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Research Product 83-6

Tactical Symbology Catalog

BATTLEFIELD INFORMATION SYSTEMS TECHNICAL AREA

May 1983 .

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Deputy Chief of Staff for Personnel

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Research accomplished under contract
for the Department of the Army

Perceptronics, Inc.

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Randall M. Chambers

NOTICES

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Research Product 83-6

TACTICAL SYMBOLOGY CATALOG

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Office, Deputy Chief of Staff for Personnel
Department of the Army
May 1983

Army Project Number
2Q163739A793

Systems Requirements
and Operations

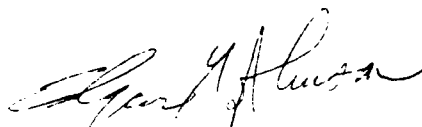
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FOREWORD

The Battlefield Information Systems Technical Area of the Army Research Institute is concerned with the human resource demands of increasingly complex battlefield systems used to acquire, transmit, process, disseminate, and utilize information. Current research focuses on human performance problems related to the soldier-system interface and is concerned with such areas as software development, the presentation of information on complex displays, user-oriented systems, decision-making, systems integration, and utilization.

Of special interest are human factors problems related to developing and validating new ADP-compatible symbology concepts for efficient display of tactically significant information. The current effort is the result of Task One of a three task symbology contract effort by Perceptronics, Inc., in which over 1,000 tactical symbols were compiled and an automated catalog was designed and implemented to allow on-line collection and indexing of symbols by source, category, and concept. This product is the hard copy version of the automated catalog.

This research is responsive to general requirements of Army Projects 2Q163739A793, and to special requirements of the U.S. Army Combined Arms Combat Development Activity (CACDA), as well as HRN 80-307 (Display of Battlefield Information).



EDGAR M. JOHNSON
Technical Director

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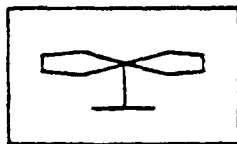
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BACKGROUND

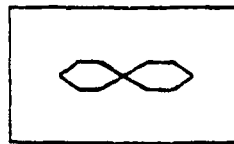
The Army Research Institute initiated a three-year research and development program to assess symbology for today's and tomorrow's user needs. This document is the result of one of three tasks¹ completed in the third year of research. The effort involved design and implementation of an automated tactical symbology (TACSYM) system that would allow on-line collection and cataloging of symbol sets from a variety of sources. The majority of this document has been directly generated by TACSYM. As such, paging through it as if sitting before the display screen and interacting with the software of TACSYM.

TACSYM is implemented in the C programming language of the UNIX operating system on a PDP 11/70 and uses a Tektronix 4025 Graphics Terminal as the interactive interface. Hard copy is produced on the Tektronix 4631 dry imaging device. TACSYM has already been implemented on a PDP 11/60 at the CASAA at Ft Leavenworth, KS, and is soon to be transported to the VAX 11/780 for in-house research and development as US ARI, Alexandria, VA.

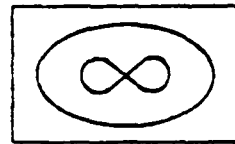
The TACSYM catalog highlights the fact that there are a vast quantity of unique symbols in existence. These unique symbols represent distinctions between equipment and weapons. Also, the automated catalog provides evidence that system-by-system graphic development is occurring. Consider the portrayal of attack helicopter units -- a concept not appearing in the Army's current standard, FM 21-30. When a system requires an attack helicopter symbol, it often is newly developed. For example, each of the following represents an attack helicopter unit:



TOS



BETA Test Bed



TCO

Thus, the catalog offers justification for the concern that in the absence of standards, system-by-system development is a likely consequence.

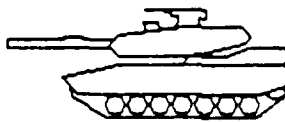
¹Task 1 - Automated Symbol Catalogue; Task 2 - Survey of User Needs for Symbolic Information; Task 3 - Discriminability Index as a Basis for Selecting between Conflicting Alternative Symbols.

The user community survey conducted under Task 2 of the contract (Landee, Geiselman, and Clark, 1981) revealed numerous tactical concepts that are relevant to users, but the concepts do not appear in FM 21-30. Moreover, many of these concepts appear regularly on tactical displays through non-standard techniques. Although the major concepts identified by the users are not available in approved Army Standards, the possibility exists that other symbologies have developed a portrayal method for these concepts. The TACSYM catalog provides an easy-to-use reference for such an application, by enabling a user to look-up any concept. The major concepts identified from the survey as yet not having an accepted symbol include status, capability, availability, threat, and logistics. Additional concepts that were frequently displayed include activities (related to enemy intentions and indication), civilian affairs, communications, enemy formations, range rans, and enemy 2nd echelon. All of these concepts have been displayed by various users with non-standard techniques. In its automated form, this catalog provides an on-line guide for indexing symbols by source, category and concept, thus highlighting the fact that there are a vast quantity of unique symbols in existence, many symbolize the same concept in different ways, and yet with these, there are no accepted symbols for the concepts mentioned above.

The following pages are generated directly from TACSYM with the exception of the captions atop pages. The captions indicate the menu level at which the plate(s) from TACSYM was produced. For example, the main menu (Plate 1, First Level) provides access to the tutorial and catalogue access levels of the system. The second level of menus (Plate 2) provides access to specific components within either the tutorial or catalogue body as selected. Menus proceed to three or more levels of detail depending on the operation desired by the user.

PLATE 1: FIRST LEVEL MENU SELECTIONS
(TUTORIAL SELECTED)

