Appendix B

Telephone Numbering System, Transmission System Designation, and Circuit Identification

B-1. Tactical Telephone Numbering Plan (TTNP)

The introduction of automatic switching into the tactical communications-electronics system requires a new approach to the telephone numbering scheme. The plan presented in this appendix has been modified based on user comments and experience gained through the use of automatic switches AN/TTC-25 and AN/TTC-38.

a. This plan was developed following the guidelines provided in MIL-STD-188C, 24 November 1964, and is a primary zone (PR) switch locator (SL) oriented system. It has widespread impact on areas other than automatic switching, because of the limited number of automatic switches in the current inventory and the number of manual switches with which it must permit interface in the automatic voice network (AUTOVON), as well as C-E systems engineering considerations.

b. The plan, as presented, provides the basis for future numbering plans which must be devised to function within the scope of equipment under development; e.g., AN/TTC-39, SB-3614/TT, and unit level switches (ULS). These are expected to be fielded in the 1980's. Furthermore, the system evolving (from practical experience) must take into consideration the requirements of INTACS, EAD, and the TRI-TAC systems of the future. Factors to be considered include: proposals by allied/NATO forces for a 13-digit system, the capability of the AN/TTC-39 to provide 10 digits from AN/TTC-39 to AN/TTC-39; the existing 13-digit Allied/NATO elements system; and seven digits down to the level of the AN/TTC-38's, SB-3614/TT's, and ULS's. Finally, under TRI-TAC, the entire theater of operation must eventually use a system that is common to Army, Navy, Air Force, Marines, and DCS.

c. The tactical telephone numbering plan (TTNP) provides for the assignment of PR's by geographic location, thereby allowing each PR to serve a maximum of 100 (00-99) switch locations (SL's). Geographic areas requiring more SL's than are provided may be assigned additional PR's, as required. PR assignment is the responsibility of the theater communications system planning element (CSPE). Restriction of PR assignment is limited to a single PR. 99; it is used only for providing subscriber access to the fixed directory system inherent in the TTNP.

d. Management and planning requirements are simple. Any PR (70-98) may be assigned to any selected geographic location. Grid assignment is probably the best method of assignment. Under this method, SL's become the primary identification for command posts, area signal centers, peripheral organizations, miscellaneous facilities, installations, combat units, and combat support and combat service support units (brigade level and higher).

e. The basic TTNP is covered in FM 24-26, *Tactical Automatic Switching,* which allows for 29 PR numbers (70-99), SL numbers are 00 through 99. The PR is synonymous with the "area code" numbers of the commercial telephone systems, and SL is synonymous with the exchange portions of the numbers.

Basic Numbering Plan

TACTICAL	Primary Zone (PR)	Switch Locator (SL)	Terminal Number
PR + SL + XXX	= 2 Digits (XX)	2 Digits (XX)	3 Digits (XXX)

COMMERCIAL	Area Code	Exchange Number	Terminal Number
XXX + XXX + XXXX	= 3 Digits (XXX)	3 Digits (XXX)	4 Digits (XXXX)

So, while commercial systems use 10 digits for long distance call identification, the tactical numbering plan uses only seven. However, this may not always be true. Future systems, as they are expanded, may require that primary zones use a three-digit code similar to commercial area codes.

f. In commercial systems, a subscriber is normally identified by the exchange number plus the terminal number (a total of seven digits). In the tactical system, a subscriber is normally identified by the entire PR-SL XXX number (also seven digits).

Digit Position	General Application	General Assignment	Available Number
PR	Primary zone or geographic area	Geographic areas as directed by theater CSPE	70-99
SL	Switch location used as a secondary identification within a given PR (can be either automatic or manual)	Command posts, ASC's peripheral organization/installations. Miscellaneous facilities. Combat units, combat support, and combat service support units (bde level and higher)	00 thru 99

B-2. System Designation and Circuit Identification

Both system designation and circuit identification numbering schemes will eventually be standardized worldwide. The plan presented here, however, is intended to allow the flexibility for future systems that may require either an expanded tactical telephone numbering plan or system/circuit identification system.

