NPS55-83-001

NAVAL POSTGRADUATE SCHOOL
Monterey, California

VOICE RECOGNITION VOCABULARY LISTS

FOR THE ARMY'S TACFIRE SYSTEM

by

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January 1983

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

NAVAL POSTGRADUATE SCHOOL
Monterey, California

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER NPS55-83-001	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) VOICE RECOGNITION VOCABULARY LISTS FOR THE ARMY'S TACFIRE SYSTEM		5. TYPE OF REPORT & PERIOD COVERED Technical
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) G. K. Poock E. F. Roland		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Naval Postgraduate School Monterey, CA 93940		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS MIPR TB-024
11. CONTROLLING OFFICE NAME AND ADDRESS Naval Postgraduate School Monterey, CA 93940		12. REPORT DATE January 1983
		13. NUMBER OF PAGES 124
14. MONITORING AGENCY NAME & ADDRESS(If different from Controlling Office) 9th Infantry Division Fort Lewis, WA 98433		15. SECURITY CLASS. (of this report) UNCLASSIFIED
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

VTAG
Voice Recognition
Automatic Speech Recognition
Voice Input/Output

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

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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S/N 0102-LF-014-6601

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

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 a 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 following 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

8

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.

11

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	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	cdtt3IN50t3IN50
36	5 inch 38	cdtt5IN38t5IN38
37	5 inch 54	cdtt5IN54t5IN54
38	6 inch 47	cdtt6IN47t6IN47
39	8 inch 55	cdtt8IN55t8IN55
40	Foxtrot 4 Delta	cdttF4DtF4Dc
41	Foxtrot 4 Echo	cdtt F4EtF4Ec
42	Foxtrot 100	cdttF100tF100c
43	Foxtrot 1 11	cdttF111tF111c
44	Foxtrot 1 0 5	cdttF105tF105c
45	Alpha 7 Charlie	cdttA7CtA7Cc
46	Alpha 7 Echo	cdttA7EtA7Ec
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	cdttF4CtF4Cc
54	Alpha 7 Delta	cdtttA7DtA7Dc
55	Foxtrot 4 Bravo	cdttF4BtF4Bc
56	Foxtrot 4 Juliet	cdttF4JtF4Jc
57	General Support	cdttttttGSc
58	Direct Support	cdttttttDSc
59	General Support Reinforcing	cdttttttGSRc
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	cddtttt1c
75	64 hundred mil sight	cddtttt2c
76	Bearing Sight	cddtttt3c
77	Zone of Responsibility	cddtttttt
78	Weapon strength	cddt
79	Azimuth	cdddtt
80	Response Time	cdddttt
81	Cannon	cdddtttCc
82	Missile Rocket	cdddtttMc
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	cddddddt
95	Cursor reset	c
96	Right	r
97	Left	l
98	Erase Plan	cdt_____c
99	Erase unit	cdt_____c
100	Erase weapon	cdttt_____c
101	Erase model	cdttt_____c
102	Erase mission	cdtttt____c
103	Erase ammunition	cddttt____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

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

14

Unit message template and can be referred to in the following 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

15

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 through 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

16

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

17

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

18

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	dtttttttt
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	dttttt
6	Attack method	dtttttt
7	Subsequent commands	dttttttt
8	Message to observer	dtttttttt
9	Forward observer 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	dttttt
6	Modification criteria	dtttttt
7	Fire unit selection criteria	dttttttt
8	Fire unit exclusions	dtttttttt
9	Attack method	dd
10	Not that one	c

22

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	dtttttt
7	Query	dttttttt
8	S R I	dtttttttt
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	dddt
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 data
7	Delete survey data
8	Azmuith and distance
9	Geo to U T M
10	U T M to Geo
11	True to grid
12	Zone to 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	cdtrrrrrrrr
12	Northern edge	cdtt
13	Southern edge	cdttrrrrrrrrr
14	Grid Zone	cdttt
15	Spheroid	cdtttt
16	Latitude northern edge	cddt
17	Latitude southern edge	cddtrrrrrrrrrrrrr
18	Longitude eastern edge	cddtt
19	Longitude western edge	cddttrrrrrrrrrrrrrrr
20	Degrees	r
21	Minutes	r
22	Seconds	r
23	Major axis	cddt
24	Minor axis	cddtt
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	cdttrrrrrr/_____c

24

30	Erase grid zone	cdttt___c
31	Erase latitude north	cddt 7--/__/__/__.-c
32	Erase latitude south	cddt========/_/__/__/__.-c
33	Erase longitude east	cddt /___/__/__:_c
34	Erase longitude west	cddt===========/_/__/__/__.-c
35	Erase major axis	cddt _____.__c
36	Erase minor axis	cddtt_____.__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 COORD2 fields were not made accessible 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	r
15	Minute	c
16	Fire unit	cdtttt
17	Delete request	cdttttttXc
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	cddttttXc
25	Dead space area	cddtttttXc
26	Damage avoidance area	cddttttttXc
27	Fire support coordination	cddtttttttXc
28	Chemical hazard area	cddttttttttXc
29	Ammunition restriction	cddttttttttl
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	cdddttl
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	cdddttt
61	Troop safety	cdddttttXc
62	Point coordinate one	cddddt
63	Point coordinate two	cdddddt
64	Point coordinate three	cddddddt

65	Grid zone	cddddd--
66	Spheroid	cdddddtt
67	Additional points	cdddddddttXc
68	Erase plan name	cdt_____c
69	Erase specified geometry	cdtt_____c
70	Erase fire unit	cdttttt-7-7_/__/___c
71	Do not delete	cd--tttt_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	cddttt_c
77	Erase no fire area	cddtttt_c
78	Erase restrictive fire area	cddtttt_c
79	Erase dead space area	cddttttt_c
80	Erase damage avoidance area	cddtttttt_c
81	Erase fire support	cddtttttt_c
82	Erase chemical hazard area	cddttttttt_c
83	Erase ammunition restriction	r
84	Erase target type	cddtttttttttt_____c
85	Erase limit factor	r
86	Erase troop safety	cdddtttt_c
87	Erase additional points	cdddddddtt_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	cdtttrrrrrr
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	cddtt
26	Additional points	cdddddtttXc
27	Erase additional points	cdddddttt_c
28	Overlap distance	cdddddtt
29	Boundry number one	cdddddt
30	Boundry name	r
31	Boundry number two	cdddddtrrrrrrrrr
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	cdttttXc
14	Do not delete request	cdtttt_c
15	Day	r
16	Minute	r
17	Hour	rr
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	cddddtt
27	Corridor width	cdddttt
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	cdtHJrrrrrM386rrr
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	cdttl1111111111ROCKE
58	Cannon	cdtt1111111111CANNO
59	Missile	cdtt1111111111MISSL
60	Air	cdtt1111111111AIRc
61	NAVY	cdtt1111111111NAVYc
62	Sustained rate of fire	cddtt
63	Erase weapon type	cdt _____/_____/___
64	High explosive indicator	cddtttttXc
65	Chemical indicator	cddttttttXc
66	Nuclear indicator	cddtttttttXc
67	Erase high explosive	cddtttt_c
68	Ammunition	cdtl
69	High Explosive	rHE
70	Chemical	rCH
71	Nuclear	rNU
72	All weapon types	rALc
73	Erase chemical indicator	cddttttt_c
74	Erase nuclear indicator	cddtttttt_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	cdddd
82	Range error	cddddtrrrrtMc
83	Deflection error	cddddtrrrrrrrr
84	Height error	cddddtrrrrrrrrrrr
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	cdtttE
17	Coordinate north	cdttttrrrrrr
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