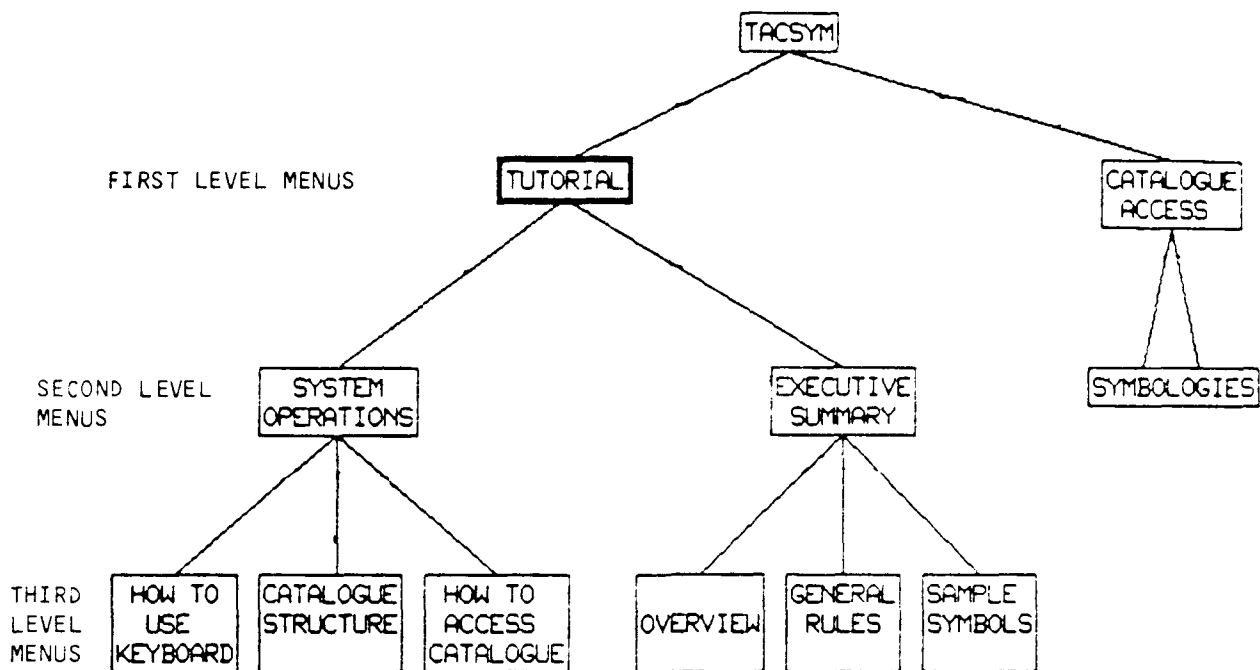
TACTICAL SYMBOLOGY CATALOG



Select desired option by number and press CONFIRM

1. Examine Tutorial Describing Catalogue and Operations
2. Catalogue Access and Modification
3. Terminate the Program

Enter number: 1_



SYSTEM OPERATIONS

* EXECUTIVE SUMMARY

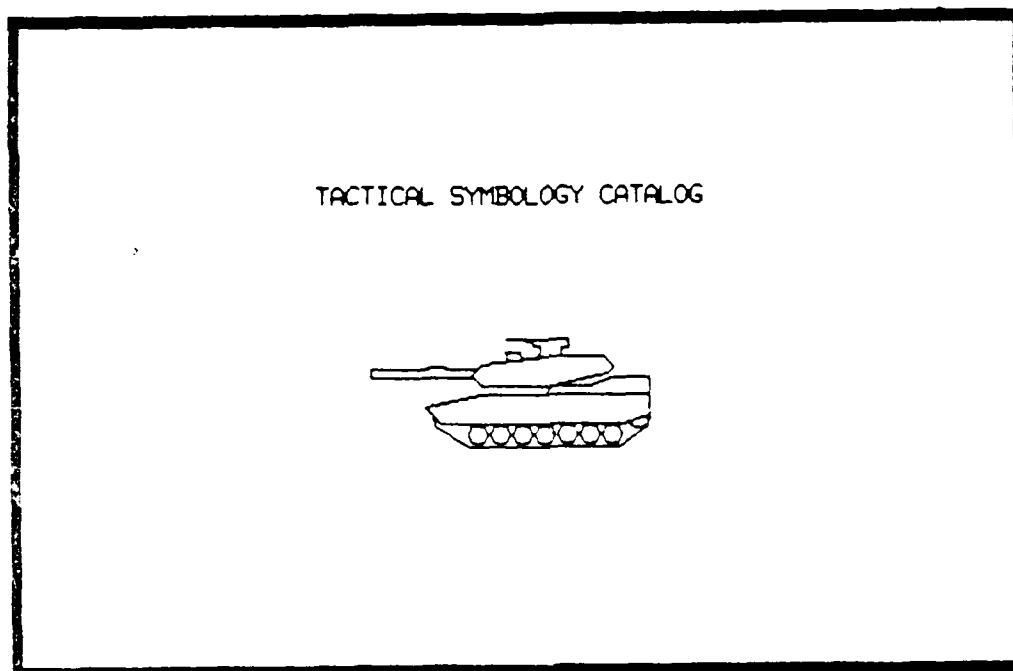
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*****
* select...use UP and DOWN arrows to choose topic, *
* press CONFIRM to make selection or EXIT *
*****

```

The above tree structure represents areas of information that a TACSYM user can explore interactively on the system. This particular reproduction of a display frame during a TACSYM session illustrates a user who wishes to examine the TUTORIAL information available in TACSYM and who can select either of two topics (system operations or executive summary) for more information.

PLATE 1: FIRST LEVEL MENU SELECTIONS
(CATALOGUE ACCESS SELECTED)



Select desired option by number and press CONFIRM

1. Examine Tutorial Describing Catalogue and Operations
2. Catalogue Access and Modification
3. Terminate the Program

Enter number: 2_

Returning to the first display frame (first level of menu selections), a user now chooses to access the catalogue itself which contains the symbols.

PLATE 2: SECOND LEVEL MENU SELECTIONS
(SCAN SELECTED)

ACCESS TO SYMBOLOGY CATALOGUE

Menu Functions

- * scan - list catalogue information and display symbols.
- * insert - insert names, symbols, or primitives into catalogue.
- * delete - delete items from catalogue.
- * find - find a selected symbol or primitive in the catalogue.
- * autoprnt - automatically generates hard copy of all symbols.

>>>>> HAPPY SYMBOLLING <<<<<

Select Catalogue Operation By Number

1 scan	3 delete	5 autoprnt
2 insert	4 find	EXIT

Enter number and press CONFIRM: 1_

PLATE 3: THIRD LEVEL MENU SELECTIONS

SCANNING OPERATIONS

Indexing Lists of Names and Selection of Symbol Display Criteria

- * sources - display symbols by symbology source e.g. FM 21-30
NATO D-49(1980), BETA, etc.
- * categories - display symbols by category e.g. weapons, aviation,
tactical unit, installation, etc.
- * concepts - display symbols by concept e.g. helicopter, armor,
radar, air defense, etc.

Displaying all Items in the Automated Catalogue

- * symbols - display all 1000+ symbols in the automated
catalogue.
- * flagged symbols - display of all symbols in the catalogue that are
marked as highly discriminable.
- * primitives - display all primitives available for constructing
symbols.

Select Scanning Operation by Number and Press CONFIRM.

INDEX LIST OF:	1 sources	2 categories	3 concepts
DISPLAY ALL THE:	4 symbols	5 flagged symbols	6 primitives

Scan: _

SYMBOLGY SOURCES DISPLAYED (SELECTED FROM THIRD LEVEL MENUS)

SYMBOLGY SOURCES

- 1 DIVRAS
- 2 NATO D-49(1980)
- 3 ICO
- 4 FM 21-30
- 5 TOS
- 6 OPS
- 7 BETA TEST BED
- 8 MIFASS
- 9 TAOC-65
- 10 TACC
- 11 ITAOC
- 12 AF E-3A PPI
- 13 AF 407L/485 L T
- 14 PLRS
- 15 AFR 55-25
- 16 FM 101-5-1
- 17 CDEC-VIDS

END OF LIST

SCAN: To display catalogue source, enter its number from
the list above and press CONFIRM, else press EXIT.
Enter source number : _

SYMBOL CATEGORIES DISPLAYED (SELECTED FROM THIRD LEVEL MENUS)

SYMBOL CATEGORIES

- 1 ACTIVITY
- 2 AVIATION
- 3 COMMUNICATION
- 4 VEHICLES
- 5 TACTICAL UNIT
- 6 MEASLE
- 7 COMBAT SERVICE SUPPO
- 8 NUCLEAR BIO CHEM
- 9 OBSTACLES AND FORT
- 10 INSTALLATIONS
- 11 WEAPON

END OF LIST

SCAN: To display catalogue category, enter its number from the list above and press CONFIRM, else press EXIT.
Enter category number : _

SYMBOL CONCEPTS DISPLAYED (SELECTED FROM THIRD LEVEL MENUS)

SYMBOL CONCEPTS

- 1 Action
- 2 Bridging
- 3 Ferrying
- 4 Movement
- 5 Destroyed
- 6 Phoney
- 7 Propoganda
- 8 Responsibility
- 9 Snorkeling
- 10 Aerial
- 11 Antisubmarine
- 12 Aviation
- 13 Bomber
- 14 Close Air Support
- 15 Drone Aircraft
- 16 Fighter
- 17 Fixed Wing Aircraft
- 18 Helicopter
- 19 Marine
- 20 High Performance
- 21 Medevac
- 22 Rescue

SYMBOL CONCEPTS

- 23 Seaplane
- 24 Transport
- 25 Emit
- 26 Message Center
- 27 Signal
- 28 Nuclear
- 29 Formation
- 30 Reconnaissance
- 31 Jamming
- 32 Radar
- 33 Radio
- 34 Telephone
- 35 Teleprinter
- 36 Television
- 37 ADP Central
- 38 Elec. Navig. Aid
- 39 Microphones
- 40 Target Designator
- 41 Visual Station
- 42 Amphibious
- 43 Animal
- 44 Armoured

SYMBOL CONCEPTS

- 45 Boat
- 46 C-Cube
- 47 Cargo
- 48 Engine
- 49 Ferry
- 50 Air Cavalry
- 51 Hovercraft
- 52 Operational
- 53 Communication
- 54 Over-snow
- 55 Personnel
- 56 Missile
- 57 Railway
- 58 Shooter
- 59 Sledge/sled
- 60 Vehicle
- 61 Ship
- 62 Airfield
- 63 Submarine
- 64 Tracked
- 65 Landing Site
- 66 Train

MORE.... Press CONFIRM
for next page

SCAN: To display catalogue concept, enter its number from
the list above and press CONFIRM, else press EXIT.
Enter concept number : _

SYMBOL CONCEPTS

67 Wheeled
68 Unspecified
69 Landing Zone
70 Vehicles
71 Surface
72 Seaplane Station
73 Landing Vehicle
74 MICV
75 Air Defense
76 Ammunition
77 Air Mobile
78 Air Transportable
79 Air Naval Ground
80 Airborne
81 Antiaircraft
82 Antitank
83 Armour
84 Army Security Agcy
85 Artillery
86 Collecting Point
87 FA
88 Construction

SYMBOL CONCEPTS

89 CBR
90 Chemical
91 Combined Arms Army
92 CEWI
93 C2 Element
94 Decontamination
95 Command
96 Electronic
97 Electronic Warfare
98 Engineer
99 Food
100 Infantry
101 Fuel
102 Irregular Forces
103 Maneuver Unit
104 Marines
105 Brigade
106 Military
107 Mortar Fire Unit
108 Motor Rifle
109 Mountain
110 Movers

SYMBOL CONCEPTS

111 Navy
112 Ordnance
113 Parachute
114 Reinforcement
115 Shooters
116 Special Forces
117 Bio or Chem Event
118 Contamination
119 Radioactive Area
120 Radioactive
121 Targets
122 Booby Trap
123 Bridge
124 Demolition
125 Fence
126 Data Processing Unit
127 Dental
128 Maintenance
129 Major End Items
130 Medical
131 Hospital
132 Medical Supply

MORE.... Press CONFIRM
for next page

SCAN: To display catalogue concept, enter its number from
the list above and press CONFIRM, else press EXIT.

Enter concept number : _

SYMBOL CONCEPTS

133 Mines
134 Missile Supply
135 Multi-Class
136 Multirole
137 Nuclear Storage
138 Personal Demand
139 Repair Parts
140 Wire
141 Obstacle
142 Subsistence
143 Traffic Control
144 Unknown Logistic
145 Water
146 Force
147 Headquarters
148 Landing
149 Logistics Unit
150 Marine Amphibious
151 Aero Medical
152 Motor Transport
153 Petroleum Supply
154 Shore Party Team

SYMBOL CONCEPTS

155 Support
156 Rear Area Operations
157 Service
158 Trains
159 Ground Attack
160 ICV
161 Tank
162 Clothing
163 Plane
164 Flame Thrower
165 Gun
166 Mortar
167 Naval Gunfire
168 Rifle
169 Rocket
170 Rocket Launcher
171 Weapon
172 Smoke Generator
173 Tracks
174 Vegetation
175 Toxic Agent
176 Trenches

SYMBOL CONCEPTS

177 Zone
178 Commo Site
179 Howitzer

END OF LIST

SCAN: To display catalogue concept, enter its number from
the list above and press CONFIRM, else press EXIT.
Enter concept number : _

PLATE 2: SECOND LEVEL MENU SELECTIONS
(AUTOPRINT SELECTED)

ACCESS TO SYMBOLOGY CATALOGUE

Menu Functions

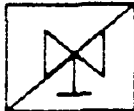
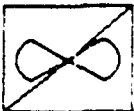
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- * insert - insert names, symbols, or primitives into catalogue.
- * delete - delete items from catalogue.
- * find - find a selected symbol or primitive in the catalogue.
- * autoprint - automatically generates hard copy of all symbols.

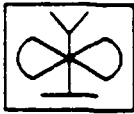
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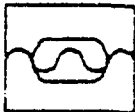
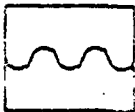
Select Catalogue Operation By Number

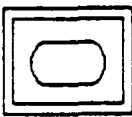
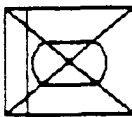
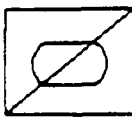
1 scan	3 delete	5 autoprint
2 insert	4 find	EXIT

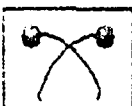
Enter number and press CONFIRM: 5_

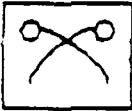
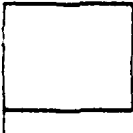
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
1.1.1 TACTICAL UNIT/ Air Cavalry/		FM 21-38 DI = 1.68
1.1.2 TACTICAL UNIT/ Air Cavalry/		NATO D-49(1988) DI = 3.53
1.1.3 TACTICAL UNIT/ Air Cavalry/		TCO
1.2.1 TACTICAL UNIT/ Air Defense/ (AD)		NATO D-49(1988), TOS , BETA TEST BED
1.2.2 TACTICAL UNIT/ Air Defense/ artillery		FM 21-38, BETA TEST BED DI = 1.63
1.2.3 TACTICAL UNIT/ Air Defense/ artillery		BETA TEST BED ADA unknown, or Rgt or Btry. DI = 2.13
1.2.4 TACTICAL UNIT/ Air Defense/ artillery target		MIFASS Unit size is noted below symbol.
1.2.5 TACTICAL UNIT/ Air Defense/ missile		BETA TEST BED See Missile for related symbols.
1.2.6 TACTICAL UNIT/ Air Defense/ missile (enemy)		CPS

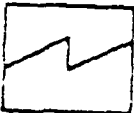
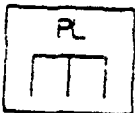
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
1.2.7 TACTICAL UNIT/ Air Defense/ tube enemy		CPS
1.3.1 TACTICAL UNIT/ Air Mobile/		FM 21-30, NATO D-49(1980) DI = 0.73
1.3.2 TACTICAL UNIT/ Air Mobile/		TOS DI = 2.63
1.3.3 TACTICAL UNIT/ Air Mobile/		TCO has sufficient air mob helos to conduct air mob operations
1.4.1 TACTICAL UNIT/ Air Transportable/		NATO D-49(1980)
1.5.1 TACTICAL UNIT/ Air Naval Ground/ liaison		TCO
1.6.1 TACTICAL UNIT/ Airborne/		FM 21-30, TOS DI = 0.73
1.6.2 TACTICAL UNIT/ Airborne/		BETA TEST BED symbol same as NATO D-49 parachute symbol. DI = 1.63
1.6.3 TACTICAL UNIT/ Airborne/ CP		BETA TEST BED

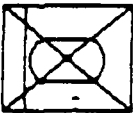
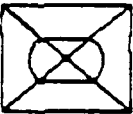
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
1.6.4 TACTICAL UNIT/ Airborne/ infantry		FM 21-30, TOS
1.7.1 TACTICAL UNIT/ Amphibious/		TCO
1.7.2 TACTICAL UNIT/ Amphibious/		FM 21-30, NATO D-49(1980)
1.8.1 TACTICAL UNIT/ Antiaircraft/		AF E-3A PPI
1.9.1 TACTICAL UNIT/ Antitank/		FM 21-30, NATO D-49(1980) , TOS DI = 1.63
1.9.2 TACTICAL UNIT/ Antitank/		CPS DI = 4.28
1.9.3 TACTICAL UNIT/ Antitank/ helicopter		NATO D-49(1980)
1.9.4 TACTICAL UNIT/ Antitank/ missile		NATO D-49(1980) See Missile for related symbols.
1.10.1 TACTICAL UNIT/ Armour/		FM 21-30, NATO D-49(1980) TOS, BETA TEST BED

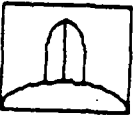
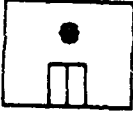
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
1.10.2 TACTICAL UNIT/ Armour/ enemy		OPS DI = 5.18
1.10.3 TACTICAL UNIT/ Armour/ enemy		FM 21-30 DI = 1.68
1.10.4 TACTICAL UNIT/ Armour/ target		MIFASS Unit size is noted below symbol.
1.10.5 TACTICAL UNIT/ Armour/ infantry		NATO D-49(1980) See Infantry for related symbol.
1.10.6 TACTICAL UNIT/ Armour/ recce or cav		FM 21-30, TOS, BETA TEST BED
1.11.1 TACTICAL UNIT/ Army Security Agcy/		FM 21-30
1.11.2 TACTICAL UNIT/ Army Security Agcy/		TOS
1.12.1 TACTICAL UNIT/ Artillery/		NATO D-49(1980) , BETA TEST BED
1.12.2 TACTICAL UNIT/ Artillery/ D/S		MIFASS Immediate request symbol, size noted below symbol.

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
1.12.3 TACTICAL UNIT/ Artillery/ G/S		MIFASS Immediate request symbol, size noted below symbol.
1.12.4 TACTICAL UNIT/ Artillery/ target		MIFASS Size noted below symbol.
1.12.5 TACTICAL UNIT/ Artillery/ field (FA)		FM 21-30, TOS
1.12.6 TACTICAL UNIT/ Artillery/ rocket		NATO D-49(1960)
1.12.7 TACTICAL UNIT/ Artillery/ rocket (enemy)		CPS
1.12.8 TACTICAL UNIT/ Artillery/ MRL		BETA TEST BED See weapons section for other mult rocket launcher symbols.
1.13.1 TACTICAL UNIT/ FA/ tube (enemy)		CPS
1.14.1 TACTICAL UNIT/ CBR/		FM 21-30 DI = 2.63
1.14.2 TACTICAL UNIT/ CBR/		NATO D-49(1960) DI = 1.28

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
1.15.1 TACTICAL UNIT/ Chemical/		TOS Symbol represents chemical or chemical decontamination unit
1.15.2 TACTICAL UNIT/ Chemical/ defense		BETA TEST BED
1.16.1 TACTICAL UNIT/ Combined Arms Army/		TOS DI = 0.73
1.16.2 TACTICAL UNIT/ Combined Arms Army/		BETA TEST BED DI = 0.73
1.17.1 TACTICAL UNIT/ CEWI/		NATO D-49(1980) , BETA TEST BED
1.18.1 TACTICAL UNIT/ C2 Element/		AF E-3A PPI
1.19.1 TACTICAL UNIT/ Command/ HQ		AF E-3A PPI
1.19.2 TACTICAL UNIT/ Command/ post		FM 21-30, NATO D-49(1980) , TOS, BETA TEST BED DI = 1.63
1.19.3 TACTICAL UNIT/ Command/ post		CPS DI = 5.18

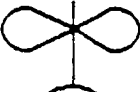
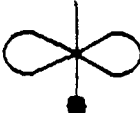
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
1.20.1 TACTICAL UNIT/ Electronic Warfare/ (EW)		FM 21-30 See signal for related symbols. DI = 1.63
1.20.2 TACTICAL UNIT/ Electronic Warfare/ (EW)		NATO D-49(1988) See Signal for related symbols. DI = 1.63
1.21.1 TACTICAL UNIT/ Engineer/		FM 21-30, NATO D-49(1988) , TOS DI = 0.73
1.21.2 TACTICAL UNIT/ Engineer/		OPS DI = 4.28
1.21.3 TACTICAL UNIT/ Engineer/ bridging		NATO D-49(1988) DI = 2.13
1.21.4 TACTICAL UNIT/ Engineer/ bridging		FM 21-30, BETA TEST BED DI = 2.13
1.21.5 TACTICAL UNIT/ Engineer/ pipeline bridge		BETA TEST BED
1.22.1 TACTICAL UNIT/ Infantry/		FM 21-30, TOS, BETA TEST BED
1.22.2 TACTICAL UNIT/ Infantry/ armoured		FM 21-30

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
1.22.3 TACTICAL UNIT/ Infantry/ armoured		NATO D-49(1980) DI = 0.93
1.22.4 TACTICAL UNIT/ Infantry/ mechanized		NATO D-49(1980), TOS
1.22.5 TACTICAL UNIT/ Infantry/ motorized		NATO D-49(1980)
1.23.1 TACTICAL UNIT/ Irregular Forces/		FM 21-30, NATO D-49(1980)
1.24.1 TACTICAL UNIT/ Maneuver Unit/		BETA TEST BED
1.25.1 TACTICAL UNIT/ Marines/		NATO D-49(1980)
1.26.1 TACTICAL UNIT/ Military/ intelligence		FM 21-30, TOS , NATO D-49(1980) also refers to security and interrogation
1.26.2 TACTICAL UNIT/ Military/ police		FM 21-30, NATO D-49(1980) , TOS
1.27.1 TACTICAL UNIT/ Missile/ friendly		TAOC-85

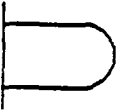
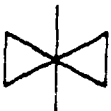
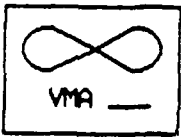
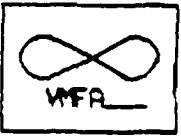
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
1.27.2 TACTICAL UNIT/ Missile/ enemy		TAOC-85
1.27.3 TACTICAL UNIT/ Missile/ rocket and guided		FM 21-30 For related symbols see AD unit and AD weapon symbols.
1.27.4 TACTICAL UNIT/ Missile/		NATO D-49(1980)
1.27.5 TACTICAL UNIT/ Missile/		AF E-3A PPI
1.27.6 TACTICAL UNIT/ Missile/		AF E-3A PPI
1.27.7 TACTICAL UNIT/ Missile/		NATO D-49(1980) For related symbols see A-T weapons symbols. DI = 1.63
1.27.8 TACTICAL UNIT/ Missile/		BETA TEST BED DI = 2.13
1.27.9 TACTICAL UNIT/ Missile/ tactical		TOS
1.28.1 TACTICAL UNIT/ Mortar Fire Unit/		MIFASS Size is noted on top of symbol with size symbols.

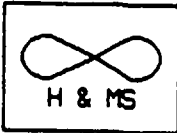
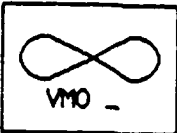
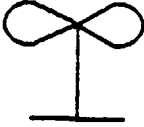
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
1.29.1 TACTICAL UNIT/ Motor Rifle/		CPS
1.30.1 TACTICAL UNIT/ Mountain/		FM 21-30, NATO D-49(1980)
1.31.1 TACTICAL UNIT/ Movers/		BETA TEST BED DI = 5.18
1.31.2 TACTICAL UNIT/ Movers/		DIVRAS DI = 3.83
1.32.1 TACTICAL UNIT/ Navy/		NATO D-49(1980)
1.33.1 TACTICAL UNIT/ Ordnance/		FM 21-30 DI = 1.63
1.33.2 TACTICAL UNIT/ Ordnance/		NATO D-49(1980) DI = 1.63
1.34.1 TACTICAL UNIT/ Parachute/		FM 21-30 DI = 1.18
1.34.2 TACTICAL UNIT/ Parachute/		NATO D-49(1980) See Airborne unit symbol - BETA TEST BED.

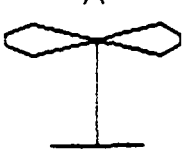
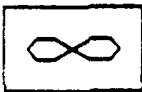
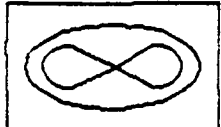
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
1.35.1 TACTICAL UNIT/ Reconnaissance/		FM 21-30, NATO D-49(1980) , TOS, BETA TEST BED, MIFASS
1.36.1 TACTICAL UNIT/ Reinforcement/ holding unit		NATO D-49(1980)
1.37.1 TACTICAL UNIT/ Shooters/		BETA TEST BED unknown shooters
1.37.2 TACTICAL UNIT/ Shooters/ artillery		DIVRAS
1.37.3 TACTICAL UNIT/ Shooters/ missile/rocket		DIVRAS
1.38.1 TACTICAL UNIT/ Signal/		FM 21-30, NATO D-49(1980) , BETA TEST BED
1.38.2 TACTICAL UNIT/ Signal/ intelligence		BETA TEST BED See electronic warfare
1.39.1 TACTICAL UNIT/ Special Forces/		NATO D-49(1980)
1.40.1 TACTICAL UNIT/ Vehicle/ light assault		TCO

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
2.1.1 AVIATION/ Aerial/ Reconnaissance		TCO
2.2.1 AVIATION/ Antisubmarine/ Aircraft (AF)		FM 21-30
2.4.1 AVIATION/ Aviation/		CPS
2.4.2 AVIATION/ Aviation/		FM 21-30, NATO D-49(1980) , TCO
2.4.3 AVIATION/ Aviation/ Army		FM 21-30, DIVRAS DI = 3.83
2.4.4 AVIATION/ Aviation/ Army		NATO D-49(1980) DI = 5.18
2.4.5 AVIATION/ Aviation/ Army		TOS DI = 5.18
2.4.6 AVIATION/ Aviation/ Combat		BETA TEST BED symbol also represents attack helicopter
2.5.1 AVIATION/ Bomber/ Air Force		FM 21-30 this symbol represents trans- port aviation in NATO D-49

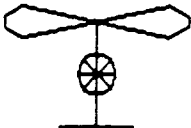
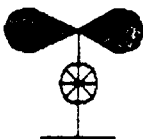
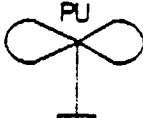
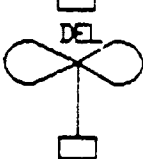
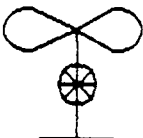
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
2.5.2 AVIATION/ Bomber/ Air Force		NATO D-49(1980)
2.6.1 AVIATION/ Close Air Support/		MIFASS
2.7.1 AVIATION/ Drone Aircraft/ Air Force		FM 21-30
2.8.1 AVIATION/ Fighter/ Air Force		FM 21-30, NATO D-49(1980)
2.8.2 AVIATION/ Fighter/ Air Force all weather		FM 21-30
2.8.3 AVIATION/ Fighter/ bomber Air Force		FM 21-30
2.8.4 AVIATION/ Fighter/ Air Force tactical light weight strike		FM 21-30
2.8.5 AVIATION/ Fighter/ FIO (AF)		CDEC-VIDS NTC test
2.8.6 AVIATION/ Fighter/ enemy		AFR 55-25

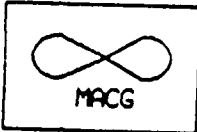
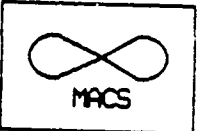
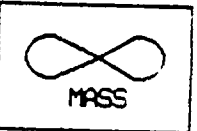
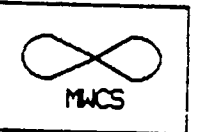
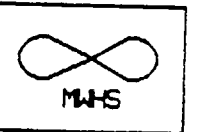
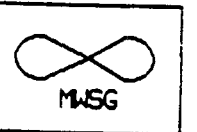
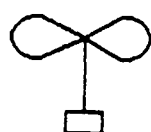
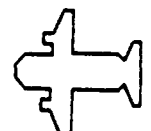
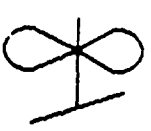
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
2.8.7 AVIATION/ Fighter/ enemy		TOS
2.8.8 AVIATION/ Fighter/ Interceptor unpaired		AF E3A PPI Air Track
2.8.9 AVIATION/ Fighter/ Interceptor paired		AF E3A PPI Air Track
2.9.1 AVIATION/ Fixed Wing Aircraft/ Air Force		NATO D-49(1980)
2.9.2 AVIATION/ Fixed Wing Aircraft/ light-Air Force		FM 21-30
2.9.3 AVIATION/ Fixed Wing Aircraft/ Army		NATO D-49(1980)
2.9.4 AVIATION/ Fixed Wing Aircraft/		MIFASS Air Track
2.9.5 AVIATION/ Fixed Wing Aircraft/ attack squadron		TCO VMA plus three numbers
2.9.6 AVIATION/ Fixed Wing Aircraft/ fighter attack		TCO VFA plus 3 numbers

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
2.9.7 AVIATION/ Fixed Wing Aircraft/ HQ and Maintenance		TCO
2.9.8 AVIATION/ Fixed Wing Aircraft/ observation		TCO
2.10.1 AVIATION/ Ground Attack/ aircraft		BETA TEST BED
2.10.2 AVIATION/ Ground Attack/ aircraft A10		CDEC-VIDS NTC Test
2.11.1 AVIATION/ Helicopter/		BETA TEST BED note Army helicopter symbol- NATO
2.11.2 AVIATION/ Helicopter/		BETA TEST BED symbol represents helos or helo lz
2.11.3 AVIATION/ Helicopter/		MIFASS Air Track
2.11.4 AVIATION/ Helicopter/		PLRS rotary wing or low performance aircraft
2.11.5 AVIATION/ Helicopter/ Air Force		FM 21-30, NATO D-49(1980) , TCO

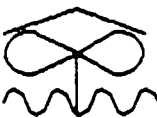
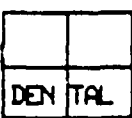
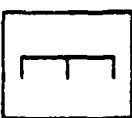
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
2.11.6 AVIATION/ Helicopter/ Army		FM 21-30 DI = 4.33
2.11.7 AVIATION/ Helicopter/ Army		NATO D-49(1980) DI = 5.68
2.11.8 AVIATION/ Helicopter/ antitank		NATO D-49(1980)
2.11.9 AVIATION/ Helicopter/ attack		TOS DI = 5.68
2.11.10 AVIATION/ Helicopter/ attack		BETA TEST BED also represents combat aviation DI = 1.63
2.11.11 AVIATION/ Helicopter/ attack		CDEC-VIDS
2.11.12 AVIATION/ Helicopter/ attack		TCO
2.11.13 AVIATION/ Helicopter/ combat		NATO D-49(1980)
2.11.14 AVIATION/ Helicopter/ enemy		TOS sighted enemy helicopter

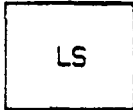
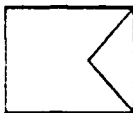
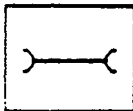
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
2.11.15 AVIATION/ Helicopter/ air track enemy		TROC-B5 unknown helo/transport-enemy or friend
2.11.16 AVIATION/ Helicopter/ enemy		TROC-B5 Air Track symbol for hostile, general, helo/transport
2.11.17 AVIATION/ Helicopter/ enemy		TACC, ITAOC Air Track symbol for unknown, assumed enemy helo
2.11.18 AVIATION/ Helicopter/ enemy		MIFASS Air Target Symbol
2.11.19 AVIATION/ Helicopter/ friend		AF E-3A PPI Air Track for unpaired friendly helo
2.11.20 AVIATION/ Helicopter/ friend		AF E-3A PPI Air Track for paired friendly helo
2.11.21 AVIATION/ Helicopter/ friend		AF 487L/485 L T Air Track for unpaired friendly helo
2.11.22 AVIATION/ Helicopter/ friend		AF 487L/485 L T Air Track for paired friendly helo
2.11.23 AVIATION/ Helicopter/ friend		TACC, ITAOC, TROC-B5 Air Track for friendly helo, general, no statement

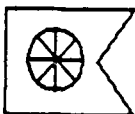
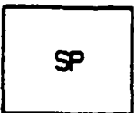
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
2.11.24 AVIATION/ Helicopter/ friend		TACC, ITAOC Air Track for unknown, assumed friendly helo/transport
2.11.26 AVIATION/ Helicopter/ heavy		TOS see also transport helo symbol
2.11.27 AVIATION/ Helicopter/ heavy army		FM 21-30 see also transport helo symbol
2.11.28 AVIATION/ Helicopter/ OH-58		CDEC-VIDS
2.11.29 AVIATION/ Helicopter/ pickup		MIFASS
2.11.30 AVIATION/ Helicopter/ delivery		MIFASS
2.11.31 AVIATION/ Helicopter/ transport Air Force		FM 21-30
2.12.1 AVIATION/ High Performance/ aircraft		PLRS

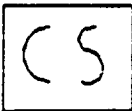
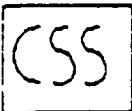
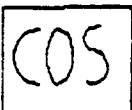
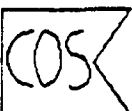
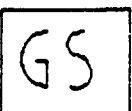
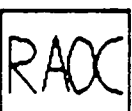
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
2.13.1 AVIATION/ Marine/ Air Control Group		TCO
2.13.2 AVIATION/ Marine/ Air Control		TCO
2.13.3 AVIATION/ Marine/ Air Support		TCO
2.13.4 AVIATION/ Marine/ Wing Command		TCO
2.13.5 AVIATION/ Marine/ Wing HQ Squadron		TCO
2.13.6 AVIATION/ Marine/ Wing Support Group		TCO
2.14.1 AVIATION/ Medevac/		MIFASS unit size is noted below symbol
2.15.1 AVIATION/ Plane/		TOS sighted enemy plane with cargo characteristics
2.16.1 AVIATION/ Reconnaissance/ Air Force		FM 21-30, NATO D-49(1980)

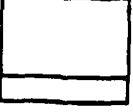
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
2.16.2 AVIATION/ Reconnaissance/ light weight Air Force		FM 21-30
2.17.1 AVIATION/ Rescue/ Air Force		FM 21-30 note similarity to Medevac symbol
2.18.1 AVIATION/ Seaplane/		FM 21-30
2.19.1 AVIATION/ Transport/		NATO D-49(1980) this symbol represents an AF bomber in FM 21-30
2.19.2 AVIATION/ Transport/ Air Force		FM 21-30
2.20.1 AVIATION/ Airfield/		FM 21-30, TCO
2.20.2 AVIATION/ Airfield/		BETA TEST BED
2.21.1 AVIATION/ Landing Site/		FM 21-30, TCO
2.21.2 AVIATION/ Landing Site/		NATO D-49(1980)
:		

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
2.21.3 AVIATION/ Landing Site/ helicopter		FM 21-30, TCO
2.21.4 AVIATION/ Landing Site/ helicopter		NATO D-49(1980)
2.22.1 AVIATION/ Landing Zone/ helicopter		BETA TEST BED
2.23.1 AVIATION/ Seaplane, Station/		FM 21-30, TCO
3.1.1 COMBAT SER. SUPPORT/ Brigade/ service support group		TCO
3.2.1 COMBAT SER. SUPPORT/ Data Processing/ Unit		NATO D-49(1980)
3.3.1 COMBAT SER. SUPPORT/ Dental/		TCO
3.4.1 COMBAT SER. SUPPORT/ Engineer/		TCO
3.5.1 COMBAT SER. SUPPORT/ Force/ service support group		TCO

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
3.6.1 COMBAT SER. SUPPORT/ Headquarters/ and service		TCO
3.7.1 COMBAT SER. SUPPORT/ Landing/ support		TCO
3.8.1 COMBAT SER. SUPPORT/ Logistics Unit/		NATO D-49(1980) unspecific or multirole DI = 1.63
3.8.2 COMBAT SER. SUPPORT/ Logistics Unit/		NATO D-49(1980) unspecified multirole for some nations DI = 0.73
3.9.1 COMBAT SER. SUPPORT/ Maintenance/		FM 21-30, NATO D-49(1980) , BETA TEST BED
3.9.2 COMBAT SER. SUPPORT/ Maintenance/ aviation		TOS note symbol for maintenance transportation - 3.9.4
3.9.3 COMBAT SER. SUPPORT/ Maintenance/ signal		TOS note symbol 3.9.5
3.9.4 COMBAT SER. SUPPORT/ Maintenance/ transportation		FM 21-30 note symbol 3.9.2
3.9.5 COMBAT SER. SUPPORT/ Maintenance/ and supply		FM 21-30 note symbol 3.9.3

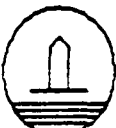
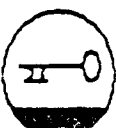
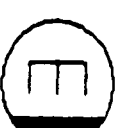
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
3.10.1 COMBAT SER. SUPPORT/ Marine Amphibious/ unit service support grp.		TCO
3.11.1 COMBAT SER. SUPPORT/ Medical/		FM 21-30, NATO D-49(1980) , TOS, BETA TEST BED DI = 1.63
3.11.2 COMBAT SER. SUPPORT/ Medical/		NATO D-49(1980) specific to Turkey DI = 1.63
3.12.1 COMBAT SER. SUPPORT/ Aero Medical/		TOS
3.13.1 COMBAT SER. SUPPORT/ Motor Transport/		TCO
3.14.1 COMBAT SER. SUPPORT/ Personnel & Admin./		FM 21-30, TOS
3.15.1 COMBAT SER. SUPPORT/ Petroleum Supply/		TOS
3.16.1 COMBAT SER. SUPPORT/ Shore Party Team/		TCO
3.17.1 COMBAT SER. SUPPORT/ Supply/		TCO

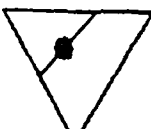
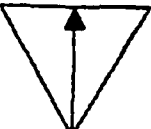
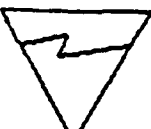
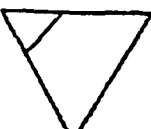
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
3.18.1 COMBAT SER. SUPPORT/ Support/		CPS DI = 5.18
3.18.2 COMBAT SER. SUPPORT/ Support/		FM 21-30, TOS DI = 0.73
3.18.3 COMBAT SER. SUPPORT/ Support/ combat		TOS, BETA TEST BED
3.18.4 COMBAT SER. SUPPORT/ Support/ combat service		BETA TEST BED
3.18.5 COMBAT SER. SUPPORT/ Support/ command		BETA TEST BED
3.18.6 COMBAT SER. SUPPORT/ Support/ corps		TOS DI = 0.73
3.18.7 COMBAT SER. SUPPORT/ Support/ corps		FM 21-30 DI = 4.78
3.18.8 COMBAT SER. SUPPORT/ Support/ general		TOS
3.19.1 COMBAT SER. SUPPORT/ Rear Area Operations/ center		TOS

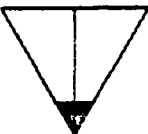
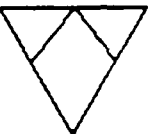
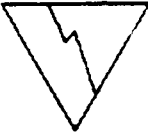
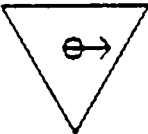
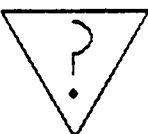
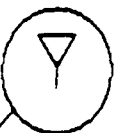
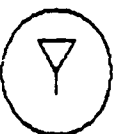
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
3.20.1 COMBAT SER. SUPPORT/ Service/		FM 21-30, TOS
3.21.1 COMBAT SER. SUPPORT/ Supply/		FM 21-30 DI = 0.28
3.21.2 COMBAT SER. SUPPORT/ Supply/		NATO D-49(1980) note symbol 3.22.1 DI = 1.63
3.21.3 COMBAT SER. SUPPORT/ Supply/		TOS DI = 1.63
3.21.4 COMBAT SER. SUPPORT/ Supply/ class V		TOS
3.21.5 COMBAT SER. SUPPORT/ Supply/ and transportation		TOS
3.22.1 COMBAT SER. SUPPORT/ Trains/		BETA TEST BED DI = 1.63 note symbol 3.21.2
3.22.2 COMBAT SER. SUPPORT/ Trains/		FM 21-30 DI = 2.13
3.23.1 COMBAT SER. SUPPORT/ Transportation/		FM 21-30, NATO D-49(1980) , TOS, BETA TEST BED

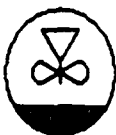
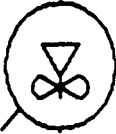
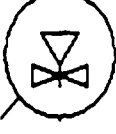
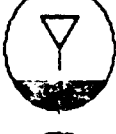
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
4.1.1 INSTALLATIONS/ Ammunition/		FM 21-30, TCO DI = 4.38
4.1.2 INSTALLATIONS/ Ammunition/		NATO D-49(1980) DI = 4.33
4.1.3 INSTALLATIONS/ Ammunition/ air defense		NATO D-49(1980)
4.1.4 INSTALLATIONS/ Ammunition/ air defense missiles		NATO D-49(1980)
4.1.5 INSTALLATIONS/ Ammunition/ armoured		NATO D-49(1980)
4.1.6 INSTALLATIONS/ Ammunition/ artillery		FM 21-30
4.1.7 INSTALLATIONS/ Ammunition/ artillery gun		NATO D-49(1980)
4.1.8 INSTALLATIONS/ Ammunition/ artillery missile		NATO D-49(1980)
4.1.9 INSTALLATIONS/ Ammunition/ artillery rocket		NATO D-49(1980)

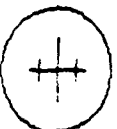
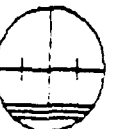
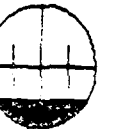
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
4.1.10 INSTALLATIONS/ Ammunition/ aviation Air Force		FM 21-30, TCO DI = 5.78
4.1.11 INSTALLATIONS/ Ammunition/ aviation Air Force		NATO D-49(1980) DI = 5.73
4.1.12 INSTALLATIONS/ Ammunition/ aviation Army		FM 21-30 DI = 5.78
4.1.13 INSTALLATIONS/ Ammunition/ aviation Army		NATO D-49(1980) DI = 5.73
4.1.14 INSTALLATIONS/ Ammunition/ conventional		FM 21-30, TCO
4.1.15 INSTALLATIONS/ Ammunition/ rocket and guided missile		FM 21-30, TCO
4.1.16 INSTALLATIONS/ Ammunition/ small arms		FM 21-30, TCO DI = 5.78
4.1.17 INSTALLATIONS/ Ammunition/ small arms		NATO D-49(1980) DI = 3.48
4.1.18 INSTALLATIONS/ Ammunition/ special		FM 21-30

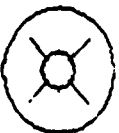
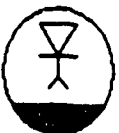
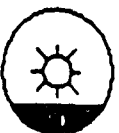
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
4.1.19 INSTALLATIONS/ Ammunition/ storage		BETA TEST BED DI = 5.23
4.1.20 INSTALLATIONS/ Ammunition/ storage		TOS DI = 5.73
4.2.1 INSTALLATION/ Clothing/ class II		FM 21-30 Letters B,E,F,M or T below symbol show subclassification
4.3.1 INSTALLATIONS/ Collecting Point/ civilian		FM 21-30, TCO
4.3.2 INSTALLATIONS/ Collecting Point/ maintenance		FM 21-30, TCO
4.3.3 INSTALLATIONS/ Collecting Point/ prisoners of war		FM 21-30, TCO
4.3.4 INSTALLATIONS/ Collecting Point/ salvage		FM 21-30, TCO
4.3.5 INSTALLATIONS/ Collecting Point/ stragglers		FM 21-30, TCO
4.4.1 INSTALLATIONS/ Construction/		FM 21-30

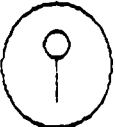
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
4.4.2 INSTALLATIONS/ Construction/ bridging		NATO D-49(1980)
4.4.3 INSTALLATIONS/ Construction/ bridging		BETA TEST BED
4.4.4 INSTALLATIONS/ Construction/ engineers		NATO D-49(1980)
4.5.1 INSTALLATIONS/ Decontamination/		NATO D-49(1980)
4.6.1 INSTALLATIONS/ Electronic/ air defense radar		NATO D-49(1980) see also COMMUNICATIONS symbols
4.6.2 INSTALLATIONS/ Electronic/ artillery locating		NATO D-49(1980)
4.6.3 INSTALLATIONS/ Electronic/ emitting		NATO D-49(1980)
4.6.4 INSTALLATIONS/ Electronic/ electronic warfare		NATO D-49(1980)
4.6.5 INSTALLATIONS/ Electronic/ ground sensor surveillance		NATO D-49(1980)

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
4.6.6 INSTALLATIONS/ Electronic/ intercepting		NATO D-49(1980)
4.6.7 INSTALLATIONS/ Electronic/ jamming		NATO D-49(1980)
4.6.8 INSTALLATIONS/ Electronic/ signal communication		NATO D-49(1980)
4.6.9 INSTALLATIONS/ Electronic/ target designator		NATO D-49(1980)
4.6.10 INSTALLATIONS/ Electronic/ unknown		NATO D-49(1980)
4.7.1 INSTALLATIONS/ Food/		NATO D-49(1980) see also 4.20.1
4.8.1 INSTALLATIONS/ Fuel/		NATO D-49(1980) DI = 5.23
4.8.2 INSTALLATIONS/ Fuel/		BETA TEST BED DI = 5.23
4.8.3 INSTALLATIONS/ Fuel/		TOS DI = 5.73

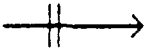
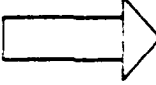
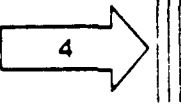
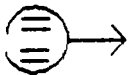
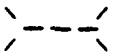
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
4.8.4 INSTALLATIONS/ Fuel/ aviation Air Force		FM 21-30, TCO DI = 6.68
4.8.5 INSTALLATIONS/ Fuel/ aviation Air Force		NATO D-49(1980) DI = 6.63
4.8.6 INSTALLATIONS/ Fuel/ aviation Air Force		FM 21-30 inconsistent with 4.1.12 DI = 5.33
4.8.7 INSTALLATIONS/ Fuel/ aviation Army		NATO D-49(1980) DI = 6.63
4.8.8 INSTALLATIONS/ Fuel/ ground		FM 21-30, TCO
4.8.9 INSTALLATIONS/ Fuel/ solid		FM 21-30
4.9.1 INSTALLATIONS/ Maintenance/		NATO D-49(1980)
4.10.1 INSTALLATIONS/ Major End Items/		FM 21-30