This system designation and circuit identification plan allows the theater planning element to assign site (node) numbers to each unit with the theater. Future application of system and circuit identification may require that the origin and destination be indicated using the PR-SL. This is currently being considered as part of the data base requirements for the tactical communications control facilities (TCCF). Space availability in the TCCF computer is presently established for 7, 9, and 11 character bits to be used for circuit and system identification numbers.

As development of future equipment is completed, development of a compatible and complementary numbering system to match that equipment must also be accomplished. The current plan allows for that expansion. Further, the plan uses the DOD method of priority designation in both systems and circuits and it is used on the circuit routing list (CRL).

B-3. System Designators

The system designator consists of seven characters. This number identifies the origin and destination of the system and the type of system.

a. The originating terminal is the control terminal for installation and restoral purposes.

Characters 1 and 2:	**Indicates originating terminal by site designator; also represents the control terminal (sometimes designated as "A" terminal).**
Characters 3 and 4:	**Indicates destination terminal, also by site designator; also represents the noncontrol terminal (the terminal subordinate to the directives of the control terminal, sometimes designated "B" terminal).**

b. Each signal site (node) has a designator consisting of either two or three characters. These site designators are assigned in accordance with guidance established by the theater army C-E staff. (For the purposes of discussing the numbering plan in this appendix, USAREUR site designators are used as examples.) *The theater CSPE (or responsible planning element) must assign identifying digits to all units and promulgate this as a part of the C-E SOP.* At division level and higher, each major command is assigned a unique letter designator as the first character of its site designator. This provides the advantage of identifying any terminal site having a first letter designator of "R", for example, as a 3d Infantry Division unit. The second digit then identifies the specific site.

(1) First characters of two-digit site designators:

A:	7th Signal Brigade
B:	11th Armored Cavalry Regiment
C:	32d Army Air Defense Command
D:	1st Infantry Division
E:	1st Armored Division
J:	VII Corps
P:	8th Infantry Division
R:	3d Infantry Division
S:	3d Armored Division
U:	USAREUR/7th Army
V:	V Corps

(2) Second characters of two-digit site designators:

1:	Signal Main
2:	Signal Alternate
3:	Artillery Battalion
4:	Artillery Group
5:	Armored Cavalry Regiment
6:	Support Command
7:	Engineer Brigade
8:	Aviation Battalion
9:	Spare
0:	Base
A-F:	Main/TOC Locations
Y, Z:	Tac/Alt/Fwd CP Locations
G:	ADA Group
J, K, L:	Demods
M:	1st Brigade
N:	2d Brigade
P:	3d Brigade
R:	4th Brigade/Separate Brigade
S:	5th Brigade/Separate Brigade

c. Site designators of terminals within the COMMZ will consist of two numerical characters, assigned as follows:

00-49:	Army area signal centers
50-69:	USAREUR subordinate units within COMMZ

70-79:	Theater army signal battalions
97:	CENTAG
80-96, 98-99:	Spares, assigned to corps / division units

(1) Character 5 indicates system type:

C - Cable with PCM multiplex

H - HF multichannel

K - Satellite multichannel

M - Microwave radio with PCM multiplex

P - UHF radio with PCM multiplex

T - Troposcatter radio with PCM multiplex

U - Mixed system with PCM multiplex

V - UHF radio with FDM multiplex

NOTE: Future systems may require additional letter designator(s) for new system types.

(2) Character 6 indicates identical systems between two system terminals:

A - 1

B - 2

C - 3

D - 4

E - 5

F - 6

G - 7

H - 8

(3) Character 7 identifies the 12-channel group number (and shows the number of channels):