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45          Signal                         rSIGrrr
46          Topographic                    rTOPOrr
47          Transportation                 rTRANrr
43          Transportation aviation        rTRANAV
49          Transporation helicopter       rTRANHE
50          Transporation medium air       rTRANMA
51          Erase branch                   cddtt_____/_____
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                        cddtttBDEc
66          Battalion                      cddtttBNc
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                cddtttt_____c
78          Unit name                      cdddt
79          Parent unit name               cdddtt
80          Erase unit name                cdddt____/____/___
81          Erase parent unit              cdddtt____/____/___
```

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

Support Function - Build a Plan

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	cddt_c
8	FEBA	cddttXc
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	cddtttXc

32

14	Erase fire area	cddttttt_c
15	No fire area	cddttttXc
16	Restrictive fire area	cddttttXc
17	Restrictive fire line	cddtttttXc
18	Erase restrictive fire line	cddtttttt_c
19	Coordinated fire line	cddttttttTXc
20	Erase coordinated fire line	cddttttttt_c
21	Dead space area	cddtttttttTXc
22	Erase dead space area	cddttttttttt_c
23	Fire support coordination	cddtttttttttTXc
24	Erase fire support	cddttttttttt_c
25	Chemical hazard area	cddttttttttttTXc
26	Erase chemical hazard area	cddttttttttt_c
27	Damage avoidance area	cddtttttttttttTXc
28	Erase damage avoidance area	cddtttttttttt_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	cdtttTXc
15	Erase abort	cdttt_c
16	Show nuc d	cdttttTXc
17	Erase show nuc d	cdttttt_c

18	Edit request	cddtXc
19	Erase edit request	cddt_c
20	Print request	cddtEXc
21	Erase print request	cddtt_c
22	View request	cddttEXc
23	Erase view request	cddttt_c
24	Show request	cddtttEXc
25	Erase show request	cddtttt_c
26	Delete request	cdddttttEXc
27	Do not delete	cddtttttt_c
28	Transmit request	cddttttttEXc
29	Do not transmit	cdddtttttt_c
30	Addressee	cddttttttE
31	erase addressee	cddtttttttt_/_/_/__/_
32	Zone of responsibility	cdddtXc
33	Erase zone of responsibility	cdddt_c
34	Line of departure	cdddtEXc
35	Erase line of departure	cdddtt_c
36	FEBA	cdddttXc
37	Erase FEBA	cdddttt_c
38	Air space coordination	cdddtttEXc
39	Erase air space coordination	cdddtttt_c
40	Free fire area	cdddttttEXc
41	No fire area	cdddtttttXc
42	Restrictive fire area	cdddtttttXc
43	Erase fire area	cdddttttt_c
44	Restrictive fire line	cdddtttttEXc
45	Erase restrictive fire line	cdddtttttt_c
46	Coordinated fire line	cdddttttttEXc
47	Erase coordinated fire line	cdddttttttt_c
48	Dead space area	cdddtttttttEXc
49	Erase dead space area	cdddtttttttt_c
50	Fire support coordination	cdddtttttttEXc
51	Erase fire support	cdddttttttttt_c
52	Chemical hazard area	cdddtttttttttEXc
53	Erase chemical hazard area	cdddttttttttttt_c
54	Damage avoidance area	cdddttttttttttEXc
55	Erase damage avoidance area	cdddtttttttttttt_c
56	Map mod indicator	cdddttttttttttttEXc
57	erase map mod indicator	cdddtttttttttttttt_c
58	Check request	cddddtXc
59	Erase check request	cddddt_c
60	Weapon descriptor table	cddddtEXc
61	Erase weapon descriptor	cddddtt_c
62	1 0 5 millimeter	cddddtt105MMrr
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	cddddttHJrrrrrM386rr
80	Lance	cddddttLANCErr
81	Xray Mike 7 4 0	XM740rr
82	Xray Mike 7 5 2	XM752rr
83	Hercules	cddddttHERCrrrHERCrr
84	M 9 1	cddddttM91rrrrM91rrr

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	cddddttrrrrrrrrrrrrrrROCKETc
108	Cannon	cddddttrrrrrrrrrrrrrrCANNONc
109	Missile	cddddttrrrrrrrrrrrrrrMISSLEc
110	Air	cddddttrrrrrrrrrrrrrrAIRc
111	Navy	cddddttrrrrrrrrrrrrrrNAVYc
112	Erase weapon description	cddddtt / /------c
113	Pershing	cddddttPERSHIrXM79Grr

Support Function - Damage Avoidance Area

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	Damage avoidance area name	cdtt
12	Delete request	cdtttXc
13	Do not delete	cdttt_c
14	Urban personnel	cddtXr
15	Erase urban personnel	cddt_r_c
16	Rural personnel	cddttXr
17	Erase rural personnel	cddtt_r__c
18	Cursor reset	c
19	Frame buildings	cdddtXr
20	Erase frame buildings	cdddt_r_c
21	Masonry buildings	cdddttXr
22	Erase masonry buildings	cdddtt_r__c
23	Wooden shingle	cddddtXr
24	Erase wooden shingle	cddddt_r__c
25	Drapes	cddddXr
26	Erase drapes	cdddd_r__c

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

36

41	Foxtrot 4 Echo	cdtttF4E+F4Ec
42	Foxtrot 100	cdtttF100+F100c
43	Foxtrot 1 11	cdtttF111+F111c
44	Foxtrot 1 0 5	cdtttF105+F105c
45	Alpha 7 Charlie	cdtttA7Ct A7Cc
46	Alpha 7 Echo	cdtttA7E+A7Ec
47	Alpha 4 Echo	cdtttA4E+A4Ec
48	Alpha 4 Foxtrot	cdtttA4F+A4Fc
49	Alpha 4 Mike	cdtttA4M+A4Mc
50	Alpha 6 Alpha	cdtttA6A+A6Ac
51	Alpha 6 Echo	cdtttA6E+A6Ec
52	Alpha 10	cdtttA10+A10c
53	Foxtrot 4 Charlie	cdtttF4C+F4Cc
54	Alpha 7 Delta	cdtttA7D+A7Dc
55	Foxtrot 4 Bravo	cdtttF4B+F4Bc
56	Foxtrot 4 Juliet	cdtttF4J+F4Jc
57	General Support	cdttttGSc
58	Direct Support	cdttttDSc
59	General Support Reinforcing	cdttttGSRc
60	Reinforcing	cdttttRc
61	Coordinate East	cddt
62	Coordinate North	cddttttttttt
63	Altitude	cddtt11111111
64	Grid Zone	cddtt
65	Northern	+
66	Southern	-
67	Spheroid	cddttt
68	Ammunition	cddtttt1
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	cddttttttt
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	cdddttttttt
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	cddddt
95	Cursor reset	c
96	Right	t
97	Left	l
98	Erase Plan	cdt_____c
99	Erase unit	_/_7_7__7___c
100	Erase weapon	cdtt_____c
101	Erase model	cdttt_____c_
102	Erase mission	cdtttt___c_
103	Erase ammunition	cddtttt__7__c
104	Erase sight	cddttttt_c__
105	Erase zone	cddtttttt_____c
106	Do Not Delete	cddddt_c
107	Unit Not ready	cddddtttt_c

37

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	cdt+EXc
15	Erase ammunition received	cdttt_c
16	Ammunition expended	cdtttEXc
17	Erase ammunition expended	cdtttt_c
18	Ammunition on hand	cdttttEXc
19	Erase ammunition on hand	cdttttt_c
20	Projectile	cddtl
21	Fuze	cdddtl
22	Mark	cddddtl
23	Date time group	cdddddt
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

38

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	cddtr
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	cdtttM91c
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__/__/__/___c
45	Erase weapon type	cdttt_____c
46	Supply rate	cdtttt
47	Cursor reset	c
48	Expended amount	cdtttttt
49	Erase supply rate	cdtttt____c
50	Erase expended amount	cdtttt____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	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 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	cdtttt1111111
63	Grid zone	cdttt
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	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	cddttrrrrrrrrTRPVEH
91	Mechanized troops	cddttrrrrrrrrTRPARM
92	Wood	cddttrrrrrrrrWOODc
93	Masonry	cddttrrrrrrrrMASNRY
94	Concrete	cddttrrrrrrrrCONCc
95	Metal	cddttrrrrrrrrMETc
96	Special purpose	cddttrrrrrrrrSPCLc
97	Foot pontoon	cddttrrrrrrrrFTPONc
98	Vehicle pontoon	cddttrrrrrrrrVEHPON
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	cddttrrrrrrrrILL2DF
126	Illumination with range	cddttrrrrrrrrILL2RG
127	Illumination four guns	cddttrrrrrrrrILL4c
128	Nonpersistent gas	cddttrrrrrrrrGASNON
129	Persistent gas	cddttrrrrrrrrGASPER
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	cddttrrrrrrrrDEFILE
140	Landing strip	cddttrrrrrrrrLDGSTR
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	cddtt======7------
154	Half prone half standing	cddtt-PRANDc------

42

155	Prone	cddttttPRONEc
156	Prone dug in	cddtttPRUGc
157	Prone overhead cover	cddtttPROVERc
158	Dug in	cddttttDUGINc
159	Under overhead cover	cddtttCOVERc
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	cddttttttt
166	Report value	cdddt
167	Excellent reliability	cdddttEc
168	Good reliability	cdddttGc
169	Fair reliability	cdddttFc
170	Disposition neutralized	cdddtttNEUTc
171	Disposition burning	cdddtttBURNc
172	Burning and neutralized	cdddtttNEUT/BURNc
173	Target destroyed	cdddtttDESTc
174	Can not observe	cdddtttCNOc
175	Disposition unknown	cdddtttUNKc
176	Disposition none	cdddtttNONEc
177	Erase disposition of target	cdddttt_____c
178	Number of casualties	cdddtttt
179	Date time group	cdddttttt
180	Day	r
181	Hour	r
182	Minute	r
183	Plain text	cdddtttttt
184	Exclude target	cdddtttttttXc
185	Do not exclude target	cdddtttttttt_c
186	Fire unit one	cddddt
187	Fire unit two	cddddddt
188	Fire unit three	cdddddddt
189	Shell type one	cddddtt
190	Fuze type one	cddddttt
191	Shell type two	cdddddtt
192	Fuze type two	cdddddttt
193	Shell type three	cddddddtt
194	Fuze type three	cddddddttt

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 60 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 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	cdttttll111111
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	cddttrrrrrrrUNKc
83	Light	cddttrrrrrrrLTc
84	Medium	cddttrrrrrrrMDMc
85	Heavy	cddttrrrrrrrHVc
86	Missile	cddttrrrrrrrMSLc
87	Position	cddttrrrrrrrPOSc
88	Armored personnel carrier	cddttrrrrrrrAPCc
89	Troops	cddttrrrrrrrTRPc
90	Troops and vehicles	cddttrrrrrrrTRPVEHc
91	Mechanized troops	cddttrrrrrrrTRPARMc
92	Wood	cddttrrrrrrrWOODc
93	Masonry	cddttrrrrrrrMASNRYc
94	Concrete	cddttrrrrrrrCONCc
95	Metal	cddttrrrrrrrMETc
96	Special purpose	cddttrrrrrrrSPCLc
97	Foot pontoon	cddttrrrrrrrFTPONc
98	Vehicle pontoon	cddttrrrrrrrVEHPONc
99	Steel	cddttrrrrrrrSTEELc
100	Site	cddttrrrrrrrSITEc
101	Raft	cddttrrrrrrrRAFTc
102	Ferry	cddttrrrrrrrFERRYc
103	Small	cddttrrrrrrrSMALLc
104	Battalion	cddttrrrrrrrBNc
105	Regiment	cddttrrrrrrrREGTc
106	Division	cddttrrrrrrrDIVc
107	Forward	cddttrrrrrrrFWDc
108	Radar	cddttrrrrrrrRADARc
109	Electronic warfare	cddttrrrrrrrEWc
110	Searchlight	cddttrrrrrrrSLTc
111	Guidance	cddttrrrrrrrGDNCc
112	Loudspeaker	cddttrrrrrrrLSc
113	Very heavy	cddttrrrrrrrVHc
114	Infantry	cddttrrrrrrrINFc
115	Observation post	cddttrrrrrrrOPc
116	Patrol	cddttrrrrrrrPTLc
117	Work party	cddttrrrrrrrWKPTYc
118	Antipersonnel	cddttrrrrrrrAPERSc
119	Light missile	cddttrrrrrrrLTMSLc
120	Medium missile	cddttrrrrrrrMDMSLc
121	Heavy missile	cddttrrrrrrrHVMSLc
122	Antitank	cddttrrrrrrrATANKc
123	Illumination one gun	cddttrrrrrrrILL1c
124	Illumination two guns	cddttrrrrrrrILL2c
125	Illumination with deflection	cddttrrrrrrrILL2DFc
126	Illumination with range	cddttrrrrrrrILL2RGc
127	Illumination four guns	cddttrrrrrrrILL4c
128	Nonpersistent gas	cddttrrrrrrrGASNONc

45

129	Persistent gas	cddttrrrrrrrGASPER
130	Leaflets	cddttrrrrrrrLEAFc
131	Ammunition	cddttrrrrrrrAMMOc
132	Petroleum	cddttrrrrrrrPTLc
133	Bridge equipment	cddttrrrrrrrBRGEQc
134	Class one	cddttrrrrrrrCLIc
135	Class two	cddttrrrrrrrCLIIc
136	Road	cddttrrrrrrrROADc
137	Junction	cddttrrrrrrrJCTc
138	Hill	cddttrrrrrrrHILLc
139	Defile	cddttrrrrrrrDEFILE
140	Landing strip	cddttrrrrrrrLDGSTR
141	Railroad	cddttrrrrrrrRRc
142	Light wheeled	cddttrrrrrrrLTWHLc
143	Heavy wheeled	cddttrrrrrrrHVWHLc
144	Reconnaissance	cddttrrrrrrrRECONc
145	Boats	cddttrrrrrrrBTc
146	Aircraft	cddttrrrrrrrACFTc
147	Helicopter	cddttrrrrrrrHELc
148	Light machine gun	cddttrrrrrrrLTMGc
149	Antitank gun	cddttrrrrrrrATGc
150	Heavy machine gun	cddttrrrrrrrHVMGc
151	Recoilless rifle	cddttrrrrrrrRCLRc
152	Erase target type	cddtt c
153	Erase target sub type	cddttrrrrrr7_____
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	cddtttt_____
162	Erase	
163	Cursor reset	c̄
164	Attitude of target	cddttttt
165	Strength of target	cddttttt
166	Report value	cdddt
167	Excellent reliability	cdddttEc
168	Good reliability	cdddttGc
169	Fair reliability	cdddttFc
170	Disposition neutralized	cdddtttNEUTc
171	Disposition burning	cdddtttBURNc
172	Burning and neutralized	cdddtttNEUT/BURNc
173	Target destroyed	cdddtttDESTc
174	Can not observe	cdddtttCNOc
175	Disposition unknown	cdddtttUNKc
176	Disposition none	cdddtttNONEc
177	Erase disposition of target	cdddttt_____c
178	Number of casualties	cdddtttt
179	Date time group	cdddttttt
180	Day	r
