SINCGARS GROUND ICOM RADIOS

Used with
Automated Net Control Device (ANCD)
AN/CYZ-10;
Precision Lightweight GPS Receiver (PLGR)
AN/PSN-11;
Handheld Remote Control Radio Device (HRCRD)
C-12493/U;
Simple Key Loader (SKL) AN/PYQ-10

OPERATOR'S POCKET GUIDE

MANPACK RADIOS
AN/PRC-119A/D/F
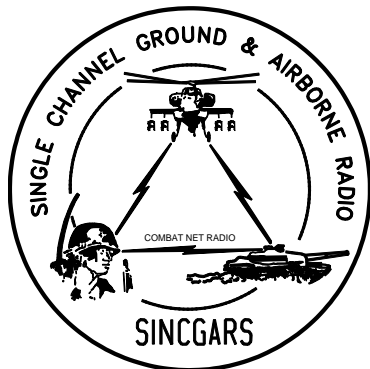**(NSN: N/A)(EIC: N/A)**

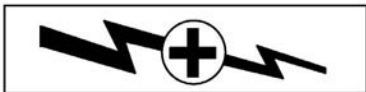**VEHICULAR RADIOS**
AN/VRC-87A/D/F
thru
AN/VRC-92A/D/F
(NSN: N/A)(EIC: N/A)

SINGLE CHANNEL GROUND & AIRBORNE RADIO
COMBAT NET RADIO
SINCGARS

5 SAFETY STEPS TO FOLLOW IF SOMEONE IS THE VICTIM OF ELECTRICAL SHOCK.

1 DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL.

2 IF POSSIBLE, TURN OFF THE ELECTRICAL POWER.

3 IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH, OR LIFT THE PERSON TO SAFETY USING A DRY WOODEN POLE OR A DRY ROPE OR SOME OTHER INSULATING MATERIAL.

4 SEND FOR HELP AS SOON AS POSSIBLE.

5 AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION.

WARNING

RECHARGEABLE BATTERIES
This includes BB-390/U Nickel-Metal Hydride (Ni-MH) and BB-2590/U Lithium-Ion (Li-ion).
Do not leave batteries in equipment for long term storage (more than 30 days).
Charge batteries in long term storage at least annually, and charge them before inserting in equipment.
Before opening original packaging always examine the package for signs of leakage, staining or other indications of battery damage.
DO NOT use a damaged battery.
Always charge a rechargeable battery on the appropriate charger according to the dictates of the manufacturer.
NEVER disassemble, heat, burn, or incinerate these or any batteries.
CO_2 or Dry Chemical fire extinguishers are suggested for fires involving these batteries.
Turn in batteries for disposal. Dispose of them in accordance with local regulations.

WARNING

NON-RECHARGEABLE ZINC-AIR BATTERIES
This includes BA-8180/U Zinc-Air (Zn-Air).
Do not leave batteries in equipment for long term storage (more than 30 days).
Before opening original packaging always examine the package for signs of leakage, staining or other indications of battery damage.
DO NOT use a damaged battery.
Zn-Air batteries contain gelled Potassium Hydroxide (KOH) as an electrolyte. This is corrosive and will burn the skin. If it comes in contact with the skin, wash thoroughly with soap and water. If it comes in contact with the eyes, flush with copious amounts of water and seek immediate medical attention.
NEVER disassemble, heat, burn, or incinerate these or any batteries.
CO_2 or Dry Chemical fire extinguishers are suggested for fires involving these batteries.
Turn in batteries for disposal. Dispose of them in accordance with local regulations.

WARNING

LITHIUM NON-RECHARGEABLE BATTERIES

Lithium Non-Rechargeable Batteries contain a great deal of energy. They must never be charged or abused. Attempting to do so could result in leakage, fire or even an explosion.