A - 1st 12-channel group

B - 2

C - 3

D - 4

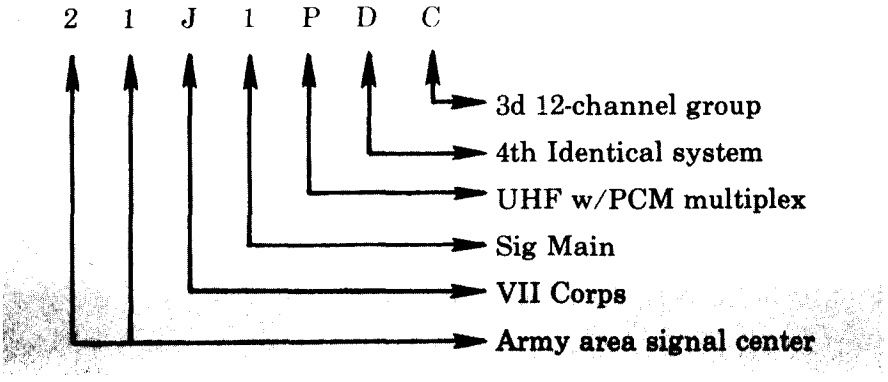
E - 5

F - 6

G - 7

H - 8

(4) System Number Example (using USAREUR units):



d. On CRL's and other forms and reports where system identification is required, the system designators for 12-channel groups will be used as opposed to a designator for an entire system. If an entire system must be identified or represented, the designator for the last 12-channel group on the system will be used. For example, a 96-channel UHF radio-PCM system between site 21 and site J1 would be 21J1PAH. Designators 21 and J1 identify the sites; P identifies UHF radio with PCM MUX; A indicates there is only one system of this type between the two sites; and H means there are eight 12-channel groups (or 96 channels). Each of the 12-channel groups (the identification normally needed by operating personnel) would appear on the CRL as separate designators 21JlPAA (lst 12-channel group), 21J1PAB (2d 12-channel group), 21J1PAC (3d 12-channel group). 21J1PAH (8th 12-channel group). A second 96-channel system would be identified 21J1PBH.

e. Three-digit site designators, assigned to relays, are used to identify relays that do not drop or insert channels, hence will never appear in a system designator.

100-499:	Army Area
500-599:	V Corps
600-699:	Spares
700-799:	VII Corps

B-4. Circuit Designators

a. The circuit designator consists of seven characters. The designator identifies the circuit type, the origin and destination of the circuit, and the use of the circuit. The originating terminal is, arbitrarily, the control terminal. Figure 1 provides information for assigning characters 1, 6, and 7. Characters 2, 3, 4, and 5 are derived from the system designator digits lists.

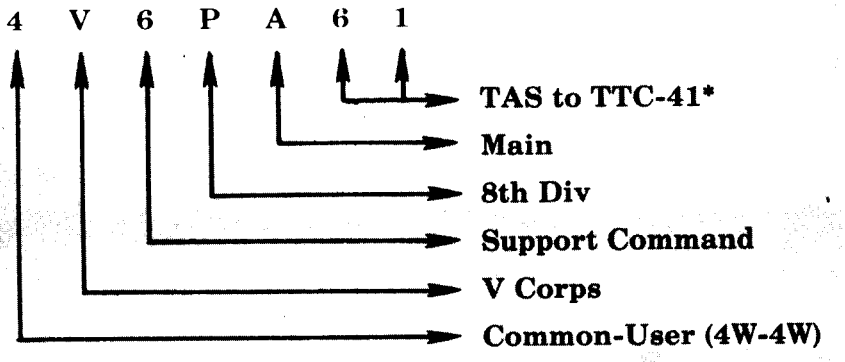
b. The format for circuit designators lends itself to application in existing nonautomated systems and can be expanded or modified for future TRI-TAC systems. As examples of this, characters are reserved for sole-user circuits because, at the present time, sole-user circuits are a command necessity. Sole-user circuits will not only be unnecessary in the TCCF plan but would actually provide degraded service. Also, although no 32kbs circuits are in use now, a 7th digit character is provided for 32kbs identification, because future systems will use that rate. The alphanumeric characters shown in figure 1 as "spares" may be used for designation of characteristics not otherwise identified.

