Chapter 8

G6/S6 Vehicle in the TI

The G6/S6 vehicle is the signal soldier's integration point with the TI. The G6/S6 vehicle provides the G6/S6 a platform to monitor and manage the TI and the TOC LANs.

FUNCTIONAL DESCRIPTION

8-1. The G6/S6 vehicle hosts the network management platform for the TI primarily at brigade and below with additional vehicles located at the division. It provides the interface between the TI and the MSE ACUS.

8-2. The G6/S6 vehicle is housed in an S-250 shelter, mounted on a high mobility multipurpose wheeled vehicle (HMMWV), and mounted in M1068 tracked vehicles.

8-3. The G6/S6 vehicle provides access or support to the following components of the TI:

- Simultaneous entry into three SINCGARS SIP/ASIP nets. SINCGARS SIP/ASIP nets one and two are equipped with a power amplifier allowing long range communications.
- Entry into one or two EPLRS networks.
- Entry into the NTDR network(s).
- Entry into the MSE TPN via an X.25 four-wire conditioned diphase connection and a tactical packet adapter.
- Entry into the TOC and TAC LANs via two 802.3 Ethernet LAN connections.
- Reception of POS/NAV data.
- Support of network configuration, monitoring, and management.
- Entry into the GBS system with the receiver terminal and RBM.

INTERFACES

8-4. The G6/S6 vehicle uses SINCGARS SIP/ASIP, EPLRS, and NTDR to provide transparent data relay functions and the interface between the TI and the MSE TPN. TI data addressed to users using the MSE TPN is routed between the INCs and the Ethernet switch onboard the G6/S6 vehicle to the SEN and the MSE TPN.

8-5. The G6/S6 vehicle is equipped with a 200 ampere kit for the HMMWV. This feature provides the required power for transparent data relay and message routing for SINCGARS SIP/ASIP and EPLRS nets while on the move. Neither the NTDR nor the ISYSCON (V)4 can be operated while on the move.

EQUIPMENT CONFIGURATION

8-6. Figure 8-2 shows a G6/S6 vehicle shelter configuration. The G6/S6 vehicle is normally equipped with–

- EPLRS (one or two sets).
- SINCGARS SIP/ASIP (three sets).
- NTDR.
- Tactical packet adapter.
- INC (two sets).
- Ethernet switch.
- ISYSCON (V)4 (hosted on the FBCB2).
- PLGR.
- Fluke® 67X Series LAN meter.

MANNING

8-7. Three information systems operator-analysts (MOS 74B) man the G6/S6 vehicle. The S6 section personnel provide technical direction and additional support.

DEPLOYMENT

8-8. G6/S6 vehicles in the digitized division are located primarily at the brigade and battalion TOCs. Additional vehicles are located at the division tactical command post (DTAC) and division main command post (DMAIN) and are under division control. The G6/S6 vehicles within the brigade are normally collocated with the TOC of the supported headquarters. This provides interface and integration with ABCS component systems, FBCB2, MSE ACUS, and the TI. However, the location of the G6/S6 vehicle may change, depending on the mission and the requirements of the commander. Figure 8-1 shows the G6/S6 vehicle deployment at brigade and below TOCs.

8-9. The G6/S6 vehicle concentrates on operations in its role as a manager, support system, and future operations planner at brigade level. Because of the lead-time required to develop reconfigured software and the planning function of the TOC, there must be constant communication among the S3 planners, the brigade S6, and the G6/S6 vehicle personnel. This allows proactive planning for future operations and potential task organizations.