181	Hour	r
182	Minute	r
183	Plain text	cdddttttt
184	Exclude target	cdddttttttXc
185	Fire unit	cddddt
186	Shell type	cddddtt
187	Fuze type	cddddttt
188	Mark quantity	cddddddt

Ammunition and Fire Unit Function - Launch Site Update

Word number   Phrase Spoken   Output string

46

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--c
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	l=
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	cdddtttt
31	Launch time three	cddddtttt
32	Launch time four	cdddddtttt

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	cdtttt105MMc
13	1 5 5 millimeter	cdtttt155MMc
14	1 7 5 millimeter	cdtttt175MMc
15	Eight Inch	cdtttt8INc
16	Honest John	cdttttHJc
17	Lance	cdttttLANCEc
18	Hercules	cdttttHERCc
19	M 9 1	cdttttM91c
20	3 inch 50	cdtttt3IN50c
21	5 inch 38	cdtttt5IN38c
22	5 inch 54	cdtttt5IN54c
23	6 inch 47	cdtttt6IN47c
24	8 inch 55	cdtttt8IN55c
25	Foxtrot 4 Delta	cdttttF4Dc

47

25	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	cdtttt__c
47	New plan name	cdt
48	Erase plan name	cdt_____c
49	Erase fire unit	cdtt__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	cddtFXc
3	Erase edit request	cddt_c
4	Print request	cddttFXc
5	Erase print request	cddtt_c
6	View request	cddtttFXc
7	Erase view request	cddttt_c
8	Show request	cddttttFXc
9	Erase show request	cddtttt_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

48

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	cdttttHEc
44	Chemical	cdttttCHc
45	Nuclear	cdttttNUc
46	Erase ammunition type	cdtttt_c
47	All ammunition types	cdttttALc
48	Erase plan name	cdt____c
49	Erase unit	/_7_7__7__c
50	Transmit request	cdddtttttXc
51	Erase transmit request	cdddttttt_c
52	Destination addressee	cddttttttE
53	Situation report	cdddtXc
54	Erase situation report	cdddt_c
55	Ammunition inventory summary	cdddtEXc
56	Erase ammunition summary	cdddtt_c
57	Fan of coverage	cdddtttEXc
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	=
12	Hour	=
13	Minute	=====
14	Right	=
15	Left	1
16	Erase	
17	Command post location	cdttt
18	Propose new position	cddt
19	Helipad east	cddtt
20	Helipad north	cddttrrrrrrr
21	Helipad altitude	cddtttllllllll
22	Enemy casualties	cddttt
23	Personnel killed	cdddtt
24	Personnel wounded	cddddttrrrrr
25	Shortages	cdddddt
26	Combat efficiency	cddddddt
27	Future plans	cdddddddt
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. Numercus 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	t
12	Hour	r
13	Minute	rr
14	Left	l
15	Right	r
16	Erase	
17	Valid time period	cdtt
18	Coordinate east	cdttt
19	Coordinate north	cdtttrrrrrrr
20	Altitude	cdttttllllllll
21	Grid zone	cdtttt
22	Cursor reset	c
23	Spheroid	cddt
24	Wind	cddtt
25	Lapse	cddttLAPSEc
26	Neutral	cddtttNEUTc
27	Inverted	cddtttINVERc
28	Temperature	cdddt
29	Relative humidity	cdddtt
30	Light rain	cdddtttLRc
31	Moderate rain	cdddtttMRc
32	Heavy rain	cdddtttHRc
33	Light snow	cdddtttLSr
34	Moderate snow	cdddtttMSr
35	Heavy snow	cdddtttHSr
36	Clear	cdddtttCLEATc
37	Scattered clouds	cdddttttSCATTRc
38	Clouds broken	cdddttttBROKNc
39	Overcast	cdddttttOVRCSTc
40	Low clouds	cdddtttttLOWc
41	Medium clouds	cdddtttttMIDLc
42	High clouds	cdddtttttHIGHc

Meteorological 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_/_/_/__/___
18	Delete request	cdttttXc
19	Do not delete	cdttttt_c
20	Line designator	cdttttt

52

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	ttt
30	Hour	tt
31	Minute	tt
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

53

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	cd+Xc
42	Erase request for fire	cdt_c
43	Observer to target direction	cddtt
44	Coordinate east	cdtttt
45	Coordinate north	cdttttrrrrrrr
46	Altitude	cdttttttllllllll
47	Grid zone	cdttttt
48	Spheroid	cddt
49	Target radius	cddttttt
50	Target length	cddttttt
51	Target width	cddttttrrrrr
52	Attitude	cdddt
53	Strength of target	cdtdtt
54	Report value	cdddttt
55	Initial shell type	cidddtttt
56	Subsequent shell type	cdddttttrrrr
57	Initial fuze type	cidddttttt
58	Subsewquent fuze type	cdddttttttrrrrr
59	Date time group	cidddttttt
60	Day	r
61	Hour	r
62	Minute	r
63	Time on target	cdddttttttt
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	cddttttrrrrrrrrUNKc
83	Light	cddttttrrrrrrrrLTc
84	Medium	cddtttrrrrrrrrrMDMc
85	Heavy	cddtttrrrrrrrrrHVc
86	Missile	cddttttrrrrrrrrMSLc
87	Position	cddttttrrrrrrrrPOSc
88	Armored personnel carrier	cddttttrrrrrrrrAPCc
89	Troops	cddttttrrrrrrrrTRPc
90	Troops and vehicles	cddttttrrrrrrrrTRPVE
91	Mechanized troops	cddttttrrrrrrrrTRPAE
92	Wood	cddttttrrrrrrrrWOODc
93	Masonry	cddttttrrrrrrrrMASNE
94	Concrete	cddttttrrrrrrrrCONCc
95	Metal	cddttttrrrrrrrrMETc
96	Special purpose	cddttttrrrrrrrrSPCLc
97	Foot pontoon	cddttttrrrrrrrrFTPONc
98	Vehicle pontoon	cddttttrrrrrrrrVEHPc

54

99	Steel	cddttttrrrrrrrSTEELc
100	Site	cddttttrrrrrrrSITEc
101	Raft	cddttttrrrrrrrRAFTc
102	Ferry	cddttttrrrrrrrFERRYc
103	Small	cddttttrrrrrrrSMALLc
104	Battalion	cddttttrrrrrrrBNc
105	Regiment	cddttttrrrrrrrREGTc
106	Division	cddttttrrrrrrrDIVc
107	Forward	cddttttrrrrrrrFWDc
108	Radar	cddttttrrrrrrrRADARc
109	Electronic warfare	cddttttrrrrrrrEWc
110	Searchlight	cddttttrrrrrrrSLTc
111	Guidance	cddttttrrrrrrrGDNCc
112	Loudspeaker	cddttttrrrrrrrLSc
113	Very heavy	cddttttrrrrrrrVHc
114	Infantry	cddttttrrrrrrrINFc
115	Observation post	cddttttrrrrrrrOPc
116	Patrol	cddttttrrrrrrrPTLc
117	Work party	cddttttrrrrrrrWKPTYc
118	Antipersonnel	cddttttrrrrrrrAPERSc
119	Light missile	cddttttrrrrrrrLTMSLc
120	Medium missile	cddttttrrrrrrrMDMSLc
121	Heavy missile	cddttttrrrrrrrHVMSLc
122	Antitank	cddttttrrrrrrrATANKc
123	Illumination one gun	cddttttrrrrrrrILL1c
124	Illumination two guns	cddttttrrrrrrrILL2c
125	Illumination with deflection	cddttttrrrrrrrILL2DFc
126	Illumination with range	cddttttrrrrrrrILL2RGc
127	Illumination four guns	cddttttrrrrrrrILL4c
128	Nonpersistent gas	cddttttrrrrrrrGASNONc
129	Persistent gas	cddttttrrrrrrrGASPERc
130	Leaflets	cddttttrrrrrrrLEAFc
131	Ammunition	cddttttrrrrrrrAMMOc
132	Petroleum	cddttttrrrrrrrPTLc
133	Bridge equipment	cddttttrrrrrrrBRGEQc
134	Class one	cddttttrrrrrrrCLIc
135	Class two	cddttttrrrrrrrCLIIc
136	Road	cddttttrrrrrrrROADc
137	Junction	cddttttrrrrrrrJCTc
138	Hill	cddttttrrrrrrrHILLc
139	Defile	cddttttrrrrrrrDEFILEc
140	Landing strip	cddttttrrrrrrrLDGSTRc
141	Railroad	cddttttrrrrrrrRRc
142	Light wheeled	cddttttrrrrrrrLTWHLc
143	Heavy wheeled	cddttttrrrrrrrHVWHLc
144	Reconnaissance	cddttttrrrrrrrRECONc
145	Boats	cddttttrrrrrrrBTc
146	Aircraft	cddttttrrrrrrrACFTc
147	Helicopter	cddttttrrrrrrrHELc
148	Light machine gun	cddttttrrrrrrrLTMGc
149	Antitank gun	cddttttrrrrrrrATGc
150	Heavy machine gun	cddttttrrrrrrrHVMGc
151	Recoilless rifle	cddttttrrrrrrrRCLRc
152	Erase target type	cddtttt=======c
153	Erase target sub type	cddttttPRAND-------c
154	Half prone half standing	cddttttPRANDc
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	Erase fire unit	_/_/_/__7____=c
162	Save fire unit	rrrrrr===rrrr
163	When ready	cddddddtWRc
164	At my command	cddddddtAMCc
165	Fire per effect	cddddddtrrrrrrFFEc

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	cddddddttttALTc
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	cdttXc
16	Do not delete	cdtt_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	rrrrrrrrrrrrrr
49	Erase fire unit	_/_/_/__/___=

57

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

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	cddttt105MMc
13	1 5 5 millimeter	cddttt155MMc
14	1 7 5 millimeter	cddttt175MMc
15	Eight Inch	cddttt8INc
16	Honest John	cddtttHJc
17	Lance	cddtttLANCEc
18	Pershing	cddtttPERSHc
19	Hercules	cddtttHERCc
20	M 9 1	cddtttM91c
21	3 inch 50	cddttt3IN50c
22	5 inch 38	cddttt5IN38c
23	5 inch 54	cddttt5IN54c
24	6 inch 47	cddttt6IN47c
25	8 inch 55	cddttt8IN55c
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
50	Battalion order number	cddtt
51	Maximum volleys	cddtttt
52	Fire unit ordering	cddttttt

58

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	cddtrrrrrrUNKc
37	Light	cddtrrrrrrrLTc
38	Medium	cddtrrrrrrrMDMc
39	Heavy	cddtrrrrrrrHVc
40	Missile	cddtrrrrrrrMSLc
41	Position	cddtrrrrrrrPOSc
42	Armored personnel carrier	cddtrrrrrrrAPCc
43	Troops	cddtrrrrrrrTRPc
44	Troops and vehicles	cddtrrrrrrrTRPVEHc
45	Mechanized troops	cddtrrrrrrrTRPARMc
46	Wood	cddtrrrrrrrWOODc
47	Masonry	cddtrrrrrrrMASNRYc
48	Concrete	cddtrrrrrrrCONCc
49	Metal	cddtrrrrrrrMETc
50	Special purpose	cddtrrrrrrrSPCLc
51	Foot pontoon	cddtrrrrrrrFTPONc
52	Vehicle pontoon	cddtrrrrrrrVEHPONc
53	Steel	cddtrrrrrrrSTEELc
54	Site	cddtrrrrrrrSITEc

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	cddt_____ -------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

60

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	T
39	Right	T
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	cdttttXc
46	Do not delete	cdtttt_c
47	Edit request	cddtXc
48	Erase edit request	cddt_c
49	Print request	cddttXc
50	Erase print request	cddtt_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	cddtttttt

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	cdt
41	Plan name	cdt
42	Erase subtype	cddtrrrrrrr_____c
43	Fire unit	cdddt
44	Coordinate east	cdttt
45	Coordinate north	cdtttrrrrrrr
46	Altitude	cdtttt11111111111
47	Grid zone	cdtttt
48	Spheroid	cddt
49	Target radius	cddtttt
50	Target length	cddtttt
51	Target width	cddtttttrrrrr
52	Erase unit	_/_/_/__/__r
53	Erase plan name	cdt_____c__r
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	t
61	Hour	t
62	Minute	t
63	Erase degree of protection	cddttt_____c
64	Cursor reset	c
65	Erase weapon type	cddttttt_____c
66	Air defense artillery	cddttADAc_____c
67	Armor	cddttARMORc

62

68	Artillery	cddtt ARTYc
69	Assembly areas	cddtt ASSYc
70	Building	cddtt BLDGc
71	Bridge	cddtt BRIDGEc
72	Center	cddtt CENc
73	Equipment	cddtt EQUIPc
74	Mortars	cddtt MORTc
75	Personnel	cddtt PERSc
76	Rockets or Missiles	cddtt RKTMSLc
77	Special missions	cddtt SPECc
78	Supply dump	cddtt SUPPLYc
79	Terrain features	cddtt TERc
80	Vehicle	cddtt VEHc
81	Weapons	cddtt WPNc
82	Unknown	cddtttrrrrrrrr UNKc
83	Light	cddtttrrrrrrrr LTc
84	Medium	cddtttrrrrrrrr MDMc
85	Heavy	cddtttrrrrrrrr HVc
86	Missile	cddtttrrrrrrrr MSLc
87	Position	cddtttrrrrrrrr POSc
88	Armored personnel carrier	cddtttrrrrrrrr APCc
89	Troops	cddtttrrrrrrrr TRPc
90	Troops and vehicles	cddtttrrrrrrrr TRPVEHc
91	Mechanized troops	cddtttrrrrrrrr TRPARMc
92	Wood	cddtttrrrrrrrr WOODc
93	Masonry	cddtttrrrrrrrr MASNRYc
94	Concrete	cddtttrrrrrrrr CONCc
95	Metal	cddtttrrrrrrrr METc
96	Special purpose	cddtttrrrrrrrr SPCLc
97	Foot pontoon	cddtttrrrrrrrr FTPONc
98	Vehicle pontoon	cddtttrrrrrrrr VEHPONc
99	Steel	cddtttrrrrrrrr STEELc
100	Site	cddtttrrrrrrrr SITEc
101	Raft	cddtttrrrrrrrr RAFTc
102	Ferry	cddtttrrrrrrrr FERRYc
103	Small	cddtttrrrrrrrr SMALLc
104	Battalion	cddtttrrrrrrrr BNc
105	Regiment	cddtttrrrrrrrr REGTc
106	Division	cddtttrrrrrrrr DIVc
107	Forward	cddtttrrrrrrrr FWDc
108	Radar	cddtttrrrrrrrr RADARc
109	Electronic warfare	cddtttrrrrrrrr EWc
110	Searchlight	cddtttrrrrrrrr SLTc
111	Guidance	cddtttrrrrrrrr GDNCc
112	Loudspeaker	cddtttrrrrrrrr LSc
113	Very heavy	cddtttrrrrrrrr VHc
114	Infantry	cddtttrrrrrrrr INFc
115	Observation post	cddtttrrrrrrrr OPc
116	Patrol	cddtttrrrrrrrr PTLc
117	Work party	cddtttrrrrrrrr WKPTYc
118	Antipersonnel	cddtttrrrrrrrr APERSc
119	Light missile	cddtttrrrrrrrr LTMSLc
120	Medium missile	cddtttrrrrrrrr MDMSLc
121	Heavy missile	cddtttrrrrrrrr HVMSLc
122	Antitank	cddtttrrrrrrrr ATANKc
123	Illumination one gun	cddtttrrrrrrrr ILL1c
124	Illumination two guns	cddtttrrrrrrrr ILL2c
125	Illumination with deflection	cddtttrrrrrrrr ILL2DFc
126	Illumination with range	cddtttrrrrrrrr ILL2RGc
127	Illumination four guns	cddtttrrrrrrrr ILL4c
128	Nonpersistent gas	cddtttrrrrrrrr GASNONc
129	Persistent gas	cddtttrrrrrrrr GASPERc
130	Leaflets	cddtttrrrrrrrr LEAFc
131	Ammunition	cddtttrrrrrrrr AMMOc
132	Petroleum	cddtttrrrrrrrr PTLc
133	Bridge equipment	cddtttrrrrrrrr BRGEQc
134	Class one	cddtttrrrrrrrr CL1c

135	Class two	cddttrrrrrrrCLIIc
136	Road	cddttrrrrrrrrROADc
137	Junction	cddttrrrrrrrJCTc
138	Hill	cddttrrrrrrrHILLc
139	Defile	cddttrrrrrrrDEFILE
140	Landing strip	cddttrrrrrrrLDGSTR
