

## DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

**OPERATION OF VARIABLE FORMAT MESSAGE  
ENTRY DEVICE AN/GSC-21 WITH  
SINGGARS GROUND RADIO SETS**

Headquarters, Department of the Army, Washington, DC

1 APRIL 1993

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1. Purpose. This technical bulletin provides the information and procedures for operating the Variable Format Message Entry Device AN/GSC-21 (VFMED) with the SINGGARS family of ground radios. It is necessary that the operator be properly trained in the operation of the VFMED and SINGGARS. This technical bulletin is a supplement for the purpose of interoperability.
2. Application Radio Sets. The radio sets covered by this technical bulletin are AN/VRC-87, AN/VRC-87A, AN/VRC-88, AN/VRC-88A, ANNRC-89, AN/VRC-89A, AN/VRC-90, AN/VRC-90A, AN/VRC-91, AN/VRC-91A, ANNRC-92, and AN/VRC-92A.
3. References. Refer to the following technical publications for normal operation and maintenance of the equipment:

<u>PUBUCATION NUMBER</u>	<u>DATE</u>	<u>TITLE</u>
TM 11-7440-253-10-1, 10-2, 10-3, and 10-4	Feb 1990	Message Entry Device, Variable Format, AN/GSC-21 (VFMED)
TM 11-5820-890-101 Radio	1 September 1992	SINGGARS ICOM Ground Combat Net
TM 11-5820-890-10-3 Net Radio	1 September 1992	SINGGARS NON-ICOM Ground Combat

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4. Equipment Setup/Operation. Assemble and install the radio set and VFMED individually per applicable technical manuals. Perform Preventive Maintenance Checks and Services (PMCS) and/or Built-In-Test (BIT) functions. Load all frequencies, hopsets, and variables into the radio set and establish voice communications before connecting the VFMED to the radio set. Once voice communication has been established, connect the VFMED as described in the following paragraph.
5. **Cabling Instructions.** The following figure illustrates the typical configuration for the connection between the radio set and the VFMED.

- Connect W4 cable from RT AUD/DATA connector to mounting adapter DATA A J5 connector.
- Connect VFMED data cable to mounting adapter AUD/DATA connector A J3.
- Connect handset H-250/U to RT AUD/FILL connector.
- Figure shows VFMED connected to lower radio (RT-A).
- VFMED may be connected to upper radio (RT-B) if desired.