4.11.1 INSTALLATIONS/ Medical/		NATO D-49(1980) DI = 5.23

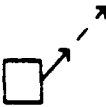
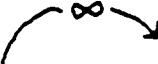
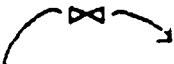
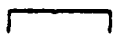
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
4.11.2 INSTALLATIONS/ Medical/		TOS DI = 4.33
4.11.3 INSTALLATIONS/ Medical Supply/		Fm 21-30, TCO DI = 4.38
4.11.4 INSTALLATIONS/ Medical Supply/		TOS DI = 5.73
4.12.1 INSTALLATIONS/ Hospital/ or aid station		FM 21-30, TOS, TCO DI = 4.33
4.12.2 INSTALLATIONS/ Hospital/ or aid station		NATO D-49(1980) DI = 4.33
4.13.1 INSTALLATIONS/ Mines/ explosives		NATO D-49(1980)
4.14.1 INSTALLATIONS/ Missile Supply/		TCO, BETA TEST BED
4.15.1 INSTALLATIONS/ Multi-Class/ supply		FM 21-30, TCO classes available placed below symbol
4.15.2 INSTALLATIONS/ Multi-Class/ supply		TOS

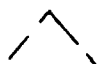
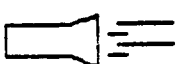
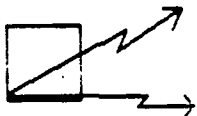
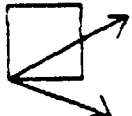
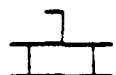
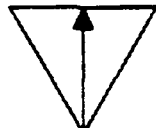
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
4.15.3 INSTALLATIONS/ Multi-Class/ aviation supply		TOS
4.16.1 INSTALLATIONS/ Multirole/		NATO D-49(1980) also represents unspecified role
4.17.1 INSTALLATIONS/ Nuclear Storage/		NATO D-49(1980)
4.18.1 INSTALLATIONS/ Ordnance/		TOS DI = 5.73
4.18.2 INSTALLATIONS/ Ordnance/		NATO D-49(1980) DI = 6.18
4.19.1 INSTALLATIONS/ Personal Demand/ items		FM 21-30
4.20.1 INSTALLATIONS/ Repair Parts/		FM 21-30
4.21.1 INSTALLATIONS/ Subsistence/		FM 21-30 subclassification shown with letters R, S, C below symbol
4.22.1 INSTALLATIONS/ Supply/		NATO D-49(1980)

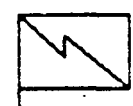
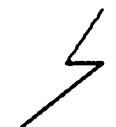
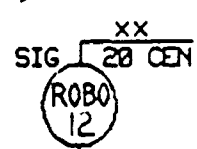
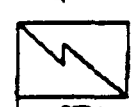
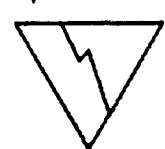
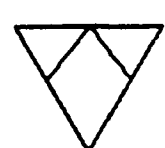
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
4.23.1 INSTALLATIONS/ Traffic Control/		FM 21-30
4.23.2 INSTALLATIONS/ Traffic Control/		NATO D-49(1980)
4.24.1 INSTALLATIONS/ Unknown Logistic/ installation		NATO D-49(1980)
4.25.1 INSTALLATIONS/ Water/		NATO D-49(1980)
5.1.1 MEASLE/ Communication/		DIVRAS
5.2.1 MEASLE/ Helicopter/		TCO
5.3.1 MEASLE/ Missile/ (SAM)		TCO
5.3.2 MEASLE/ Missile/ or rocket		DIVRAS
5.4.1 MEASLE/ Radar/		DIVRAS

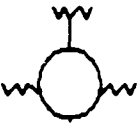
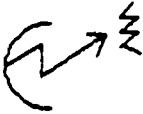
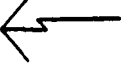
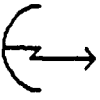
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
5.4.2 MEASLE/ Radar/		TCO, BETA TEST BED
5.5.1 MEASLE/ Radio/		TCO, BETA TEST BED
5.6.1 MEASLE/ Shooter/		TCO, BETA TEST BED
5.6.2 MEASLE/ Shooter/		DIVRAS
5.7.1 MEASLE/ Vehicle/ tracked		TCO, BETA TEST BED, DIVRAS
5.7.2 MEASLE/ Vehicle/ wheeled		BETA TEST BED
5.7.3 MEASLE/ Vehicle/ wheeled		TCO
6.1.1 ACTIVITY/ Action/ threat force advancing		DIVRAS Numerals indicate count of maneuver battalion
6.1.2 ACTIVITY/ Action/ delaying, enemy		NATO D-49(1980)

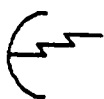
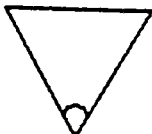
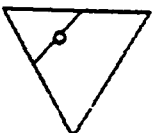
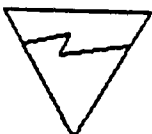
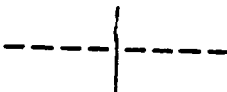
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
6.1.3 ACTIVITY/ Action/ delaying friend		NATO D-49(1980) - non-static
6.1.4 ACTIVITY/ Action/ direction enemy		NATO D-49(1980) non-static
6.1.5 ACTIVITY/ Action/ direction friend		NATO D-49 non-static
6.1.6 ACTIVITY/ Action/ blocked		DIVRAS numerals indicate count of manuever battalion
6.1.7 ACTIVITY/ Action/ ambush		TCO, FM 21-30 Point of arrow at map location.
6.1.8 ACTIVITY/ Action/ firefights		TCO, FM 21-30 point of arrow at map location
6.1.9 ACTIVITY/ Action/ harrassing fire		TCO, FM 21-30 point of last arrow at map location
6.2.1 ACTIVITY/ Bridging/ enemy		TOS
6.3.1 ACTIVITY/ Ferrying/ enemy		TOS

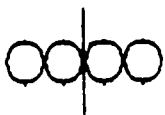
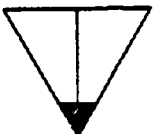
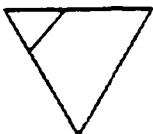
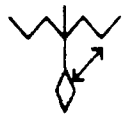
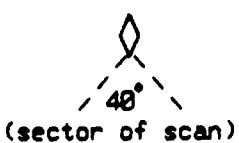
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
6.4.1 ACTIVITY/ Movement/		TCO, FM 21-30 solid arrow=unit position broken arrow=possible mmt.
6.4.2 ACTIVITY/ Movement/ air force friendly		NATO D-49(1980) non-static
6.4.3 ACTIVITY/ Movement/ army air friendly		NATO D-49(1980) non-static
6.4.4 ACTIVITY/ Movement/ air, enemy		NATO D-49(1980) Symbol in center of arrow line indicates unit type.
6.4.5 ACTIVITY/ Movement/ ground		NATO D-49 (1980) non-static
6.4.6 ACTIVITY/ Movement/ reconnaissance		NATO D-49(1980) non-static
6.5.1 ACTIVITY/ Formation/ artillery		NATO D-49(1980) static
6.5.2 ACTIVITY/ Formation/ defense enemy		NATO D-49(1980), static
6.5.3 ACTIVITY/ Formation/ defense friend		NATO D-49(1980) static

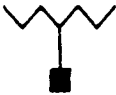
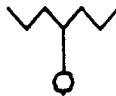
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
6.5.4 ACTIVITY/ Formation/ reserve stationary		DIVRAS
6.5.5 ACTIVITY/ Formation/ blocking		DIVRAS numeral indicates amount of force
6.6.1 ACTIVITY/ Destroyed/		TCO, FM 21-30 superimposed over referred symbol
6.7.1 ACTIVITY/ Phoney/		TCO, FM 21-30 normally placed over referred symbol
6.8.1 ACTIVITY/ Propoganda/		TCO, FM 21-30 mouthpiece of megaphone at map location
6.9.1 ACTIVITY/ Reconnaissance/ area		NATO D-49(1980) static
6.10.1 ACTIVITY/ Responsibility/ arc of		TOS
6.11.1 ACTIVITY/ Snorkeling/		TOS
7.1.1 COMMUNICATION/ Emit/ Emitting		NATO D-49(1980)

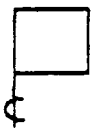
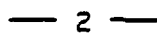
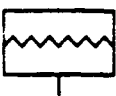
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
7.1.2 COMMUNICATION/ Emit/ Emitters		DIVRAS
7.1.3 COMMUNICATION/ Emit/ emitter - radar		DIVRAS see also Radar
7.2.1 COMMUNICATION/ Message Center/	 MSG CEN	FM 21-30
7.3.1 COMMUNICATION/ Signal/		CPS
7.3.2 COMMUNICATION/ Signal/ center signal area		FM 21-30 sig. ctr. not at CP post or HQ (unit code inside circle)
7.3.3 COMMUNICATION/ Signal/ center	 CEN	FM 21-30 see also INSTALLATIONS, Electronic (4.6)
7.3.4 COMMUNICATION/ Signal/ communication		NATO D-49(1988)
7.4.1 COMMUNICATION/ Comma Site/		BETA TEST BED
7.5.1 COMMUNICATION/ Jamming/		NATO D-49(1988)

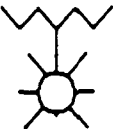
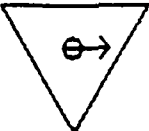
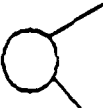
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
7.5.2 COMMUNICATION/ Jamming/ communication		TCO, FM 21-30
7.5.3 COMMUNICATION/ Jamming/ radar		TCO
7.5.4 COMMUNICATION/ Jamming/ surface		TCO, BETA TEST BED
7.6.1 COMMUNICATION/ Radar/ antenna		BETA TEST BED
7.6.2 COMMUNICATION/ Radar/		BETA TEST BED, DIVRAS letters placed below symbol indicate type ie AD, GCI
7.6.3 COMMUNICATION/ Radar/		NATO D-49(1980)
7.6.4 COMMUNICATION/ Radar/		CPS
7.6.5 COMMUNICATION/ Radar/ fan		CPS
7.6.6 COMMUNICATION/ Radar/ intercept and DF station		TCO

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
7.6.7 COMMUNICATION/ Radar/ station		TCO, FM 21-30 letters placed below symbol indicate type
7.6.8 COMMUNICATION/ Radar/ site - enemy		AF E-3A PPI
7.6.9 COMMUNICATION/ Radar/ site - friendly		AF E-3A PPI
7.6.11 COMMUNICATION/ Radar/ air defense		NATO D-49(1980)
7.6.12 COMMUNICATION/ Radar/ artillery locating		NATO D-49(1980)
7.6.13 COMMUNICATION/ Radar/ electronic warfare		NATO D-49(1980)
7.6.14 COMMUNICATION/ Radar/ electronic warfare below 5,000 ft.		AFR 55-25
7.6.15 COMMUNICATION/ Radar/ electronic warfare above 5,000 ft.		AFR 55-25
7.6.16 COMMUNICATION/ Radar/ GCS below 5,000 ft.		AFR 55-25

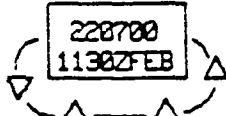
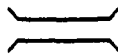
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
7.6.17 COMMUNICATION/ Radar/ GCS above 5,000 ft.		AFR 55-25
7.6.18 COMMUNICATION/ Radar/ intercept		NATO D-49(1980)
7.6.19 COMMUNICATION/ Radar/ ground sensor surveillance		NATO D-49(1980)
7.6.20 COMMUNICATION/ Radar/ sensor commandable		TCO
7.6.21 COMMUNICATION/ Radar/ sensor monitor station		TCO
7.6.22 COMMUNICATION/ Radar/ sensor monitor receiving only		TCO
7.6.23 COMMUNICATION/ Radar/ sensor monitor with mast antenna		TCO extended range receiving & controlling capabilities
7.6.24 COMMUNICATION/ Radar/ sensor relay station		TCO
7.6.25 COMMUNICATION/ Radar/ sensor systems		TCO

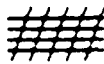
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
7.7.1 COMMUNICATION/ Radio/		BETA TEST BED
7.7.2 COMMUNICATION/ Radio/ direction finder station		FM 21-30, TCO
7.7.3 COMMUNICATION/ Radio/ intercept/ monitoring station		FM 21-30, TCO
7.7.4 COMMUNICATION/ Radio/ multi channel radio terminal		FM 21-30, TCO number of channels indicated between vertical lines
7.7.5 COMMUNICATION/ Radio/ relay station		FM 21-30, TCO
7.7.6 COMMUNICATION/ Radio/ wireless station		FM 21-30, TCO
7.7.7 COMMUNICATION/ Radio/ wireless station/ dummy		FM 21-30, TCO
7.7.8 COMMUNICATION/ Radio/ wire integration station, FM		FM 21-30
7.8.1 COMMUNICATION/ Telephone/		FM 21-30

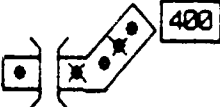
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
7.8.2 COMMUNICATION/ Telephone/ center - not headquarter		FM 21-30 not at a headquarters or headquarters echelon
7.8.3 COMMUNICATION/ Telephone/ center headquarter		FM 21-30
7.8.4 COMMUNICATION/ Telephone/ facsimile apparatus		FM 21-30
7.8.5 COMMUNICATION/ Telephone/ multi channel cable		FM 21-30
7.8.6 COMMUNICATION/ Telephone/ wire circuit		FM 21-30 numeral indicates number of pairs available
7.9.1 COMMUNICATION/ Teleprinter/ center		FM 21-30
7.9.2 COMMUNICATION/ Teleprinter/ or teletypewriter apparatus		FM 21-30
7.10.1 COMMUNICATION/ Television/		FM 21-30
7.11.1 COMMUNICATION/ ADP Central/		FM 21-30

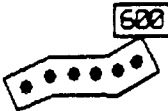
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
7.12.1 COMMUNICATION/ Elec. Navig. Aid/		TCO
7.13.1 COMMUNICATION/ Microphones/		FM 21-30
7.14.1 COMMUNICATION/ Target Designator/		NATO D-49(1980) e.g. laser, infra-red
7.15.1 COMMUNICATION/ Visual Station/		FM 21-30
8.1.1 NUCLEAR BIO CHEM/ Bio or Chem Event/		NATO D-49(1980) basic symbol
8.1.2 NUCLEAR BIO CHEM/ Bio or Chem Event/ enemy		NATO D-49(1980)
8.1.3 NUCLEAR BIO CHEM/ Bio or Chem Event/ enemy - suspected		NATO D-49(1980)
8.2.1 NUCLEAR BIO CHEM/ Contamination/ bio or chem		FM 21-30
8.2.2 NUCLEAR BIO CHEM/ Contamination/ chemical		FM 101-5-1

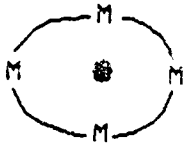
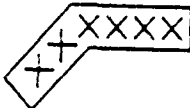
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
8.3.1 NUCLEAR BIO CHEM/ Decontamination/ area - enemy		TOS
8.4.1 NUCLEAR BIO CHEM/ Nuclear/		AF E-3A PPI
8.4.2 NUCLEAR BIO CHEM/ Nuclear/ explosion - enemy		TCO, FM 21-30 Double line on top is used if red is not available.
8.4.3 NUCLEAR BIO CHEM/ Nuclear/ enemy		NATO D-49(1980)
8.4.4 NUCLEAR BIO CHEM/ Nuclear/ enemy - suspected		NATO D-49(1980)
8.4.5 NUCLEAR BIO CHEM/ Nuclear/ enemy		CPS
8.4.6 NUCLEAR BIO CHEM/ Nuclear/ friend		FM 21-30, TCO Stem indicates position of ground zero.
8.4.7 NUCLEAR BIO CHEM/ Nuclear/ friend		NATO D-49(1980)
8.4.8 NUCLEAR BIO CHEM/ Nuclear/ friend, planned		NATO D-49(1980)

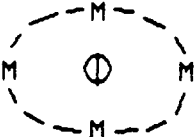
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
8.4.9 NUCLEAR BIO CHEM/ Nuclear/ fallout producing		FM 21-30, TCO
8.4.10 NUCLEAR BIO CHEM/ Nuclear/ proposed		FM 21-30, TCO
8.4.11 NUCLEAR BIO CHEM/ Nuclear/ sighting		MIFASS
8.5.1 NUCLEAR BIO CHEM/ Radioactive Area/		FM 21-30 Times of BF and EF are shown in circle.
8.6.1 NUCLEAR BIO CHEM/ Targets/ special weapons		TCO
9.1.1 OBSTACLES AND FORT/ Booby Trap/		FM 21-30, TCO
9.1.2 OBSTACLES AND FORT/ Booby Trap/ trip wire		FM 21-30, TCO, TOS
9.2.1 OBSTACLES AND FORT/ Bridge/		TOS
9.2.2 OBSTACLES AND FORT/ Bridge/ bridging		DIVRAS

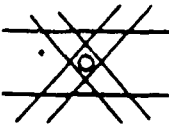
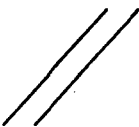
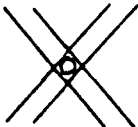
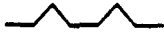
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
9.3.1 OBSTACLES AND FORT/ Demolition/ demolished area		FM 21-30
9.3.2 OBSTACLES AND FORT/ Demolition/ planned		NATO D-49(1980)
9.3.3 OBSTACLES AND FORT/ Demolition/ prepared state 1		NATO D-49(1980)
9.3.4 OBSTACLES AND FORT/ Demolition/ prepared state 2		NATO D-49(1980)
9.3.5 OBSTACLES AND FORT/ Demolition/ fired		NATO D-49(1980)
9.4.1 OBSTACLES AND FORT/ Fence/ concertina multiple		FM 21-30
9.4.2 OBSTACLES AND FORT/ Fence/ double		FM 21-30 If green, use. Else label with wire
9.4.3 OBSTACLES AND FORT/ Fence/ double apron		FM 21-30 If green, use. Else label with wire.
9.4.4 OBSTACLES AND FORT/ Fence/ high wire		FM 21-30

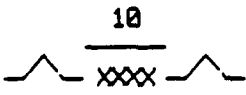
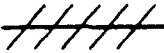
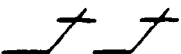
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
9.4.5 OBSTACLES AND FORT/ Fence/ low wire		FM 21-30
9.4.6 OBSTACLES AND FORT/ Fence/ single		FM 21-30 If green, use. Else label with wire.
9.5.1 OBSTACLES AND FORT/ Wire/ concertina, single		FM 21-30
9.5.2 OBSTACLES AND FORT/ Wire/ concertina, multiple		FM 21-30
9.5.3 OBSTACLES AND FORT/ Wire/ type unspecified		FM 21-30
9.6.1 OBSTACLES AND FORT/ Mines/ belt of 400 anti- tank mines with gap		FM 21-30
9.6.2 OBSTACLES AND FORT/ Mines/ belt of 400 antitank mines with lane		FM 21-30 def: lane, clear rte through obstacle, normally 8m wide.
9.5.3 OBSTACLES AND FORT/ Mines/ antipersonnel		TCO, FM 21-30
9.6.4 OBSTACLES AND FORT/ Mines/ antipersonnel, row		FM 21-30

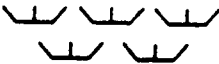
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
9.6.5 OBSTACLES AND FORT/ Mines/ connected to trip wire, antipersonnel		FM 21-30
9.6.6 OBSTACLES AND FORT/ Mines/ antipersonnel, field		NATO D-49(1980)
9.6.7 OBSTACLES AND FORT/ Mines/ antitank		FM 21-30
9.6.8 OBSTACLES AND FORT/ Mines/ antitank		TCO
9.6.9 OBSTACLES AND FORT/ Mines/ antitank, minefield		NATO D-49(1980)
9.6.10 OBSTACLES AND FORT/ Mines/ antitank, field of 600		FM 21-30
9.6.11 OBSTACLES AND FORT/ Mines/ antitank, row		FM 21-30
9.6.12 OBSTACLES AND FORT/ Mines/ antitank, booby trapped		TCO
9.6.13 OBSTACLES AND FORT/ Mines/ antitank, booby trapped		FM 21-30

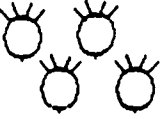
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
9.6.14 OBSTACLES AND FORT/ Mines/ antitank, double		FM 21-30
9.6.15 OBSTACLES AND FORT/ Mines/ antitank, double, booby trapped		FM 21-30
9.6.16 OBSTACLES AND FORT/ Mines/ antitank, field, unfenced		FM 21-30 boundaries
9.6.17 OBSTACLES AND FORT/ Mines/ minefield, belt		NATO D-49(1980)
9.6.18 OBSTACLES AND FORT/ Mines/ minefield		TOS
9.6.19 OBSTACLES AND FORT/ Mines/ cluster		FM 21-30 number = total no. of mines boundaries = extent of field
9.6.20 OBSTACLES AND FORT/ Mines/ mixed field		NATO D-49(1980) impassable to all
9.6.21 OBSTACLES AND FORT/ Mines/ field obstacle		DIVRAS green
9.6.22 OBSTACLES AND FORT/ Mines/ minefield, phoney		NATO D-49(1980)

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
9.6.23 OBSTACLES AND FORT/ Mines/ minefield, scattered		NATO D-49(1980)
9.6.24 OBSTACLES AND FORT/ Mines/ toxic agent		TCO
9.6.25 OBSTACLES AND FORT/ Mines/ undefined field		NATO D-49(1980)
9.6.26 OBSTACLES AND FORT/ Mines/ unknown		TCO, FM 21-30
9.6.27 OBSTACLES AND FORT/ Mines/ unknown, unfenced		FM 21-30
9.7.1 OBSTACLES AND FORT/ Obstacle/ aircraft or anti-airborne		TCO, FM 21-30
9.7.2 OBSTACLES AND FORT/ Obstacle/		DIVRAS green
9.7.3 OBSTACLES AND FORT/ Obstacle/ cratered (impassable to all vehicles)		NATO D-49(1980)
9.7.4 OBSTACLES AND FORT/ Obstacle/ cratered (impass to wh veh, not tr veh)		NATO D-49(1980)

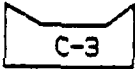
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
9.7.5 OBSTACLES AND FORT/ Obstacle/ roadblocks, craters and blown bridges		FM 21-30 center of symbol indicates the position of the block
9.7.6 OBSTACLES AND FORT/ Obstacle/ proposed		FM 21-30, TCO
9.7.7 OBSTACLES AND FORT/ Obstacle/ prepared but passable		FM 21-30, TCO
9.7.8 OBSTACLES AND FORT/ Obstacle/ completed		FM 21-30, TCO
9.7.9 OBSTACLES AND FORT/ Obstacle/ tank/bank		FM 21-30
9.7.10 OBSTACLES AND FORT/ Obstacle/ tank/ditch		FM 21-30
9.7.11 OBSTACLES AND FORT/ Obstacle/ tank/ditch covered		FM 21-30
9.7.12 OBSTACLES AND FORT/ Obstacle/ tank/ditch, wall and stakes		FM 21-30 These syms may be combined to show obst of more than 1 type
9.7.13 OBSTACLES AND FORT/ Obstacle/ tank, unspecified		FM 21-30

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
9.7.14 OBSTACLES AND FORT/ Obstacle/ underwater		FM 21-30 color: blue
9.7.15 OBSTACLES AND FORT/ Obstacle/ underwater inundation		FM 21-30 color: blue
9.7.16 OBSTACLES AND FORT/ Obstacle/ tetrahedron, dragons teeth fixed		FM 21-30
9.7.17 OBSTACLES AND FORT/ Obstacle/ tetrahedon, teeth fixed and prefab		FM 21-30
9.7.18 OBSTACLES AND FORT/ Obstacle/ tetrahedron, teeth movable		FM 21-30
9.7.19 OBSTACLES AND FORT/ Obstacle/ tetrahedron, teeth movable and prefab		FM 21-30
9.7.20 OBSTACLES AND FORT/ Obstacle/ tetrahedron, teeth and similar obst		FM 21-30 No.'s between denote no. of obstacles and no. of rows.
9.8.1 OBSTACLES AND FORT/ Tracks/ railroad		DIVRAS green
9.8.2 OBSTACLES AND FORT/ Tracks/ rails and stakes or similar obstacles		FM 21-30

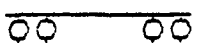
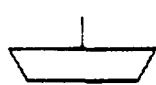
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
9.9.1 OBSTACLES AND FORT/ Vegetation/ swamp or marsh		DIVRAS green
9.9.2 OBSTACLES AND FORT/ Vegetation/		DIVRAS
9.10.1 OBSTACLES AND FORT/ Toxic Agent/	HD ▼▼▼ HD	FM 21-30 type shown on outside of symbol
9.11.1 OBSTACLES AND FORT/ Trenches/ dug-out		FM 21-30
9.11.2 OBSTACLES AND FORT/ Trenches/ fortified		FM 21-30
9.11.3 OBSTACLES AND FORT/ Trenches/ fortified area		FM 21-30
9.11.4 OBSTACLES AND FORT/ Trenches/ foxhole, weapons, emplacement		TCO
9.11.5 OBSTACLES AND FORT/ Trenches/ pillbox or casement		TCO, FM 21-30
9.11.6 OBSTACLES AND FORT/ Trenches/ surface strong point		FM 21-30 may be combined with unit size symbol

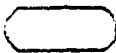
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
9.11.7 OBSTACLES AND FORT/ Trenches/ shelter surface (above ground)		FM 21-30
9.11.8 OBSTACLES AND FORT/ Trenches/ shelter underground		FM 21-30
9.11.9 OBSTACLES AND FORT/ Trenches/ any trench system		FM 21-30
9.11.10 OBSTACLES AND FORT/ Trenches/ trench with firing bays		FM 21-30
9.11.11 OBSTACLES AND FORT/ Trenches/ weapon slit, foxhole or emplacement		FM 21-30 Other symbols and numbers may be added.
9.12.1 OBSTACLES AND FORT/ Zone/ air attack		DIVRAS
9.12.2 OBSTACLES AND FORT/ Zone/ artillery fire		DIVRAS
10.1.1 VEHICLES/ Amphibious/ armoured		FM 21-30 body type
10.1.2 VEHICLES/ Amphibious/ light assault wheeled		TCO

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
10.1.3 VEHICLES/ Amphibious/ cargo		FM 21-30 body type
10.2.1 VEHICLES/ Animal/		FM 21-30 means of mobility
10.3.1 VEHICLES/ Armoured/ assault gun - light		FM 21-30, TCO
10.3.2 VEHICLES/ Armoured/ assault gun - medium		FM 21-30, TCO
10.3.3 VEHICLES/ Armoured/ assault gun - heavy		FM 21-30, TCO
10.3.4 VEHICLES/ Armoured/ personnel carrier		NATO D-49(1980)
10.3.5 VEHICLES/ Armoured/ personnel carrier light		TCO , FM 21-30
10.3.6 VEHICLES/ Armoured/ personnel carrier medium		TCO, FM 21-30
10.3.7 VEHICLES/ Armoured/ personnel carrier heavy		TCO, FM 21-30

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
10.3.8 VEHICLES/ Armoured/ reconnaissance vehicle, light		FM 21-30, TCO
10.3.9 VEHICLES/ Armoured/ reconnaissance vehicle, medium		FM 21-30, TCO
10.3.10 VEHICLES/ Armoured/ reconnaissance vehicle, heavy		FM 21-30, TCO
10.4.1 VEHICLES/ Boat/ or barge		TCO, FM 21-30 means of mobility
10.5.1 VEHICLES/ C-Cube/		BETA TEST BED
10.6.1 VEHICLES/ Cargo/ wheeled vehicle		TCO
10.7.1 VEHICLES/ Engine/ locomotive		FM 21-30 body types
10.8.1 VEHICLES/ Ferry/		TCO
10.9.1 VEHICLES/ Hovercraft/		NATO D-49(1980)

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
10.10.1 VEHICLES/ ICV/ threat vehicle 73mm		CDEC-VIDS armval
10.11.1 VEHICLES/ Landing Vehicle/ TC		TCO
10.11.12 VEHICLES/ Landing Vehicle/ TE		TCO
10.11.13 VEHICLES/ Landing Vehicle/ TP		TCO
10.11.14 VEHICLES/ Landing Vehicle/ TR		TCO
10.12.1 VEHICLES/ MICV/		NATO D-49(1980)
10.13.1 VEHICLES/ Marine/ surrogate, LCV		CDEC-VIDS armval
10.14.1 VEHICLES/ Operational/ armoured		FM 21-30 body types (see also 12.23.2 and 12.26.1)
10.14.2 VEHICLES/ Operational/ unarmoured		FM 21-30 body types

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
10.15.1 VEHICLES/ Over-snow/		FM 21-30 means of mobility
10.16.1 VEHICLES/ Personnel/ and/or cargo carrying		FM 21-30 body types see also 10.26.2
10.17.1 VEHICLES/ Railway/		FM 21-30 means of mobility
10.18.1 VEHICLES/ Reconnaissance/		BETA TEST BED
10.18.2 VEHICLES/ Reconnaissance/ threat BRDM		CDEC-VIDS armval
10.18.3 VEHICLES/ Reconnaissance/		NATO D-49(1980)
10.19.1 VEHICLES/ Ship/ Navy		NATO D-49(1980)
10.20.1 VEHICLES/ Sledge/sled/ towed		FM 21-30 means of mobility
10.21.1 VEHICLES/ Submarine/		NATO D-49(1980)

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
10.22.1 VEHICLES/ Tank/ X _M -1		CDEC-VIDS NTC
10.22.2 VEHICLES/ Tank/ light		NATO D-49(1980), FM 21-30 TCO, BETA TEST BED
10.22.3 VEHICLES/ Tank/ medium		NATO D-49(1980), FM 21-30 TCO, BETA TEST BED
10.22.4 VEHICLES/ Tank/ heavy		NATO D-49(1980), FM 21-30 TCO, BETA TEST BED
10.23.1 VEHICLES/ Tracked/ self-propelled		FM 21-30 means of mobility
10.23.2 VEHICLES/ Tracked/ or half-tracked		FM 21-30 means of mobility
10.24.1 VEHICLES/ Train/		BETA TEST BED
10.25.1 VEHICLES/ Wheeled/		FM 21-30 means of mobility
10.25.2 VEHICLES/ Wheeled/ cross country		FM 21-30 means of mobility

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
10.25.3 VEHICLES/ Wheeled/ self-propelled		FM 21-30 means of mobility
10.26.1 VEHICLES/ Unspecified/ armoured		NATO D-49(1980) see also 10.23.2
10.26.2 VEHICLES/ Unspecified/ unprotected		NATO D-49(1980) see also 10.16.1
10.27.1 VEHICLES/ Vehicles/		BETA TEST BED
10.27.2 VEHICLES/ Surface/		PLRS
11.1.1 WEAPON/ Artillery/		MIFASS target symbol
11.1.2 WEAPON/ Artillery/ light or unknown		BETA TEST BED, TOS
11.1.3 WEAPON/ Artillery/ medium		BETA TEST BED, TOS
11.1.4 WEAPON/ Artillery/ heavy		BETA TEST BED, TOS

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
11.1.5 WEAPON/ Artillery/ D/S		MIFASS immediate request
11.1.6 WEAPON/ Artillery/ G/S		MIFASS immediate request
11.1.7 WEAPON/ Artillery/		BETA TEST BED
11.1.8 WEAPON/ Artillery/		BETA TEST BED
11.1.9 WEAPON/ Artillery/		BETA TEST BED
11.1.10 WEAPON/ Artillery/ air defense		AFR 55-25 L, M or H may be placed below to specify lt, med or hv AAA.
11.1.11 WEAPON/ Artillery/ air defense		MIFASS target symbol
11.1.12 WEAPON/ Artillery/ air defense		TOS see also Gun
11.1.13 WEAPON/ Artillery/ air defense/ light or unknown		BETA TEST BED

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
11.1.14 WEAPON/ Artillery/ air defense/medium		BETA TEST BED
11.1.15 WEAPON/ Artillery/ air defense/heavy		BETA TEST BED
11.1.16 WEAPON/ Artillery/		BETA TEST BED
11.1.17 WEAPON/ Artillery/		BETA TEST BED
11.1.18 WEAPON/ Artillery/		BETA TEST BED
11.2.1 WEAPON/ Flame Thrower/ portable		FM 21-30, NATO D-49(1980) , TCO
11.2.2 WEAPON/ Flame Thrower/ vehicle mounted		FM 21-30, NATO D-49(1980) , TCO
11.3.1 WEAPON/ Gun/ howitzer, light		FM 21-30, NATO D-49(1980) , TCO, TOS
11.3.2 WEAPON/ Gun/ howitzer, medium		FM 21-30, NATO D-49(1980) , TCO, TOS

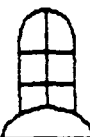
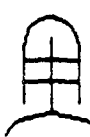
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
11.3.3 WEAPON/ Gun/ howitzer, heavy		FM 21-30, NATO D-49(1980) , TCO, TOS
11.3.4 WEAPON/ Howitzer/ light		FM 21-30, TOS, TCO
11.3.5 WEAPON/ howitzer/ medium		FM 21-30, TOS, TCO
11.3.6 WEAPON/ Howitzer/ heavy		FM 21-30, TOS, TCO
11.3.7 WEAPON/ Gun/ SP/light		TCO
11.3.8 WEAPON/ Gun/ SP/medium		TCO
11.3.9 WEAPON/ Gun/ SP/heavy		TCO
11.3.10 WEAPON/ Howitzer/ SP/122mm light		TOS, TCO
11.3.11 WEAPON/ Howitzer/ SP/155mm medium		TOS, TCO

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
11.3.12 WEAPON/ Howitzer/ SP/180mm-203mm heavy		TOS, TCO
11.3.13 WEAPON/ Gun/ air defense/light		FM 21-30, NATO D-49(1980) , TCO
11.3.14 WEAPON/ Gun/ air defense/medium		FM 21-30, NATO D-49(1980) , TCO
11.3.15 WEAPON/ Gun/ air defense/heavy		FM 21-30, TCO
11.3.16 WEAPON/ Gun/ air defense artillery/low		TOS
11.3.17 WEAPON/ Gun/ air defense artillery/md, S-60		TOS
11.3.18 WEAPON/ Gun/ air defense artillery/high		TOS
11.3.19 WEAPON/ Gun/ air defense/ machine, light		FM 21-30, TCO
11.3.20 WEAPON/ Gun/ air defense/ machine, medium		FM 21-30, TCO

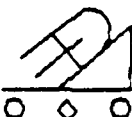
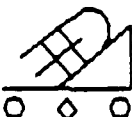
CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
11.3.21 WEAPON/ Gun/ air defense/ machine, heavy		FM 21-38, TCO
11.3.22 WEAPON/ Gun/ air defense/ SP, light		TCO
11.3.23 WEAPON/ Gun/ air defense/ SP, medium		TCO
11.3.24 WEAPON/ Gun/ air defense/ SP, heavy		TCO
11.3.25 WEAPON/ Gun/ air defense/ Soviet-ZSU		CDEC-VIDS armval test
11.3.26 WEAPON/ Gun/ air defense/ Soviet-ZSU-234		CDEC-VIDS armval test
11.3.27 WEAPON/ Gun/ air defense/ Soviet-ZSU		CDEC-VIDS armval test
11.3.28 WEAPON/ Gun/ air defense/ 234-vulcan		TOS
11.3.29 WEAPON/ Gun/ air defense/ chapparrel-vulcan		TOS

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
11.3.30 WEAPON/ Gun/ anti-tank/light		TOS
11.3.31 WEAPON/ Gun/ anti-tank/light		NATO D-49(1988), TCO
11.3.32 WEAPON/ Gun/ anti-tank/medium		NATO D-49(1988), TCO
11.3.33 WEAPON/ Gun/ anti-tank/heavy		NATO D-49(1988), TCO
11.3.34 WEAPON/ Gun/ anti-tank role/ light		FM 21-30, NATO D-49(1988) , BETA TEST BED
11.3.35 WEAPON/ Gun/ anti-tank role/ medium		FM 21-30, NATO D-49(1988) , BETA TEST BED
11.3.36 WEAPON/ Gun/ anti-tank role/ heavy		FM 21-30, NATO D-49(1988) , BETA TEST BED
11.3.37 WEAPON/ Gun/ anti-tank, SP/ light or unknown		BETA TEST BED
11.3.38 WEAPON/ Gun/ anti-tank, SP/ medium		BETA TEST BED

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
11.3.39 WEAPON/ Gun/ anti-tank, heavy		BETA TEST BED
11.4.1 WEAPON/ Missile/ light		FM 21-30, TCO, MIFASS see also Rocket
11.4.2 WEAPON/ Missile/ medium		FM 21-30, TCO see also Rocket
11.4.3 WEAPON/ Missile/ heavy		FM 21-30, TCO see also Rocket
11.4.4 WEAPON/ Missile/ air defense light		FM 21-30
11.4.5 WEAPON/ Missile/ air defense medium		FM 21-30
11.4.6 WEAPON/ Missile/ air defense heavy		FM 21-30
11.4.7 WEAPON/ Missile/ surface to air light		NATO D-49(1980)
11.4.8 WEAPON/ Missile/ surface to air medium		NATO D-49(1980)

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
11.4.9 WEAPON/ Missile/ surface to air heavy		NATO D-49(1988)
11.4.10 WEAPON/ Missile/ surface to air light		TCO
11.4.11 WEAPON/ Missile/ surface to air medium		TCO
11.4.12 WEAPON/ Missile/ surface to air heavy		TCO
11.4.13 WEAPON/ Missile/ surface to air, SP light		TCO
11.4.14 WEAPON/ Missile/ surface to air		TCO
11.4.15 WEAPON/ Missile/ surface to air		TCO
11.4.16 WEAPON/ Missile/ surface to air/ enemy		CDEC-VIDS NTC test
11.4.17 WEAPON/ Missile/ surface to air/ friendly		CDEC-VIDS NTC test

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
11.4.18 WEAPON/ Missile/ surface to air unknown		BETA TEST BED numerals placed beneath show size. No numerals mean unk.
11.4.19 WEAPON/ Missile/ surface to air light		FM 21-30, TOS
11.4.20 WEAPON/ Missile/ surface to air medium		FM 21-30, TOS
11.4.21 WEAPON/ Missile/ surface to air heavy		FM 21-30, TOS
11.4.22 WEAPON/ Missile/ surface to air chaparral		TOS
11.4.23 WEAPON/ Missile/ surface to air/ chaparral-vulcan		AFR 55-25
11.4.24 WEAPON/ Missile/ surface to air		TOS
11.4.25 WEAPON/ Missile/ surface to air enemy		AF E-3A PPI
11.4.26 WEAPON/ Missile/ surface to air friendly		AF E-3A PPI

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
11.4.27 WEAPON/ Missile/ surface to surface light or unknown		FM 21-30, BETA TEST BED, TOS , NATO D-49(1980)
11.4.28 WEAPON/ Missile/ surface to surface medium		FM 21-30, BETA TEST BED, TOS , NATO D-49(1980)
11.4.29 WEAPON/ Missile/ surface to surface heavy		FM 21-30, BETA TEST BED, TOS , NATO D-49(1980)
11.4.30 WEAPON/ Missile/ surface to surface wheeled, light		TCO
11.4.31 WEAPON/ Missile/ surface to surface wheeled, medium		TCO
11.4.32 WEAPON/ Missile/ surface to surface wheeled, heavy		TCO
11.4.33 WEAPON/ Missile/ surface to surface		TCO
11.4.34 WEAPON/ Missile/ surface to surface		TCO
11.4.35 WEAPON/ Missile/ surface to surface		TCO

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
11.4.36 WEAPON/ Missile/ anti-tank		NATO D-49(1980)
11.4.37 WEAPON/ Missile/ anti-tank light		TOS
11.4.38 WEAPON/ Missile/ anti-tank light		FM 21-30, TCO
11.4.39 WEAPON/ Missile/ anti-tank medium		FM 21-30, TCO
11.4.40 WEAPON/ Missile/ anti-tank heavy		FM 21-30, TCO
11.4.41 WEAPON/ Missile/ anti-tank SP/gd		BETA TEST BED
11.4.42 WEAPON/ Missile/ anti-tank SP, light		TCO
11.4.43 WEAPON/ Missile/ anti-tank SP, medium		TCO
11.4.44 WEAPON/ Missile/ anti-tank SP, heavy		TCO

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
11.4.45 WEAPON/ Missile/		CDEC-VIDS NTC test
11.4.46 WEAPON/ Missile/ tow, APC mounted		CDEC-VIDS NTC test
11.4.47 WEAPON/ Missile/ tow, ground		CDEC-VIDS hellfire test
11.4.48 WEAPON/ Missile/ U.S. Dragon		CDEC-VIDS armval test
11.5.1 WEAPON/ Mortar/		BETA TEST BED
11.5.2 WEAPON/ Mortar/ undifferentiated		TOS
11.5.3 WEAPON/ Mortar/		MIFASS immediate request
11.5.4 WEAPON/ Mortar/		MIFASS target
11.5.5 WEAPON/ Mortar/ light		FM 21-38, NATO D-49(1988) , TCO

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
11.5.6 WEAPON/ Mortar/ medium		FM 21-30, NATO D-49(1980) , TCO
11.5.7 WEAPON/ Mortar/ heavy		FM 21-30, NATO D-49(1980) , TCO
11.6.1 WEAPON/ Naval Gunfire/ (GSS)		TCO, MIFASS
11.6.2 WEAPON/ Naval Gunfire/ (GSS)		TCO, MIFASS
11.6.3 WEAPON/ Naval Gunfire/ unassigned ship		TCO, MIFASS
11.7.1 WEAPON/ Rifle/ recoilless, light		FM 21-30, TCO
11.7.2 WEAPON/ Rifle/ recoilless, medium		FM 21-30, TCO
11.7.3 WEAPON/ Rifle/ recoilless, heavy		FM 21-30, TCO
11.8.1 WEAPON/ Rocket/ undifferentiated		TOS

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
11.8.2 WEAPON/ Rocket/ light		FM 21-30, NATO D-49(1980) , TCO
11.8.3 WEAPON/ Rocket/ medium		FM 21-30, NATO D-49(1980) , TCO
11.8.4 WEAPON/ Rocket/ heavy		FM 21-30, NATO D-49(1980) , TCO
11.8.5 WEAPON/ Rocket/ manheld, laser guided		CDEC-VIDS NTC test
11.8.6 WEAPON/ Rocket/ light		FM 21-30, MIFASS See also Missile and 6.8.2.
11.8.7 WEAPON/ Rocket/ medium		FM 21-30, MIFASS See also Missile and 6.8.3
11.8.8 WEAPON/ Rocket/ heavy		FM 21-30, MIFASS See also Missile and 6.8.4.
11.9.1 WEAPON/ Rocket Launcher/ SP/light, tracked		TCO
11.9.2 WEAPON/ Rocket Launcher/ SP/medium, tracked		TCO

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
11.9.3 WEAPON/ Rocket Launcher/ SP/heavy, tracked		TCO