Digit 1	Digit 2 & 3	Digit 4 & 5	Digit 6			Digit 7
Circuit Type	Originate Terminal	Destination Terminal	Subscriber or Terminal Equipment Identification			
1 Sole User (2W-2W) 6 Sole User (4W-4W) 7 Long Local (4W-2W) 8 Long Local (4W-4W) 9 Long Local (2W-2W)	USE		1 G/S1 2 G/S2 3 G/S3 4 G/S4 5 XO 6 Cdr 7 AVN 8 Spare 9 C-E Off 0 Spare	A CSCE B CNCE(T) C CNCE(M) D RWI E TOC F NWLE G SASP H CBRE I Not Used J SSG	K SSO L Spare M Spare N Spare O Not Used P Spare Q Spare R Spare S Spare T Spare	U Spare V Spare W Spare X Spare Y Spare Z Other
2 Common User (2W-2W)	SITE		01–10 Man Swbd/Man Swbd 11–20 Man Swbd/DSA 21–30 TTC-41/Man Swbd	31–40 TAS/Man Swbd 41–50 Spare 51–60 Man Swbd/TTC35		61–65 TAS/DCO(Dial) 66–90 Spare 91–99 TAS/DSA
3 Common User (4W-2W)	DESIGNATORS		01–20 TTC-35/Man Swbd 21–30 TAS/Man Swbd	31–90 Spare 91–99 TAS/DSA		
4 Common User (4W-4W) 5 Spare 0 Spare	FROM		01–15 TTC-35/TTC-35 16–30 TAS/TTC-35 31–40 TAS/Man Swbd	41–45 TAS/VCN 46–50 Spare 51–60 TTC-41/TTC-41		61–70 TAS/TTC-41 71–90 TAS/TAS 2250 Hz 91–99 TAS/DSA 2250 Hz
A Sole User Teletype B MODE I DSTE C MODE II DSTE D MODE V DSTE E Man Data F Facsimile G Common User Teletype H Special Category I & O Not used J-Z Spare	SYSTEMS LISTINGS		1 MR/MR 2 MR/TCC 3 TCC/MR 4 TCC/TCC 5 TADS/MR 6 MR/TADS 7 TADS/TCC 8 TCC/TADS 9 TADS/TADS 0 TADS/ASC A ASC/TADS B ASC/TCC C ASC/MR	D Spare E Spch Plus F Spare G ASA/ASA H SSO/SSO I & O Not Used J-Z Spare	1 HDX 2WVF 60 wpm 2 HDX 2WVF 66 wpm 3 HDX 2WVF 100 wpm 4 HDX 4WVF 60 wpm 5 HDX 4WVF 66 wpm 6 HDX 4WVF 100 wpm 7 FDX 4WDC 60 wpm 8 FDX 4WDC 66 wpm 9 FDX 4WDC 100 wpm 0 Facsimile A FDX 4WVF 60 wpm B FDX 4WVF 66 wpm C FDX 4WVF 100 wpm	D 150 bps E 300 bps F 600 bps G 1200 bps H 2400 bps I Not Used J-2 Kbs K 16 Kbs L 32 Kbs M Spare N Spare O Not Used P-Z Spare

Figure B-1. Circuit Numbering Scheme

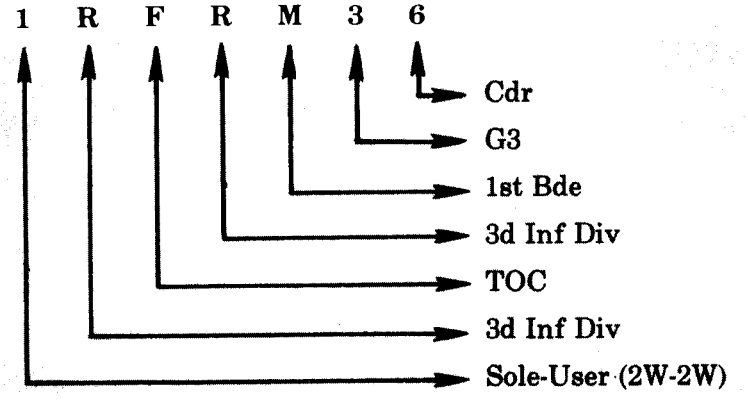
c. The following examples illustrate the flexibility of this circuit numbering plan.

