

## DEPARTMENT OF THE ARMY, TECHNICAL BULLETIN

OPERATION OF TACTICAL FIRE DIRECTION  
SYSTEM AN/GSG-10 WITH  
SINGGARS 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 Tactical Fire Direction System AN/GSG-10 (TACFIRE) with the SINGGARS family of ground radios. It is necessary that the operator be properly trained in the operation of the TACFIRE 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, 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:

<u>PUBLICATION NUMBER</u>	<u>DATE</u>	<u>TITLE</u>
TM 11-7440-240-10-1 10-2, 10-3, 10-4, 10-5, 10-6, 10-7, 10-8, and 10-9	Feb 1990	Fire Direction Center, Artillery OA-8389/ GSG-10(V) (BATTALION)
TM 11-7440-241-10-1, 10-2, 10-3, 10-4, 10-5, 10-6, 10-7, 10-8, and 10-9	Feb 1990	Fire Direction Center, Artillery OA-8390/ GSG/10(V) (DIVISION)
TM 11-5820-890-10-1	1 September 1992	SINGGARS ICOM Ground Combat Net Radio
TM 11-5820-890-10-3	1 September 1992	SINGGARS NON-ICOM Ground Combat Net Radio

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4. **Equipment Setup / Operation.** Assemble and install the radio set and TACFIRE 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 communication before connecting the TACFIRE to the radio. Once voice communication has been established, connect the TACFIRE as described in the following paragraph.
5. **Cooling Instructions.** The following figure illustrates the typical configuration for the connection between the radio set and the TACFIRE.
  - Connect W4 cable from RT AUD/DATA connector to mounting adapter DATA A J5 connector.
  - Connect TACFIRE data cable from TACFIRE DDT J1 connector to mounting adapter AUD/DATA connector A J3.
  - Connect handset H-250/U to RT AUD/FILL connector.
  - Figure shows TACFIRE connected to lower radio (AT-A).
  - TACFIRE may be connector to upper radio (RT-B) if desired.

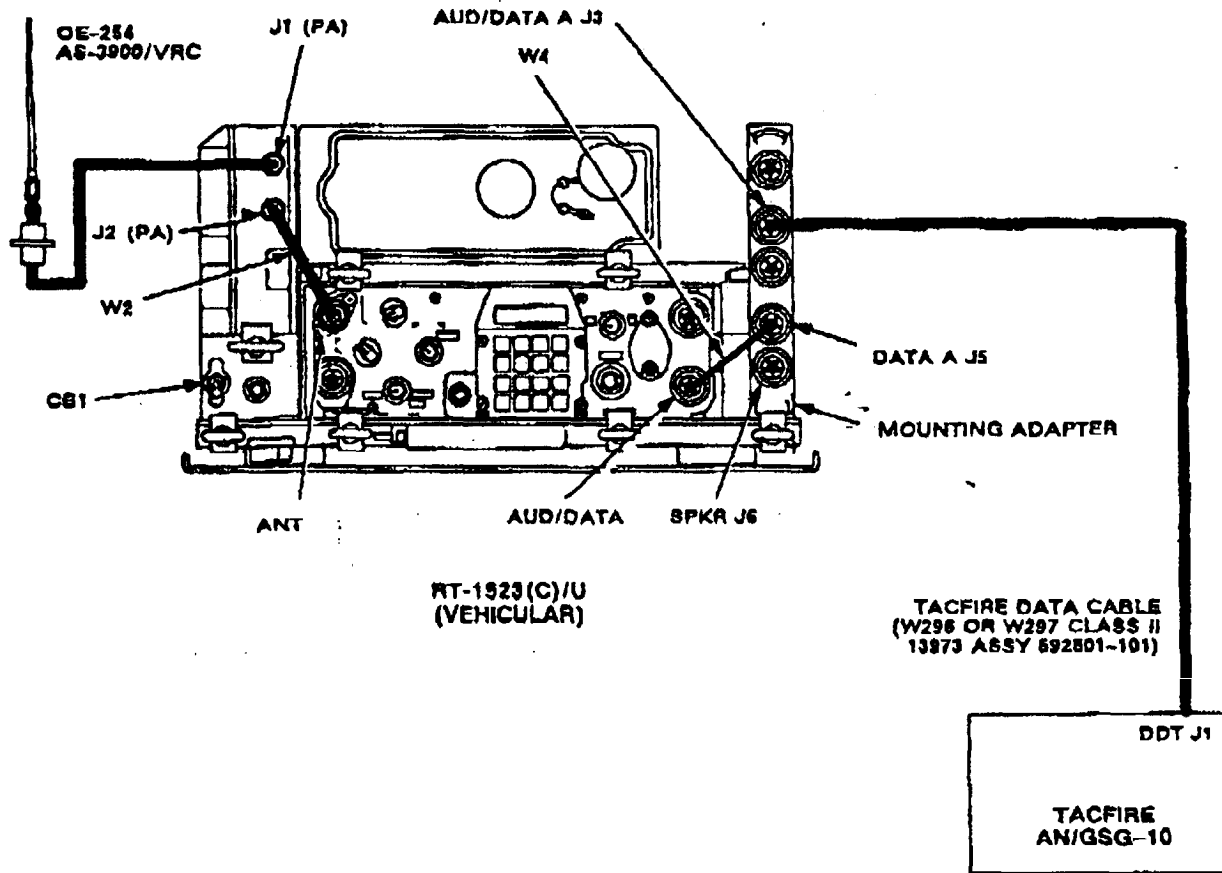


Figure 1. Cabling for TACFIRE to SINCGARS Radio Set

8. **Switch Settings and Initialization.** The following tables provide the necessary switch settings and communication parameters for interoperability. initialize the TACFIRE for communication as shown in Table 6-2. Verify the switch settings for both the radio and the TACFIRE; 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. SINGARS Radio Set

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

Table 6-2, TACFIRE AN/GSG-10

7. **System Troubleshooting Procedures.** These steps will assist you in isolating faulty system components when you have a problem communicating 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 OK and the problem may be at the distant net station.
  - CHECK SYSTEM CONFIGURATION. Verify proper cabling, initialization and subscriber parameters, radio set and TACFIRE 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 TACFIRE and the RCU is the same when the TACFIRE is, connected to an RT. Table 8-1 provides the switch Settings for the radio set and the RCU for remote control operation.

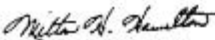
<b>SWITCH</b>	<b>RCU</b>	<b>RADIO SET</b>
<b>FUNCTION</b>	<b>SQ ON</b>	<b>REM</b>
<b>MODE</b>	<b>SC or FH</b>	<b>N/A</b>
<b>DATA</b>	<b>TF</b>	<b>N/A</b>
<b>COMSEC</b>	<b>CT</b>	<b>PT</b>
<b>*</b>	<b>OFF</b>	<b>N/A</b>

Table 8-1. RCU Settings for Remote Operation

By Order of the Secretary of the Army:

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