11.9.4 WEAPON/ Rocket Launcher/ SP/light, wheeled		TCO
11.9.5 WEAPON/ Rocket Launcher/ SP/medium, wheeled		TCO
11.9.6 WEAPON/ Rocket Launcher/ SP/heavy, wheeled		TCO
11.9.7 WEAPON/ Rocket Launcher/ multi-barrel		BETA TEST BED
11.9.8 WEAPON/ Rocket Launcher/ multi-barrel, artillery, light		FM 21-30, NATO D-49(1980) , TOS
11.9.9 WEAPON/ Rocket Launcher/ multi-barrel, artillery, medium		FM 21-30, NATO D-49(1980) , TOS
11.9.10 WEAPON/ Rocket Launcher/ multi-barrel, artillery, heavy		FM 21-30, NATO D-49(1980) , TOS
11.10.1 WEAPON/ Weapon/		MIFASS

PLATE 2: SECOND LEVEL MENU SELECTIONS
(SCAN SELECTED)

ACCESS TO SYMBOLOGY CATALOGUE

Menu Functions

- * scan - list catalogue information and display symbols.
- * insert - insert names, symbols, or primitives into catalogue.
- * delete - delete items from catalogue.
- * find - find a selected symbol or primitive in the catalogue.
- * autoprint - automatically generates hard copy of all symbols.

>>>>> HAPPY SYMBOLLING <<<<<

Select Catalogue Operation By Number

1 scan	3 delete	5 autoprint
2 insert	4 find	EXIT

Enter number and press CONFIRM: 1_

PLATE 3: THIRD LEVEL MENU SELECTIONS
(SOURCES SELECTED)

SCANNING OPERATIONS

Indexing Lists of Names and Selection of Symbol Display Criteria -

- * sources - display symbols by symbology source e.g. FM 21-30
NATO D-49(1980), BETA, etc.
- * categories - display symbols by category e.g. weapons, aviation,
tactical unit, installation, etc.
- * concepts - display symbols by concept e.g. helicopter, armor,
radar, air defense, etc.

Displaying all Items in the Automated Catalogue

- * symbols - display all 1000+ symbols in the automated
catalogue.
- * flagged symbols - display of all symbols in the catalogue that are
marked as highly discriminable.
- * primitives - display all primitives available for constructing
symbols.

Select Scanning Operation by Number and Press CONFIRM.

INDEX LIST OF:	1 sources	2 categories	3 concepts
DISPLAY ALL THE:	4 symbols	5 flagged symbols	6 primitives

Scan: 1_

PLATE 4: MENU SELECTION--SCAN BY
SYMBOL SOURCE 4 (FM 21-30)

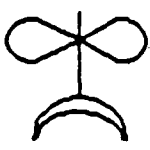
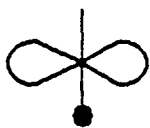
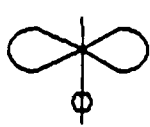
SYMBOLLOGY SOURCES

- 1 DIVRAS
- 2 NATO D-49(1988)
- 3 TCO
- 4 FM 21-38
- 5 TOS
- 6 OPS
- 7 BETA TEST BED
- 8 MIFASS
- 9 TAOC-85
- 10 TACC
- 11 ITAOC
- 12 AF E-3A PPI
- 13 AF 487L/485 L T
- 14 PLRS
- 15 AFR 55-25
- 16 FM 101-5-1
- 17 CDEC-VIDS

END OF LIST

SCAN: To display catalogue source, enter its number from
the list above and press CONFIRM, else press EXIT.
Enter source number : 4_

SCAN BY FM 21-30

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
2.2.1 AVIATION/ Antisubmarine/ Aircraft(AF)		FM 21-30
2.4.2 AVIATION/ Aviation/		FM 21-30, NATO D-49(1980) , TCO
2.4.3 AVIATION/ Aviation/ Army		FM 21-30, DIVRAS DI = 3.83
2.5.1 AVIATION/ Bomber/ Air Force		FM 21-30 this symbol represents trans- port aviation in NATO D-49
2.7.1 AVIATION/ Drone Aircraft/ Air Force		FM 21-30

MORE symbols.....press CONFIRM or EXIT

PLATE 3: THIRD LEVEL MENU SELECTIONS
(CATEGORIES SELECTED)

SCANNING OPERATIONS

Indexing Lists of Names and Selection of Symbol Display Criteria -

- * sources - display symbols by symbology source e.g. FM 21-30
NATO D-49(1980), BETA, etc.
- * categories - display symbols by category e.g. weapons, aviation,
tactical unit, installation, etc.
- * concepts - display symbols by concept e.g. helicopter, armor,
radar, air defense, etc.

Displaying all Items in the Automated Catalogue

- * symbols - display all 1000+ symbols in the automated
catalogue.
- * flagged symbols - display of all symbols in the catalogue that are
marked as highly discriminable.
- * primitives - display all primitives available for constructing
symbols.

Select Scanning Operation by Number and Press CONFIRM.

INDEX LIST OF:	1 sources	2 categories	3 concepts
DISPLAY ALL THE:	4 symbols	5 flagged symbols	6 primitives

Scan: 2_

PLATE 4: MENU SELECTION--SCAN BY SYMBOL
CATEGORY 5 (TACTICAL UNIT)

SYMBOL CATEGORIES

- 1 ACTIVITY
- 2 AVIATION
- 3 COMMUNICATION
- 4 VEHICLES
- 5 TACTICAL UNIT
- 6 MEASLE
- 7 COMBAT SERVICE SUPPO
- 8 NUCLEAR BIO CHEM
- 9 OBSTACLES AND FORT
- 10 INSTALLATIONS
- 11 WEAPON

END OF LIST

SCAN: To display catalogue category, enter its number from
the list above and press CONFIRM, else press EXIT.
Enter category number : 5_

SCAN BY TACTICAL UNIT

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
1.1.1 TACTICAL UNIT/ Air Cavalry/		FM 21-30 DI = 1.68
1.1.2 TACTICAL UNIT/ Air Cavalry/		NATO D-49(1980) DI = 3.53
1.1.3 TACTICAL UNIT/ Air Cavalry/		TCO
1.2.1 TACTICAL UNIT/ Air Defense/ (AD)		NATO D-49(1980), TOS , BETA TEST BED
1.2.2 TACTICAL UNIT/ Air Defense/ artillery		FM 21-30, BETA TEST BED DI = 1.63

MORE symbols.....press CONFIRM or EXIT

PLATE 3: THIRD LEVEL MENU SELECTIONS
(CONCEPTS SELECTED)

SCANNING OPERATIONS

Indexing Lists of Names and Selection of Symbol Display Criteria

- * sources - display symbols by symbology source e.g. FM 21-30
NATO D-49(1980), BETA, etc.
- * categories - display symbols by category e.g. weapons, aviation,
tactical unit, installation, etc.
- * concepts - display symbols by concept e.g. helicopter, armor,
radar, air defense, etc.

Displaying all Items in the Automated Catalogue

- * symbols - display all 1000+ symbols in the automated
catalogue.
- * flagged symbols - display of all symbols in the catalogue that are
marked as highly discriminable.
- * primitives - display all primitives available for constructing
symbols.

Select Scanning Operation by Number and Press CONFIRM.

INDEX LIST OF:	1 sources	2 categories	3 concepts
DISPLAY ALL THE:	4 symbols	5 flagged symbols	6 primitives

Scan: 3_

PLATE 4: FOURTH LEVEL MENU SELECTION: SCAN BY
CONCEPT 18 (HELICOPTER)

SYMBOL CONCEPTS

- 1 Action
- 2 Bridging
- 3 Ferrying
- 4 Movement
- 5 Destroyed
- 6 Phoney
- 7 Propoganda
- 8 Responsibility
- 9 Snorkeling
- 10 Aerial
- 11 Antisubmarine
- 12 Aviation
- 13 Bomber
- 14 Close Air Support
- 15 Drone Aircraft
- 16 Fighter
- 17 Fixed Wing Aircraft
- 18 Helicopter
- 19 Marine
- 20 High Performance
- 21 Medevac
- 22 Rescue

SYMBOL CONCEPTS

- 23 Seaplane
- 24 Transport
- 25 Emit
- 26 Message Center
- 27 Signal
- 28 Nuclear
- 29 Formation
- 30 Reconnaissance
- 31 Jamming
- 32 Radar
- 33 Radio
- 34 Telephone
- 35 Teleprinter
- 36 Television
- 37 ADP Central
- 38 Elec. Navig. Aid
- 39 Microphones
- 40 Target Designator
- 41 Visual Station
- 42 Amphibious
- 43 Animal
- 44 Armoured

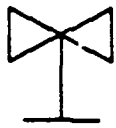
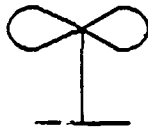
SYMBOL CONCEPTS

- 45 Boat
- 46 C-Cube
- 47 Cargo
- 48 Engine
- 49 Ferry
- 50 Air Cavalry
- 51 Hovercraft
- 52 Operational
- 53 Communication
- 54 Over-snow
- 55 Personnel
- 56 Missile
- 57 Railway
- 58 Shooter
- 59 Sledge/sled
- 60 Vehicle
- 61 Ship
- 62 Airfield
- 63 Submarine
- 64 Tracked
- 65 Landing Site
- 66 Train

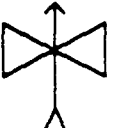
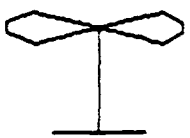
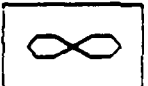
MORE.... Press CONFIRM
for next page

SCAN: To display catalogue concept, enter its number from
the list above and press CONFIRM, else press EXIT.
Enter concept number : 18_

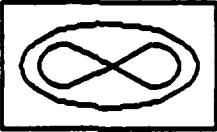
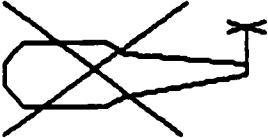
SCAN BY HELICOPTER

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
2.11.1 AVIATION/ Helicopter/		BETA TEST BED note Army helicopter symbol- NATO
2.11.2 AVIATION/ Helicopter/		BETA TEST BED symbol represents helos or helo lz
2.11.3 AVIATION/ Helicopter/		MIFASS Air Track
2.11.4 AVIATION/ Helicopter/		PLRS rotary wing or low performance aircraft
2.11.5 AVIATION/ Helicopter/ Air Force		FM 21-30, NATO D-49(1980) , TCO

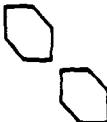
MORE symbols.....press CONFIRM or EXIT

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
2.11.6 AVIATION/ Helicopter/ Army		FM 21-30 DI = 4.33
2.11.7 AVIATION/ Helicopter/ Army		NATO D-49(1980) DI = 5.68
2.11.8 AVIATION/ Helicopter/ antitank		NATO D-49(1980)
2.11.9 AVIATION/ Helicopter/ attack		TOS DI = 5.68
2.11.10 AVIATION/ Helicopter/ attack		BETA TEST BED also represents combat aviation DI = 1.63

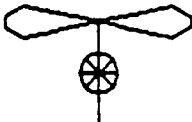
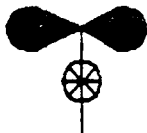
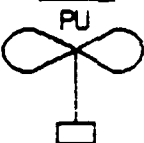
MORE symbols.....press CONFIRM or EXIT

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
2.11.12 AVIATION/ Helicopter/ attack		TCO
2.11.14 AVIATION/ Helicopter/ enemy		TOS sighted enemy helicopter
2.11.15 AVIATION/ Helicopter/ air track enemy		TAOC-BS unknown helo/transport-enemy or friend
2.11.16 AVIATION/ Helicopter/ enemy		TAOC-BS Air Track symbol for hostile, general, helo/transport
2.11.17 AVIATION/ Helicopter/ enemy		TACC, ITAOC Air Track symbol for unknown, assumed enemy helo

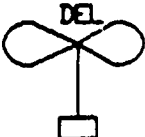
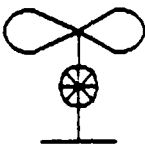
MORE symbols.....press CONFIRM or EXIT

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
2.11.18 AVIATION/ Helicopter/ enemy		MIFAGS Air Target Symbol
2.11.19 AVIATION/ Helicopter/ friend		AF E-3A PPI Air Track for unpaired friendly helo
2.11.20 AVIATION/ Helicopter/ friend		AF E-3A PPI Air Track for paired friendly helo
2.11.21 AVIATION/ Helicopter/ friend		AF 407L/485 L T Air Track for unpaired friendly helo
2.11.22 AVIATION/ Helicopter/ friend		AF 407L/485 L T Air Track for paired friendly helo

MORE symbols.....press CONFIRM or EXIT

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
2.11.23 AVIATION/ Helicopter/ friend		TACC, ITAOC, TAOC-65 Air Track for friendly helo, general, no statement
2.11.24 AVIATION/ Helicopter/ friend		TACC, ITAOC Air Track for unknown, as- sumed friendly helo/transport
2.11.26 AVIATION/ Helicopter/ heavy		TOS see also transport helo symbol
2.11.27 AVIATION/ Helicopter/ heavy army		FM 21-30 see also transport helo symbol
2.11.29 AVIATION/ Helicopter/ pickup		MIFASS

MORE symbols.....press CONFIRM or EXIT

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
2.11.30 AVIATION/ Helicopter/ delivery		MIFASS
2.11.31 AVIATION/ Helicopter/ transport Air Force		FM 21-30
5.2.1 MEASLE/ Helicopter/		TCO
2.11.11 AVIATION/ Helicopter/ attack		CDEC-VIDS
2.11.28 AVIATION/ Helicopter/ OH-58		CDEC-VIDS

MORE symbols.....press CONFIRM or EXIT

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
2.11.13 AVIATION/ Helicopter/ combat		NATO D-49(1988)

Thats all.....press CONFIRM or EXIT to continue _

PLATE 3: THIRD LEVEL MENU SELECTIONS
(FLAGGED SYMBOLS SELECTED)

SCANNING OPERATIONS

Indexing Lists of Names and Selection of Symbol Display Criteria

- * sources - display symbols by symbology source e.g. FM 21-30
NATO D-49(1980), BETA, etc.
- * categories - display symbols by category e.g. weapons, aviation,
tactical unit, installation, etc.
- * concepts - display symbols by concept e.g. helicopter, armor,
radar, air defense, etc.

Displaying all Items in the Automated Catalogue

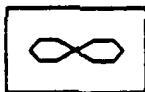
- * symbols - display all 1000+ symbols in the automated
catalogue.
- * flagged symbols - display of all symbols in the catalogue that are
marked as highly discriminable.
- * primitives - display all primitives available for constructing
symbols.

Select Scanning Operation by Number and Press CONFIRM.

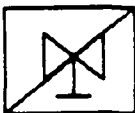
INDEX LIST OF:	1 sources	2 categories	3 concepts
DISPLAY ALL THE:	4 symbols	5 flagged symbols	6 primitives

Scan: 5_

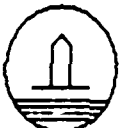
PRINTOUT OF FLAGGED SYMBOLS

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
2.4.4 AVIATION/ Aviation/ Army		NATO D-49(1980) DI = 5.18
2.4.5 AVIATION/ Aviation/ Army		TOS DI = 5.18
2.11.7 AVIATION/ Helicopter/ Army		NATO D-49(1980) DI = 5.68
2.11.9 AVIATION/ Helicopter/ attack		TOS DI = 5.68
2.11.10 AVIATION/ Helicopter/ attack		BETA TEST BED also represents combat aviation DI = 1.63

MORE symbols.....press CONFIRM or EXIT

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
1.1.2 TACTICAL UNIT/ Air Cavalry/		NATO D-49(1980) DI = 3.53
1.2.3 TACTICAL UNIT/ Air Defense/ artillery		BETA TEST BED ADA unknown, or Rgt or Btry. DI = 2.13
4.1.1 INSTALLATIONS/ Ammunition/		FM 21-30, TCO DI = 4.38
1.6.2 TACTICAL UNIT/ Airborne/		BETA TEST BED symbol same as NATO D-49 parachute symbol. DI = 1.63
4.1.10 INSTALLATIONS/ Ammunition/ aviation Air Force		FM 21-30, TCO DI = 5.78

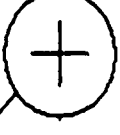
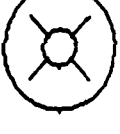
MORE symbols.....press CONFIRM or EXIT

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
1.9.2 TACTICAL UNIT/ Antitank/		CPS DI = 4.28
4.1.12 INSTALLATIONS/ Ammunition/ aviation Army		FM 21-30 DI = 5.78
1.10.2 TACTICAL UNIT/ Armour/ enemy		CPS DI = 5.18
4.1.16 INSTALLATIONS/ Ammunition/ small arms		FM 21-30, TCO DI = 5.78
4.1.20 INSTALLATIONS/ Ammunition/ storage		TOS DI = 5.73

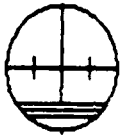
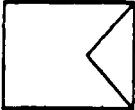
MORE symbols.....press CONFIRM or EXIT

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
1.14.1 TACTICAL UNIT/ CBR/		FM 21-30 DI = 2.63
1.19.3 TACTICAL UNIT/ Command/ post		OPS DI = 5.18
1.21.4 TACTICAL UNIT/ Engineer/ bridging		FM 21-30, BETA TEST BED DI = 2.13
1.27.8 TACTICAL UNIT/ Missile/ SSM		BETA TEST BED DI = 2.13
1.31.1 TACTICAL UNIT/ Movers/		BETA TEST BED DI = 5.18

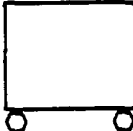
MORE symbols.....press CONFIRM or EXIT

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
4.8.3 INSTALLATIONS/ Fuel/		TOS DI = 5.73
4.8.4 INSTALLATIONS/ Fuel/ aviation Air Force		FM 21-30, TCO DI = 6.68
4.8.7 INSTALLATIONS/ Fuel/ aviation Army		NATO D-49(1980) DI = 6.63
4.11.1 INSTALLATIONS/ Medical/		NATO D-49(1980) DI = 5.23
4.18.2 INSTALLATIONS/ Ordnance/		NATO D-49(1980) DI = 6.18

MORE symbols.....press CONFIRM or EXIT

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
4.11.4 INSTALLATIONS/ Medical Supply/		TOS DI = 5.73
3.8.1 COMBAT SER. SUPPORT/ Logistics Unit/		NATO D-49(1980) unspecific or multirole DI = 1.63
3.11.1 COMBAT SER. SUPPORT/ Medical/		FM 21-30, NATO D-49(1980) , TOS, BETA TEST BED DI = 1.63
3.11.2 COMBAT SER. SUPPORT/ Medical/		NATO D-49(1980) specific to Turkey DI = 1.63
3.18.1 COMBAT SER. SUPPORT/ Support/		CPS DI = 5.18

MORE symbols.....press CONFIRM or EXIT

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
3.18.7 COMBAT SER. SUPPORT/ Support/ corps		FM 21-30 DI = 4.78
3.21.2 COMBAT SER. SUPPORT/ Supply/		NATO D-49(1980) note symbol 3.22.1 DI = 1.63
3.21.3 COMBAT SER. SUPPORT/ Supply/		TOS DI = 1.63
3.22.2 COMBAT SER. SUPPORT/ Trains/		FM 21-30 DI = 2.13

Thats all.....press CONFIRM or EXIT to continue _

⋮

PLATE 3: THIRD LEVEL MENU SELECTIONS
(PRIMITIVES SELECTED)

SCANNING OPERATIONS

Indexing Lists of Names and Selection of Symbol Display Criteria

- * sources - display symbols by symbology source e.g. FM 21-30
NATO D-49(1980), BETA, etc.
- * categories - display symbols by category e.g. weapons, aviation,
tactical unit, installation, etc.
- * concepts - display symbols by concept e.g. helicopter, armor,
radar, air defense, etc.

Displaying all Items in the Automated Catalogue

- * symbols - display all 1000+ symbols in the automated
catalogue.
- * flagged symbols - display of all symbols in the catalogue that are
marked as highly discriminable.
- * primitives - display all primitives available for constructing
symbols.

Select Scanning Operation by Number and Press CONFIRM.

INDEX LIST OF:	1 sources	2 categories	3 concepts
DISPLAY ALL THE:	4 symbols	5 flagged symbols	6 primitives

Scan: 6_

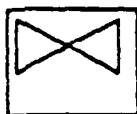
PRINTOUT OF ALL PRIMITIVES

PRIMITIVES

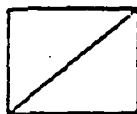
armour



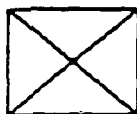
lisa



dashbox



crossbox



arcbox



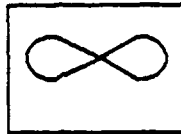
MORE primitives.....press CONFIRM or EXIT

PRIMITIVES

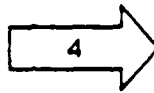
2wing



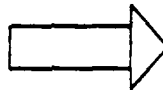
VIA



activityarrow4



arrow



bio



MORE primitives.....press CONFIRM or EXIT

-

PRIMITIVES

bow



fish



hex



larA



larB



MORE primitives.....press CONFIRM or EXIT

-

PRIMITIVES

larC

larD

larE

larF

larG

C
D
E
E
E
G

MORE primitives.....press CONFIRM or EXIT

PRIMITIVES

larH

larJ

larK

larL

larM

H
J
K
L
M

MORE primitives.....press CONFIRM or EXIT

-

PRIMITIVES

larN

larO

larP

larQ

larR

N
O
P
Q
R

MORE primitives.....press CONFIRM or EXIT

PRIMITIVES

larS

larT

larU

larV

larW

S
T
U
V
W

MORE primitives.....press CONFIRM or EXIT

-

:

PRIMITIVES

larX



larY



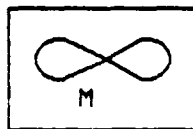
larZ



larbox



marine



MORE primitives.....press CONFIRM or EXIT

PRIMITIVES

medA

A

medB

B

medC

C

medD

D

medE

E

MORE primitives.....press CONFIRM or EXIT

PRIMITIVES

medZ



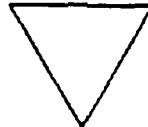
medbox



stdbox



triangle



wheel



MORE primitives.....press CONFIRM or EXIT

-

:

PRIMITIVES

wing



radar



sqig



squig



dia



MORE primitives.....press CONFIRM or EXIT

PRIMITIVES

wingbox



halfwingbox



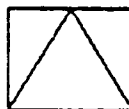
dotbox



cylbox



tribox



MORE primitives.....press CONFIRM or EXIT

-

PLATE 2: SECOND LEVEL MENU SELECTIONS
(INSERT SELECTED)

ACCESS TO SYMBOLOGY CATALOGUE

Menu Functions

- * scan - list catalogue information and display symbols.
- * insert - insert names, symbols, or primitives into catalogue.
- * delete - delete items from catalogue.
- * find - find a selected symbol or primitive in the catalogue.
- * autoprint - automatically generates hard copy of all symbols.

>>>>> HAPPY SYMBOLLING <<<<<

Select Catalogue Operation By Number

1 scan	3 delete	5 autoprint
2 insert	4 find	EXIT

Enter number and press CONFIRM: 2_

PLATE 3: INSERTING NEW SYMBOL

Select Catalogue Operation By Number

1 symbol	3 source	5 primitive
2 concept	4 category	EXIT

Insert: 1_

DESIGNATING CODE NUMBER FOR NEW SYMBOL

CATEGORY/CONCEPT/

SYMBOL

SOURCE AND REMARKS

INSERT: Symbol number in format of n.n.n: 5.3.1_

PLATE 3: INSERTING NEW CONCEPT

1 symbol
2 concept

3 source
4 category

5 primitive

Insert: 2_

INSERTING NEW CONCEPT

SYMBOL CONCEPTS

- 1 Action
- 2 Bridging
- 3 Ferrying
- 4 Movement
- 5 Destroyed
- 6 Phoney
- 7 Propoganda
- 8 Responsibility
- 9 Snorkeling
- 10 Aerial
- 11 Antisubmarine
- 12 Aviation
- 13 Bomber
- 14 Close Air Support
- 15 Drone Aircraft
- 16 Fighter
- 17 Fixed Wing Aircraft
- 18 Helicopter
- 19 Marine
- 20 High Performance
- 21 Medevac
- 22 Rescue

SYMBOL CONCEPTS

- 23 Seaplane
- 24 Transport
- 25 Emit
- 26 Message Center
- 27 Signal
- 28 Nuclear
- 29 Formation
- 30 Reconnaissance
- 31 Jamming
- 32 Radar
- 33 Radio
- 34 Telephone
- 35 Teleprinter
- 36 Television
- 37 ADP Central
- 38 Elec. Navig. Aid
- 39 Microphones
- 40 Target Designator
- 41 Visual Station
- 42 Amphibious
- 43 Animal
- 44 Armoured

SYMBOL CONCEPTS

- 45 Boat
- 46 C-Cube
- 47 Cargo
- 48 Engine
- 49 Ferry
- 50 Air Cavalry
- 51 Hovercraft
- 52 Operational
- 53 Communication
- 54 Over-snow
- 55 Personnel
- 56 Missile
- 57 Railway
- 58 Shooter
- 59 Sledge/sled
- 60 Vehicle
- 61 Ship
- 62 Airfield
- 63 Submarine
- 64 Tracked
- 65 Landing Site
- 66 Train

MORE.... Press CONFIRM
for next page

INSERT: To insert a new concept not in the list above type
its name and press CONFIRM, else press EXIT.
Enter concept name : _

INSERTING NEW CONCEPT

SYMBOL CONCEPT

67 Wheeled
68 Unspecified
69 Landing Zone
70 Vehicles
71 Surface
72 Seaplane Station
73 Landing Vehicle
74 MICV
75 Air Defense
76 Ammunition
77 Air Mobile
78 Air Transportable
79 Air Naval Ground
80 Airborne
81 Antiaircraft
82 Antitank
83 Armour
84 Army Security Agcy
85 Artillery
86 Collecting Point
87 FA
88 Construction

SYMBOL CONCEPT

89 CBR
90 Chemical
91 Combined Arms Army
92 CEWI
93 C2 Element
94 Decontamination
95 Command
96 Electronic
97 Electronic Warfare
98 Engineer
99 Food
100 Infantry
101 Fuel
102 Irregular Forces
103 Maneuver Unit
104 Marines
105 Brigade
106 Military
107 Mortar Fire Unit
108 Motor Rifle
109 Mountain
110 Movers

SYMBOL CONCEPT

111 Navy
112 Ordnance
113 Parachute
114 Reinforcement
115 Shooters
116 Special Forces
117 Bio or Chem Event
118 Contamination
119 Radioactive Area
120 Radioactive
121 Targets
122 Booby Trap
123 Bridge
124 Demolition
125 Fence
126 Data Processing Unit
127 Dental
128 Maintenance
129 Major End Items
130 Medical
131 Hospital
132 Medical Supply

MORE.... Press CONFIRM
for next page

INSERT: To insert a new concept not in the list above type
its name and press CONFIRM, else press EXIT.
Enter concept name :

PLATE 3: INSERTING NEW SYMBOL SOURCE

1 symbol
2 concept

3 source
4 category

5 primitive

Insert: 3_

DESIGNATING NEW SYMBOL SOURCE FOR INSERTION

SYMBOLGY SOURCES

- 1 DIVRAS
- 2 NATO D-49(1980)
- 3 TOO
- 4 FM 21-30
- 5 TOS
- 6 OPS
- 7 BETA TEST BED
- 8 MIFASS
- 9 TAOC-85
- 10 TAOC
- 11 ITAOC
- 12 AF E-3A PPI
- 13 AF 487L/485 L T
- 14 PLRS
- 15 AFR 55-25
- 16 FM 101-5-1
- 17 CDEC-VIDS

END OF LIST

INSERT: To insert a new source not in the list above type
its name and press CONFIRM, else press EXIT.
Enter source name : _

PLATE 3: INSERTING NEW CATEGORY

1 symbol
2 concept

3 source
4 category

5 primitive

Insert: 4_

DESIGNATING NEW SYMBOL CATEGORY FOR INSERTION

SYMBOL CATEGORIES

- 1 ACTIVITY
- 2 AVIATION
- 3 COMMUNICATION
- 4 VEHICLES
- 5 TACTICAL UNIT
- 6 MEASLE
- 7 COMBAT SERVICE SUPPO
- 8 NUCLEAR BIO CHEM
- 9 OBSTACLES AND FORT
- 10 INSTALLATIONS
- 11 WEAPON

END OF LIST

INSERT: To insert a new category not in the list above type
its name and press CONFIRM, else press EXIT.
Enter category name : _

PLATE 3: INSERTING NEW PRIMITIVE

1 symbol
2 concept

3 source
4 category

5 primitive

Insert: 5_

INSERTING NEW PRIMITIVE INTO TACSYM (USER WOULD DRAW PRIMITIVE
VIA KEYBOARD CONTROLS)

PRIMITIVES

INSERT: Primitive name: (_____)

PLATE 2: SECOND LEVEL MENU SELECTIONS
(DELETE SELECTED)

ACCESS TO SYMBOLOGY CATALOGUE

Menu Functions

- * scan - list catalogue information and display symbols.
- * insert - insert names, symbols, or primitives into catalogue.
- * delete - delete items from catalogue.
- * find - find a selected symbol or primitive in the catalogue.
- * autoprint - automatically generates hard copy of all symbols.

>>>>> HAPPY SYMBOLLING <<<<<<

Select Catalogue Operation By Number

1 scan	3 delete	5 autoprint
2 insert	4 find	EXIT

Enter number and press CONFIRM: 3_

MENU OPTIONS FOR DELETION OF ITEMS

Select Catalogue Operation By Number

1 symbol	3 source	5 primitive
2 concept	4 category	EXIT

Delete: _

PLATE 3: SYMBOL DELETION INSTRUCTIONS

DELETE: Symbol number in the format n.n.n: _

PLATE 3: SYMBOL CONCEPT DELETION SELECTION

Select Catalogue Operation By Number

1 symbol	3 source	5 primitive
2 concept	4 category	

Delete: 2_

SYMBOL CONCEPTS

1 Action
2 Bridging
3 Ferrying
4 Movement
5 Destroyed
6 Phoney
7 Propoganda
8 Responsibility
9 Snorkeling
10 Aerial
11 Antisubmarine
12 Aviation
13 Bomber
14 Close Air Support
15 Drone Aircraft
16 Fighter
17 Fixed Wing Aircraft
18 Helicopter
19 Marine
20 High Performance
21 Medevac
22 Rescue

SYMBOL CONCEPTS

23 Seaplane
24 Transport
25 Emit
26 Message Center
27 Signal
28 Nuclear
29 Formation
30 Reconnaissance
31 Jamming
32 Radar
33 Radio
34 Telephone
35 Teleprinter
36 Television
37 ADP Central
38 Elec. Navig. Aid
39 Microphones
40 Target Designator
41 Visual Station
42 Amphibious
43 Animal
44 Armoured

SYMBOL CONCEPTS

45 Boat
46 C-Cube
47 Cargo
48 Engine
49 Ferry
50 Air Cavalry
51 Hovercraft
52 Operational
53 Communication
54 Over-snow
55 Personnel
56 Missile
57 Railway
58 Shooter
59 Sledge/sled
60 Vehicle
61 Ship
62 Airfield
63 Submarine
64 Tracked
65 Landing Site
66 Train

MORE.... Press CONFIRM
for next page

DELETE: To delete a concept from the list above enter its number
and press CONFIRM, else press EXIT.

Enter concept number :_

SYMBOL CONCEPTS

67 Wheeled
 68 Unspecified
 69 Landing Zone
 70 Vehicles
 71 Surface
 72 Seaplane Station
 73 Landing Vehicle
 74 MICV
 75 Air Defense
 76 Ammunition
 77 Air Mobile
 78 Air Transportable
 79 Air Naval Ground
 80 Airborne
 81 Antiaircraft
 82 Antitank
 83 Armour
 84 Army Security Agcy
 85 Artillery
 86 Collecting Point
 87 FA
 88 Construction

SYMBOL CONCEPTS

89 CBR
 90 Chemical
 91 Combined Arms Army
 92 CEWI
 93 C2 Element
 94 Decontamination
 95 Command
 96 Electronic
 97 Electronic Warfare
 98 Engineer
 99 Food
 100 Infantry
 101 Fuel
 102 Irregular Forces
 103 Maneuver Unit
 104 Marines
 105 Brigade
 106 Military
 107 Mortar Fire Unit
 108 Motor Rifle
 109 Mountain
 110 Movers

SYMBOL CONCEPTS

111 Navy
 112 Ordnance
 113 Parachute
 114 Reinforcement
 115 Shooters
 116 Special Forces
 117 Bio or Chem Event
 118 Contamination
 119 Radioactive Area
 120 Radioactive
 121 Targets
 122 Booby Trap
 123 Bridge
 124 Demolition
 125 Fence
 126 Data Processing Unit
 127 Dental
 128 Maintenance
 129 Major End Items
 130 Medical
 131 Hospital
 132 Medical Supply

MORE.... Press CONFIRM
 for next page

DELETE: To delete a concept from the list above enter its number
 and press CONFIRM, else press EXIT.
 Enter concept number :

-

SYMBOL CONCEPTS

133 Mines
134 Missile Supply
135 Multi-Class
136 Multirole
137 Nuclear Storage
138 Personal Demand
139 Repair Parts
140 Wire
141 Obstacle
142 Subsistence
143 Traffic Control
144 Unknown Logistic
145 Water
146 Force
147 Headquarters
148 Landing
149 Logistics Unit
150 Marine Amphibious
151 Aero Medical
152 Motor Transport
153 Petroleum Supply
154 Shore Party Team

SYMBOL CONCEPTS

155 Support
156 Rear Area Operations
157 Service
158 Trains
159 Ground Attack
160 ICV
161 Tank
162 Clothing
163 Plane
164 Flame Thrower
165 Gun
166 Mortar
167 Naval Gunfire
168 Rifle
169 Rocket
170 Rocket Launcher
171 Weapon
172 Smoke Generator
173 Tracks
174 Vegetation
175 Toxic Agent
176 Trenches

SYMBOL CONCEPTS

177 Zone
178 Commo Site

END OF LIST

and press CONFIRM, else press EXIT.
Enter concept number :

-

:

PLATE 3: SYMBOL SOURCE DELETION SELECTION

1 symbol
2 concept

3 source
4 category

5 primitive

Delete: 3_

SOURCE DELETION INSTRUCTIONS

SYMBOLGY SOURCES

- 1 DIVRAS
- 2 NATO D-49(1988)
- 3 TOO
- 4 FM 21-38
- 5 TOS
- 6 CPS
- 7 BETA TEST BED
- 8 MIFASS
- 9 TAOC-BS
- 10 TACC
- 11 ITAOC
- 12 AF E-3A PPI
- 13 AF 487L/485 L T
- 14 PLRS
- 15 AFR 55-25
- 16 FM 101-5-1
- 17 CDEC-VIDS

END OF LIST

DELETE: To delete a source from the list above enter its number
and press CONFIRM, else press EXIT.
Enter source number :_

PLATE 3: SYMBOL CATEGORY DELETION SELECTION

1 symbol
2 concept

3 source
4 category

5 primitive

Delete: 4_

CATEGORY DELETION INSTRUCTIONS

SYMBOL CATEGORIES

- 1 ACTIVITY
- 2 AVIATION
- 3 COMMUNICATION
- 4 VEHICLES
- 5 TACTICAL UNIT
- 6 MISSILE
- 7 COMBAT SERVICE SUPPO
- 8 NUCLEAR BIO CHEM
- 9 OBSTACLES AND FORT
- 10 INSTALLATIONS
- 11 WEAPON

END OF LIST

DELETE: To delete a category from the list above enter its number
and press CONFIRM, else press EXIT.
Enter category number :_

PLATE 3: PRIMITIVE DELETION SELECTION

1 symbol
2 concept

3 source
4 category

5 primitive

Delete: 5_

:

PRIMITIVE DELETION INSTRUCTIONS

GRAPHIC PRIMITIVES

1 2wing
2 YMA
3 activityarrow4
4 arrow
5 blo
6 bow
7 fish
8 hex
9 larA
10 larB
11 larC
12 larD
13 larE
14 larF
15 larG
16 larH
17 larJ
18 larK
19 larL
20 larM
21 larN
22 larO

GRAPHIC PRIMITIVES

23 larP
24 larQ
25 larR
26 larS
27 larT
28 larU
29 larV
30 larW
31 larX
32 larY
33 larZ
34 larbox
35 marine
36 medA
37 medB
38 medC
39 medD
40 medE
41 medF
42 medG
43 medH
44 medI

GRAPHIC PRIMITIVES

45 medJ
46 medK
47 medL
48 medM
49 medN
50 medO
51 medP
52 medQ
53 medR
54 medS
55 medT
56 medU
57 medV
58 medW
59 medX
60 medY
61 medZ
62 medbox
63 stdbox
64 triangle
65 wheel
66 wing

MORE.... Press CONFIRM
for next page

DELETE: To delete a primitive from the list above enter its number
and press CONFIRM, else press EXIT.

Enter primitive number :_

PLATE 2: SECOND LEVEL MENU SELECTIONS
(FIND SELECTED)

ACCESS TO SYBOLLOGY CATALOGUE

Menu Functions

- * scan - list catalogue information and display symbols.
- * insert - insert names, symbols, or primitives into catalogue.
- * delete - delete items from catalogue.
- * find - find a selected symbol or primitive in the catalogue.
- * autoprint - automatically generates hard copy of all symbols.

>>>>> HAPPY SYBOLLING <<<<<

Select Catalogue Operation By Number

1 scan	3 delete	5 autoprint
2 insert	4 find	EXIT

Enter number and press CONFIRM: 4_

PLATE 3: MENU FOR FINDING SYMBOL OR PRIMITIVE
BY DESIGNATING CODE NUMBER

Select Catalogue Operation By Number

1 symbol EXIT
2 primitive

Find: _

FIND SYMBOL SELECTION

CATEGORY/CONCEPT/

SYMBOL

SOURCE AND REMARKS

FIND: Symbol number in format of n.n.n: 10.22.1_

SYMBOL FOUND BY CODE NUMBER

CATEGORY/CONCEPT/	SYMBOL	SOURCE AND REMARKS
10.22.1 VEHICLES/ Tank/ XM-1		CDEC-VIDS NTC

1 symbol EXIT
2 primitive

Find: _

FIND PRIMITIVE SELECTION

1 symbol
2 primitive

Find: 2_

:

INSTRUCTIONS FOR FIND PRIMITIVE SELECTION

GRAPHIC PRIMITIVES

1 2wing
2 VMA
3 activityarrow4
4 arrow
5 blo
6 bow
7 fish
8 hex
9 larA
10 larB
11 larC
12 larD
13 larE
14 larF
15 larG
16 larH
17 larJ
18 larK
19 larL
20 larM
21 larN
22 larO

GRAPHIC PRIMITIVES

23 larP
24 larQ
25 larR
26 larS
27 larT
28 larU
29 larV
30 larW
31 larX
32 larY
33 larZ
34 larbox
35 marine
36 medA
37 medB
38 medC
39 medD
40 medE
41 medF
42 medG
43 medH
44 medI

GRAPHIC PRIMITIVES

45 medJ
46 medK
47 medL
48 medM
49 medN
50 medO
51 medP
52 medQ
53 medR
54 medS
55 medT
56 medU
57 medV
58 medW
59 medX
60 medY
61 medZ
62 medbox
63 stdbox
64 triangle
65 wheel
66 wing

MORE.... Press CONFIRM
for next page

FIND: To display a primitive from the list above enter its number
and press CONFIRM, else press EXIT.
Enter primitive number : _

GRAPHIC PRIMITIVES

67 radar
68 sqig
69 squig
70 dia
71 armour
72 lisa
73 dashbox
74 crossbox
75 arcbox
76 wingbox
77 halfwingbox
78 dotbox
79 cylbox
80 tribox
81 instal
82 cir
83 fil
84 flag
85 germ
86 cone
87 mushroom
88 linegerm

GRAPHIC PRIMITIVES

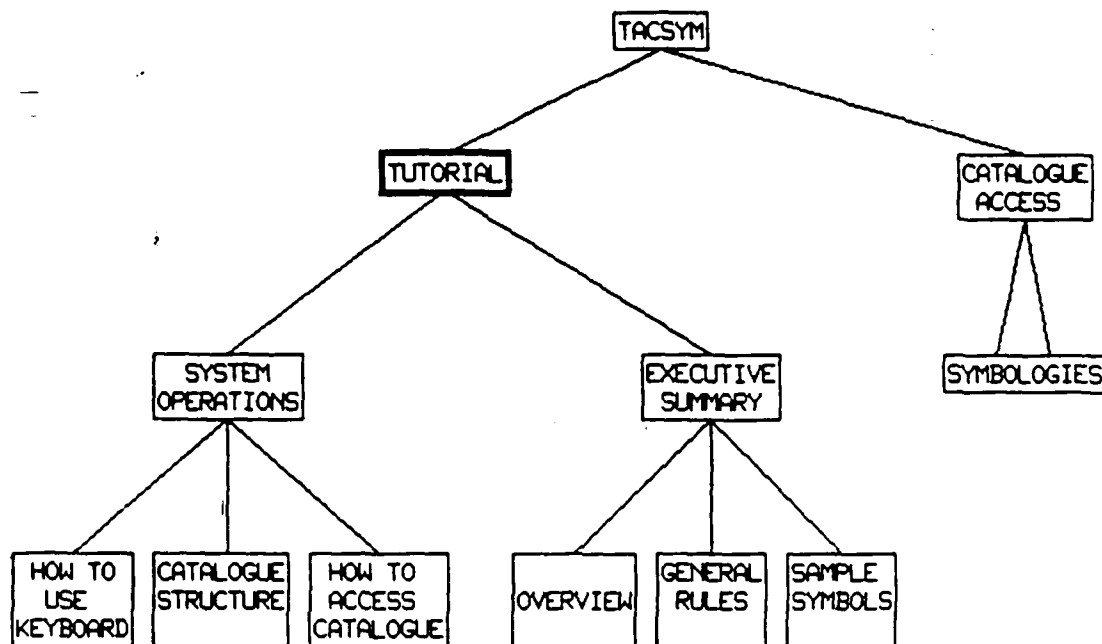
89 dashmushroom
90 420
91 421
92 dashcone
93 demo
94 XX
95 loops
96 oil
97 tree
98 swamp
99 motor
100 mgap
101 force
102 larI
103 zoo
104 sur
105 tank
106 mine
107 robo
108 fan
109 fight

END OF LIST

FIND: To display a primitive from the list above enter its number
and press CONFIRM, else press EXIT.
Enter primitive number :

-

PLATE 1: FIRST LEVEL MENU SELECTIONS
(TUTORIAL SELECTED)



* SYSTEM OPERATIONS

* EXECUTIVE SUMMARY

 * select...use UP and DOWN arrows to choose topic, *
 * press CONFIRM to make selection or EXIT *

PLATE 2: EXAMINING EXECUTIVE SUMMARY MENU SELECTIONS WITHIN
TUTORIAL (OVERVIEW SELECTED)

EXECUTIVE SUMMARY

REF IEL

Description of the symbology program.

GENERAL RULES

Rules for defining symbols in the different
symbology systems.

SAMPLE SYMBOLS

Embellished symbols from various symbology sources.

