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## CHAPTER 4

### COMMUNICATIONS AND AUTOMATION

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*The BCD must interoperate and communicate with Army, joint and other service organizations as an EAC unit located at the JAOC. The BCD requires communication and automation equipment that is compatible with these organizations. Joint and service communications networks provide secure voice, data, facsimile, and message traffic communications linkage. All must be Army technical architecture (ATA) compliant. While this is an Army document, the joint aspects must comply with the joint technical architecture (JTA).*

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#### Section I. COMMUNICATIONS

##### External Communications

Priority must be given to theater communications systems to assure that targeting information is appropriately disseminated.

The GCCS provides the primary means of communications from the joint headquarters to the subordinate component commands. The system between the BCD and the ARFOR headquarters is established as part of the AGCCS. Secure facsimile should be used between the BCD and the ARFOR headquarters.

The ARFOR communications staff is responsible to ensure the BCD is adequately equipped with communications systems and integrated into the ARFOR communications nets. BCD automation systems use the communications links for exchange of digital information.

##### Internal Communications

Internal communications provide links between operator stations via local area networks (LANs) and to the external communication transmission systems. The BCD commander must coordinate the following:

- Access to the JAOC LAN.
- Access to JFACC automation systems.
- Linkage of BCD automation systems with the hosting JFACC staff.

##### Signal Support

The employment of automated systems by the BCD at the JAOC greatly increases the complexity of the signal support required. Signal soldiers are needed to support both the communications and automation and information processing systems assigned to the BCD. Signal specialists are assigned to the BCD to install, use, maintain, and troubleshoot communication equipment and terminal devices. The system specialist is responsible for the following:

- Integrate unit signal systems into the signal corps wide area network (WAN).
- Perform unit-level maintenance on authorized signal equipment and associated electronic devices.

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#### Section II. AUTOMATION

##### General

Each of the sections in the BCD use automated information and C<sup>2</sup> systems to aid in their mission and

to exchange of data and information with JAOC, joint service and Army automation systems. Maintenance, logistic support needs, and LAN and WAN system administration needs are also simplified.

## FM 100-13

To support the BCD missions a number of battlefield software applications are needed. The AGCCS replaces the STACCS as the primary automated C<sup>2</sup> system for EAC. This suite of automation equipment consists of common hardware and software and uses Department of Defense (DOD) COE.

The CTAPS is the Joint Chief of Staff (JCS) designated ATO generation and dissemination means. As AGCCS transitions into service, it will become the Army link with C<sup>1</sup> systems of other services. It will be able to access the ATO through CTAPS. This capability will simplify the exchange information on the following:

- Joint ATO.
- Airspace management.
- Intelligence.
- Air defense.

Work space availability may dictate that elements of the BCD be separated from their supporting AGCCS terminals. In which case access to CTAPS terminals for BCD personnel will be needed.

In addition to interface with CTAPS, as AGCCS matures, it will link with the Army tactical command and control system (ATCCS) and other components of the Army battle command system (ABCS) at corps echelon and below. The links let the BCD access, both internally and externally with the following:

- AFATDS.
- ASAS.
- FAADC<sup>3</sup>I.
- Other systems and data bases as needed.

The AGCCS will include application modules which will link with the CTAPS database. The links will ease BCD synchronization and coordination. If the objective applications are not operative when the BCD deploys, then the BCD requires access to CTAPS work stations. USAF AOC, provided CTAPS will let the BCD receive information from JAOC elements for

ATO and ACO synchronization and coordination. It will also let the BCD pass the information to ATCCS systems. The BCD must be equipped with, or have access via AGCCS, to the following ATCCS systems:

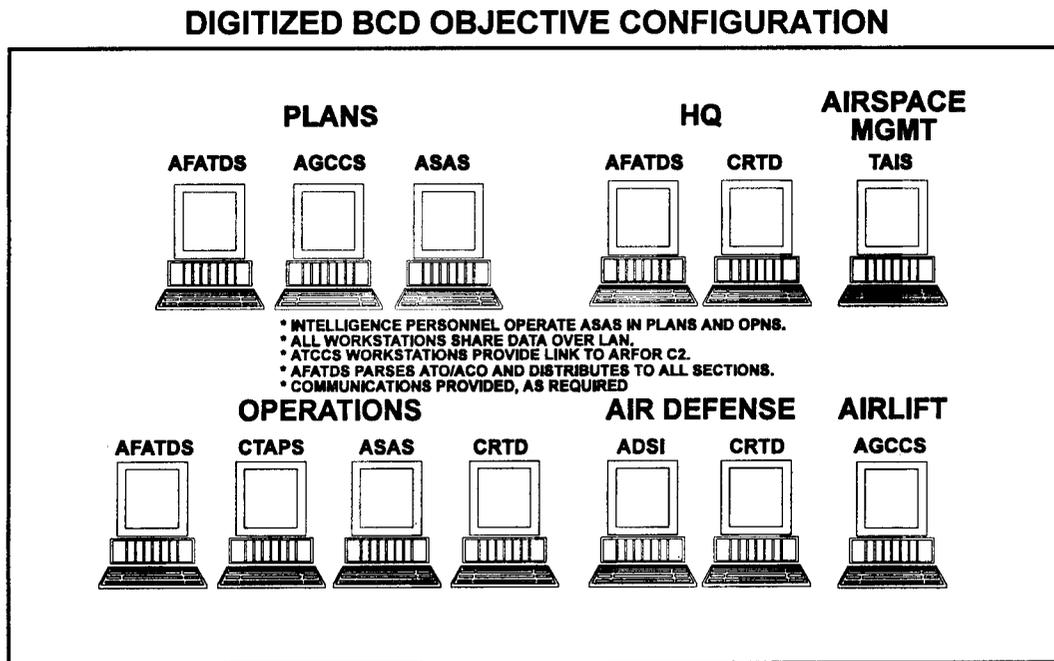
- The ASAS work stations for updated information and intelligence summaries.
- The AFATDS to obtain and disseminate targeting and fire support information.
- The FAADC<sup>3</sup>I for access to air defense systems and sensors. It also gives ADA air space control information to the airspace management section for the conduct of airspace C<sup>2</sup>
- Communications access to information from the ARFOR TOC tactical airspace integration system (TAM) to get full awareness of the air picture throughout the joint operations area (JOA) back to the power projection bases in the continental US.
- Access to the combat service support control system (CSSCS) to access CSS C<sup>2</sup> channels.