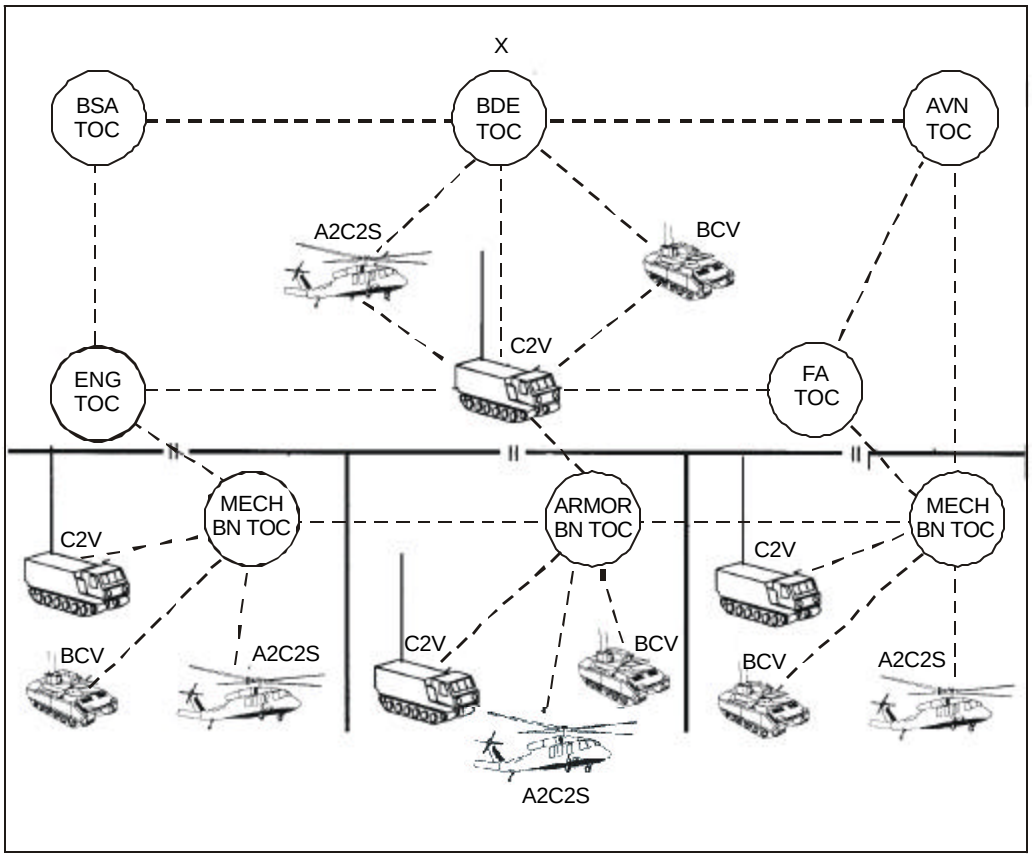

Figure 8-1. G6/S6 Vehicle Deployment at Brigade and Below TOCs

OPERATIONAL PROCEDURES

8-10. The G6/S6 vehicle and operators are involved in the planning for communications and the TI for the entire brigade down to the company/team level. In this role, the data processing technician and the systems automation officer will assist the brigade S6.

8-11. The paragraphs below discuss the operational functions of the G6/S6 vehicle at brigade and battalion levels.

BRIGADE LEVEL

8-12. The G6/S6 vehicles at brigade level are key elements in rehearsals and preparations for future operations. The communications support personnel at brigade level require a thorough knowledge of both on-going and future operations to provide the level of network management required for success.

BATTALION LEVEL

8-13. G6/S6 vehicles at the battalion level are involved with current operations, management, and monitoring of the TI within its area of responsibility. G6/S6 vehicles at this level require updates from the brigade

G6/S6 vehicle to initiate changes to the TI brought on by new task organizations or modified command relationships that affect their supported unit.

ISYSCON (V)4

8-14. The G6/S6 vehicle contains the ISYSCON (V)4, a unique software application that is loaded on the FBCB2. The ISYSCON (V)4 is a key component of the TI. It is the primary means of supporting the TI with planning, initialization, reinitialization, and network control and monitoring. Refer to the ISYSCON (V)4 Software User's Manual for detailed use of the application software.

8-15. The ISYSCON (V)4–

- Monitors systems devices to include INCs and routers.
- Monitors EPLRS via the NCS.
- Monitors FBCB2 locations and infers operational status via SA data.
- Reports the status of the network.
- Allows signal personnel to modify the existing network configuration and to plan as needed to develop future configurations to include EPLRS backbone grid, system devices, and TI constructs.

8-16. The scope of the ISYSCON (V)4 functionality includes–

- Preplanning.
- Mission and plan management.
- Network planning and engineering.
- LAN and WAN management.
- Common functions to support the user.

8-17. The preplanning function permits the system operator to add TI equipment, units, and communications networks to the planning database at both the brigade and battalion levels. By doing this, the operator can develop potential allocations of TI networks and assets that will best support upcoming missions. Consideration of TI assets and network associations include–

- The INC.
- Routers.
- EPLRS and SINCGARS radios.
- Defining task force unique assemblages of unit clusters of TI sets.
- New or modified task organizations.
- Additional CNRs.

8-18. Changes in task organization dictate that communications links, data, and message routing configurations will change to insure that revised command relationships are reflected in the voice and data networks within the brigade. At brigade level, the G6/S6 vehicle uses the ISYSCON (V)4 to configure and reconfigure the TI. Reconfiguration activities include unit reassociation, equipment configuration updates, and network modification.