```
*****  
* select...use UP and DOWN arrows to choose topic, *  
*      press CONFIRM to make selection or EXIT *  
*****
```

PLATE 3: EXAMINING MENU SELECTIONS FOR OVERVIEW WITHIN EXECUTIVE SUMMARY
(SUMMARY OF SYMBOLOGY PROGRAM SELECTED)

OVERVIEW

SUMMARY OF SYMBOLOGY PROGRAM

Summary of the three year research and development
program on battlefield symbology.

RESULTS OF SYMBOLOGY SURVEY

Results of symbology survey.

SYMBOL DISCRIMINABILITY

Description of symbol discriminability.

TACSYM SYSTEM DEVELOPMENT

Description of the automated catalogue software system.

```
*****
* select...use UP and DOWN arrows to choose topic, *
*      press CONFIRM to make selection or EXIT      *
*****
```

PLATE 4: EXAMINING SUMMARY OF SYMBOLOGY
PROGRAM WITHIN OVERVIEW

Summary of Symbology Program

The ARMY RESEARCH INSTITUTE initiated a three year research and development program to provide symbology developers with recommended guidelines for updating symbology to meet today's and tomorrow's user needs. The first year effort focused on establishing a framework for the development of improved military symbology (CICCONE, SAMET, and CHANNON, 1979), and on the demonstration of a task-based approach for determining map information requirements (LANDEE, SAMET, and FOLEY, 1979). The second year of work was concerned with extending the symbology development framework by systematically enlarging and refining the related information requirements database (LANDEE, SAMET, and GELLMAN, 1980), and by establishing and demonstrating an evaluation model and methodology for empirically testing new approaches to improving the symbolic representation of battlefield information (SAMET, GEISELMAN, and LANDEE, 1980). The third year of the research effort focused on three distinct tasks.

- (1) The creation of an automated tactical symbology catalog containing a collection of existing symbologies from numerous sources (e.g. NATO, FM 21-30, etc.).
- (2) The survey of the user community to identify relevant tactical concepts that do not have standard graphic portrayal method.
- (3) The development of human-factor criterion to resolve redundancies and conflicts between existing and proposed symbols.