141	Railroad	cddttrrrrrrrrRRc
142	Light wheeled	cddttrrrrrrrrLTWHLc
143	Heavy wheeled	cddttrrrrrrrrHVWHLc
144	Reconnaissance	cddttrrrrrrrRECONc
145	Boats	cddttrrrrrrrBTc
146	Aircraft	cddttrrrrrrrrACFTc
147	Helicopter	cddttrrrrrrrHELc
148	Light machine gun	cddttrrrrrrrrrLTMGc
149	Antitank gun	cddttrrrrrrrATGc
150	Heavy machine gun	cddttrrrrrrrHVMGc
151	Recoilless rifle	cddttrrrrrrrRCLRc
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 r
39	Right	r
40	Erase	
41	End of mission	cdttXc
42	Erase subtype	cddttrrrrrr_____
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	cddtttt
58	Subsequent fuze type	cddttttrrrrr
59	Erase target type	cddtt_____c
60	Erase target sub-type	cddttrrrrrr_____
61	Erase shell	cddttt___/__c__
62	Erase fuze	cddtttt___/__7___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	cddttTERc
80	Vehicle	cddttVEHc
81	Weapons	cddttWPNc
82	Unknown	cddttrrrrrrrUNKc
83	Light	cddttrrrrrrrLTc

84	Medium	cddtrrrrrrrrMDMc
85	Heavy	cddtrrrrrrrrHVc
86	Missile	cddtrrrrrrrrMSLc
87	Position	cddtrrrrrrrrPOSc
88	Armored personnel carrier	cddtrrrrrrrrAPCc
89	Troops	cddtrrrrrrrrTRPc
90	Troops and vehicles	cddtrrrrrrrrTRPVEHc
91	Mechanized troops	cddtrrrrrrrrTRPARMc
92	Wood	cddtrrrrrrrrWOODc
93	Masonry	cddtrrrrrrrrMASNRYc
94	Concrete	cddtrrrrrrrrCONCc
95	Metal	cddtrrrrrrrrMETc
96	Special purpose	cddtrrrrrrrrSPCLc
97	Foot pontoon	cddtrrrrrrrrFTPONc
98	Vehicle pontoon	cddtrrrrrrrrVEHPONc
99	Steel	cddtrrrrrrrrSTEELc
100	Site	cddtrrrrrrrrSITEc
101	Raft	cddtrrrrrrrrRAFTc
102	Ferry	cddtrrrrrrrrFERRYc
103	Small	cddtrrrrrrrrSMALLc
104	Battalion	cddtrrrrrrrrBNc
105	Regiment	cddtrrrrrrrrREGTc
106	Division	cddtrrrrrrrrDIVc
107	Forward	cddtrrrrrrrrFWDc
108	Radar	cddtrrrrrrrrRADARc
109	Electronic warfare	cddtrrrrrrrrEWc
110	Searchlight	cddtrrrrrrrrSLTc
111	Guidance	cddtrrrrrrrrGDNCc
112	Loudspeaker	cddtrrrrrrrrLSc
113	Very heavy	cddtrrrrrrrrVHc
114	Infantry	cddtrrrrrrrrINFc
115	Observation post	cddtrrrrrrrrOPc
116	Patrol	cddtrrrrrrrrPTLc
117	Work party	cddtrrrrrrrrWKPTYc
118	Antipersonnel	cddtrrrrrrrrAPERSc
119	Light missile	cddtrrrrrrrrLTMSLc
120	Medium missile	cddtrrrrrrrrMDMSLc
121	Heavy missile	cddtrrrrrrrrHVMSLc
122	Antitank	cddtrrrrrrrrATANKc
123	Illumination one gun	cddtrrrrrrrrILL1c
124	Illumination two guns	cddtrrrrrrrrILL2c
125	Illumination with deflection	cddtrrrrrrrrILL2DFc
126	Illumination with range	cddtrrrrrrrrILL2RGc
127	Illumination four guns	cddtrrrrrrrrILL4c
128	Nonpersistent gas	cddtrrrrrrrrGASNONc
129	Persistent gas	cddtrrrrrrrrGASPERc
130	Leaflets	cddtrrrrrrrrLEAFc
131	Ammunition	cddtrrrrrrrrAMMOc
132	Petroleum	cddtrrrrrrrrPTLc
133	Bridge equipment	cddtrrrrrrrrBRGEQc
134	Class one	cddtrrrrrrrrCLIc
135	Class two	cddtrrrrrrrrCLIIc
136	Road	cddtrrrrrrrrROADc
137	Junction	cddtrrrrrrrrJCTc
138	Hill	cddtrrrrrrrrHILLc
139	Defile	cddtrrrrrrrrDEFILEc
140	Landing strip	cddtrrrrrrrrLDGSTRc
141	Railroad	cddtrrrrrrrrRRc
142	Light wheeled	cddtrrrrrrrrLTWHLc
143	Heavy wheeled	cddtrrrrrrrrHVWHLc
144	Reconnaissance	cddtrrrrrrrrRECONc
145	Boats	cddtrrrrrrrrBTc
146	Aircraft	cddtrrrrrrrrACFTc
147	Helicopter	cddtrrrrrrrrHELc
148	Light machine gun	cddtrrrrrrrrLTMGc
149	Antitank gun	cddtrrrrrrrrATGc
150	Heavy machine gun	cddtrrrrrrrrHVMGc

67

151	Recoilless rifle	cddttrrrrrrrRCLRc
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	cdttt_c
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	rr
14	Hour	rr
15	Minute	rr
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	cdddtttrrrr
22	First fuze type	cdddttt
23	Second fuze type	cdddtttrrrr
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	cdddtF43c
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	rr
14	Hour	rr
15	Minute	rr

69

16	Cursor reset	c
17	Desired effects	cddttt
18	Delete request	cdtttXc
19	Do not delete request	cdttt_c
20	Standard volley factor	cddttFt
21	Erase degree of protection	cddtt_____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	cddtrrrrrrrUNKc
41	Light	cddtrrrrrrrLTc
42	Medium	cddtrrrrrrrMDMc
43	Heavy	cddtrrrrrrrHVc
44	Missile	cddtrrrrrrrMSLc
45	Position	cddtrrrrrrrPOSc
46	Armored personnel carrier	cddtrrrrrrrAPCc
47	Troops	cddtrrrrrrrTRPc
48	Troops and vehicles	cddtrrrrrrrTRPVEHc
49	Mechanized troops	cddtrrrrrrrTRPARMc
50	Wood	cddtrrrrrrrWOODc
51	Masonry	cddtrrrrrrrMASNRYc
52	Concrete	cddtrrrrrrrCONCc
53	Metal	cddtrrrrrrrMETc
54	Special purpose	cddtrrrrrrrSPCLc
55	Foot pontoon	cddtrrrrrrrFTPONc
56	Vehicle pontoon	cddtrrrrrrrVEHPONc
57	Steel	cddtrrrrrrrSTEELc
58	Site	cddtrrrrrrrSITEc
59	Raft	cddtrrrrrrrRAFTc
60	Ferry	cddtrrrrrrrFERRYc
61	Small	cddtrrrrrrrSMALLc
62	Battalion	cddtrrrrrrrBNc
63	Regiment	cddtrrrrrrrREGTc
64	Division	cddtrrrrrrrDIVc
65	Forward	cddtrrrrrrrFWDc
66	Radar	cddtrrrrrrrRADARc
67	Electronic warfare	cddtrrrrrrrEWc
68	Searchlight	cddtrrrrrrrSLTc
69	Guidance	cddtrrrrrrrGDNCc
70	Loudspeaker	cddtrrrrrrrLSc
71	Very heavy	cddtrrrrrrrVHc
72	Infantry	cddtrrrrrrrINFc
73	Observation post	cddtrrrrrrrOPc
74	Patrol	cddtrrrrrrrPTLc
75	Work party	cddtrrrrrrrWKPTYc
76	Antipersonnel	cddtrrrrrrrAPERSc
77	Light missile	cddtrrrrrrrLTMSLc
78	Medium missile	cddtrrrrrrrMDMSLc
79	Heavy missile	cddtrrrrrrrHVMSLc
80	Antitank	cddtrrrrrrrATANKc
81	Illumination one gun	cddtrrrrrrrILL1c
82	Illumination two guns	cddtrrrrrrrILL2c

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	1 0 5 millimeter	cddttt105MMc
25	1 5 5 millimeter	cddttt155MMc
26	1 7 5 millimeter	cddttt175MMc
27	Eight Inch	cddttt8INc
28	Honest John	cddtttHJc
29	Lance	cddttLANCErr
30	Hercules	cddtttHERCc

71

31	M 9 1	cddttt M91c
32	3 inch 50	cddttt 3IN50c
33	5 inch 38	cddttt 5IN38c
34	5 inch 54	cddttt 5IN54c
35	6 inch 47	cddttt 6IN47c
36	8 inch 55	cddttt 8IN55c
37	Foxtrot 4 Delta	cddttt F4Dc
38	Foxtrot 4 Echo	cddttt F4Ec
39	Foxtrot 100	cddttt F100c
40	Foxtrot 1 11	cddttt F111c
41	Foxtrot 1 0 5	cddttt F105c
42	Alpha 7 Charlie	cddttt A7Cc
43	Alpha 7 Echo	cddttt A7Ec
44	Alpha 4 Echo	cddttt A4Ec
45	Alpha 4 Foxtrot	cddttt A4Fc
46	Alpha 4 Mike	cddttt A4Mc
47	Alpha 6 Alpha	cddttt A6Ac
48	Alpha 6 Echo	cddttt A6Ec
49	Alpha 10	cddttt A10c
50	Foxtrot 4 Charlie	cddttt F4Cc
51	Alpha 7 Delta	cddttt A7Dc
52	Foxtrot 4 Bravo	cddttt F4Bc
53	Foxtrot 4 Juliet	cddttt F4Jc
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_____r
12	Alpha	A
13	Bravo	B
14	Charlie	C
15	Delta	D
16	Echo	E

72

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	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	cdtttt_c
50	Priority of targets	cdddt
51	Phase of targets	cdddtt
52	Time from H hour	cdddttt
53	Group	cdddtttt
54	Series name	cdddttttt
55	Series order	cdddtttttrrrrrr
56	Fire units	cdddt
57	Erase fire unit	cddddt_____r
58	Desired effects	cddddt_-___r
59	Number of volleys	cdddddtt
60	Initial shell	cdddddttt
61	Subsequent shell	cdddddtttrrrr
62	Initial fuze	cdddddttt
63	Subsequent fuze	cdddddtttrrrrr
64	Low angle of fire	cdddddttttLOWc
65	High angle of fire	cdddddttttHIGHc
66	Erase angle of fire	cdddddttttt____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

73

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	r
39	Right	r
40	Erase	
41	Plan name	cdt
42	Erase subtype	cdddtrrrrrrr_____
43	Record target	cddddttttTc ____
44	Coordinate east	cdtt
45	Coordinate north	cdttrrrrrrrr
46	Altitude	cdtttll11111l111
47	Grid zone	cdttt
48	Spheroid	cdtttt
49	Target radius	cdddttt
50	Target length	cdddttt
51	Target width	cdddtttrrrrr
52	Erase record	cddddttt_c
53	Erase plan name	cdt____c
54	Erase strength	cdddtttttt____c
55	Erase report value	cdddttttt___c
56	Attitude	cdddttt
57	Strength of target	cdddttttt
58	Report value	cdddttttt
59	Suspected target	cdddtXc
60	Erase suspected target	cdddt_c
61	Delete request	cdddtEXc
62	Do not delete request	cdddttt_c
63	Erase degree of protection	cdddtt_____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

74

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		cdddtrrrrrrrUNKc
83	Light		cdddtrrrrrrrLTc
84	Medium		cdddtrrrrrrrMDMc
85	Heavy		cdddtrrrrrrrHVc
86	Missile		cdddtrrrrrrrMSLc
87	Position		cdddtrrrrrrrPOSc
88	Armored personnel carrier		cdddtrrrrrrrAPCc
89	Troops		cdddtrrrrrrrTRPc
90	Troops and vehicles		cdddtrrrrrrrTRPVEHc
91	Mechanized troops		cdddtrrrrrrrTRPARMc
92	Wood		cdddtrrrrrrrWOODc
93	Masonry		cdddtrrrrrrrMASNRYc
94	Concrete		cdddtrrrrrrrCONCc
95	Metal		cdddtrrrrrrrMETc
96	Special purpose		cdddtrrrrrrrSPCLc
97	Foot pontoon		cdddtrrrrrrrFTPONc
98	Vehicle pontoon		cdddtrrrrrrrVEHPONc
99	Steel		cdddtrrrrrrrSTEELc
100	Site		cdddtrrrrrrrSITEc
101	Raft		cdddtrrrrrrrRAFTc
102	Ferry		cdddtrrrrrrrFERRYc
103	Small		cdddtrrrrrrrSMALLc
104	Battalion		cdddtrrrrrrrBNc
105	Regiment		cdddtrrrrrrrREGTc
106	Division		cdddtrrrrrrrDIVc
107	Forward		cdddtrrrrrrrFWDc
108	Radar		cdddtrrrrrrrRADARc
109	Electronic warfare		cdddtrrrrrrrEWc
110	Searchlight		cdddtrrrrrrrSLTc
111	Guidance		cdddtrrrrrrrGDNCc
112	Loudspeaker		cdddtrrrrrrrLSc
113	Very heavy		cdddtrrrrrrrVHc
114	Infantry		cdddtrrrrrrrINFc
115	Observation post		cdddtrrrrrrrOPc
116	Patrol		cdddtrrrrrrrPTLc
117	Work party		cdddtrrrrrrrWKPTYc
118	Antipersonnel		cdddtrrrrrrrAPERSc
119	Light missile		cdddtrrrrrrrLTMSLc
120	Medium missile		cdddtrrrrrrrMDMSLc
121	Heavy missile		cdddtrrrrrrrHVMSLc
122	Antitank		cdddtrrrrrrrATANKc
123	Illumination one gun		cdddtrrrrrrrILL1c
124	Illumination two guns		cdddtrrrrrrrILL2c
125	Illumination with deflection		cdddtrrrrrrrILL2DFc
126	Illumination with range		cdddtrrrrrrrILL2RGc
127	Illumination four guns		cdddtrrrrrrrILL4c
128	Nonpersistent gas		cdddtrrrrrrrGASNONc
129	Persistent gas		cdddtrrrrrrrGASPERc
130	Leaflets		cdddtrrrrrrrLEAFc
131	Ammunition		cdddtrrrrrrrAMMOc
132	Petroleum		cdddtrrrrrrrPTLc
133	Bridge equipment		cdddtrrrrrrrBRGEQc
134	Class one		cdddtrrrrrrrCLIc
135	Class two		cdddtrrrrrrrCLIIc
136	Road		cdddtrrrrrrrROADc
137	Junction		cdddtrrrrrrrJCTc
138	Hill		cdddtrrrrrrrHILLc
139	Defile		cdddtrrrrrrrDEFILEc

140	Landing strip	cdddtrrrrrrrrLDGSTR
141	Railroad	cdddtrrrrrrrrRRc
142	Light wheeled	cdddtrrrrrrrLTWHLc
143	Heavy wheeled	cdddtrrrrrrrHVWHLc
144	Reconnaissance	cdddtrrrrrrrrRECONc
145	Boats	cdddtrrrrrrrBTc
146	Aircraft	cdddtrrrrrrrACFTc
147	Helicopter	cdddtrrrrrrrHELc
148	Light machine gun	cdddtrrrrrrrLTMGc
149	Antitank gun	cdddtrrrrrrrATGc
150	Heavy machine gun	cdddtrrrrrrrHVMGc
151	Recoilless rifle	cdddtrrrrrrrRCLRc
152	Erase grid zone	cdttt__c
153	Erase sphere	cdtttt=-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	_____=
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	cddddtttTc
44	Coordinate east	cdtt
45	Coordinate north	cdttrrrrrrr
46	Altitude	cdttt11111111
47	Grid zone	cdttt
48	Spheroid	cdttt
49	Target radius	cdddttt
50	Target length	cdddttt
51	Target width	cdddttttrrrrr
52	Erase record	cddddttt_c
53	Erase plan name	cdt_____c
54	Erase strength	cdddttttt___c
55	Erase report value	cdddttttt___c
56	Attitude	cdddttt
57	Strength of target	cdddttttt
58	Report value	cdddtttttt
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	cdddtt_____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	cdddtrrrrrrrUNKc
83	Light	cdddtrrrrrrrLTc
84	Medium	cdddtrrrrrrrMDMc
85	Heavy	cdddtrrrrrrrHVc
86	Missile	cdddtrrrrrrrMSLc
87	Position	cdddtrrrrrrrPOSc
88	Armored personnel carrier	cdddtrrrrrrrAPCc
89	Troops	cdddtrrrrrrrTRPc
90	Troops and vehicles	cdddtrrrrrrrTRPVEHc
91	Mechanized troops	cdddtrrrrrrrTRPARMc
92	Wood	cdddtrrrrrrrWOODc
93	Masonry	cdddtrrrrrrrMASNRYc
94	Concrete	cdddtrrrrrrrCONCc
95	Metal	cdddtrrrrrrrMETc
96	Special purpose	cdddtrrrrrrrSPCLc
97	Foot pontoon	cdddtrrrrrrrFTPONc
98	Vehicle pontoon	cdddtrrrrrrrVEHPONc
99	Steel	cdddtrrrrrrrSTEELc
100	Site	cdddtrrrrrrrSITEc
101	Raft	cdddtrrrrrrrRAFTc
102	Ferry	cdddtrrrrrrrFERRYc
103	Small	cdddtrrrrrrrSMALLc
104	Battalion	cdddtrrrrrrrBNc

105	Regiment	cdddtrrrrrrrREGTc
106	Division	cdddtrrrrrrrrDIVc
107	Forward	cdddtrrrrrrrFWDc
108	Radar	cdddtrrrrrrrRADARc
109	Electronic warfare	cdddtrrrrrrrEWc
110	Searchlight	cdddtrrrrrrSLTc
111	Guidance	cdddtrrrrrrrGDNCc
112	Loudspeaker	cdddtrrrrrrrLSc
113	Very heavy	cdddtrrrrrrrVHc
114	Infantry	cdddtrrrrrrrINFc
115	Observation post	cdddtrrrrrrrOPc
116	Patrol	cdddtrrrrrrrPTLc
117	Work party	cdddtrrrrrrWKPTYc
118	Antipersonnel	cdddtrrrrrrrAPERSc
119	Light missile	cdddtrrrrrrrrLTMSLc
120	Medium missile	cdddtrrrrrrrMDMSLc
