illumination four guns	cddddddtrrrrrrrrILL4c
113	Nonpersistent gas	cddddddtrrrrrrrrGASNONc
114	Persistent gas	cddddddtrrrrrrrrGASPERc
115	Leaflets	cddddddtrrrrrrrrLEAFc
116	Ammunition	cddddddtrrrrrrrrAMMOc
117	Petroleum	cddddddtrrrrrrrrPTLc
118	Bridge equipment	cddddddtrrrrrrrrBRGEQc
119	Class one	cddddddtrrrrrrrrCLIc
120	Class two	cddddddtrrrrrrrrCLIIc
121	Road	cddddddtrrrrrrrrROADc
122	Junction	cddddddtrrrrrrrrJCTc
123	Hill	cddddddtrrrrrrrrHILLc
124	Defile	cddddddtrrrrrrrrDEFILEc
125	Landing strip	cddddddtrrrrrrrrLDGSTRc
126	Railroad	cddddddtrrrrrrrrRRc
127	Light wheeled	cddddddtrrrrrrrrLTWHLc
128	Heavy wheeled	cddddddtrrrrrrrrHVWHLc

129	Reconnaissance	cddddddtrrrrrrrrRECONc
130	Boats	cddddddtrrrrrrrrBTc
131	Aircraft	cddddddtrrrrrrrrACFTc
132	Helicopter	cddddddtrrrrrrrrHELc
133	Light machine gun	cddddddtrrrrrrrrLTMGc
134	Antitank gun	cddddddtrrrrrrrrATGc
135	Heavy machine gun	cddddddtrrrrrrrrHVMGc
136	Recoilless rifle	cddddddtrrrrrrrrRCLRc
137	Half prone half standing	cddddddttPRANDc
138	Prone	cddddddttPRONEc
139	Prone dug in	cddddddttPRUGc
140	Prone overhead cover	cddddddttPROVERc
141	Dug in	cddddddttDUGINc
142	Under overhead cover	cddddddttCOVERc
143	Erase degree of protection	cddddttt_____c
144	Excellent reliability	cddddtttEc
145	Good reliability	cddddtttGc
146	Fair reliability	cddddtttFc
147	Erase reliability	cddddttt_c

Artillery Target Intelligence - User Commands

Word number	Phrase Spoken	Output string
0	Edit request	cdtXc
1	Erase edit request	cdt_c
2	Print request	cdttXc
3	Erase print request	cdtt_c
4	Transmit request	cdtttXc
5	Erase transmit request	cdttt_c
6	Addressee	cdtttt
7	Erase addressee	cdtttt_/_/_/__/___c
8	Modify file	cdttttXc
9	Erase modify file	cdtttt_c
10	Report accuracy	cdttttttXc
11	Erase report accuracy	cdtttttt_c
12	Range error	cdtttttttXc
13	Erase range error	cdttttttt_c
14	Location error	cdtttttttttXc
15	Erase location error	cdttttttttXc
16	Count of targets	cddt1c
17	One line summary	cddt2c
18	Full report	cddt3c
19	Erase report level	cddt_c
20	Situation report	cddttXc
21	Erase situation report	cddtt_c
22	Clear sitreps	cddtttXc
23	Erase clear sitreps	cddttt_c

This concludes the vocabulary lists for the Artillery Target Intelligence Function. The last function is the survey function. The message template which are included in this function were listed above under the vocabulary list for the Survey directory. The Survey function has message templates which are the least suited for discrete voice data entry. The entries consist of long series of numbers. Long

strings of numbers for input are much better suited for a continuous speech recognizer because the distinct pause between phrases can be eliminated.

For this reason, it was determined that there was little use in creating the vocabulary for the entire Survey function. When continous voice recognition equipment is more readily available and thoroughly tested a vocabulary could be developed to make the most of the recognizer's characteristics.

There is one last series of vocabulary words which might be useful if a recognizer is assumed to have the characteristic of an unlimited output. There could exist 96 more vocabulary words, one for each message template. The output string associated with these words could in fact be the message template itself. This would be useful if the operator accidently did erase or change the template keyword structure. This would eliminate the need for the operator to manually correct the keyword structure. This task would naturally take an extremely long output character string, but could be very useful.