EXAMPLE 1. A common-user (4W-4W) telephone trunk from 8th Inf Main TTC-41 to TTC-38 at V Corps COSCOM (control terminal).

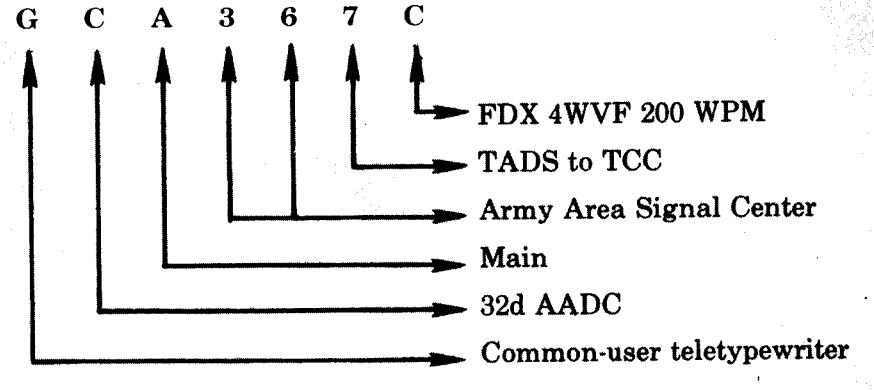


***61 indicates that this is the first circuit of this type between these points.**

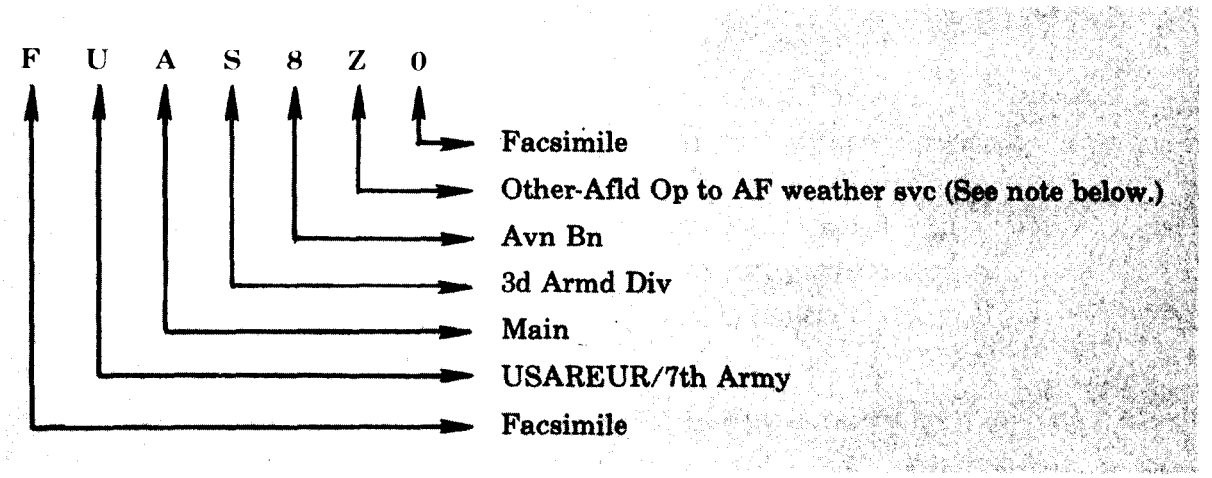
EXAMPLE 2. A sole-user (2W-2W) telephone circuit from 1st Bde, 3d Inf Div Cdr to G3, 3d Inf Div (control terminal).



EXAMPLE 3. A common-user teletypewriter circuit (FDX Crypto 4WVF 100 WPM) from TADS at the army area signal center (designated 36) to the 32d AADC Main CP (control terminal) telecommunications center.



EXAMPLE 4. A facsimile circuit from 3d Armored Division Aviation Battalion to USAREUR/7th Army Main (control terminal).