121	Heavy missile	cdddtrrrrrrrHVMSLc
122	Antitank	cdddtrrrrrrrrATANKc
123	Illumination one gun	cdddtrrrrrrrILL1c
124	Illumination two guns	cdddtrrrrrrrILL2c
125	Illumination with deflection	cdddtrrrrrrrrILL2DFc
126	Illumination with range	cdddtrrrrrrrILL2RGc
127	Illumination four guns	cdddtrrrrrrrILL4c
128	Nonpersistent gas	cdddtrrrrrrrGASNONc
129	Persistent gas	cdddtrrrrrrrGASPERc
130	Leaflets	cdddtrrrrrrrLEAFc
131	Ammunition	cdddtrrrrrrrAMMOc
132	Petroleum	cdddtrrrrrrrPTLc
133	Bridge equipment	cdddtrrrrrrrBRGEQc
134	Class one	cdddtrrrrrrrCLIc
135	Class two	cdddtrrrrrrrCLIIc
136	Road	cdddtrrrrrrrROADc
137	Junction	cdddtrrrrrrrJCTc
138	Hill	cdddtrrrrrrrHILLc
139	Defile	cdddtrrrrrrrDEFILEc
140	Landing strip	cdddtrrrrrrrLDGSTRc
141	Railroad	cdddtrrrrrrrRRc
142	Light wheeled	cdddtrrrrrrrLTWHLc
143	Heavy wheeled	cdddtrrrrrrrHVWHLc
144	Reconnaissance	cdddtrrrrrrrRECONc
145	Boats	cdddtrrrrrrrBTc
146	Aircraft	cdddtrrrrrrrACFTc
147	Helicopter	cdddtrrrrrrrHELc
148	Light machine gun	cdddtrrrrrrrLTMGc
149	Antitank gun	cdddtrrrrrrrATGc
150	Heavy machine gun	cdddtrrrrrrrHVMGc
151	Recoilless rifle	cdddtrrrrrrrrRCLRc
152	Erase grid zone	cdttt__c
153	Erase sphere	cdttt_c
154	Half prone half standing	cdddt_PRANDc
155	Prone	cdddt_PRONEc
156	Prone dug in	cdddt_PRUGc
157	Prone overhead cover	cdddt_PROVERc
158	Dug in	cdddt_DUGINc
159	Under overhead cover	cdddt_COVERc

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	cdttttrrrr
16	Delete request	cdtttXc
17	Do not delete request	cdtttt_c

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	cdtttttXc
19	Erase preliminary target list	cdttttt_c
20	Phase one	cddt
21	Phase two	cddtt
22	Phase three	cddttt
23	Phase four	cddtttt
24	Right	r
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

79

Word number	Phrase Spoken	Output string
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 plan name	cdt_____c
43	Fire plan target list	cdttXc----
44	Add data	cdtttXc
45	Cursor reset	c
46	Erase add data	cdttt_c
47	H Hour	cdtttt
48	Delete request	cdttttXc
49	Do not delete request	cdtttt_c
50	Fire unit	cdttttt
51	Erase fire unit	cdttttt_/_/_/__/_
52	Desired effects	cddt
53	Number of volleys	cddtt
54	Initial shell	cddttt
55	Subsequent shell	cddtttrrr
56	Initial fuze	cddtttt
57	Subsequent fuze	cddttttrrrr
58	Detonate on impact	cddtttttYESc
59	Other than impact	cddtttttNOc
60	High angle	cddtttttttHIGHc
61	Low angle	cddtttttttLOWc

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

80

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	cddtttt_c
60	Transmit request	cddtttttXc
61	Erase transmit request	cddttttt_c
62	Destination	cddtttttt
63	Erase destination	cddtttttt_/_/_/__/___c
64	Override	cddtttttttXc
65	Erase override	cddttttttt_c
66	Target count	cddttttttttXc
67	Erase target count	cddtttttttt_c
68	Preliminary list	cdddtXc
69	Erase preliminary list	cdddt_c
70	Fire plan list	cddddtXc
71	Erase fire plan list	cddddt_c
72	Targets in schedule	cddddttXc
73	Erase targets in schedule	cddddtt_c

74	Oncall	cddddtttttXc
75	Erase oncall	cddddtttttt_c
76	Phase of targets	cddddttttttt
77	Erase phase of targets	cddddttttt_c
78	Zone of responsibility	cddddtttttttt
79	Erase zone of responsibility	cddddtttttt_____c
80	Overlap distance	cddddttttttt_____
81	Erase overlap distance	cddddtttttttt_____c
82	All files	cdddddtXc
83	Erase all files	cdddddt_c
84	Schedule of fires	cdddddttTXc
85	Erase schedule of fires	cdddddtt_c
86	Group of fires	cdddddttTXc
87	Erase group of fires	cdddddttt_c
88	Series of fires	cdddddtttTXc
89	Erase series of fires	cdddddtttt_c
90	Ammunition report	cdddddttttTXc
91	Erase ammunition report	cdddddtttttt_c
92	Fire plan summary	cdddddtttttTXc
93	Erase fire plan summary	cdddddtttttt_c
94	Reserve fire units	cdddddtttttttTXc
95	Erase fire units	cdddddttttttt_c
96	Modification data	cdddddtttttttTXc
97	Erase modification data	cdddddtttttttt_c
98	Build a MOD file	cdddddtttttttttTXc
99	Erase build a MOD file	cdddddtttttttt_c
100	Update nuclear targets	cdddddddUc
101	All nuclear targets	cdddddddAc
102	Specified nuclear targets	cdddddddSc
103	Erase nuclear targets	cddddddd_c
104	Plain test	cdddddddtt

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

32

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	cdttttTXc
22	Erase search	cdttttt_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	cdtttt_c
33	Report value	cddt
34	Erase report value	cddt___c
35	report value criteria	cddtt--c
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	cddtttt

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	r
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	cdttttt_c
21	In fan	cdtttttEXc
22	Erase in fan	cdttttt_c
23	Compatible	cdtttttEXc
24	Erase compatible	cdtttttt_c
25	Incompatible	cdttttttEXc
26	Erase incompatible	cdtttttt_c

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	cddt
30	Mil accuracy	cddtt
31	Range to target	cddttt
32	Range error	cddttrrrrr
33	Location error	cddtttt
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 | c̄dtt_____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	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 motar 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	cdtttt_____c
29	Target update	cdtXc
30	Erase target update	cdt_c
31	Delete request	cdtt̄Xc
32	Do not delete request	cdtt_c
33	Target number	cdttt̄
34	Left	l
35	Right	r
36	Erase	
37	Cursor reset	c̄
38	Delete target number	cdttt____c
39	Do not adjust coordinates	cdttt̄t̄Xc--
40	Erase adjust coordinates	cdtttt_c
41	Do not combine description	cdttttt̄Xc
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	cdttttttttXc
70	Erase fire request	cdttttttttt_c
71	Coordinate east	cddt
72	Coordinate north	cddttrrrrrr
73	Altitude	cddttt11111111
74	Grid zone	cddtt
75	Spheroid	cddttt
76	Target radius	cddtttt
77	Target length	cddtttt
78	Target width	cddttttrrrrr
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	cdddtrrrrrrrUNKc
91	Light	cdddtrrrrrrrLTc
92	Medium	cdddtrrrrrrrMDMc
93	Heavy	cdddtrrrrrrrHVc
94	Missile	cdddtrrrrrrrMSLc
95	Position	cdddtrrrrrrrPOSc
96	Armored personnel carrier	cdddtrrrrrrrAPCc
97	Troops	cdddtrrrrrrrTRPc
98	Troops and vehicles	cdddtrrrrrrrTRPVEHc
99	Mechanized troops	cdddtrrrrrrrTRPARMc
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	cdddtrrrrrrrDIVc
115	Forward	cdddtrrrrrrrFWDc
116	Radar	cdddtrrrrrrrRADARc
117	Electronic warfare	cdddtrrrrrrrEWc
118	Searchlight	cdddtrrrrrrrSLTc
119	Guidance	cdddtrrrrrrrGDNCc
120	Loudspeaker	cdddtrrrrrrrLSc
121	Very heavy	cdddtrrrrrrrVHc
122	Infantry	cdddtrrrrrrrINFc
123	Observation post	cdddtrrrrrrrOPc
124	Patrol	cdddtrrrrrrrPTLc
125	Work party	cdddtrrrrrrrWKPTYc
126	Antipersonnel	cdddtrrrrrrrAPERSc
127	Light missile	cdddtrrrrrrrLTMSLc
128	Medium missile	cdddtrrrrrrrMDMSLc
129	Heavy missile	cdddtrrrrrrrHVMSLc
130	Antitank	cdddtrrrrrrrATANKc
131	Illumination one gun	cdddtrrrrrrrILL1c
132	Illumination two guns	cdddtrrrrrrrILL2c
133	Illumination with deflection	cdddtrrrrrrrILL2DFc
134	Illumination with range	cdddtrrrrrrrILL2RGc
135	Illumination four guns	cdddtrrrrrrrILL4c
136	Nonpersistent gas	cdddtrrrrrrrGASNONc
137	Persistent gas	cdddtrrrrrrrGASPERc
138	Leaflets	cdddtrrrrrrrLEAFc
139	Ammunition	cdddtrrrrrrrAMMOc
140	Petroleum	cdddtrrrrrrrPTLc
141	Bridge equipment	cdddtrrrrrrrBRGEQc
142	Class one	cdddtrrrrrrrCLIc
143	Class two	cdddtrrrrrrrCLIIc
144	Road	cdddtrrrrrrrROADc
145	Junction	cdddtrrrrrrrJCTc
146	Hill	cdddtrrrrrrrHILLc
147	Defile	cdddtrrrrrrrDEFILEc
148	Landing strip	cdddtrrrrrrrLDGSTRc
149	Railroad	cdddtrrrrrrrRRc
150	Light wheeled	cdddtrrrrrrrLTWHLc
151	Heavy wheeled	cdddtrrrrrrrHVWHLc
152	Reconnaissance	cdddtrrrrrrrRECONc
153	Boats	cdddtrrrrrrrBTc
154	Aircraft	cdddtrrrrrrrACFTc
155	Helicopter	cdddtrrrrrrrHELc
156	Light machine gun	cdddtrrrrrrrLTMGc
157	Antitank gun	cdddtrrrrrrrATGc
158	Heavy machine gun	cdddtrrrrrrrHVMGc
159	Recoilless rifle	cdddtrrrrrrrRCLRc
160	Half prone half standing	cdddttPRANDc
161	Prone	cdddttPRONEc
162	Prone dug in	cdddttPRUGc
163	Prone overhead cover	cdddttPROVERc
164	Dug in	cdddttDUGINc
165	Under overhead cover	cdddttCOVERc
166	Degrees	r
167	Minutes	r
168	Seconds	r
169	Erase degree of protection	cdddtt_____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	cddddttt
177	Confirm target	cddddttttttXc
178	Erase confirm target	cddddtttttt_c
179	Date time group	cddddttttttt
180	Days	r

88

181	Hours	r
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	cddddddttEBAREc
192	Shrubs	cddddddtttSHRUBc
193	Woods	cddddddtttWOODSc
194	Erase vegetation	cddddddttt c
195	0 to 1 hour	cddddddttttEOOOTc
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	cddddddttttENEUTc
202	Burning	cddddddtttttBURNc
203	Neutralized and burning	cddddddtttttNEUT/BURNc
204	Destroyed	cddddddtttttDESTc
205	Can not observe	cddddddtttttCNOc
206	Unknown	cddddddtttttUNKc
207	None	cddddddtttttNONEc
208	Erase disposition	cddddddttttt_____c
209	Casualties	cddddddttttt
210	Mission fired	cddddddttXc
211	Erase mission fired	cdddddddtt c
212	Plain text	cdddddddttE
213	Plain text message	cdddddddtttt

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 motar 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	cdtttt_COMINTc
27	Electronic intelligence	cdttttt_ELINTc
28	Erase agency	cdtttt_____c
29	Target update	cdtXc
30	Erase target update	cdt_c
31	Delete request	cdt=FXc
32	Do not delete request	cdtt_c
33	Target number	cdtt=
34	Left	l
35	Right	r
36	Erase	
37	Cursor reset	c
38	Delete target number	cdttt_____c
39	Do not adjust coordinates	cdtttt=FXc--
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	cdtttttttttXc
70	Erase surveyed location	cdttttttttt_c
71	Coordinate east	cddt
72	Coordinate north	cddtrrrrrrr
73	Altitude	cddttllllllll111
74	Grid zone	cddtt
75	Spheroid	cddttt
76	Target radius	cddtttt
77	Target length	cddtttt
78	Target width	cddttttrrrrr
79	Attitude	cddttttt
70	Erase subtype	cdddttttttttrrr_____c
71	Azimuth	cdddttt
72	Distance	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

90

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	cdddtrrrrrrrUNKc
91	Light	cdddtrrrrrrrLTc
92	Medium	cdddtrrrrrrrMDMc
93	Heavy	cdddtrrrrrrrHVc
94	Missile	cdddtrrrrrrrMSLc
95	Position	cdddtrrrrrrrPOSc
96	Armored personnel carrier	cdddtrrrrrrrAPCc
97	Troops	cdddtrrrrrrrTRPc
98	Troops and vehicles	cdddtrrrrrrrTRPVEHc
99	Mechanized troops	cdddtrrrrrrrTRPARMc
100	Wood	cdddtrrrrrrrWOODc
101	Masonry	cdddtrrrrrrrMASNRYc
102	Concrete	cdddtrrrrrrrCONCc
103	Metal	cdddtrrrrrrrMETc
104	Special purpose	cdddtrrrrrrrSPCLc
105	Foot pontoon	cdddtrrrrrrrFTPONc
106	Vehicle pontoon	cdddtrrrrrrrVEHPONc
107	Steel	cdddtrrrrrrrSTEELc
108	Site	cdddtrrrrrrrSITEc
109	Raft	cdddtrrrrrrrRAFTc
110	Ferry	cdddtrrrrrrrFERRYc
111	Small	cdddtrrrrrrrSMALLc
112	Battalion	cdddtrrrrrrrBNc
113	Regiment	cdddtrrrrrrrREGTc
114	Division	cdddtrrrrrrrDIVc
115	Forward	cdddtrrrrrrrFWDc
116	Radar	cdddtrrrrrrrRADARc
117	Electronic warfare	cdddtrrrrrrrEWc
118	Searchlight	cdddtrrrrrrrSLTc
119	Guidance	cdddtrrrrrrrGDNCc
120	Loudspeaker	cdddtrrrrrrrLSc
121	Very heavy	cdddtrrrrrrrVHc
122	Infantry	cdddtrrrrrrrINFc
123	Observation post	cdddtrrrrrrrOPc
124	Patrol	cdddtrrrrrrrPTLc
125	Work party	cdddtrrrrrrrWKPTYc
126	Antipersonnel	cdddtrrrrrrrAPERSc
127	Light missile	cdddtrrrrrrrLTMSLc
128	Medium missile	cdddtrrrrrrrMDMSLc
129	Heavy missile	cdddtrrrrrrrHVMSLc
130	Antitank	cdddtrrrrrrrATANKc
131	Illumination one gun	cdddtrrrrrrrILL1c
132	Illumination two guns	cdddtrrrrrrrILL2c
133	Illumination with deflection	cdddtrrrrrrrILL2DFc
134	Illumination with range	cdddtrrrrrrrILL2RGc
135	Illumination four guns	cdddtrrrrrrrILL4c
136	Nonpersistent gas	cdddtrrrrrrrGASNONc
137	Persistent gas	cdddtrrrrrrrGASPERc
138	Leaflets	cdddtrrrrrrrLEAFc
139	Ammunition	cdddtrrrrrrrAMMOc
140	Petroleum	cdddtrrrrrrrPTLc
141	Bridge equipment	cdddtrrrrrrrBRGEQc
142	Class one	cdddtrrrrrrrCLIc
143	Class two	cdddtrrrrrrrCLIIc
144	Road	cdddtrrrrrrrROADc
145	Junction	cdddtrrrrrrrJCTc
146	Hill	cdddtrrrrrrrHILLc
147	Defile	cdddtrrrrrrrDFILEc
148	Landing strip	cdddtrrrrrrrLDGSTRc
149	Railroad	cdddtrrrrrrrRRc

150	Light wheeled	cdddt-------LTWHLc
151	Heavy wheeled	cdddt-------HVWHLc
152	Reconnaissance	cdddt-------RECONc
153	Boats	cdddt-------BTc
154	Aircraft	cdddt-------ACFTc
155	Helicopter	cdddt-------HELc