```
*****
* EXIT....
*
*****
```

PLATE 3: SELECTING RESULTS OF SYMBOLOGY SURVEY FOR EXAMINATION

OVERVIEW

SUMMARY OF SYMBOLOGY PROGRAM

Summary of the three year research and development
program on battlefield symbology.

RESULTS OF SYMBOLOGY SURVEY

Results of symbology survey.

SYMBOL DISCRIMINABILITY

Description of symbol discriminability.

TACSYM SYSTEM DEVELOPMENT

Description of the automated catalogue software system.

```
*****
* select...use UP and DOWN arrows to choose topic,      *
*               press CONFIRM to make selection or EXIT  *
*****
```

PLATE 4: EXAMINING SURVEY RESULTS

Results of Symbology Survey

The results of the user survey may be found in a separate volume entitled MILITARY SYMBOLOGY: A USER COMMUNITY SURVEY (LANDEE, GEISELMAN, and CLARK). The primary purpose of the survey effort concerned the identification of important military concepts that do not have a standard method of graphic portrayal in FM 21-30. The major concepts identified included status, capability, availability, threa, and logistics. Additional concepts included activities, cililian affairs, communications, enemy formations, range fans , and enemy 2nd echelons. These concepts were frequently displayed by the users surveyed, the techniques used, however, were personalized, not standardized.

Within the tactical symbology catalog few of the concepts identified by the survey may be found, From the sources used to compile this catalog, many of the concepts missing in FM 21-30 are still missing.

```
*****
* EXIT....                                     *
*                                                                 *
*****
```

PLATE 3: SELECTING RESULTS OF SYMBOL DISCRIMINABILITY
STUDY FOR EXAMINATION

OVERVIEW

SUMMARY OF SYMBOLOGY PROGRAM

Summary of the three year research and development
program on battlefield symbology.

RESULTS OF SYMBOLOGY SURVEY

Results of symbology survey.

SYMBOL DISCRIMINABILITY

Description of symbol discriminability.

TACSYM SYSTEM DEVELOPMENT

Description of the automated catalogue software system.

```
*****  
* select...use UP and DOWN arrows to choose topic, *  
*          press CONFIRM to make selection or EXIT *  
*****  
_
```

PLATE 4: EXAMINING DISCRIMINABILITY STUDY RESULTS

Symbol Discriminability

A document of the work compiled toward resolving symbol conflicts appears as a separate volume entitled, "PERCEPTUAL DISCRIMINABILITY AS A BASIS FOR SELECTING MILITARY SYMBOLS" (GEISELMAN, LANDEE, and CHRISTEN, 1981). It is desirable for new symbols to, if possible, have different characteristics from those that are already in standard use so as to avoid confusion among symbols in a display. An easy to use discriminability index formula was developed which could be used to derive a figure of merit for alternative new symbols in terms of their potential discriminability from the existing symbols. It was hypothesized that the higher the discriminability index number for the symbol the faster that the symbol would be located in a display. Several such predictions made on the basis of the discriminability index formula were confirmed in an experiment, lending validity to the index equation.

There were numerous instances found in the catalog where more than one symbol existed to portray a specific concept. The discriminability index formula was applied in many cases to resolve the conflict. The results of the application may be found in the remarks section (DI =). The larger the DI number indicates that the symbol is more discriminable than the alternative, in terms of the fm 21-30 database. The formula was not applied, however to air track or iconic symbols, since although they would be highly discriminable, they are unlikely additions to the FM 21-30 symbology. It should also be noted that perceptual discriminability is only one important criteria to be considered when selecting an optimal symbol set.

* EXIT.... *
* *

PLATE 3: SELECTING TACSYM DEVELOPMENT DESCRIPTION
SUMMARY FOR EXAMINATION

OVERVIEW

SUMMARY OF SYMBOLOGY PROGRAM

Summary of the three year research and development
program on battlefield symbology.

RESULTS OF SYMBOLOGY SURVEY

Results of symbology survey.

SYMBOL DISCRIMINABILITY

Description of symbol discriminability.

TACSYM SYSTEM DEVELOPMENT

Description of the automated catalogue software system.

```
*****
* select...use UP and DOWN arrows to choose topic, *
*           press CONFIRM to make selection or EXIT *
*****
```

PLATE 4: EXAMINING TACSYM DEVELOPMENT SUMMARY

TACSYM SYSTEM DEVELOPMENT

Development of the Automated Catalogue software system is described in a separate document (JOHNSTON and PECK, 1982) entitled "TACSYM Software Specifications and Design Document".

In addition, the Draft Document generated by the TACSYM program and published into report form (JOHNSTON, LANDEE and PECK, 1981) is also available.

```
*****
* EXIT....*
*                                     *
*****
```

PLATE 2: SELECTING GENERAL RULES SECTION OF EXECUTIVE
SUMMARY FOR EXAMINATION

EXECUTIVE SUMMARY

OVERVIEW

Description of the symbology program.

GENERAL RULES

Rules for defining symbols in the different
symbology systems.

SAMPLE SYMBOLS

Embellished symbols from various symbology sources.

```
*****
* select...use UP and DOWN arrows to choose topic, *
*          press CONFIRM to make selection or EXIT *
*****
```

PLATE 3: EXAMINING MENU SELECTIONS FOR GENERAL RULES OF SYMBOLOGY
(NATO D-49 SELECTED FOR UNIT SYMBOLS)

GENERAL RULES OF SYMBOLOGY

1. SYMBOL DEVELOPMENT

1.1 Developing the Unit Symbol

- 1.1.1 Development Rules as Specified by NATO D-49 (1980 DRAFT)
- 1.1.2 Development Rules as Specified by FM 21-30
- 1.1.3 Development Rules as Specified by BETA Test Bed

1.2 Developing the Weapon Symbol

- 1.2.1 Development Rules as Specified by NATO D-40 (1980 Draft)
- 1.2.2 Development Rules as Specified by FM 21-30
- 1.2.3 Development Rules as Specified by BETA Test Bed

1.3 Developing the Post and Installation Symbol

- 1.3.1 Development Rules as Specified by NATO D-49 (1980 Draft)
- 1.3.2 Development Rules as Specified by FM 21-30
- 1.3.3 Development Rules as Specified by BETA Test Bed

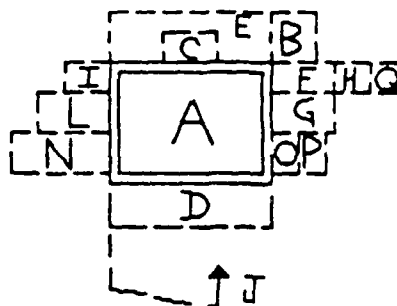
2. USE OF COLOR

```
*****
* select...use UP and DOWN arrows to choose topic, *
*           press CONFIRM to make selection or EXIT *
*****
```

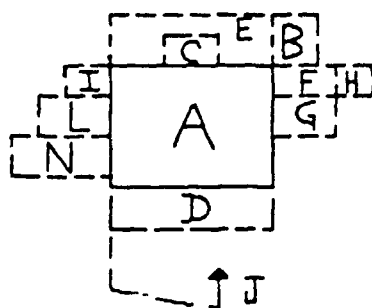
PLATE 4: NATO D-49 RULES--UNIT SYMBOLS

1.1.1 DEVELOPMENT RULES AS SPECIFIED BY NATO D-49 (DRAFT, 1988)

Enemy Forces



Friendly Forces



```

* more.... press CONFIRM to continue; other alternatives are:
*      EXIT
*

```

FIELD	DESCRIPTION
A	Role descriptor for units, posts and installations or equipment symbol.
B	Unconfirmed query mark associated with field A.
C	Size descriptor.
D	Headquarters representation.
E	Special descriptor (e.g., temporary grouping).
F	Unique designation - unique number or abbreviated title of unit or installation (e.g., B/ILF - B Company of 1LF).
G	Higher formations - unique number, abbreviated title of formation.
H	Reinforced or detached - associated with field F (+, -, ±).
I	Date-time group - representing the latest time at which information about the unit was available.
J	Direction of movement arrow - always positioned at the location point of the symbol. Rotates through a minimum of 8 cardinal points.

```

*****
* more.... press CONFIRM to continue; other alternatives are: *
*      PREVIOUS PAGE, REPEAT or EXIT                          *
*****

```

FIELD	DESCRIPTION
K	Free text - additional specialist or identifying information regarding installations only.
L	Name or type of equipments (or query mark).
M	Quantity of equipment.
N	Additional information - up to 8 alphanumeric characters followed by a space and DTG of 7 alphanumeric characters (e.g., NMB 03103020).

Fields for Enemy Forces Only

FIELD	DESCRIPTION
O	Evaluation rating - covers both source and information gradings and consists of one alphabetic and one numeric character.
P	Combat Effectiveness - may be displayed as CE followed by space and 2 figures (Combat Effectiveness) or PC followed by space and 2 figures (Percentage).
Q	Addressing number - to be assigned when the identification of the symbol is incomplete or doubtful.