For example, a very short template is the Split Target message template within the Artillery Target Intelligence Function. A sample of this message template is also in Appendix A. The output character string associated with this template would be:
"rrrrrr;P:r;SB:r/r/r/rr/rrr;C:rrr;SG:rr,rr;DT:rr,rr/rr/rr;
ID:rrrr;A:r;cdATI;SPLIT;TGT:rrrrrr;S:"

The right cursor was used to pass over the entry fields in order that any existing data was not erased. It was felt that this alone could be a time savings for the TACFIRE operators.

V. Vocabulary Test

Numerous tests were conducted on sample TACFIRE vocabularies before the final vocabulary organization was developed. These tests were conducted to help determine which recognizer to use, and under what conditions, such as with gas masks, the recognizer could operate efficiently. These tests are covered in other research reports. After the vocabulary was developed a very small scale test was conducted to insure that the suggested phrases had a reasonable accuracy rate associated with them. This test is not to be considered statistically significant but it was conducted as a preliminary quality assurance indicator.

One very experienced voice recognition user tested one message vocabulary from every TACFIRE Function for which vocabularies were developed. Each of the vocabularies was trained with the necessary ten training passes on the Threshold 600 voice recognizer. After this was done, a test phase was started. In the test phase the vocabulary was checked for proper training by reading through the entire list of words twice. If a misrecognition occured the word was spoken again. If it missed again, it was retrained. As soon as all of the words passed the two out of three test runs, the experimental phase started.

During the experimental phase, the tester went through the word list four times recording all of the errors. All four trials were done at the same time. The following table lists the rudimentary results of this small accuracy test. The first four values represent the number of errors per trial and the last value is the accuracy rate achieved.

S - User Commands Area	2	0	3	4	98.1%
AFU - Nonnuclear Mission	2	9	4	3	97.7%
M - User Commands	0	3	0	1	97.2%
TPC - Capability Analysis	0	3	2	4	98.8%
NFP - Commander Attack	1	0	2	8	97.2%
ATI - Coordinate Report	3	8	3	4	97.9%

The accuracy rates are fairly good. There could be some further utterance refinement, but generally the phrases selected are consistent with the field description in the documentation, and receive more than adequate recognition accuracy.

VI. Conclusions

This completes the presentation of the TACFIRE vocabulary. It turned out to be much larger than the researchers were led to believe at the beginning of the research effort. It appears as if one or two of the message templates come fairly close to meeting the limits of the Threshold 600 recognizer, but a 300 word recognition capability would be more than sufficient.

The vocabulary developed has many nice features as was pointed out in the above discussion. These features if incorporated into a voice system for TACFIRE would make the operator's job easier. A system which can fulfill TACFIRE's unique vocabulary requirements can be created with the voice data entry technology which has been demonstrated. At present there does not exist an off the shelf recognizer which will fulfill all of the requirements, but it is of the opinion of the researchers one could be developed. This would require a restructuring of the TACFIRE vocabulary and integration of a recognizer into the TACFIRE computer.

TYPICAL TACFIRE MESSAGE FORMAT

AMMUNITION AND FIRE UNIT UPDATE INPUT MESSAGE FORMAT

USED TO INPUT NEW OR UPDATE EXISTING FIRE UNIT DATA

_____;P:_;SB:_/_/_/__/___;C:___;SG:__,__;DT:__,__/__/__;ID:____;A:_;

AFU;UPDATE;PLAN:_____;FU:_/_/_/__/___;WPN:_____;MODEL:_____;MSN:___;

CORD:_____/_____/_____;GZ:___;SPHERE:_;APPL:__/__;ST:_;ZONE:_____;

WSTR:__;AZ:____;TIMEO:___;FUTYPE:_;UREINF:_/_/_/__/___;FSP:_/_/_/__/___;

DELETE:_;RT:_;RS:_;READY:_;OUTTIL:__/__/__;BL:____;MINRNG:____;

DTG:__/__/__;

```
_____;P:_;SB:_/_/_/__/___;C:___;SG:__,__;DT:__,__/__/__;ID:____;A:_;
ATI;SPLIT;TGT:_____;S:___
```

Split Target message template

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