156	Light machine gun	cdddt-------LTMGc
157	Antitank gun	cdddt-------ATGc
158	Heavy machine gun	cdddt-------HVMGc
159	Recoilless rifle	cdddt-------RCLRc
160	Half prone half standing	cdddttPRANDc
161	Prone	cdddttPRONEc
162	Prone dug in	cdddttPRUGc
163	Prone overhead cover	cdddttPROVERc
164	Dug in	cdddttDUGINc
165	Under overhead cover	cdddttCOVERc
166	Degrees	r
167	Minutes	=
168	Seconds	=
169	Erase degree of protection	cdddtt_____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	cddddtt=
176	Target altitude	cddddtttt
177	Confirm target	cddddttttttXc
178	Erase confirm target	cddddtttttt_c
179	Date time group	cddddtttttt=
180	Days	r
181	Hours	r
182	Tropical uniform	cdddddtAc
183	Summer uniform with mask	cdddddtBc
184	Body covered	cdddddtCc
185	Body heavily covered	cdddddtDc
186	Erase clothing	cdddddt_c
187	15 second training	cdddddtF15Sc
188	30 second training	cdddddtt30Sc
189	No C B R training	cdddddttTODc
190	Erase training	cdddddtt_c
191	Bare	cdddddtttFBAREc
192	Shrubs	cdddddtttSHRUBc
193	Woods	cdddddtt=WOODSc
194	Erase vegetation	cdddddttt_c
195	0 to 1 hour	cdddddtt=F0001c
196	1 to 3 hours	cdddddtttt0103c
197	3 to 12 hours	cdddddtttt0312c
198	12 to 24 hours	cdddddttt=1224c
199	more than 24 hours	cdddddttt=2400c
200	Erase target permanence	cdddddtttt_c
201	Neutralized	cdddddttttFNEUTc
202	Burning	cdddddtttttBURNc
203	Neutralized and burning	cdddddttt=ttNEUT/BUR
204	Destroyed	cdddddttt=ttDESTc
205	Can not observe	cdddddttttttCNOc
206	Unknown	cdddddttttttUNKc
207	None	cdddddttttttNONEc
208	Erase disposition	cdddddttttt_____
209	Casualties	cdddddttttt=
210	Mission fired	cddddddttXc
211	Erase mission fired	cddddddtt_c
212	Plain text	cddddddtt=
213	Plain text message	cddddddtttt
214	Vertical shift	cdddttttt

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	cdtttttFOc
11	F O without laser	cdtttttFOWLc
12	Observer not artillery	cdtttttOBSRc
13	Long range recce patrol	cdtttttLRRPc
14	Target base	cdtttttTGTBc
15	Air observer	cdtttttAOBSRc
15	Sound ranging	cdtttttSORNGc
17	Flash ranging	cdtttttFLRNGc
18	Counter motar radar	cdtttttCMRRc
19	Counter battery radar	cdtttttCBRRc
20	Photo interpretation	cdtttttPIc
21	Prisoner of war	cdtttttPOWc
22	Ground surveillance radar	cdtttttGSRAc
23	Side looking airborne radar	cdtttttSLARc
24	Airborne infrared	cdtttttIRc
25	Tactical air	cdtttttTACAIRc
25	Communication intelligence	cdtttttCOMINTc
27	Electronic intelligence	cdtttttELINTc
23	Erase agency	cdttttt_____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____TTXc--c
39	Do not adjust coordinates	cdttttttXc--
40	Erase adjust coordinates	cdttttt_c
41	Do not combine description	cdtttttttXc
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_____
70	Azimuth	cdddtt
71	Coordinate east	cddt
72	Coordinate north	cddtrrrrrrr
73	Altitude	cddttllllllll
74	Grid zone	cddtt
75	Spheroid	cddttt
76	Caliber	cdddttt
77	Rounds impacted	cdddtttt
78	Report value	cdddt
79	Excellent reliability	cddddttEc
80	Good reliability	cddddttGc
81	Fair reliability	cddddttFc
82	Mortar	cdddtMORTrrr
83	Artillery	cdddtARTYrrr
84	Unknown	UNKc
85	Light	LTc
86	Medium	MDMc
87	Heavy	HVc
88	Very heavy	VHc
89	Excellent reliability	cddddttEc
90	Good reliability	cddddttGc
91	Date time group	cddddttt
92	Days	r
93	Hours	r
94	Minutes	r
95	Plain text	cdddddtt
96	Plain text message	cdddddttt

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
25	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	cdddtt____c
30	Plain text	cdddttttt
31	Date time group	cdddttttt
32	Day	r
33	Target number	cdt
34	Left	l
35	Right	r
36	Erase	
37	Cursor reset	c
38	Erase target number	cdt_____c
39	Hour	r
40	Minute	r
41	Casualties	cdddtttt
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	cdddtttNONEc
69	Erase target disposition	cdddttt___/____c
70	Disposition unknown	cdddtttUNKc
71	Coordinate east	cdttt
72	Coordinate north	cdttt_____
73	Altitude	cdttttllllllll
74	Grid zone	cdtttt
75	Spheroid	cddt
76	Can not observe	cdddtttCNOc
77	Destroyed	cdddtttDESTc

78	Neutralized and burning	cddttttNEUT/BURNc
79	Burning	cdddtttBURNc
70	Neutralized	cdddtttNEUTc
71	Excellent reliability	cdddttEc
72	Good reliability	cdddttGc
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	cddttrrrrrrUNKc
91	Light	cddttrrrrrrLTc
92	Medium	cddttrrrrrrMDMc
93	Heavy	cddttrrrrrrHVc
94	Missile	cddttrrrrrrMSLc
95	Position	cddttrrrrrrPOSc
96	Armored personnel carrier	cddttrrrrrrrAPCc
97	Troops	cddttrrrrrrrTRPc
98	Troops and vehicles	cddttrrrrrrrTRPVEHc
99	Mechanized troops	cddttrrrrrrrTRPARMc
100	Wood	cddttrrrrrrrWOODc
101	Masonry	cddttrrrrrrrMASNRYc
102	Concrete	cddttrrrrrrrCONCc
103	Metal	cddttrrrrrrrMETc
104	Special purpose	cddttrrrrrrrSPCLc
105	Foot pontoon	cddttrrrrrrrFTPONc
106	Vehicle pontoon	cddttrrrrrrrVEHPONc
107	Steel	cddttrrrrrrrSTEELc
108	Site	cddttrrrrrrrSITEc
109	Raft	cddttrrrrrrrRAFTc
110	Ferry	cddttrrrrrrrFERRYc
111	Small	cddttrrrrrrrSMALLc
112	Battalion	cddttrrrrrrrBNc
113	Regiment	cddttrrrrrrrREGTc
114	Division	cddttrrrrrrrDIVc
115	Forward	cddttrrrrrrrFWDc
116	Radar	cddttrrrrrrrRADARc
117	Electronic warfare	cddttrrrrrrrEWc
118	Searchlight	cddttrrrrrrrSLTc
119	Guidance	cddttrrrrrrrGDNCc
120	Loudspeaker	cddttrrrrrrrLSc
121	Very heavy	cddttrrrrrrrVHc
122	Infantry	cddttrrrrrrrINFc
123	Observation post	cddttrrrrrrrOPc
124	Patrol	cddttrrrrrrrPTLc
125	Work party	cddttrrrrrrrWKPTYc
126	Antipersonnel	cddttrrrrrrrAPERSc
127	Light missile	cddttrrrrrrrLTMSLc
128	Medium missile	cddttrrrrrrrMDMSLc
129	Heavy missile	cddttrrrrrrrHVMSLc
130	Antitank	cddttrrrrrrrATANKc
131	Illumination one gun	cddttrrrrrrrILL1c
132	Illumination two guns	cddttrrrrrrrILL2c
133	Illumination with deflection	cddttrrrrrrrILL2DFc
134	Illumination with range	cddttrrrrrrrILL2RGc

135	Illumination four guns	cddttrrrrrrrrILL4c
136	Nonpersistent gas	cddttrrrrrrrrGASNONc
137	Persistent gas	cddttrrrrrrrrGASPERc
138	Leaflets	cddttrrrrrrrrLEAFc
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	cddtttDUGINc
165	Under overhead cover	cddtttCOVERc
166	Fair reliability	cddd++Fc
167	Erase reliability	cdddtt_c
168	Report value	cdddt
169	Erase degree of protection	cddttt_____c
170	Strength of target	cddttttt
171	Attitude	cddttttt
172	Target radius	cddtttt
173	Target length	cddttt
174	Target width	cddttttrrrrr

<u>Artillery Target Intelligence - Target Report</u>

<u>Word number</u>	<u>Phrase Spoken</u>	<u>Output string</u>
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	cdtttttFOc
11	F O without laser	cdtttttFOWLc
12	Observer not artillery	cdtttttOBSRc
13	Long range recce patrol	cdtttttLRRPc
14	Target base	cdtttttTGTBc
15	Air observer	cdtttttAOBSRc
16	Sound ranging	cdtttttSORNGc
17	Flash ranging	cdtttttFLRNGc
18	Counter motar radar	cdtttttCMRRc

98

19	Counter battery radar	cdtttttCBRRc
20	Photo interpretation	cdttttttPIc
21	Prisoner of war	cdtttttPOWc
22	Ground surveillance radar	cdttttttGSRAc
23	Side looking airborne radar	cdttttttSLARc
24	Airborne infrared	cdtttttIRc
25	Tactical air	cdtttttTACAIRc
26	Communication intelligence	cdtttttCOMINTc
27	Electronic intelligence	cdtttttELINTc
28	Erase agency	cdttttt_____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	cddddttttttXc
40	Erase adjust coordinates	cddddtttt_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	cddddtttt_c
69	Surveyed location	cdtttttttXc
70	Erase surveyed location	cdttttt_c
71	Target coordinate east	cddt
72	Target coordinate north	cddtttttttt
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	cddddtttttrrrrrrrr_____c
71	Azimuth	cdddt
72	Distance	cdddtt
73	Erase target type	cdddttttttt_____c
74	Air defense artillery	cdddttttttADAc
75	Armor	cdddttttttARMORc

76	Artillery	cdddttttttARTYc
77	Assembly areas	cdddttttttASSYc
78	Building	cdddttttttBLDGc
79	Bridge	cdddttttttBRIDGEc
80	Center	cdddtttttt+CENc
81	Equipment	cdddttttttEQUIPc
82	Mortars	cdddtttttt+MORTc
83	Personnel	cdddttttttPERSc
84	Rockets or Missiles	cdddttttttRKTMSLc
85	Special missions	cdddttttttSPECc
86	Supply dump	cdddttttttSUPPLYc
87	Terrain features	cdddttttttTERc
88	Vehicle	cdddttttttVEHc
89	Weapons	cdddttttttWPNc
90	Unknown	cdddtttttttrrrrrrrUNKc
91	Light	cdddtttttttrrrrrrrLTc
92	Medium	cdddtttttttrrrrrrrMDMc
93	Heavy	cdddtttttttrrrrrrrHVc
94	Missile	cdddtttttttrrrrrrrMSLc
95	Position	cdddtttttttrrrrrrrPOSc
96	Armored personnel carrier	cdddtttttttrrrrrrrAPCc
97	Troops	cdddtttttttrrrrrrrTRPc
98	Troops and vehicles	cdddtttttttrrrrrrrTRPVE
99	Mechanized troops	cdddtttttttrrrrrrrTRPAE
100	Wood	cdddtttttttrrrrrrrWOODc
101	Masonry	cdddtttttttrrrrrrrMASNE
102	Concrete	cdddtttttttrrrrrrrCONCc
103	Metal	cdddtttttttrrrrrrrMETc
104	Special purpose	cdddtttttttrrrrrrrSPCLc
105	Foot pontoon	cdddtttttttrrrrrrrFTPOc
106	Vehicle pontoon	cdddtttttttrrrrrrrVEHPc
107	Steel	cdddtttttttrrrrrrrSTEEL
108	Site	cdddtttttttrrrrrrrSITEc
109	Raft	cdddtttttttrrrrrrrRAFTc
110	Ferry	cdddtttttttrrrrrrrFERRY
111	Small	cdddtttttttrrrrrrrSMALL
112	Battalion	cdddtttttttrrrrrrrBNc
113	Regiment	cdddtttttttrrrrrrrREGTc
114	Division	cdddtttttttrrrrrrrDIVc
115	Forward	cdddtttttttrrrrrrrFWDc
116	Radar	cdddtttttttrrrrrrrRADAE
117	Electronic warfare	cdddtttttttrrrrrrrEWc
118	Searchlight	cdddtttttttrrrrrrrSLTc
119	Guidance	cdddtttttttrrrrrrrGDNCc
120	Loudspeaker	cdddtttttttrrrrrrrLSc
121	Very heavy	cdddtttttttrrrrrrrVHc
122	Infantry	cdddtttttttrrrrrrrINFc
123	Observation post	cdddtttttttrrrrrrrOPc
124	Patrol	cdddtttttttrrrrrrrPTLc
125	Work party	cdddtttttttrrrrrrrWKPTY
126	Antipersonnel	cdddtttttttrrrrrrrAPERS
127	Light missile	cdddtttttttrrrrrrrLTMSL
128	Medium missile	cdddtttttttrrrrrrrMDMSL
129	Heavy missile	cdddtttttttrrrrrrrHVMSL
130	Antitank	cdddtttttttrrrrrrrATANK
131	Illumination one gun	cdddtttttttrrrrrrrILL1c
132	Illumination two guns	cdddtttttttrrrrrrrILL2c
133	Illumination with deflection	cdddtttttttrrrrrrrILL2E
134	Illumination with range	cdddtttttttrrrrrrrILL2E
135	Illumination four guns	cdddtttttttrrrrrrrILL4c
136	Nonpersistent gas	cdddtttttttrrrrrrrGASNc
137	Persistent gas	cdddtttttttrrrrrrrGASPc
138	Leaflets	cdddtttttttrrrrrrrLEAFc
139	Ammunition	cdddtttttttrrrrrrrAMMOc
140	Petroleum	cdddtttttttrrrrrrrPTLc
141	Bridge equipment	cdddtttttttrrrrrrrBRGEc
142	Class one	cdddtttttttrrrrrrrCLIc

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143   Class two                        cdddtttttttrrrrrrrrCLIIc
144   Road                             cdddttttttttrrrrrrrrROADc
145   Junction                         cdddttttttttrrrrrrrrJCTc
146   Hill                             cdddttttttttrrrrrrrHILLc
147   Defile                           cdddttttttttrrrrrrrrDEFILEc
148   Landing strip                    cdddttttttttrrrrrrrrLDGSTRc
149   Railroad                         cdddtttttttrrrrrrrrRRc
150   Light wheeled                    cdddttttttttrrrrrrrrLTWHLc
151   Heavy wheeled                    cdddttttttttrrrrrrrrHVWHLc
152   Reconnaissance                   cdddttttttttrrrrrrrrRECONc
153   Boats                            cdddtttttttrrrrrrrrBTc
154   Aircraft                         cdddttttttttrrrrrrrrACFTc
155   Helicopter                       cdddttttttttrrrrrrrrHELc
156   Light machine gun                cdddttttttttrrrrrrrrLTMGc
157   Antitank gun                     cdddttttttttrrrrrrrrATGc
158   Heavy machine gun                cdddttttttttrrrrrrrrHVMGc
159   Recoilless rifle                 cdddttttttttrrrrrrrrRCLRc
160   Half prone half standing         cdddttttttttPRANDc
161   Prone                            cdddttttttttPRONEc
162   Prone dug in                     cdddttttttttPRUGc
163   Prone overhead cover             cdddttttttttPROVERc
164   Dug in                           cdddttttttttDUGINc
165   Under overhead cover             cdddttttttttCOVERc
166   Degrees                          r
167   Minutes                          r
168   Seconds                          r
169   Erase degree of protection       cdddtttttttt_____c
170   Report value                     cddddtttt
171   Excellent reliability            cddddttttttEc
172   Good reliability                 cddddttttttGc
173   Fair reliability                 cddddttttttFc
174   Erase reliability                cddddttttt_c
175   Strength of target               cddddttt
176   Plain text message               cddddddttttt