```

*****
* more.... press CONFIRM to continue; other alternatives are: *
*      PREVIOUS PAGE, REPEAT or EXIT                          *
*****

```

FIELD

DESCRIPTION

R

Signature equipment - if the equipment is a signature
equipment indicate by !

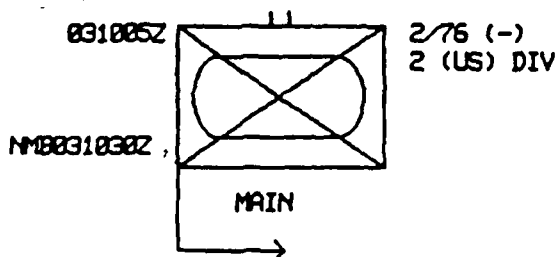
S

Indicate enemy equipment by EN.

* more.... press CONFIRM to continue; other alternatives are: *
* PREVIOUS PAGE, REPEAT or EXIT *

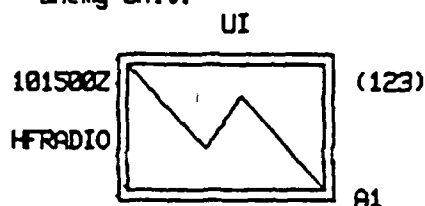
EXAMPLES

Friendly Unit:



Main Headquarters of the 2nd Battalion of the 76 Infantry Brigade (mechanized) less a significant detachment. The unit is under command of 2 (US) DIV. The information was valid at 1005Z on the 3rd of the month. The HQ is about to move NorthEast, no move before (NMB) 031030Z.

Enemy Unit:



Enemy signal unit of unidentified size given an addressing number of 123. Unit equipped with HF radio, information graded A1, seen at 101500Z.

 * end press PREVIOUS PAGE, REPEAT or EXIT *
 *

PLATE 3: EXAMINING MENU SELECTIONS FOR GENERAL RULES OF SYMBOLOGY
(FM 21-30 SELECTED) FOR UNIT SYMBOLS

GENERAL RULES OF SYMBOLOGY

1. SYMBOL DEVELOPMENT

1.1 Developing the Unit Symbol

- 1.1.1 Development Rules as Specified by NATO D-49 (1980 DRAFT)
- 1.1.2** Development Rules as Specified by FM 21-30
- 1.1.3 Development Rules as Specified by BETA Test Bed

1.2 Developing the Weapon Symbol

- 1.2.1 Development Rules as Specified by NATO D-40 (1980 Draft)
- 1.2.2 Development Rules as Specified by FM 21-30
- 1.2.3 Development Rules as Specified by BETA Test Bed

1.3 Developing the Post and Installation Symbol

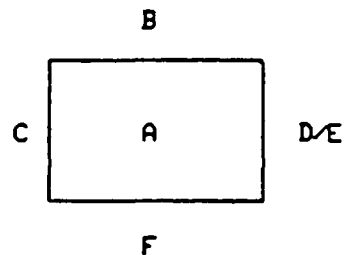
- 1.3.1 Development Rules as Specified by NATO D-49 (1980 Draft)
- 1.3.2 Development Rules as Specified by FM 21-30
- 1.3.3 Development Rules as Specified by BETA Test Bed

2. USE OF COLOR

```
*****
* select...use UP and DOWN arrows to choose topic, *
* press CONFIRM to make selection or EXIT *
*****
```

PLATE 4: FM 21-30 RULES FOR UNIT SYMBOLS

1.1.2 DEVELOPMENT RULES AS SPECIFIED BY FM 21-30



UNIT FIELD DESCRIPTIONS

FIELD	DESCRIPTION
A	Branch or duty performed (functional) symbol or abbreviation of unit. An over-all headquarters is indicated by placing the abbreviation (short title) inside the basic symbol.
B	Size symbol of unit designed. Size symbol are not shown for echelons higher than army group.
C	Unit's own designation.
D/E	Higher echelons of command separated by a slash (except CARS units). For those units identified under the Combat Army Regimental Systems (CARS), both the

```

*****
* more.... press CONFIRM to continue; other alternatives are:      *
*      EXIT                                                         *
*****

```

FIELD

DESCRIPTION

D/E (cont)

traditional regimental numbers are shown. To avoid confusion with different levels of command, both numerical designation of the CARS unit are always written together and separated by a dash rather than a slash.

If there is a break in the chain of command, the appropriate size symbol is placed over the first echelon shown after the break (see example 1). To indicate the branch of one or more echelons in the chain of command (when different from the designated unit), the appropriate branch or duty performed symbol is placed under the particular echelon of command (see example 2). Regardless of the proceeding, however, the size symbol may be placed over and the branch or duty performed symbol may be placed under any echelon in the chain of command if they are believed needed for more positive identification.

If the represented unit obtains its designation from the unit to which it is assigned, and if no size symbol is applicable, the designation and size symbol of the unit to which it is assigned are placed on the right of the basic symbol. The branch or duty performed symbol is placed under the command echelon when required. (see example 3).

If the represented unit has a designation but no size symbol the designation is shown on the left

```

*****
* more.... press CONFIRM to continue; other alternatives are: *
*          PREVIOUS PAGE, REPEAT or EXIT                       *
*****

```

FIELD

DESCRIPTION

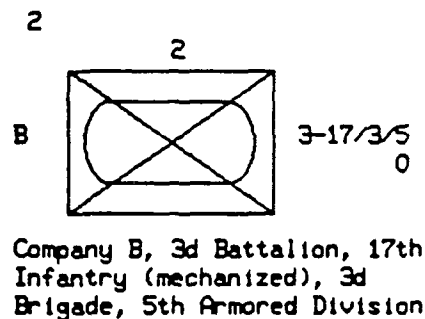
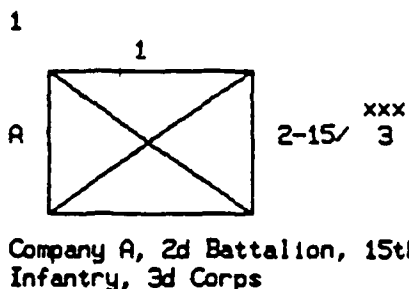
D/E (cont)

of the basic symbol and the designation of the next echelon of command is placed on the right. (see example 4).

F

Further details, such as the kind of weapon, type of unit, and means of mobility, may be shown by placing the appropriate symbol or abbreviation under the basic symbol. (see Example 5).

EXAMPLES

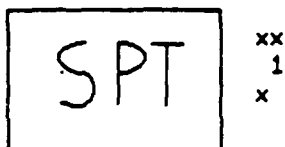


* more.... press CONFIRM to continue; other alternatives are: *

* PREVIOUS PAGE, REPEAT or EXIT *

EXAMPLES (cont)

3



Support Command, 1st
Infantry Division

4



310th Field Army Support
Command (FASCOM), 15 Army

5



◇ VUL

1st Platoon, Battery A, (Vulcan SP),
2d Battalion, 15th Artillery, 9th
Infantry Division

* end press PREVIOUS PAGE, REPEAT or EXIT *
* *

PLATE 3: EXAMINING MENU SELECTIONS FOR GENERAL RULES OF SYMBOLOGY
(BETA RULES SELECTED) FOR UNIT SYMBOLS

DRAFT CATALOG

GENERAL RULES OF SYMBOLOGY

1. SYMBOL DEVELOPMENT

1.1 Developing the Unit Symbol

- 1.1.1 Development Rules as Specified by NATO D-49 (1980 DRAFT)
- 1.1.2 Development Rules as Specified by FM 21-30
- 1.1.3** Development Rules as Specified by BETA Test Bed

1.2 Developing the Weapon Symbol

- 1.2.1 Development Rules as Specified by NATO D-40 (1980 Draft)
- 1.2.2 Development Rules as Specified by FM 21-30
- 1.2.3 Development Rules as Specified by BETA Test Bed

1.3 Developing the Post and Installation Symbol

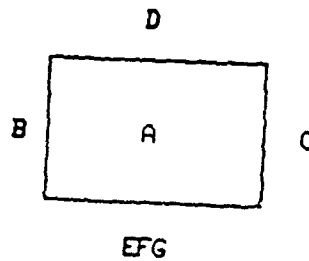
- 1.3.1 Development Rules as Specified by NATO D-49 (1980 Draft)
- 1.3.2 Development Rules as Specified by FM 21-30
- 1.3.3 Development Rules as Specified by BETA Test Bed

2. USE OF COLOR

```
*****  
* select...use UP and DOWN arrows to choose topic, *  
*          press CONFIRM to make selection or EXIT *  
*****
```

PLATE 4: BETA RULES FOR UNIT SYMBOLS

1.1.3 DEVELOPMENT RULES AS SPECIFIED BY BETA TEST BED



FIELD	DESCRIPTION
A	Unit function
B	Unit identification
C	Parent unit identification
D	Echelon of unit
E	Location accuracy (U = Untargetable, T = Targetable)
F	Time of observation (hour of day)

```

*****
* more.... press CONFIRM to continue; other alternatives are: *
*      EXIT      *
*****
  
```

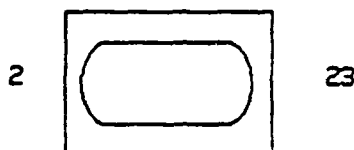
FIELD

DESCRIPTION

G

Sensor source (P=Photo; S=Sigint; H = Humint;
A = All; PS = Photo + Sigint; SH = Sigint +
Humint; HP = Humint + Photo)

EXAMPLE



U13S

2nd Battalion, 23d Armor, untargetable, last
sighted at 13 hours by Sigint.

```

*****
* end .... press PREVIOUS PAGE, REPEAT or EXIT *
* *
*****

```

PLATE 3: EXAMINING MENU SELECTIONS FOR GENERAL RULES OF SYMBOLOGY
(NATO D-49 SELECTED, WEAPONS)

GENERAL RULES OF SYMBOLOGY

1. SYMBOL DEVELOPMENT

1.1 Developing the Unit Symbol

- 1.1.1 Development Rules as Specified by NATO D-49 (1980 DRAFT)
- 1.1.2 Development Rules as Specified by FM 21-30
- 1.1.3 Development Rules as Specified by BETA Test Bed

1.2 Developing the Weapon Symbol

- 1.2.1 Development Rules as Specified by NATO D-40 (1980 Draft)
- 1.2.2 Development Rules as Specified by FM 21-30
- 1.2.3 Development Rules as Specified by BETA Test Bed

1.3 Developing the Post and Installation Symbol

- 1.3.1 Development Rules as Specified by NATO D-49 (1980 Draft)
- 1.3.2 Development Rules as Specified by FM 21-30
- 1.3.3 Development Rules as Specified by BETA Test Bed

2. USE OF COLOR

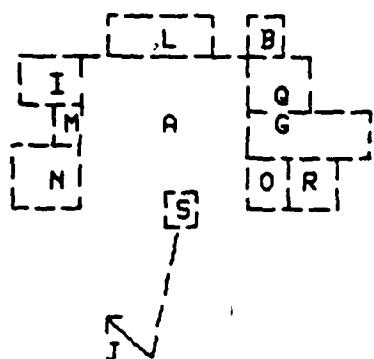
```
*****
* select...use UP and DOWN arrows to choose topic, *
* press CONFIRM to make selection or EXIT *
*****
```

PLATE 4: D-49 RULES FOR WEAPON SYMBOLS

1.2.1 Developmental Rules for Weapon Symbols as Specified by NATO D-49 (1988 Draft)

WEAPON FIELD DESCRIPTION

Enemy Forces



- A. Role Descriptor
- B. Unconfirmed Query Mark associated with Field A
- G. Higher Formations
- I. Date Time Group
- J. Direction of Movement Arrow
- L. Name or Type of Equipment
- M. Quantity of Equipment
- N. Addition Information
- O. Evaluation Rating
- R. Signature Equipment (indicate by exclamation point)
- S. Enemy

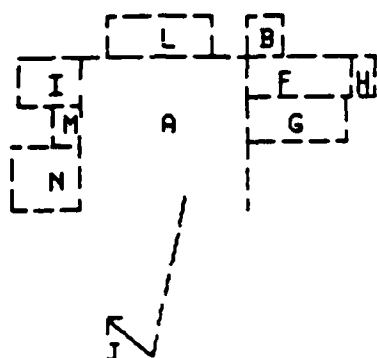
Example:

231600Z T72 (246)
12? EN B1
24624b

Enemy T72 tanks, of an unidentified unit, seen at 231600 Z at GR24624b addressing number 246 allotted. Quantity 12 is unconfirmed and information grading is B1.

* more.... press CONFIRM to continue; other alternatives are: *
* EXIT *

Friendly Forces



- A. Role Descriptor
- B. Unconfirmed Query Mark associated with Field A
- F. Unique Designation
- G. Higher Formations
- H. Reinforced
- I. Date-Time Group
- J. Direction of Movement Arrow
- L. Name or Type of Equipment
- M. Quantity of Equipment
- N. Additional Information

Example:

81mm
070800Z 4 1 | A | 3SG

4 x 81mm medium mortars belonging to 1 platoon, A company of the 3rd Battalion Scots Guards. Information valid at 0800Z on the 7th of the Month.

* more.... press CONFIRM to continue; other alternatives are: *
* PREVIOUS PAGE, REPEAT or EXIT *

Basic Weapon Symbols

- a. Base of shaft indicates location of symbol
- b. To show size the procedure is as follows:

- 1. Select appropriate symbol

example:



Basic Surface to Surface Tactile Missile

- 2. One (for medium) or two (for heavy) horizontal bars are added to denote approximate size. If no horizontal bar is shown, the light category is represented.

examples:



Light



Medium



Heavy

* more.... press CONFIRM to continue; other alternatives are: *
* PREVIOUS PAGE, REPEAT or EXIT *

- c. If the weapon has a high trajectory , a 0 is placed at the base of the shaft.

example:



Heavy Mortar Weapon

- d. If the weapon is a flat trajectory, anti-tank weapon, a ^ is placed at the base of the shaft.

example:



Light Anti-Tank Gun

- e. If the weapon is primarily for air defense, a ^ is placed at the base of the shaft.



example:



Light Surface to Air Missile

* more.... press CONFIRM to continue; other alternatives are: *
* PREVIOUS PAGE, REPEAT or EXIT *

f. If the weapon is a rocket projector or launcher, a 
is placed at the head of the shaft.

example:



Heavy Anti-Tank Rocket Launcher

```
*****
* end .... press PREVIOUS PAGE, REPEAT or EXIT *
*                                                                 *
*****
```

:

PLATE 3: EXAMINING MENU SELECTIONS FOR GENERAL RULES OF SYMBOLOGY
(FM 21-30 SELECTED, WEAPONS)

GENERAL RULES OF SYMBOLOGY

1. SYMBOL DEVELOPMENT

1.1 Developing the Unit Symbol

- 1.1.1 Development Rules as Specified by NATO D-49 (1980 DRAFT)
- 1.1.2 Development Rules as Specified by FM 21-30
- 1.1.3 Development Rules as Specified by BETA Test Bed

1.2 Developing the Weapon Symbol

- 1.2.1 Development Rules as Specified by NATO D-48 (1980 Draft)
- 1.2.2** Development Rules as Specified by FM 21-30
- 1.2.3 Development Rules as Specified by BETA Test Bed

1.3 Developing the Post and Installation Symbol

- 1.3.1 Development Rules as Specified by NATO D-49 (1980 Draft)
- 1.3.2 Development Rules as Specified by FM 21-30
- 1.3.3 Development Rules as Specified by BETA Test Bed

2. USE OF COLOR

```
*****
* select...use UP and DOWN arrows to choose topic, *
*      press CONFIRM to make selection or EXIT      *
*****
```

PLATE 4: FM 21-30, WEAPONS RULES

1.2.2 Developmental Rules for Weapon Symbols as Specified by FM 21-30

WEAPON FIELD DESCRIPTION

F A D
 B
 C
 E

A = Role Descriptor
 B = Location of
 C = Type of Trajectory
 D = Size (alternate method)
 E = Means of Locomotion
 F = Amount of Weapons in a group

Basic Weapon Symbols

- a. Base of shaft indicates location of symbol
- b. To show size the procedure is as follows:

1. Select appropriate symbol

examples: ↑ |||
 Basic Infantry Basic Artillery
 Weapon Weapon

```

*****
* more.... press CONFIRM to continue; other alternatives are: *
*      EXIT      *
*****
  
```

2. One (for medium) or two (for heavy) horizontal bars are added to denote approximate size. If no horizontal bar is shown, the light category is represented.

examples:  
 Light Automatic Medium Artillery
 Weapon Gun

- c. If a weapon has a high trajectory, a 0 is placed at the base of the shaft.

example: 
 Medium Mortar

- d. If the weapon is a flat trajectory, anti-tank weapon, a ^ is placed at the base of the shaft.

example: 
 Light Antitank Gun

 * more.... press CONFIRM to continue; other alternatives are: *
 * PREVIOUS PAGE, REPEAT or EXIT *

- e. If the weapon is primarily for air defense, a  is placed at the base of the shaft.

example:



A heavy anti-aircraft gun

- f. If the weapon is a rocket projector or launcher, a  is placed at the head of the shaft.

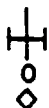
example:



Light Artillery Rocket Launcher

- g. If a weapon is also a tracked, self propelled vehicle, a  is placed below the weapon symbol.

example:



A Tracked self-propelled medium howitzer

* more.... press CONFIRM to continue; other alternatives are: *
* PREVIOUS PAGE, REPEAT or EXIT *

Grouping of Weapons. Groupings of weapons or multiple barrels may be indicated by writing the number of weapons to the left of the symbol.

examples:  4
Four medium mortars

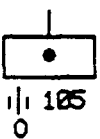
 4
Four light anti-aircraft guns or one four-barrel light anti-aircraft gun

Alternate Method of Size Indication. Another method of indicating the size of a weapon is to write the caliber of the weapon to the right of

examples:  81
81mm Mortar

 105
105mm Howitzer

Combining Equipment and Unit Symbol. If it is desired to indicate the principle weapon or piece of equipment with which a military unit is equipped, the appropriate symbol is placed directly under the unit symbol (other additional information is also placed under the unit symbol, when desired).

examples: 
Field Artillery Battery with 105mm Howitzers

* end press PREVIOUS PAGE, REPEAT or EXIT *
* *

PLATE 3: EXAMINING MENU SELECTIONS FOR GENERAL RULES OF SYMBOLOGY
(BETA RULES SELECTED, WEAPONS)

GENERAL RULES OF SYMBOLOGY

1. SYMBOL DEVELOPMENT

1.1 Developing the Unit Symbol

- 1.1.1 Development Rules as Specified by NATO D-49 (1980 DRAFT)
- 1.1.2 Development Rules as Specified by FM 21-30
- 1.1.3 Development Rules as Specified by BETA Test Bed

1.2 Developing the Weapon Symbol

- 1.2.1 Development Rules as Specified by NATO D-40 (1980 Draft)
- 1.2.2 Development Rules as Specified by FM 21-30
- 1.2.3** Development Rules as Specified by BETA Test Bed

1.3 Developing the Post and Installation Symbol

- 1.3.1 Development Rules as Specified by NATO D-49 (1980 Draft)
- 1.3.2 Development Rules as Specified by FM 21-30
- 1.3.3 Development Rules as Specified by BETA Test Bed

2. USE OF COLOR

```
*****
* select...use UP and DOWN arrows to choose topic, *
*           press CONFIRM to make selection or EXIT *
*****
```

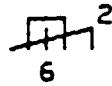
PLATE 4: BETA RULES FOR WEAPONS

1.2.3 Developmental Rules for Weapons Symbols as Specified by BETA Test Bed

Entity symbols are based upon the standard symbology outlined in FM 21-38 and STANAG 2819.

- A. The "geographic" location of the unit is in the center of the symbol.
- B. The quantity of like objects at one location is to the right of the symbol.
- C. In some cases an amplifying designation is provided under the symbol.

example:



Two SA-56 Missile Launchers

* EXIT.... *

*

*

PLATE 3: EXAMINING MENU SELECTIONS FOR GENERAL RULES OF SYMBOLLOGY
(NATO D-49 SELECTED--POST AND INSTALLATION)

GENERAL RULES OF SYMBOLLOGY

1. SYMBOL DEVELOPMENT

1.1 Developing the Unit Symbol

- 1.1.1 Development Rules as Specified by NATO D-49 (1980 DRAFT)
- 1.1.2 Development Rules as Specified by FM 21-30
- 1.1.3 Development Rules as Specified by BETA Test Bed

1.2 Developing the Weapon Symbol

- 1.2.1 Development Rules as Specified by NATO D-40 (1980 Draft)
- 1.2.2 Development Rules as Specified by FM 21-30
- 1.2.3 Development Rules as Specified by BETA Test Bed

1.3 Developing the Post and Installation Symbol

- 1.3.1 Development Rules as Specified by NATO D-49 (1980 Draft)
- 1.3.2 Development Rules as Specified by FM 21-30
- 1.3.3 Development Rules as Specified by BETA Test Bed

2. USE OF COLOR

```
*****
* select...use UP and DOWN arrows to choose topic, *
*           press CONFIRM to make selection or EXIT *
*****
```

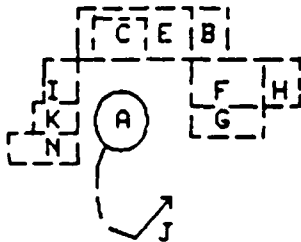
:

PLATE 4: NATO D-49 POST/INSTALLATION RULES

1.3.1 Developmental Rules as Specified by NATO D-49 (1980 Draft)

Friendly Forces - Posts and Installations Representation

Field Descriptror



- A. Role Descriptor
- B. Unconfirmed Query Mark associated with Field A
- C. Size Descriptor
- E. Special Descriptor
- F. Unique Designation
- G. Higher Formations
- H. Reinforced or Detached
- I. Date-Time Group
- J. Direction of Movement Arrow
- K. Free Text (additional identity information)
- N. Additional Information (alphanumeric information)

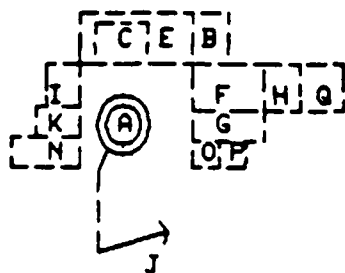
```

*****
* more.... press CONFIRM to continue; other alternatives are:      *
*      EXIT                                                         *
*****

```

Enemy Forces - Posts and Installations

Field Description



- A. Role Descriptor
- B. Unconfirmed Query Mark associated with Field A
- C. Size Descriptor
- E. Special Descriptor
- F. Unique Designation
- G. Higher Formations
- H. Reinforced or Detached
- I. Date-Time Group
- J. Direction of Movement Arrow
- K. Free Text (additional identifying information)
- N. Additional information (alphanumeric information)

- O. Evaluation Rating
 - P. Combat Effectiveness
 - Q. Addressing Number
- Fields for
Enemy Forces Only

```

*****
* more.... press CONFIRM to continue; other alternatives are: *
* PREVIOUS PAGE, REPEAT or EXIT *
*****

```

1.3.1 Developmental Rules for Installations as Specified by NATO D-49
(1980 Draft)

- A. A solid single lined figure denotes present location of friendly forces.

example:



Friendly Logistic Installation Location

- B. Broken single lined figure denotes planned location of friendly forces.

example:



Planned Friendly Logistic Installation Location

```
*****
* more.... press CONFIRM to continue; other alternatives are: *
* PREVIOUS PAGE, REPEAT or EXIT *
*****
```

- C. Solid double lined figure denotes present location of enemy forces.

example:



Enemy Logistic Installation Location

- D. Broken double lined figure denotes planned location of enemy forces.

example:



Planned Enemy Logistic Installation Location

```
*****
* end .... press PREVIOUS PAGE, REPEAT or EXIT *
*                                                                 *
*****
```

PLATE 3: EXAMINING MENU SELECTIONS FOR GENERAL RULES OF SYMBOLOGY
(FM 21-30 POST/INSTALLATION SELECTED)

GENERAL RULES OF SYMBOLOGY

1. SYMBOL DEVELOPMENT

1.1 Developing the Unit Symbol

- 1.1.1 Development Rules as Specified by NATO D-49 (1980 DRAFT)
- 1.1.2 Development Rules as Specified by FM 21-30
- 1.1.3 Development Rules as Specified by BETA Test Bed

1.2 Developing the Weapon Symbol

- 1.2.1 Development Rules as Specified by NATO D-40 (1980 Draft)
- 1.2.2 Development Rules as Specified by FM 21-30
- 1.2.3 Development Rules as Specified by BETA Test Bed

1.3 Developing the Post and Installation Symbol

- 1.3.1 Development Rules as Specified by NATO D-49 (1980 Draft)
- ~~1.3.2~~ Development Rules as Specified by FM 21-30
- 1.3.3 Development Rules as Specified by BETA Test Bed

2. USE OF COLOR

```
*****
* select...use UP and DOWN arrows to choose topic, *
*          press CONFIRM to make selection or EXIT *
*****
```

PLATE 4: FM 21-30 POST/INSTALLATION RULES

1.3.2 Developmental Rules for Posts and Installations as Specified by FM 21-30

Field Designations

C  D
B

- A. Installation Designation
- B. Sub-Classification
- C. Unit Designation or Number of Installation
- D. Unit Designation - Alternate Placement

Developmental Rules

- A. A circle shaded at the bottom, with an appropriate symbol therein, represents a supply installation or activity. A circle without shading, with an appropriate symbol therein, represents some other type of combat service support activity.
- B. Each of the ten classes of supply is represented by a symbol while subclassification within each class are represented by letters (see FM 101-10-1) for details on the ten classes of supply). Combined with the shaded circle discussed necessary to show sub-classification, appropriate letter may be placed under the basic symbol.

example:

R (Refigerated Subsistence)



```

*****
* more.... press CONFIRM to continue; other alternatives are: *
*      EXIT      *
*****

```

- C. By combining the symbol for a particular class with the symbol for "Air Force" or "Army Aviation," accurate subclassification representation may also be achieved.

example:

POL (Ground)



Air Force POL



Army Aviation POL



- D. Letters placed below the symbol show a segregated sub-classification

```

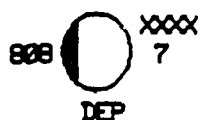
*****
* more.... press CONFIRM to continue; other alternatives are: *
*      PREVIOUS PAGE, REPEAT or EXIT                          *
*****

```

E. Installations and activities are identified according to the type of operation (i.e., supply, hospital, graves registration) and are further identified by one of the following methods as appropriate:

- (1) By the unit designation of the unit operating the installation or activity. In this case the unit designation appears on the left.

examples:



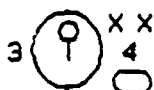
808th Field Depot
7th Army (All Classes
of supply)

27th Mobile Army
Surgical Hospital

* more.... press CONFIRM to continue; other alternatives are: *
* PREVIOUS PAGE, REPEAT or EXIT *

- (2) If the installation or activity has been numbered, this number appears on the left and the related unit designation appears on the right.

Examples:



Traffic Control Post
#3, 4th Armored Division



Prisoner of War
Camp #2, 39th Military
Police Prisoner of
War Brigade

* more.... press CONFIRM to continue; other alternatives are: *
* PREVIOUS PAGE, REPEAT or EXIT *

- (3) By unit for which the installation or activity is operated.
In this case the designation appears on the right.

Examples:  23
FAS

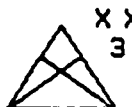
Inventory Control
Center, 23rd FASCOM

 + +
24
SMC

Maintenance Management
Center, 24th
Supply and Maintenance
Command

Developing and the observation or listening post symbol.

- (1) The observation post (OP) or listening post obtains
its designation from the unit to which it is organic.
This designation, with its size symbol, is shown on the
right as illustrated below:

Examples:  X X
3

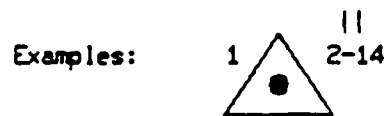
Observation Post,
3rd Infantry Division

 11
2-14

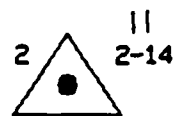
Observation Post,
2nd Battalion, 14th
Artillery

* more.... press CONFIRM to continue; other alternatives are: *
* PREVIOUS PAGE, REPEAT or EXIT *

(2) When the same unit has the several observation or listening posts, they are numbered as illustrated below:



OP #1, 2d Battalion, 14th Artillery



OP #2, 2d Battalion, 14th Artillery