8-19. The brigade systems automation officer is primarily responsible for overseeing this effort. The database on the ISYSCON (V)4 should be loaded with all address titles of units in the division that could potentially be attached to, or come under operational control (OPCON) of, the digitized brigade.

8-20. Once the commander approves changes to current or planned task organizations, the changes are evaluated as they affect current TI configuration. Close and constant liaison with the S3 plans staff should keep the impact of changes to a minimum through continuous planning. The relative size of the changes determines how the brigade S6 will issue the revised software to subordinate and attached units. Changes from the brigade ISYSCON (V)4 to all subordinate units must be delivered in a timely manner to support the operation. Depending on the situation and the commander's guidance, several techniques are available to issue changes:

- Small changes may be sent over the air via file transfer protocol (FTP).
- Larger changes may be transferred using diskette.
- Still larger changes may require that unit communications support personnel load the changes onto lap top computers at the G6/S6 vehicle and then travel throughout their area of responsibility to load the changes directly into the host computer.

Refer to the ISYSCON (V)4 Software User's Manual for detailed use of the ISYSCON (V)4 software package.

TACTICS AND TECHNIQUES

8-21. The paragraphs below discuss the tactics and techniques used in the operation of the G6/S6 vehicle.

OPERATIONS AND SECURITY

8-22. The limited operating range of the TI, compared to CNR ranges, will effect the location and displacement of the G6/S6 vehicle. Movement routes for the G6/S6 vehicle must be carefully considered if it is required to provide continuous communications on the move as the TOC or TAC it supports must displace. The reduced operating range may also require retransmission vehicles to provide the range necessary to support operations, particularly in mountainous or heavily vegetated terrain.

8-23. The need to maintain continuous operations will also have an effect on the vehicle and its crew. The limited number of G6/S6 vehicles at all levels should be considered in maintenance and security plans. The electromagnetic signature of the G6/S6 vehicle is relatively significant and may affect its placement in the CP set up.

8-24. The vehicle and its crew require the best available protection from enemy fires due to the soft skinned nature of the vehicle. The G6/S6 vehicle does not provide its own security when in operation and requires protection from the supported unit. The senior operator must perform a risk assessment prior to any operation to ensure the safety of personnel and equipment. See Appendix C for information on risk assessment/management.

PLANNING FACTORS

8-25. The configuration and initialization time for the G6/S6 is longer than that for CNR and other current communications systems. Commanders and staffs should consider the required lead-time in their planning process. Frequent and temporary changes to task organization are difficult to implement for the TI, but are still possible if the CNR is to be the primary means of communication. Personnel in the G6/S6 vehicle must be aware of these changes and be trained to notice cues that changes are likely to come. This will permit them to be proactive in their own planning and support of the TI.

TRAINING

8-26. Commanders and staffs at all levels require training on the capabilities, limitations, and operational considerations of the TI and the G6/S6 vehicles that manage it. Likewise, communications personnel, to include the G6/S6 vehicle crews, require training on their supported units' tactical standing operating procedures (TSOPs) and organization so they can support the unit in a timely and effective manner.

8-27. Frequent communications rehearsals should be conducted to ensure the overall effectiveness of the G6/S6 vehicles individually and as architecture supporting the employment of the TI. Refer to the Operator, Unit, and Direct Support Maintenance Manual for the G6/S6 vehicle for detailed technical, operational, and maintenance procedures for the G6/S6 vehicle.

LAN METER

8-28. The LAN meter is a hand-held, battery-powered instrument designed to test and troubleshoot a variety of LAN problems. It is equipped with a 4.75 inch by 2.5 inch bit-mapped LCD. The LAN meter provides the G6/S6 vehicle crew with a tool that detects and isolates network problems and shortfalls. It isolates, assesses, and diagnoses problems with components and cabling. The LAN meter's capabilities include–

- Network monitoring to include network statistics, error statistics, and collision analysis.
- Network component and hub tests.
- Cable tests.
- Traffic generation to stress the system.
- TCP/IP problem diagnosis.

8-29. The LAN meter is issued with factory-set default values that the user can modify. It allows the user to create or modify up to 512 station addressees. Multiple station lists will support up to 4,096 stations for situations where the meter will be used at more than one site. The LAN meter provides management for saved files and printer configuration for most common printers. Software updates may be loaded from a PC.