177   Plain text                       cdddddddttttttttttXc
178   Rounds impacted                  cddddddt
179   Date time group                  cdddddttt
180   Caliber                          cddddddttttttt
181   Vertical shift                   cddddttt
182   Tropical uniform                 cddddddtttttttAc
183   Summer uniform with mask         cddddddtttttttBc
184   Body covered                     cddddddtttttttCc
185   Body heavily covered             cddddddtttttttDc
186   Erase clothing                   cddddddttttttt_c
187   15 second training               cddddddttttttt15Sc
188   30 second training               cddddddttttttt30Sc
189   No C B R training                cddddddtttttttTODc
190   Erase training                   cddddddttttttt_c
191   Bare                             cddddddtttttttBAREc
192   Shrubs                           cddddddtttttttSHRUBc
193   Woods                            cddddddttttttWOODSc
194   Erase vegetation                 cddddddttttt____c
195   0 to 1 hour                      cdtttttttt0001c
196   1 to 3 hours                     cdttttttttt0103c
197   3 to 12 hours                    cdttttttttt0312c
198   12 to 24 hours                   cdttttttttt1224c
199   more than 24 hours               cdttttttttt2400c
200   Erase target permanence          cdtttttttt____c
201   Neutralized                      cddddtttttttttNEUTc
202   Burning                          cddddtttttttttBURNc
203   Neutralized and burning          cddddtttttttttNEUT/BURNc
204   Destroyed                        cddddtttttttttDESTc
205   Can not observe                  cddddtttttttttCNOc
206   Unknown                          cddddtttttttttUNKc
207   None                             cddddtttttttttNONEc
208   Erase disposition                cddddtttttttt_____c
209   Casualties                       cddddddt
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210	Mission fired	cdddddttXc
211	Erase mission fired	cdddddtt_c
212	Confirm target	cddddtttEtXc
213	Erase confirm target	cddddtttt_c
214	Observer location east	cddtttt
215	Observer location north	cddttttrrrrrrr
216	Observer altitude	cddttttrrrrrrrrrrrr

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	ī
11	Left	ī
12	Cursor reset	c
13	Combined target number	cddt
14	Coordinate east	cddtrrrrrrr
15	Coordinate north	cddtrrrrrrrrrrrrrr
16	Altitude	cddtt1lllllll
17	Grid zone	cddtt
18	Spheroid	cddttt
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	r
11	Left	l
12	Cursor reset	c
13	Combined target number	cddt
14	Coordinate east	cddt-------
15	Coordinate north	cddt----------rrrrr
16	Altitude	cddtt111111111
17	Grid zone	cddtt
18	Spheroid	cddttt
19	Erase target number	------t
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	cdttXc
13	Erase abort request	cdtt_c
14	Count of targets	cdttt1c
15	One line summary	cdttt2c
16	Full report	cdttt3c
17	Erase level of report	cdttt_c
18	Coordinate report	cddttXc
19	Erase coordinate report	cddtt_c
20	Shell report	cddttXc
21	Erase shell report	cddtt_c
22	Solution report	cddtttXc
23	Erase solution report	cddtttt_c
24	Location	cdddt
25	Circular search area	cdddtt
26	Grid zone second point	cddddttt

104

27	Spheroid second point	cdddd-ttt
28	Zone of responsibility	cdddd-ttttt
29	Overlap distance	cddddd-tttttt
30	Lower report value	cddddddtttt
31	Upper report value	cddddddttttrrrr
32	Lower size factor	cddddddttt
33	Target number	cddt
34	Left	l
35	Right	r
36	Erase	
37	Cursor reset	c
38	Delete target number	cddt_____c
39	Upper size factor	cddddddttttrrrr
40	Lower degree of protection	cddddddtt
41	Upper degree of protection	cddddddttrrrr
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	cddddddttttrrrr
72	Target size limits	cddddddttt
73	Date time group	cdttttt
74	Grid zone	cddddt
75	Spheroid	cddddtt
76	Mission fired	cddddtttttttttXc
77	Erase mission fired	cddddttttttttt_c
78	Confirmed target	cddddttttttttXc
79	Erase confirmed target	cddddttttttttt_c
80	Erase subtype	cddddtrrrrrtt_____c
81	Day	r
82	Hour	r
83	Erase target type	cddddt_____c
84	Air defense artillery	cddddtADAc
85	Armor	cddddtARMORc
86	Artillery	cddddtARTYc
87	Assembly areas	cddddtASSYc
88	Building	cddddtBLDGc
89	Bridge	cddddtBRIDGEc
90	Center	cddddtCENc
91	Equipment	cddddtEQUIPc
92	Mortars	cddddtMORTc
93	Personnel	cddddtPERSc

94	Rockets or Missiles	cdddddtRKTMSLc
95	Special missions	cdddddtSPECc
96	Supply dump	cdddddtSUPPLYc
97	Terrain features	cdddddtTERc
98	Vehicle	cdddddtVEHc
99	Weapons	cdddddtWPNc
100	Unknown	cdddddtrrrrrrUNKc
101	Light	cdddddtrrrrrrrrLT
102	Medium	cdddddtrrrrrrrMDMc
103	Heavy	cdddddtrrrrrrrHVc
104	Missile	cdddddtrrrrrrrMSLc
105	Position	cdddddtrrrrrrrPOSc
106	Armored personnel carrier	cdddddtrrrrrrrAPCc
107	Troops	cdddddtrrrrrrrTRPc
108	Troops and vehicles	cdddddtrrrrrrrTRPVE
109	Mechanized troops	cdddddtrrrrrrrTRPAF
110	Wood	cdddddtrrrrrrrWOODc
111	Masonry	cdddddtrrrrrrrMASNF
112	Concrete	cdddddtrrrrrrrCONCc
113	Metal	cdddddtrrrrrrrMETc
114	Special purpose	cdddddtrrrrrrrSPCLc
115	Foot pontoon	cdddddtrrrrrrrFTPON
116	Vehicle pontoon	cdddddtrrrrrrrVEHPc
117	Steel	cdddddtrrrrrrrSTEEL
118	Site	cdddddtrrrrrrrSITEc
119	Raft	cdddddtrrrrrrrRAFTc
120	Ferry	cdddddtrrrrrrrFERRY
121	Small	cdddddtrrrrrrrSMALL
122	Battalion	cdddddtrrrrrrrBNc
123	Regiment	cdddddtrrrrrrrREGTc
124	Division	cdddddtrrrrrrrDIVc
125	Forward	cdddddtrrrrrrrFWDc
126	Radar	cdddddtrrrrrrrRADAR
127	Electronic warfare	cdddddtrrrrrrrEWc
128	Searchlight	cdddddtrrrrrrrSLTc
129	Guidance	cdddddtrrrrrrrGDNCc
130	Loudspeaker	cdddddtrrrrrrrLSc
131	Very heavy	cdddddtrrrrrrrVHc
132	Infantry	cdddddtrrrrrrrINFc
133	Observation post	cdddddtrrrrrrrOPc
134	Patrol	cdddddtrrrrrrrPTLc
135	Work party	cdddddtrrrrrrrWKPTY
136	Antipersonnel	cdddddtrrrrrrrAPERS
137	Light missile	cdddddtrrrrrrrLTMSL
138	Medium missile	cdddddtrrrrrrrMDMSL
139	Heavy missile	cdddddtrrrrrrrHVMSL
140	Antitank	cdddddtrrrrrrrATANK
141	Illumination one gun	cdddddtrrrrrrrILL1c
142	Illumination two guns	cdddddtrrrrrrrILL2c
143	Illumination with deflection	cdddddtrrrrrrrILL2E
144	Illumination with range	cdddddtrrrrrrrILL2E
145	Illumination four guns	cdddddtrrrrrrrILL4c
146	Nonpersistent gas	cdddddtrrrrrrrGASNc
147	Persistent gas	cdddddtrrrrrrrGASPc
148	Leaflets	cdddddtrrrrrrrLEAFc
149	Ammunition	cdddddtrrrrrrrAMMOc
150	Petroleum	cdddddtrrrrrrrPTLc
151	Bridge equipment	cdddddtrrrrrrrBRGEc
152	Class one	cdddddtrrrrrrrCLI1c
153	Class two	cdddddtrrrrrrrCLIIc
154	Road	cdddddtrrrrrrrROADc
155	Junction	cdddddtrrrrrrrJCTc
156	Hill	cdddddtrrrrrrrHILLc
157	Defile	cdddddtrrrrrrrDEFIL
158	Landing strip	cdddddtrrrrrrrLDGST
159	Railroad	cdddddtrrrrrrrRRc
160	Light wheeled	cdddddtrrrrrrrLTWHL

106

161	Heavy wheeled	cddddddtrrrrrrrHVWHLc
162	Reconnaissance	cddddddtrrrrrrrRECONc
163	Boats	cddddddtrrrrrrrBTc
164	Aircraft	cddddddtrrrrrrrACFTc
165	Helicopter	cddddddtrrrrrrrHELc
166	Light machine gun	cddddddtrrrrrrrLTMGc
167	Antitank gun	cddddddtrrrrrrrATGc
168	Heavy machine gun	cddddddtrrrrrrrHVMGc
169	Recoilless rifle	cddddddtrrrrrrrRCLRc
170	Half prone half standing	cddddddttPRANDc
171	Prone	cddddddttPRONEc
172	Prone dug in	cddddddttPRDUGc
173	Prone overhead cover	cddddddttPROVERc
174	Dug in	cddddddttDUGINc
175	Under overhead cover	cddddddttCOVERc
176	Minutes	=
177	Erase degree of protection	cddddddtt_____c
178	Excellent reliability	cddddtttEc
179	Good reliability	cddddtttGc
180	Fair reliability	cddddtttFc
181	Erase reliability	cddddttt_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	cdttt_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	cddttttttXc
19	Erase coordinate report	cddtttttt_c
20	Shell report	cddtttttttXc
21	Erase shell report	cddttttttt_c
22	Solution report	cddttttttttXc
23	Erase solution report	cddtttttttt_c
24	Location	cddt
25	Circular search area	cddddtt
26	Grid zone second point	cddddttt
27	Spheroid second point	cddddttt
28	Zone of responsibility	cddddtttt
29	Overlap distance	cdddddttttt
30	Lower report value	cdddddddtttt
31	Upper report value	cddddddtttttrrr
32	Lower size factor	cdddddttt
33	Target number	cddttt
34	Left	l
35	Right	r
36	Erase	
37	Cursor reset	c

107

38	Delete target number	cddttt_____c
39	Upper size factor	cdddddtttrrrr
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	cdddddtrrrr
70	Lower strength limit	cdddddtttt
71	Upper strength limit	cdddddttttrrrrr
72	Target size limits	cddddttt
73	Transmit request	cdtXc
74	Grid zone	cdddddt
75	Spheroid	cdddtt
76	Mission fired	cddddtttttttttXc
77	Erase mission fired	cddddttttttttt_c
78	Confirmed target	cddddttttttttXc
79	Erase confirmed target	cddddtttttttt_c
80	Erase subtype	cddddddtrrrrrrr_____
81	Erase transmit request	cdt_c
82	Edit request	cdtttttXc
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	cdddddtrrrrrrrUNKc
101	Light	cdddttttttttrrrr---LT
102	Medium	cdddddtrrrrrrrMDMc
103	Heavy	cdddddtrrrrrrrHVc
104	Missile	cdddddtrrrrrrrMSLc

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105    Position                          cdddddt::::::::POSc
106    Armored personnel carrier         cdddddt::::::::APCc
107    Troops                            cdddddt::::::::TRPc
108    Troops and vehicles               cdddddt::::::TRPVEHc
109    Mechanized troops                 cdddddt::::::TRPARMc
110    Wood                              cdddddt::::::::WOODc
111    Masonry                           cdddddt::::::MASNRYc
112    Concrete                          cdddddt::::::::CONCc
113    Metal                             cdddddt::::::::METc
114    Special purpose                   cdddddt::::::::SPCLc
115    Foot pontoon                      cdddddt::::::FTPONc
116    Vehicle pontoon                   cdddddt::::::VEHPONc
117    Steel                             cdddddt::::::STEELc
118    Site                              cdddddt::::::::SITEc
119    Raft                              cdddddt::::::::RAFTc
120    Ferry                             cdddddt::::::FERRYc
121    Small                             cdddddt::::::SMALLc
122    Battalion                         cdddddt::::::::BNc
123    Regiment                          cdddddt::::::REGTc
124    Division                          cdddddt::::::::DIVc
125    Forward                           cdddddt::::::FWDc
126    Radar                             cdddddt::::::RADARc
127    Electronic warfare                cdddddt::::::::EWc
128    Searchlight                       cdddddt::::::SLTc
129    Guidance                          cdddddt::::::GDNCc
130    Loudspeaker                       cdddddt::::::LSc
131    Very heavy                        cdddddt::::::VHc
132    Infantry                          cdddddt::::::INFc
133    Observation post                  cdddddt::::::OPc
134    Patrol                            cdddddt::::::PTLc
135    Work party                        cdddddt::::::WKPTYc
136    Antipersonnel                     cdddddt::::::APERSc
137    Light missile                     cdddddt::::::LTMSLc
138    Medium missile                    cdddddt::::::MDMSLc
139    Heavy missile                     cdddddt::::::HVMSLc
140    Antitank                          cdddddt::::::ATANKc
141    Illumination one gun              cdddddt::::::ILL1c
142    Illumination two guns             cdddddt::::::ILL2c
143    Illumination with deflection      cdddddt::::::ILL2DFc
144    Illumination with range           cdddddt::::::ILL2RGc
145    Illumination four guns            cdddddt::::::ILL4c
146    Nonpersistent gas                 cdddddt::::::GASNONc
147    Persistent gas                    cdddddt::::::GASPERc
148    Leaflets                          cdddddt::::::LEAFc
149    Ammunition                        cdddddt::::::AMMOc
150    Petroleum                         cdddddt::::::PTLc
151    Bridge equipment                  cdddddt::::::BRGEQc
152    Class one                         cdddddt::::::CLIc
153    Class two                         cdddddt::::::CIIIc
154    Road                              cdddddt::::::ROADc
155    Junction                          cdddddt::::::JCTc
156    Hill                              cdddddt::::::HILLc
157    Defile                            cdddddt::::::DEFILEc