```
*****
* end .... press PREVIOUS PAGE, REPEAT or EXIT *
*                                                                 *
*****
```

PLATE 3: EXAMINING MENU SELECTIONS FOR GENERAL RULES OF SYMBOLOLOGY
(BETA POST/INSTALLATION SELECTED)

GENERAL RULES OF SYMBOLOLOGY

1. SYMBOL DEVELOPMENT

1.1 Developing the Unit Symbol

- 1.1.1 Development Rules as Specified by NATO D-49 (1980 DRAFT)
- 1.1.2 Development Rules as Specified by FM 21-30
- 1.1.3 Development Rules as Specified by BETA Test Bed

1.2 Developing the Weapon Symbol

- 1.2.1 Development Rules as Specified by NATO D-40 (1980 Draft)
- 1.2.2 Development Rules as Specified by FM 21-30
- 1.2.3 Development Rules as Specified by BETA Test Bed

1.3 Developing the Post and Installation Symbol

- 1.3.1 Development Rules as Specified by NATO D-49 (1980 Draft)
- 1.3.2 Development Rules as Specified by FM 21-30
- 1.3.3** Development Rules as Specified by BETA Test Bed

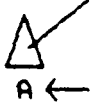
2. USE OF COLOR

```
*****
* select...use UP and DOWN arrows to choose topic,      *
*      press CONFIRM to make selection or EXIT            *
*****
```

PLATE 4: BETA POST/INSTALLATION RULES

1.3.3 Developmental Rules for Installations as Specified by BETA Test Bed

- A. Location of the entity is designated by a pick point placed in the center of the symbol.
- B. Three characters designating amplifying information or site/point type are placed below the symbol.

example:  pickpoint
Site/point type or
characters of amplifying
information

* EXIT.... *

*

*

PLATE 3: EXAMINING MENU SELECTIONS FOR GENERAL RULES OF SYMBOLOGY
(USE OF COLOR SELECTED)

GENERAL RULES OF SYMBOLOGY

1. SYMBOL DEVELOPMENT

1.1 Developing the Unit Symbol

- 1.1.1 Development Rules as Specified by NATO D-49 (1980 DRAFT)
- 1.1.2 Development Rules as Specified by FM 21-30
- 1.1.3 Development Rules as Specified by BETA Test Bed

1.2 Developing the Weapon Symbol

- 1.2.1 Development Rules as Specified by NATO D-40 (1980 Draft)
- 1.2.2 Development Rules as Specified by FM 21-30
- 1.2.3 Development Rules as Specified by BETA Test Bed

1.3 Developing the Post and Installation Symbol

- 1.3.1 Development Rules as Specified by NATO D-49 (1980 Draft)
- 1.3.2 Development Rules as Specified by FM 21-30
- 1.3.3 Development Rules as Specified by BETA Test Bed

2. USE OF COLOR

```
*****
* select...use UP and DOWN arrows to choose topic, *
*      press CONFIRM to make selection or EXIT      *
*****
```

PLATE 4: EXAMINING USE OF COLOR FOR SYMBOLS

2. USE OF COLOR

COLOR	DESCRIPTION
Red	FM 21-30, NATO STANAG: Enemy units, installations, equipment, and activities. VIDS, CDEC: Enemy units BETA: Enemy units, equipment, CPs, and enemy side of FEBA.
Blue (or Black)	FM 21-30, NATO STANAG: Friendly units, installations, equipment, and activities.
BLUE	VIDS, CDEC: Friendly units. BETA: Friendly units, equipment, CPs, and friendly side of FEBA.
Yellow	FM 21-30, NATO STANAG: Friendly or enemy areas of chemical, biological, or radiological contamination.

```

*****
* more.... press CONFIRM to continue; other alternatives are: *
*                               EXIT                               *
*****

```

COLOR	DESCRIPTION
YELLOW	VIDS, CDEC: Contour lines. BETA: Unknown units, equipment, and CPs.
Green	FM 21-30, NATO STANAG: Friendly or enemy man-made obstacles. BETA: FLOT, FLT, and maneuver units boundaries.
Dark red (Magenta)	BETA; Units, equipment, and CPs which are nominated as targets.
Orange	BETA: Fire control lines and areas.
White	VIDS, CDEC: Flashing white indicates a hit (on a unit, weapon, or ground).

```

*****
* end .... press PREVIOUS PAGE, REPEAT or EXIT *
* *
*****

```

PLATE 2: EXAMINING EXECUTIVE SUMMARY MENU SELECTIONS WITHIN TUTORIAL
(SAMPLE SYMBOLS SELECTED)

EXECUTIVE SUMMARY

OVERVIEW

Description of the symbology program.

GENERAL RULES

Rules for defining symbols in the different
symbology systems.

EMBELLED SYMBOLS

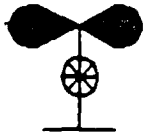
Embellished symbols from various symbology sources.

```
*****
* select...use UP and DOWN arrows to choose topic,          *
*      press CONFIRM to make selection or EXIT                *
*****
```

PLATE 3: EXAMINING SAMPLE SYMBOLS

SAMPLE SYMBOLS

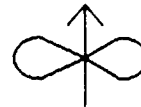
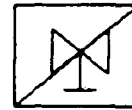
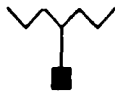
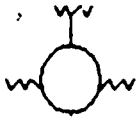
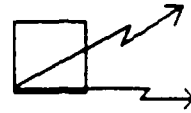
FM 21-30



BETA TEST BED

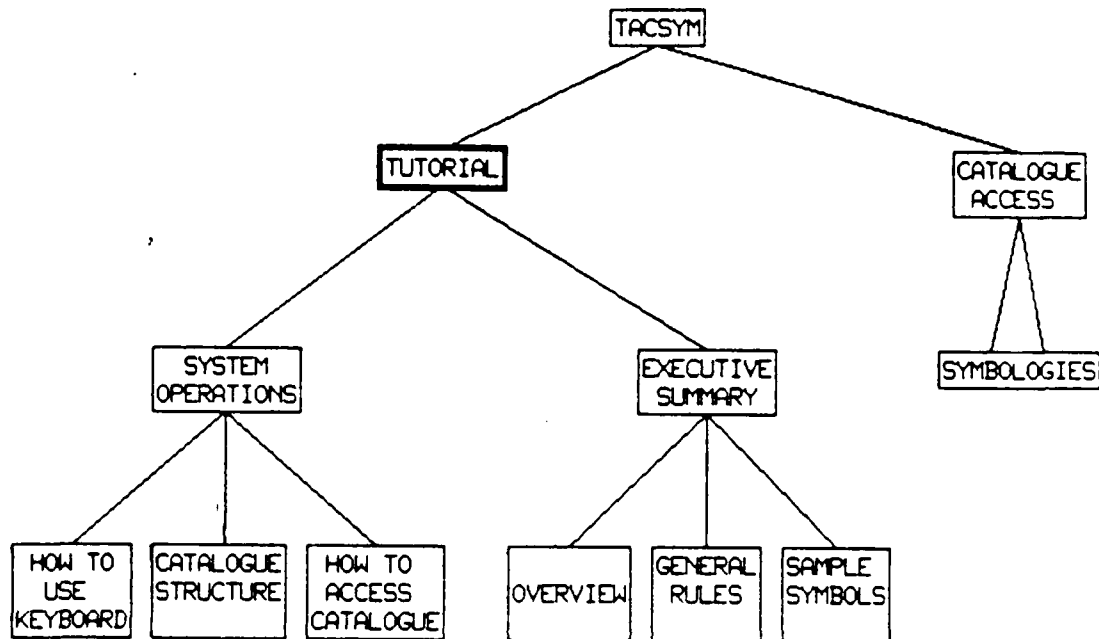


NATO D-49(1980)



 * EXIT.... *
 * *

PLATE 1: FIRST LEVEL MENU SELECTIONS
(SYSTEM OPERATIONS SELECTED)



▶ SYSTEM OPERATIONS

* EXECUTIVE SUMMARY

 * select...use UP and DOWN arrows to choose topic, *
 * press CONFIRM to make selection or EXIT *

PLATE 2: EXAMINING MENU SELECTIONS FOR SYSTEM OPERATIONS
(HOW TO USE KEYBOARD SELECTED)

SYSTEM OPERATIONS

HOW TO USE THE BOARD

Description and simulation of keyboard function keys. Includes practice session for user insertion with keyboard functions.

CATALOGUE STRUCTURE

Structure and content description.

HOW TO ACCESS CATALOGUE

Access procedures.

```
*****
* select...use UP and DOWN arrows to choose topic,          *
*      press CONFIRM to make selection or EXIT                *
*****
```

PLATE 3: EXAMINING MENU SELECTIONS FOR HOW TO USE KEYBOARD
(KEYBOARD DEFINITION AND ILLUSTRATION SELECTED)

HOW TO USE KEYBOARD

EXAMPLE DEFINITION AND ILLUSTRATION

This section demonstrates functions of the upper keyboard.
It is recommended for inexperienced system users.

SYMBOL AND PRIMITIVE CREATION

This section is recommended for the user who is familiar with
keyboard functions and desires practice.

```
*****  
* select...use UP and DOWN arrows to choose topic, *  
*      press CONFIRM to make selection or EXIT *  
*****
```

PLATE 4: KEYBOARD DEFINITION AND ILLUSTRATION

KEYBOARD DEFINITION AND ILLUSTRATION

Interaction with the Tactical Symbology (TACSYM) system is accomplished using the keyboard. The primary keyboard sections are:

- * FUNCTION KEYS - 12 keys at the top of the keyboard used to create graphic symbols in the catalogue.
 - these keys have both shifted and unshifted functions.
 - % 4 arrow labelled keys to move the graphics cursor when drawing symbols.
 - % 6 symbol drawing keys to use vectors, arcs circles, polygons, etc. to create symbols.
 - % 2 symbol editing keys to help construct a symbol that is being generated.
- * CONTROL KEYS - used in TUTORIAL to tell the system when to proceed, to page back and forth through information, and to select areas to examine.
 - CONFIRM, PREV. PAGE, EXIT, REPEAT, UP and DOWN ARROW keys (at the top left of the keyboard), all allow user to control text presentation.
- * KEYBOARD - the remaining keys are used to add alphanumeric information to symbols or to enter symbology data such as source, concept, and category names and user remarks.

```
*****
* more.... press CONFIRM to continue; other alternatives are: *
*      EXIT *
*****
```



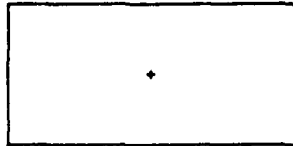
GRAPHICS WINDOW:

The box you see above is a graphics window and is the area where symbols and primitives are constructed and drawn. Notice inside the window above is a (+) sign; this is the representation for the graphics cursor.

FUNCTION KEY DEFINITIONS:

- * this tutorial will provide a definition for each of the function keys followed by a simulation of their operation.
- * the REPEAT key can be used after function key simulations to display the action again.
- * respond to the messages at the bottom of the screen after initiating each function key simulation.

```
*****
* more.... press CONFIRM to continue; other alternatives are:      *
*      PREVIOUS PAGE, REPEAT or EXIT                                *
*****
```



CURSOR CONTROL KEYS:

The 4 function keys (labelled with ARROWS) at the top left are the cursor control keys. They move the graphics cursor in the direction indicated by the ARROWS; that is - left, up, down, and right. The ARROW keys labelled FAST move the graphics cursor 5 points at a time while the shifted ARROW keys move 1 point at a time.

SIMULATION:

- * the cursor will move left slowly, then faster until it reaches the edge of the graphics window. It will then move right, back to where it started followed by moving up slowly then faster and finally it will move back to its original position.
- * when the cursor hits the edge of the graphics window it blinks on and off. Moving the cursor outside the graphics window is not allowed.

Press CONFIRM to initiate cursor SIMULATION



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Press CONFIRM to initiate cursor SIMULATION

```
*****
* more.... press CONFIRM to continue; other alternatives are:      *
*      PREVIOUS PAGE, REPEAT or EXIT                                *
*****
```



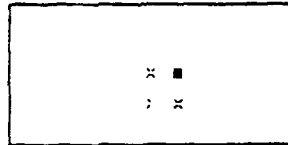
DEFINING POINTS:

The DEFINE POINT key specifies a location in the graphics window. When this key is used an X is overlayed on the graphics cursor as shown in the window above.

SIMULATION:

- * the 4 ARROW function keys and the DEFINE POINT key will be used.
- * fast cursor (unshifted ARROWS) moves 5 times faster than the shifted cursor operation. The graphics cursor is destructive, that is, as it crosses a point it erases what was there.
- * the fast cursor will move upwards, define a point, move down, then move right slowly and define a point and finally move down fast to define the last point outlining a box.
- * notice the DESTRUCTIVE NATURE of the cursor in single moves versus fast movement and relative to direction of movement.

Press CONFIRM to initiate DEFINING POINTS



DEFINING POINTS:

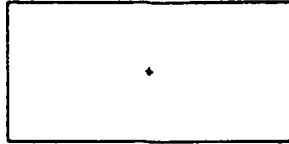
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- * notice the DESTRUCTIVE NATURE of the cursor in single moves versus fast movement and relative to direction of movement.

Press CONFIRM to initiate DEFINING POINTS

```
*****
* more.... press CONFIRM to continue; other alternatives are: *
* PREVIOUS PAGE, REPEAT or EXIT *
*****
```



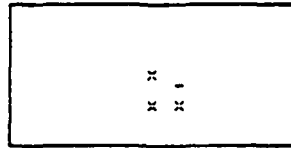
ERASING POINTS:

The ERASE POINTS key (shifted VECTORS) will erase the X's left from previous use of the DEFINE POINT function.

SIMULATION:

- * 5 points will be defined by moving the graphics cursor to different places in the graphics window.
- * the 5 defined points and the cursor will then be erased. The graphics cursor will then be relocated to the first point defined.

Press CONFIRM to initiate DEFINE POINTS followed by ERASE POINTS



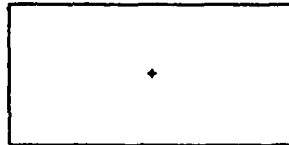
ERASING POINTS:

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SIMULATION:

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- * the 5 defined points and the cursor will then be erased. The graphics cursor will then be relocated to the first point defined.

Press CONFIRM to initiate DEFINE POINTS followed by ERASE POINTS



ERASING POINTS:

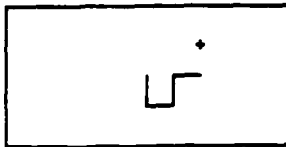
The ERASE POINTS key (shifted VECTORS) will erase the X's left from previous use of the DEFINE POINT function.

SIMULATION:

- * 5 points will be defined by moving the graphics cursor to different places in the graphics window.
- * the 5 defined points and the cursor will then be erased. The graphics cursor will then be relocated to the first point defined.

Press CONFIRM to initiate DEFINE POINTS followed by ERASE POINTS

```
*****
* more.... press CONFIRM to continue; other alternatives are: *
* PREVIOUS PAGE, REPEAT or EXIT *
*****
```



DRAWING VECTORS:

The VECTOR(S) key draws lines in the graphics window to connect points which have been defined. Two, three, four or five points can be defined and the VECTORS function will connect them.

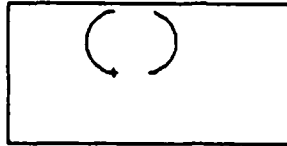
SIMULATION:

- * 5 points will be defined using the cursor move (ARROW keys) and DEFINE POINT functions.

- * vectors will then be drawn connecting these points. Notice the X's are erased before the points are connected.

Press CONFIRM to initiate drawing of VECTORS.

```
*****
* more.... press CONFIRM to continue; other alternatives are: *
* PREVIOUS PAGE, REPEAT or EXIT *
*****
```



DRAWING ARCS:

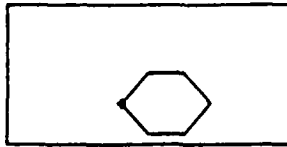
The ARC key and its shifted version FILL ARC are graphical objects that are defined the same way. Three (3) points are defined with the second point determining the height of the arc. The first and third points defined are the ends of the arc.

SIMULATION:

- * 3 points will be marked in the graphics window using the ARROW and DEFINE POINT functions. The ARC function will then be invoked to complete the action.
- * 3 more points will be defined and the FILL ARC function illustrated.

Press CONFIRM to initiate the drawing of the ARCS.

```
*****
* more.... press CONFIRM to continue; other alternatives are:      *
*      PREVIOUS PAGE, REPEAT or EXIT                                *
*****
```

DRAWING POLYGONS:

The POLYGON KEY is similar to the VECTOR(S) key except it connects the last point defined with the first point defined to enclose figures. Six (6) points can be defined and connected using POLYGON. Three (3) points must be defined in order for POLYGON to work. The points are connected in the order they are defined.

SIMULATION:

- * 6 points will be defined using the ARROW and DEFINE POINT functions.
- * the POLYGON function will then erase the marked points before drawing the connected vectors enclosing the area.

Press CONFIRM to initiate drawing the POLYGON.

```
*****
* more.... press CONFIRM to continue; other alternatives are: *
*      PREVIOUS PAGE, REPEAT or EXIT                          *
*****
```



DRAWING FILLED POLYGONS:

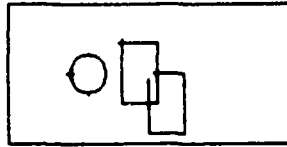
The FILL POLYGON key is the shifted version of POLYGON. Its function is identical except that in order to shade in an area, the area defined by the set of points must be open. This means that the vectors that outline the polygon can not cross. Remember, 3 to 6 points can be defined and the last point defined will be connected to the first.

SIMULATION:

- * 4 points will be defined, connected and the resulting figure shaded in.
- * notice that the X's defining the points are erased before the FILLED POLYGON is drawn.

Press CONFIRM to initiate drawing a FILLED POLYGON.

```
*****
* more.... press CONFIRM to continue; other alternatives are: *
* PREVIOUS PAGE, REPEAT or EXIT *
*****
```



ADDING PRIMITIVES:

The ADD PRIMITIVE key provides a way to add previously defined graphical components to a symbol under construction. When invoked, the ADD PRIMITIVE function requests that the name of a primitive be typed in. The primitive will be located in the graphics window at the position of the graphics cursor.

SIMULATION:

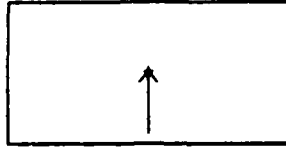
- * no requirement to DEFINE POINT; the primitive will be placed at the graphics cursor.
- * a POLYGON primitive will be added to the symbol above in two places.
- * notice how the graphics cursor controls the positioning of the primitive that is added.

Press CONFIRM to initiate ADDING a PRIMITIVE.

```

*****
* more.... press CONFIRM to continue; other alternatives are:      *
*          PREVIOUS PAGE, REPEAT or EXIT                            *
*****

```



ADDING SYMBOLS:

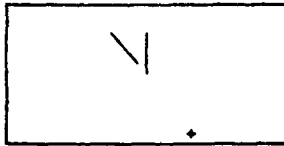
The ADD SYMBOL key is similar to the ADD PRIMITIVE function, it allows adding a previously constructed symbol to the current graphics window at the position of the graphics cursor. When invoked, the system requests a symbol number in the format - nnn.nnn.nnn - corresponding to CATEGORY.CONCEPT.SYMBOL NUMBER. This feature is useful in constructing similar symbols.

SIMULATION:

- * an arrow symbol will be added to the graphics window above located at the graphics cursor.
- * no need to DEFINE POINT when ADDING a SYMBOL.

Press CONFIRM to initiate ADDING a SYMBOL.

```
*****
* more.... press CONFIRM to continue; other alternatives are:      *
*      PREVIOUS PAGE, REPEAT or EXIT                                *
*****
```



ERASING GRAPHICS:

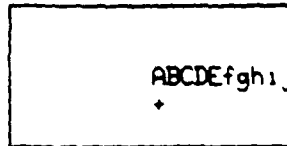
The ERASE LAST ADDITION key provides a way to remove the last graphical component, primitive or symbol added to the graphics window. It will also redraw the cursor and any defined points. ERASE LAST ADDITION can be used repeatedly until there is nothing remaining in the graphics window.

SIMULATION:

- * 3 figures will be defined and drawn in the graphics window. after the third one is drawn, the window will be erased and redrawn minus the LAST ADDITION.
- * notice the order in which the 3 figures are drawn.

Press CONFIRM to initiate execution of ERASE LAST ADDITION.

```
*****
* more.... press CONFIRM to continue: other alternatives are: *
* PREVIOUS PAGE, REPEAT or EXIT *
*****
```



ADDING TEXT:

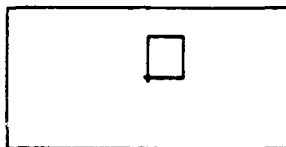
The ADD TEXT key provides a way to accompany text with the symbol in the graphics window. It is the shifted version of the ERASE LAST ADDITION key. When invoked, a menu is displayed asking what size characters to use. Size 1 is the standard terminal character set while sizes 2 and 3 are 2 and 3 times larger. To stop ADDING TEXT, any function key or CONFIRM can be pressed.

SIMULATION:

- * standard size text will be entered in the graphics window above, the system controls advancing the graphics cursor as text is entered.
- * notice how the cursor precedes the text and moves down when the text hits the edge of the graphics window.

Press CONFIRM to initiate ADDING TEXT.

```
*****
* more.... press CONFIRM to continue; other alternatives are: *
*      PREVIOUS PAGE, REPEAT or EXIT                          *
*****
```



REDRAWING GRAPHICS:

The REDRAW key allows redisplaying the contents of the graphics window. This feature is useful during symbol construction due to the destructive nature of the graphics cursor. Everything is redrawn in the same order that it was created.

SIMULATION:

- * a box will be defined and drawn. The cursor will be moved to erase part of the box.
- * the REDRAW function will then erase the entire graphics window and redraw the box and graphics cursor.

Press CONFIRM to initiate execution of REDRAW.

```
*****
* more.... press CONFIRM to continue; other alternatives are: *
*      PREVIOUS PAGE, REPEAT or EXIT                          *
*****
```



USING GRID LINES:

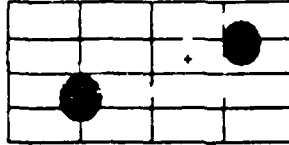
The GRID ON/OFF key can be used during symbol construction to help orient graphical components symmetrically in the graphics window. The key acts like a toggle switch by drawing in the grid lines if they are not there and visa-versa.

SIMULATION:

- * in the graphics window above that contains a circle GRID lines will be drawn to help positin the cursor to DEFINE POINTS for a symmetric CIRCLE.
- * after drawing the second CIRCLE, the GRID lines will be turned off and the graphics window REDRAWN.

Press CONFIRM to initiate execution of GRID ON/OFF.

```
*****  
* end .... press PREVIOUS PAGE, REPEAT or EXIT *  
* *  
*****
```



USING GRID LINES:

The GRID ON/OFF key can be used during symbol construction to help orient graphical components symmetrically in the graphics window. The key acts like a toggle switch by drawing in the grid lines if they are not there and visa-versa.

SIMULATION:

- * in the graphics window above that contains a circle GRID lines will be drawn to help positin the cursor to DEFINE POINTS for a symmetric CIRCLE.
- * after drawing the second CIRCLE, the GRID lines will be turned off and the graphics window REDRAWN.

Press CONFIRM to initiate execution of GRID ON/OFF.

PLATE 2: EXAMINING MENU SELECTIONS FOR SYSTEM OPERATIONS
(CATALOGUE STRUCTURE SELECTED)

SYSTEM OPERATIONS

HOW TO USE KEYBOARD

- , Description and simulation of keyboard function keys. Includes practice session for user insertion with keyboard functions.

CATALOGUE STRUCTURE

Structure and content description.

HOW TO ACCESS CATALOGUE

Access procedures.

```
*****  
* select...use UP and DOWN arrows to choose topic, *  
*          press CONFIRM to make selection or EXIT *  
*****
```

PLATE 2: EXAMINING MENU SELECTIONS FOR SYSTEM OPERATIONS
(HOW TO ACCESS CATALOGUE SELECTED)

SYSTEM OPERATIONS

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```
*****
* select...use UP and DOWN arrows to choose topic,          *
*      press CONFIRM to make selection or EXIT                *
*****
```

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