DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

OPERATION OF DIGITAL MESSAGE DEVICE AN/PSG-2A WITH SINCGARS GROUND RADIO SETS

Headquarters, Department of the Army, Washington, DC

1 APRIL 1993

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

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1. Purpose. This technical bulletin provides the information and procedures for operating the AN/PSG-2A (DMD) with the SINCGARS family of ground radios. It is necessary that the operator be properly trained in the operation of the DMD and SINCGARS. 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, AN/VRC-89, AN/VRC-89A, AN/VRC-90, AN/VRC-90A, AN/VRC-91 AN/VRC-91A, AN/VRC-92, and AN/VRC-92A.

3. References. Refer to the following technical publications for normal operation and maintenance of the equipment:

PUBLICATION NUMBER	DATE	TITLE
TM 11-7440-281-12&P	18 May 1982	Digital Message Device AN/PSG-2A
TM 11-5820-890-10-1	1 September 1992	SINCGARS ICOM Ground Combat Net Radio
TM 11-5820-890-10-3	1 September 1992	SINCGARS NON-ICOM Ground Combat Net Radio

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4. **Equipment Setup/Operation.** Assemble and install the radio set and DMD 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 DMD to the radio set. Once voice communication has been established, connect the DMD 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 DMD.

- Connect interface cable CX-13308 from DMD J1 connector to RT AUD/DATA connector.
- Connect handset H-250/U to RT AUD/FILL connector.
- Figure shows DMD connected to lower radio (RT-A).
- DMD may be connected to upper radio (RT-B) if desired.

NOTE

The interface cable CX-13308 must be used. It is identified in the SINCGARS AAL as National Stock Number 5995-01-303-0308. This cable replaces the existing DMD FSK cable.

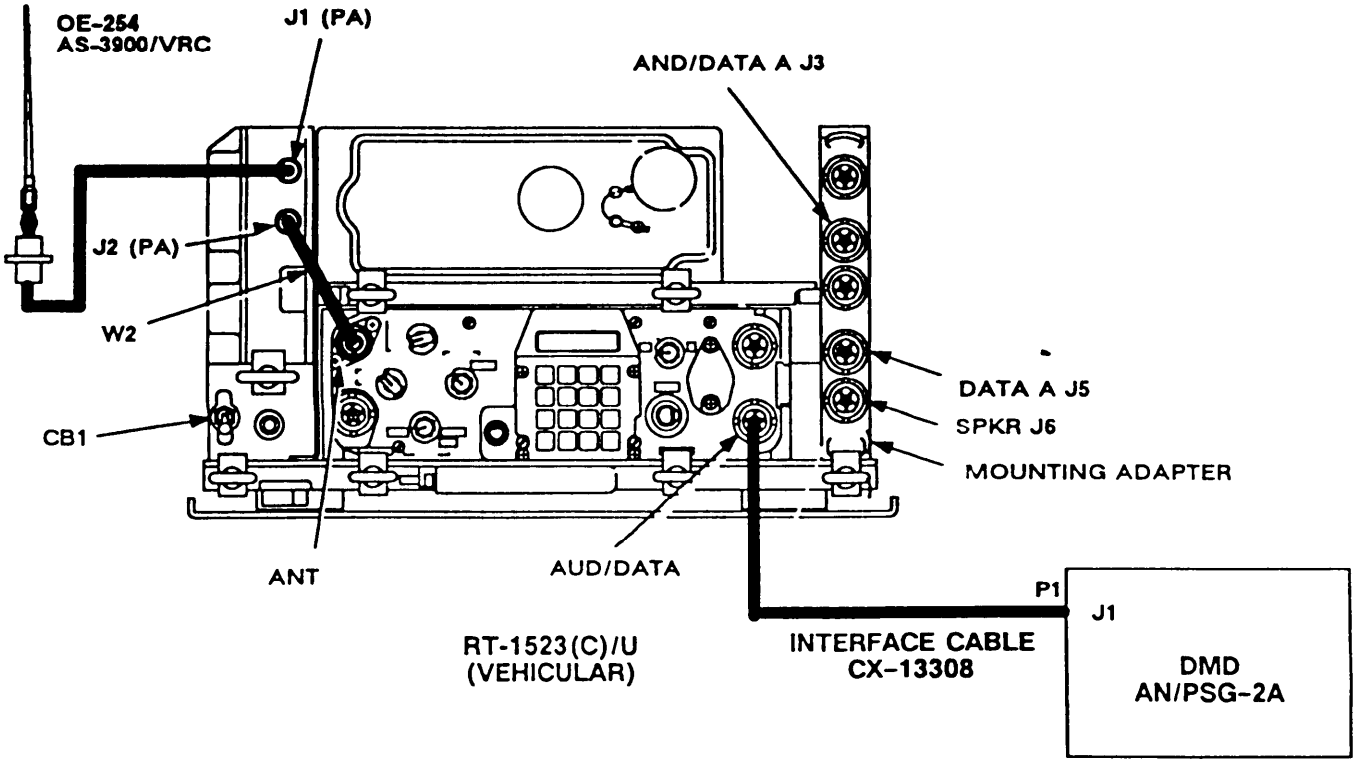

Figure 1. Cabling for DMD to SINCGARS Radio Set

6. Switch Settings and Initialization. The following tables provide the necessary switch settings and communication parameters for interoperability. Initialize the DMD for communication as shown in Table 6-2. Verify the switch settings for both the radio and the DMD; 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	N/A

Table 6-1. SINCGARS Radio Set

XMIT BLOCK:	SINGLE
XMIT RATE:	1200
PREAMBLE:	.7

Table 6-2. DMD AN/PSG-2A

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 PR 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 OK and the problem may be at the distant net station.
- **CHECK SYSTEM CONFIGURATION.** Verify proper cabling, initialization and subscriber parameters, radio set and DMD switch settings, etc.
- **NOTIFY MAINTENANCE.** If the problem cannot be isolated, notify unit maintenance personnel and inform your NCS of your communication problem.

8. 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 DMD and the RCU is the same when the DMD 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
FUNCTI0N	SQ ON	REM
MODE	SC or FH	N/A
DATA	TF	N/A
COMSEC	CT	PT
*	OFF	N/A

Table 8-1. RCU Settings for Remote Operation

By Order of the Secretary of the Army:

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