158    Landing strip                     cdddddt::::::LDGSTRc
159    Railroad                          cdddddt::::::RRc
160    Light wheeled                     cdddddt::::::LTWHLc
161    Heavy wheeled                     cdddddt::::::HVWHLc
156    Reconnaissance                    cdddddt::::::RECONc
163    Boats                             cdddddt::::::BTc
164    Aircraft                          cdddddt::::::ACFTc
165    Helicopter                        cdddddt::::::HELc
156    Light machine gun                 cdddddt::::::LTMGc
167    Antitank gun                      cdddddt::::::ATGc
168    Heavy machine gun                 cdddddt::::::HVMGc
169    Recoilless rifle                  cdddddt::::::RCLRc
170    Half prone half standing          cdddddt::PRANDc
171    Prone                             cdddddt::PRONEc
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172	Prone dug in	cddddttPRUGc
173	Prone overhead cover	cddddttPROVERc
174	Dug in	cdddddttDUGINc
175	Under overhead cover	cddddttCOVERc
176	Erase edit request	cdtttt_c
177	Erase degree of protection	cddddddtt_____c
178	Excellent reliability	cddddtttEc
179	Good reliability	cddddtttGc
180	Fair reliability	cddddtttFc
181	Erase reliability	cddddttt_c
182	Print request	cdtttttXc
183	Erase print request	cdtttttt_c
184	View request	cdttttttXc
185	Erase view request	cdtttttt_c
186	Show request	cddtXc
187	Erase show request	cddt_c
188	Delete request	cddttXc
189	Do not delete request	cddtt_c
190	Search by time	cddtttttt
191	Day	r
192	Hour	r
193	Minute	r
194	Newer	cddtttttttrrrrrrr
195	Older	cddtttttttrrrrrrr

<u>Artillery</u> <u>Target</u> <u>Intelligence</u> <u>-</u> <u>Standing</u> <u>Request</u> <u>For</u>
<u>Information</u>

<u>Word number</u>	<u>Phrase Spoken</u>	<u>Output string</u>
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	cdttTttt1c
15	One line summary	cdttttttt2c
16	Full report	cdttttttt3c
17	Erase level of report	cdttttttt_c
18	Coordinate report	cddttttXc
19	Erase coordinate report	cddtttt_c
20	Shell report	cddttttXc
21	Erase shell report	cddtttt_c
22	Solution report	cddttttttXc
23	Erase solution report	cddttttt_c
24	Location	cdddt
25	Circular search area	cdddtt
26	Grid zone second point	cddddttt
27	Spheroid second point	cddddtttt
28	Zone of responsibility	cddddttttt
29	Overlap distance	cdddddttttt
30	Lower report value	cddddddtttt
31	Upper report value	cdddddddttttrrrr
32	Lower size factor	cdddddttt
33	Add SRI	cdtttXc

110

34	Left	l
35	Right	r
36	Erase	
37	Cursor reset	c
38	Erase add SRI	cdttt_c
39	Upper size factor	cdddddddttrrr
40	Lower degree of protection	cdddddddtt
41	Upper degree of protection	cdddddddttrrr
42	SRI Number	cdttttt
43	Activate SRI	cdtttttttAc
44	Deactivate SRI	cdtttttttDc
45	Erase SRI	cdtttttt_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	cdddddddt
55	Upper type factor	cdddddddtrrrr
56	Lower strength limit	cddddddttt
57	Upper strength limit	cddddddtttrrrrr
58	Target size limits	cdddddttt
59	Grid zone	cdddddt
60	Spheroid	cddddtt
61	Mission fired	cddddtttttttttXc
62	Erase mission fired	cddddttttttttt_c
63	Confirmed target	cddddttttttttXc
64	Erase confirmed target	cddddttttttttt_c
65	Erase subtype	cdddddtrrrrrrr_____c
66	Erase target type	cdddddt_____c
67	Air defense artillery	cdddddtADAc
68	Armor	cdddddtARMORc
69	Artillery	cdddddtARTYc
70	Assembly areas	cdddddtASSYc
71	Building	cdddddtBLDGc
72	Bridge	cdddddtBRIDGEc
73	Center	cdddddtCENc
74	Equipment	cdddddtEQUIPc
75	Mortars	cdddddtMORTc
76	Personnel	cdddddtPERSc
77	Rockets or Missiles	cdddddtRKTMSLc
78	Special missions	cdddddtSPECc
79	Supply dump	cdddddtSUPPLYc
80	Terrain features	cdddddtTERc
81	Vehicle	cdddddtVEHc
82	Weapons	cdddddtWPNc
83	Unknown	cdddddtrrrrrrrrUNKc
84	Light	cddddtttttttttrrrLTc
85	Medium	cddddddtrrrrrrrMDMc
86	Heavy	cddddddtrrrrrrHVc
87	Missile	cddddddtrrrrrrrMSLc
88	Position	cddddddtrrrrrrrPOSc
89	Armored personnel carrier	cddddddtrrrrrrrAPCc
90	Troops	cddddddtrrrrrrrTRPc
91	Troops and vehicles	cddddddtrrrrrrrTRPVEHc
92	Mechanized troops	cddddddtrrrrrrrTRPARMc
93	Wood	cddddddtrrrrrrrWOODc
94	Masonry	cddddddtrrrrrrrMASNRYc
95	Concrete	cddddddtrrrrrrrCONCc
96	Metal	cddddddtrrrrrrrMETc
97	Special purpose	cddddddtrrrrrrrSPCLc
98	Foot pontoon	cddddddtrrrrrrrFTPONc
99	Vehicle pontoon	cddddddtrrrrrrrVEHPONc
100	Steel	cddddddtrrrrrrrSTEELc

111

101	Site	cddddddtrrrrrrrSITEc
102	Raft	cddddddtrrrrrrrRAFTc
103	Ferry	cddddddtrrrrrrrFERRYc
104	Small	cddddddtrrrrrrSMALL
105	Battalion	cddddddtrrrrrrBNc
106	Regiment	cddddddtrrrrrrrREGTc
107	Division	cddddddtrrrrrrrDIVc
108	Forward	cddddddtrrrrrrrFWDc
109	Radar	cddddddtrrrrrrrRADARc
110	Electronic warfare	cddddddtrrrrrrrEWc
111	Searchlight	cddddddtrrrrrrrSLTc
112	Guidance	cddddddtrrrrrrrGDNCc
113	Loudspeaker	cddddddtrrrrrrrLSc
114	Very heavy	cddddddtrrrrrrrVHc
115	Infantry	cddddddtrrrrrrrINFc
116	Observation post	cddddddtrrrrrrOPc
117	Patrol	cddddddtrrrrrrrPTLc
118	Work party	cddddddtrrrrrrrWKPTY
119	Antipersonnel	cddddddtrrrrrrrAPERS
120	Light missile	cddddddtrrrrrrrLTMSL
121	Medium missile	cddddddtrrrrrrrMDMSL
122	Heavy missile	cddddddtrrrrrrrHVMSL
123	Antitank	cddddddtrrrrrrrATANK
124	Illumination one gun	cddddddtrrrrrrrILL1c
125	Illumination two guns	cddddddtrrrrrrrILL2c
126	Illumination with deflection	cddddddtrrrrrrrILL2D
127	Illumination with range	cddddddtrrrrrrrILL2R
128	Illumination four guns	cddddddtrrrrrrrILL4c
129	Nonpersistent gas	cddddddtrrrrrrrGASNO
130	Persistent gas	cddddddtrrrrrrrGASPE
131	Leaflets	cddddddtrrrrrrrLEAFc
132	Ammunition	cddddddtrrrrrrrAMMOc
133	Petroleum	cddddddtrrrrrrrPTLc
134	Bridge equipment	cddddddtrrrrrrrBRGEQ
135	Class one	cddddddtrrrrrrrCL1c
136	Class two	cddddddtrrrrrrrCL2c
137	Road	cddddddtrrrrrrrROADc
138	Junction	cddddddtrrrrrrrJCTc
139	Hill	cddddddtrrrrrrrHILLc
140	Defile	cddddddtrrrrrrrDEFIL
141	Landing strip	cddddddtrrrrrrrLDGST
142	Railroad	cddddddtrrrrrrrRRc
143	Light wheeled	cddddddtrrrrrrrLTWHL
144	Heavy wheeled	cddddddtrrrrrrrHVWHL
145	Reconnaissance	cddddddtrrrrrrrRECON
146	Boats	cddddddtrrrrrrrBTc
147	Aircraft	cddddddtrrrrrrrACFTc
148	Helicopter	cddddddtrrrrrrrHELc
149	Light machine gun	cddddddtrrrrrrrLTMGc
150	Antitank gun	cddddddtrrrrrrrATGc
151	Heavy machine gun	cddddddtrrrrrrrHVMGc
152	Recoilless rifle	cddddddtrrrrrrrRCLRc
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	cddddtttEc
161	Good reliability	cddddtttGc
162	Fair reliability	cddddtttFc
163	Erase reliability	cddddttt_c

112

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	cdttt
11	Erase destination addressee	cdttt_/_/__/___c
12	Abort request	cdtttXc
13	Erase abort request	cdttt_c
14	Count of targets	cdttttXc
15	Erase count of targets	cdtttt_c
16	Plan name	cdt
17	Erase plan name	cdt_____c
18	Location	cdddt
19	Circular search area	cddddtt
20	Grid zone second point	cddddttt
21	Spheroid second point	cddddtttt
22	Zone of responsibility	cddddttttt
23	Overlap distance	cddddtttttt
24	Lower report value	cdddddddttt
25	Upper report value	cdddddddttt-____
26	Lower size factor	cdddddddttt
27	Left	l
28	Right	r
29	Erase	
30	Cursor reset	c
31	Upper size factor	cdddddddtttrrr
32	Lower degree of protection	cdddddddtt
33	Upper degree of protection	cdddddddttrrr
34	Date time group	cdtttttt
35	Hour	r
36	Day	r
37	Minute	r
38	Lower type factor	cddddddddt
39	Upper type factor	cddddddddtrrrr
40	Lower strength limit	cddddddtttt
41	Upper strength limit	cddddddttttrrrr
42	Target size limits	cddddddttt
43	Grid zone	cddddt
44	Spheroid	cddddtt
45	Mission fired	cddddtttttttttXc
46	Erase mission fired	cddddtttttttt_c
47	Confirmed target	cddddttttttttXc
48	Erase confirmed target	cddddtttttttt_c
49	Erase subtype	cddddttrrrrrr_____c
50	Erase target type	cddddddt_____c
51	Air defense artillery	cdddddtADAc
52	Armor	cdddddtARMORc
53	Artillery	cdddddtARTYc
54	Assembly areas	cdddddtASSYc
55	Building	cdddddtBLDGc
56	Bridge	cdddddtBRIDGEc
57	Center	cdddddtCENc
58	Equipment	cdddddtEQUIPc
59	Mortars	cdddddtMORTc
60	Personnel	cdddddtPERSc
61	Rockets or Missiles	cdddddtRKTMSLc

113

62	Special missions	cdddddtSPECc
63	Supply dump	cdddddtSUPPLYc
64	Terrain features	cdddddtTERc
65	Vehicle	cdddddtVEHc
66	Weapons	cdddddtWPNc
67	Unknown	cdddddtrrrrrrrUNKc
68	Light	cdddttrrrrrrrrrrLT
69	Medium	cdddddtrrrrrrrMDMc
70	Heavy	cdddddtrrrrrrrrHVc
71	Missile	cdddddtrrrrrrrMSLc
72	Position	cdddddtrrrrrrrPOSc
73	Armored personnel carrier	cdddddtrrrrrrrAPCc
74	Troops	cdddddtrrrrrrrTRPc
75	Troops and vehicles	cdddddtrrrrrrrTRPVE
76	Mechanized troops	cdddddtrrrrrrrTRPAR
77	Wood	cdddddtrrrrrrrWOODc
78	Masonry	cdddddtrrrrrrrMASNR
79	Concrete	cdddddtrrrrrrrCONCc
80	Metal	cdddddtrrrrrrrMETc
81	Special purpose	cdddddtrrrrrrrSPCLc
82	Foot pontoon	cdddddtrrrrrrrFTPON
83	Vehicle pontoon	cdddddtrrrrrrrVEHPO
84	Steel	cdddddtrrrrrrrSTEEL
85	Site	cdddddtrrrrrrrSITEc
86	Raft	cdddddtrrrrrrrRAFTc
87	Ferry	cdddddtrrrrrrrFERRY
88	Small	cdddddtrrrrrrrSMALL
89	Battalion	cdddddtrrrrrrrBNc
90	Regiment	cdddddtrrrrrrrREGTc
91	Division	cdddddtrrrrrrrDIVc
92	Forward	cdddddtrrrrrrrFWDc
93	Radar	cdddddtrrrrrrrRADAR
94	Electronic warfare	cdddddtrrrrrrrEWc
95	Searchlight	cdddddtrrrrrrrSLTc
96	Guidance	cdddddtrrrrrrrGDNCc
97	Loudspeaker	cdddddtrrrrrrrLSc
98	Very heavy	cdddddtrrrrrrrVHc
99	Infantry	cdddddtrrrrrrrINFc
100	Observation post	cdddddtrrrrrrrOPc
101	Patrol	cdddddtrrrrrrrPTLc
102	Work party	cdddddtrrrrrrrWKPTY
103	Antipersonnel	cdddddtrrrrrrrAPERS
104	Light missile	cdddddtrrrrrrrLTMSL
105	Medium missile	cdddddtrrrrrrrMDMSL
106	Heavy missile	cdddddtrrrrrrrHVMSL
107	Antitank	cdddddtrrrrrrrATANK
108	Illumination one gun	cdddddtrrrrrrrILL1c
109	Illumination two guns	cdddddtrrrrrrrILL2c
110	Illumination with deflection	cdddddtrrrrrrrILL2D
111	Illumination with range	cdddddtrrrrrrrILL2R
112	Illumination four guns	cdddddtrrrrrrrILL4c
113	Nonpersistent gas	cdddddtrrrrrrrGASNO
114	Persistent gas	cdddddtrrrrrrrGASPE
115	Leaflets	cdddddtrrrrrrrLEAFc
116	Ammunition	cdddddtrrrrrrrAMMOc
117	Petroleum	cdddddtrrrrrrrPTLc
118	Bridge equipment	cdddddtrrrrrrrBRGEQ
119	Class one	cdddddtrrrrrrrCLIc
120	Class two	cdddddtrrrrrrrCLIIc
121	Road	cdddddtrrrrrrrROADc
122	Junction	cdddddtrrrrrrrJCTc
123	Hill	cdddddtrrrrrrrHILLc
124	Defile	cdddddtrrrrrrrDEFIL
125	Landing strip	cdddddtrrrrrrrLDGST
126	Railroad	cdddddtrrrrrrrRRc
127	Light wheeled	cdddddtrrrrrrrLTWHL
128	Heavy wheeled	cdddddtrrrrrrrHVWHL

129	Reconnaissance	cddddt========RECONc
130	Boats	cddddt========BTc
131	Aircraft	cddddt========ACFTc
132	Helicopter	cddddt=======HELc
133	Light machine gun	cddddt=======LTMGc
134	Antitank gun	cddddt========ATGc
135	Heavy machine gun	cddddt=======HVMGc
136	Recoilless rifle	cddddt=======RCLRc
137	Half prone half standing	cddddtPRANDc
138	Prone	cddddt=PRONEc
139	Prone dug in	cddddt=PRUGc
140	Prone overhead cover	cddddt=PROVERc
141	Dug in	cddddt=DUGINc
142	Under overhead cover	cddddt=COVERc
143	Erase degree of protection	cdddt=_____c
144	Excellent reliability	cdddt===Ec
145	Good reliability	cdddt===Gc
146	Fair reliability	cdddt===Fc
147	Erase reliability	cdddt===_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	cdt=Xc
3	Erase print request	cdt=_c
4	Transmit request	cdt==Xc
5	Erase transmit request	cdt==_c
6	Addressee	cdt===
7	Erase addressee	cdt===_/__/_/__/___c
8	Modify file	cdt===Xc
9	Erase modify file	cdt===_c
10	Report accuracy	cdt====XXc
11	Erase report accuracy	cdt====_c
12	Range error	cdt=====Xc
13	Erase range error	cdt=====_c
14	Location error	cdt======Xc
15	Erase location error	cdt======Xc
16	Count of targets	cddt1c
17	One line summary	cddt2c
18	Full report	cddt3c
19	Erase report level	cddt_c
20	Situation report	cddt=Xc
21	Erase situation report	cddt=_c
22	Clear sitreps	cddt==Xc
23	Erase clear sitreps	cddt==_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:
"rrrrr;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:rrr rrr;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.

117

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%
TFC - 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:_/_/__J

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

Split Target message template

121

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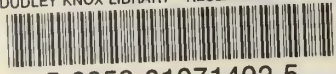COL Paul Cerjan   2
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