Note: When the character indicating "other" is used, explanation can be made on CRL. When the new family of digital facsimile equipment is fielded, additional identifiers (characters) will be made (using spares) to provide essential circuit information.

d. Using this format as shown in the examples, an operator or technical controller can readily tell the difference between telephone service circuits and digital service circuits by the first digit of the circuit number. All telephone circuits have a numerical digit as the first character; all digital service circuits (teletypewriter, data, etc.) have an alpha digit as the first character.

e. When multiple, identical digital service exists between two points, the spare digits available for the 6th digit can be used to identify the individual circuits. For instance, four teletypewriter circuits installed between two manual relays could be identified as GXXXX1C, GXXXXJC, GXXXXKC, and GXXXXLC, noting that here the spare digits J, K, and L are used. When spare digits are to be used, the theater CSPE should prescribe their use based on the theater need for multiple circuits between points.

B-5. Priorities for System and Circuit Restoral

a. Each system and circuit in the C-E network is assigned an alphanumeric priority indicator dictating its installation sequence and restoral priority. This number, consisting of two characters, appears in the priority indicator (PRI) column of the circuit routing list (CRL). System planners and engineers are responsible for assigning circuit and system priorities and should include the priority assignments in the CRL.

(1) System Priority–The priority of any system will be the same as the highest priority circuit on that system (excepting control circuits). An absolute chronological order for system restoration is unnecessary. The CSPE must insure that backup circuits are not assigned to the same system as primary circuits to provide uninterrupted communications.

(2) Circuit Priority–The priority of a circuit is established and assigned by the planning/engineering element, based on guidelines established in DOD Directive 4605.2 (Confidential).

b. The designators have digit 1, 2, 3, 4, or 0 as the first character to indicate priority. Subpriorities are assigned by using letters A through I as the second character. These characters show restoration objectives as follows:

CATEGORY 1 (ALL) ..... Immediate
CATEGORY 2 (ALL) ..... 10 minutes
CATEGORY 3A ..... 20 minutes
CATEGORY 3B ..... 1 hour
CATEGORY 3C ..... 6 hours
CATEGORY 4A ..... 24 hours
CATEGORY 4B ..... 72 hours
CATEGORY 00 ..... After all others

c. Designators authorized for use in tactical systems are:

1A 2C 3A 4A 00
1C 2D 3B 4B
1D 2F 3C
1E 2H
lF 21
lG

DOD Directive 4605.2 (Confidential) describes the use of the above codes. The above listed designators are the only ones normally used in tactical systems.

Notes: 1. The single most important circuit of any system is the engineering/control circuit. It does not, however, establish the priority of the system. The priority of the system is established by the CSPE as stated above. Under this system, all engineering circuits carry a 1A priority.

2. Some categories may be assigned only by the theater army CSPE and are used only when highest level requirements must be met. These are described in DOD Directive 4605.2 (Confidential).

d. To derive the priority indicator, the planner/engineer must identify the type of circuit, the using unit, and the subscriber. He then must make a judgment as to the relative importance of the circuit in accordance with DOD Directive 4605.2 (Confidential).

(1) Once a priority assignment is made, it then is the responsibility of the tactical circuit controller to install and maintain those systems/circuits in accordance with the priority and restoral codes. However, it must be stressed again that the circuit controller must use common sense and good judgment at all times. He must assess the situation and, using technical knowledge and experience, restore systems and circuits using all available resources. This means the controller must be aware of available spare equipment, the locations and commitments of maintenance teams, and the capabilities of the various peripheral elements to respond to trouble conditions. Further, based on this knowledge, the controller must correct or direct the correction of faults that can be handled on an immediate remedial-action basis. The controller who knows system configurations will realize that dispersal of maintenance teams to locations within the zone of responsibility takes more time than replacement of printed circuit boards or realignment of a system.

(2) In addition, realizing that each case of trouble is different, the controller should act accordingly to restore circuits of equal priority. Nonetheless, he cannot ignore circuits of lesser priority while waiting for high priority circuit or system repair. Only in remote cases will the requirement for a management decision on restoral priorities surface; but when it does, the management element of the CNCE will be responsible for decisions as to which priority circuit/system is to be restored first.