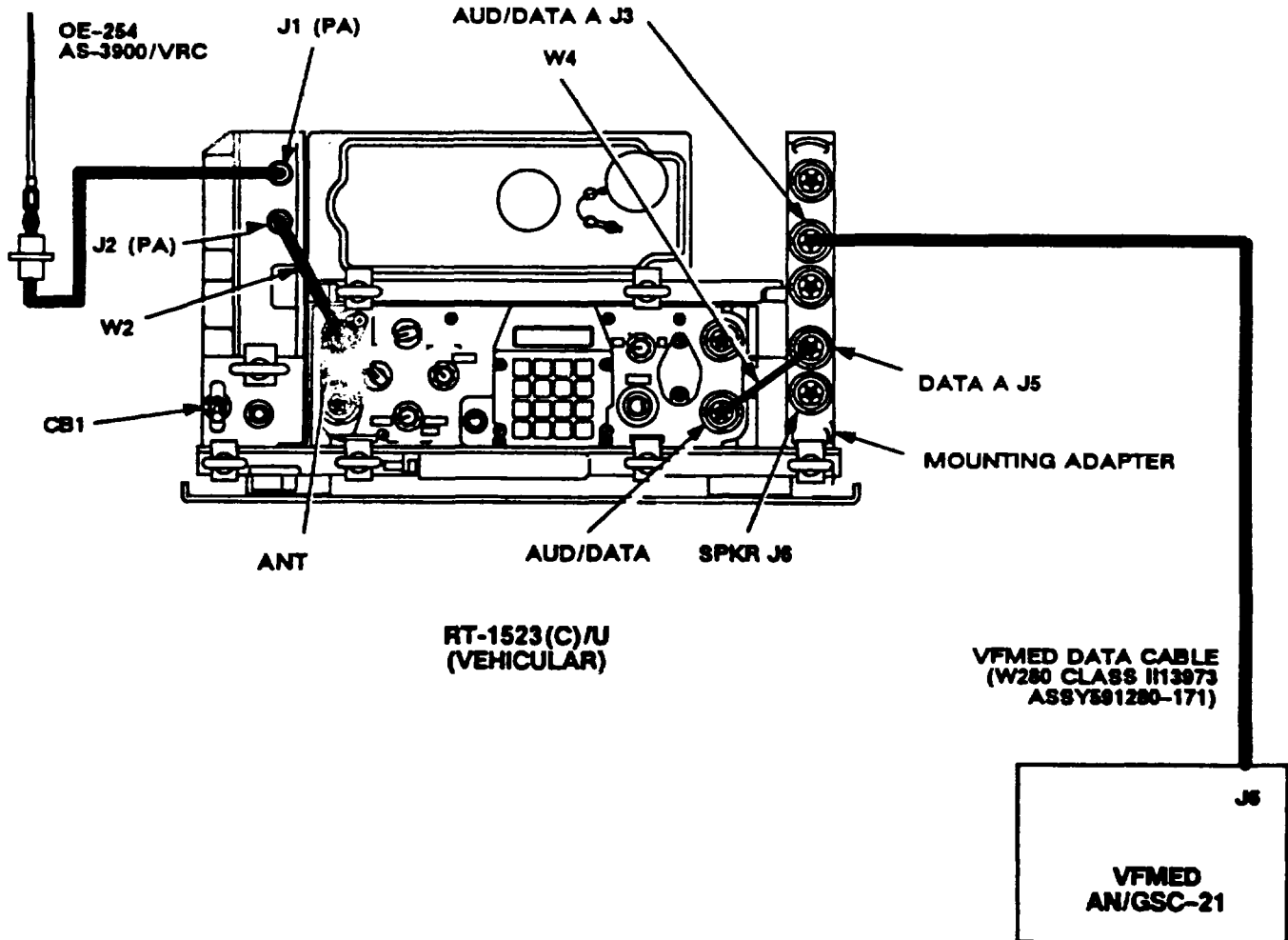


Figure 1. Cabling for VFMED to SINGARS Radio Set

6. **Switch Settings and Initialization.** The following tables provide the necessary switch settings and communication parameters for interoperability. Initialize the VFMED for communication as shown in Table 6-2. Verify the switch settings for both the radio and the VFMED; then establish communication on the net.

SWITCH	ICOM RADIO	NON-ICOM RADIO
FUNCTION	SQ ON	SQ ON
MODE	SC or FH	SC or FH
DATA	TF	AD2
COMSEC	CT	(TSEC/KY-57) ON CT
*	OFF	NIA

Table 6-1. SINGARS Radio Set

XMIT BLOCK	SINGLE
XMIT RATE	1200
PREAMBLE	.7
SET TRANSMIT	PT

Table 6-2. VFMED ANIGSC-21

7. **System Troubleshooting Procedures.** These steps will assist you in isolating faulty system components when you have a problem communicating in a net using data transmission. These procedures assume that the net and secure FH voice communication has been established. If you are unable to communicate using data transmission, do the following troubleshooting steps in the order provided.

- CHECK LOCAL RADIO. Use the data on the FH voice net to determine that the radio net is operating.
- CHECK WITH **OTHER NET MEMBERS.** Do you have data communication with some stations but **not** others? The other station may be out of range, temporarily off the air, or has not checked into the net. If data communication can be established with another station, your system is probably O.K. and the problem may be at the distant net station.
- CHECK SYSTEM CONFIGURATION. Verify proper cabling, initialization and subscriber parameters, radio set and VFMED switch settings, etc.
- NOTIFY MAINTENANCE. If the problem cannot be isolated, notify unit maintenance personnel and 3 inform your NCS of your communication problem.

3. **Remote Control Operations.** The **Remote Control Unit (RCU)** C-11561 may be used in place of the RT in a SINCGARS radio system to allow the radio set and antenna to be placed at distances up to 4 km from the local system. Interoperability between the VFMED and the RCU is the same when the VFMED is connected to an RT. Table 8-1 provides the switch settings for the radio set and the RCU for remote control operation.

SWITCH	RCU	RADIO SET
FUNCTION	SQ ON	REM
MODE	SC or FH	N/A
DATA	TF	NIA
COMSEC	CT	PT
•	OFF	NIA

*Table 8-1. RCU Settings for Remote Operation*

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