A BCD LAN links each of the automated systems and their software applications. Ideally, the systems should be fully interoperable and function as a coherent C<sup>2</sup> system to give coordinated joint air and land operations. An objective configuration for BCD automation system support is shown in the figure below. The objective capability shown in the figure gives the BCD access to key information. The ADA section is supported by digital linkage with the following:

- ARFOR EAC ADA brigade TOC.
- ARFOR liaison officers (LOS) at the JFACC CRC.
- ARFOR Force Projection (FP) TOC (when formed).
- ARFOR G3 staff.

- Theater CINC TMD cell (when formed).
- ARFOR ADA plans and priorities.
- Army TMD cell (when formed).
- ARFOR input to the ACM in the JFACC ACO.

The links give the BCD access to the following:



The airspace management section is supported by digital linking with the ARFOR aviation brigade TOC, and the ARFOR TOC A<sup>2</sup>C<sup>2</sup> element. These links provide the BCD information on ARFOR plans and priorities for Army aviation and air defense.

The ADSI and TAIS link with the following systems:

- ARFOR aviation brigade TOC.
- ARFOR staff elements.

The air defense section and airspace management section are supported by air defense system integrator ADSI, commander's real-time tactical display CRTD, and TAIS. The ADSI and CRTD link with the following systems:

The BCD LAN links all BCD sections and allows for real-time data exchange.

The CRTD provides the BCD air defense planning tools. It provides the BCD commander a fused picture of the following:

- CINC TMD cell.
- ARFOR FP TOC
- EAC ADA brigade TOC.
- ARFOR staff elements.
- All "red and blue" units.
- Air situation.
- TMD situation.
- ADA situation.

## FM 100-13

- ADA situation.
- ACM.
- Battlefield geometry.

It gives data received to other BCD work stations over the LAN. The CRTD receives and displays the following:

- The current ARFOR air defense situation from the ADA brigade TOC.
- TBM launch data from the collocated ADSI.
- ARFOR air defense priorities from the ARFOR staff.
- Friendly ground situation from collocated MCS/P.
- Enemy ground situation from collocated ASAS.
- Joint force TMD capabilities (attack operations, active defense, and passive defense) from the ARFOR FP TOC.

The ADSI has the following capabilities:

- Receives the current air situation from the JAOC CRC.
- Allows direct receipt of air and intelligence data from all of the following:
  - Tactical data information link-Army (TADIL-A).
  - Tactical data information link-joint (TADIL-J).
  - Tactical information broadcast system (TIBS).
  - Tactical related applications (TRAP) receivers, if required.

- Is a link to USN and USMC tactical air support module (TASM), if required.
- Is an alternative link with the CTAPS for receipt of the ATO.
- Gives all data received to the CRTD over the LAN.

The digitized BCD communications options include the following:

- United States message text format (USMTF) over LAN and mobile subscriber equipment (MSE).
- The TIBS and tactical data display system (TDDS) over LAN and commander's tactical terminal (CTT).
- TADIL-A over high frequency (HF) and ultrahigh frequency (UHF) radio.
- TADIL-B over LAN, MSE, and secure telephone unit (STU).
- Tactical tire direction system (TACFIRE) [being replaced by AFATDS] over the single-channel ground and airborne radio systems (SINCGARS) and satellite communications system (SATCOM).
- Voice over SATCOM, HF, MSE, STU, and SINCGARS.
- Internal communications (INTERCOM) links organic to the BCD or provided by the host JAOC.

The BCD needs hard copy transmission via secure facsimile. Electronic mail services are supported by local software packages that meet the needs of the BCD through links to the communications network. The defense messaging system (DMS) will be used by the BCD as it becomes available. The capability to print and reproduce hard copy information is required at each BCD station location.

**Information Systems Support**

Dedicated automation and communication support is needed because of the number of automated platforms needed and the extensive links that must be supported

and maintained. The BCD must be supported by signal soldiers. The signal personnel supervise, install, operate, and perform unit-level maintenance on multi-

function and/or multi-user information processing systems, peripheral equipment, and associated devices. Information system operator-analysts perform analyst and system administrator functions, and construct, edit, and test computer system programs. In addition, operator-analysts will install, operate, strap, re-strap, and perform authorized maintenance on communications security (COMSEC) devices.