Lithium-Sulfur Dioxide ($Li-SO_2$) batteries, such as BA-5590, contain a toxic, pressurized, and liquefied gas. It has a strong pungent odor. Lithium-Manganese Dioxide ($Li-MnO_2$) batteries such as BA-5372 (Hold Up Battery) and BA-5390 contain a flammable electrolyte. Both types of batteries contain pure Lithium which reacts violently with water.

DO NOT heat, incinerate, short circuit, puncture, mutilate or attempt to disassemble any battery.

DO NOT USE any battery which shows signs of damage, such as bulging, swelling, disfigurement, leaking or staining inside the plastic packaging. Keep all batteries in their original packaging until ready for use.

DO NOT test Lithium batteries for capacity with a test set. No external test set exists that provides a reliable result.

DO NOT store batteries in unused equipment for more than 30 days.

If a battery compartment becomes hot to the touch, if it hisses or makes a burping sound, or if you smell an irritating gas:

    TURN OFF the equipment immediately and clear the area if you smell the pungent Sulfur Dioxide.

    Let the equipment cool for at least an hour.

    After the equipment is cool and the odor has cleared, remove the battery or batteries.

    Install new battery or batteries and resume operation.

    If the equipment again becomes hot to the touch, go through the above steps but do not install new batteries.

DO NOT place Lithium batteries in ordinary trash; turn them in for disposal in accordance with local regulations.

DO NOT store Lithium batteries with other hazardous materials and keep them away from open flame or heat.

DO NOT use water to fight a Lithium battery fire. This is an extremely intense fire frequently characterized by a bright red flame. Carbon Dioxide or dry chemical fire extinguishers are effective in fighting fires

of other combustibles and in keeping the batteries cool when exposed to fires in the vicinity. Sprinklers are recommended for storage areas to douse fires of other combustible materials and to keep batteries cool.

NEVER use a Halon type fire extinguisher on a Lithium battery fire. This will only increase the intensity of the fire.

In the event of a Lithium fire, immediately EVACUATE THE AREA and contact the appropriate emergency authorities. Class D fire extinguishers are to be used only by professional fire fighters.

If you experience a safety hazard or incident, notify your unit Safety Officer; file a SF 368 (Product Quality Deficiency Report); and notify the CE-LCMC Safety Office, Ft. Monmouth, NJ, DSN 987-7445 or commercial (732) 427-7445.

MANPACK LONG ANTENNA SAFETY PRECAUTIONS

<div style="border:1px solid black;">

WARNING

DEATH OR SERIOUS INJURY CAN OCCUR IF THE ANTENNA COMES INTO CONTACT WITH OVERHEAD POWER LINES

Never fully extend the long antenna directly under power lines. If you must fully extend the long antenna near power lines, power line poles or towers, or buildings with overhead power line connections, never come closer than two times the antenna height from the base of the power line, pole tower, or building.

Stop before you get close to the power line and check for clearance before passing. If needed, either tie down the antenna or remove the antenna to make sure that you can safely pass under the power line.

When mission permits, use the short antenna during operations on the move. If you must use the long antenna on the move, never pass under power lines if there is any doubt about overhead clearance.

For additional safety information, refer to TB 43-0129, Safety Requirements for Use of Antenna and Mast Equipment.

</div>

VEHICULAR ANTENNA SAFETY PRECAUTIONS

WARNING

DEATH OR SERIOUS INJURY CAN OCCUR IF THE ANTENNA COMES INTO CONTACT WITH OVERHEAD POWER LINES

Do not stop your vehicle under power lines.

When mobile, never pass under power lines if there is any doubt about overhead clearance.

If you are not sure that an antenna on your vehicle will clear a power line, stop before you get close to the power line and either tie down the antenna or, if necessary, remove the antenna to make sure that you can safely drive under the power line.

During cross-country operations, do not allow anyone to stick an arm, leg, or weapon over the sides of the vehicle. If your antenna accidentally touches a power line, individuals who are in contact with vegetation or the ground could suffer death or severe injury.

For additional safety information, refer to TB 43-0129, Safety Requirements for Use of Antenna and Mast Equipment.

CAUTION

SINCGARS HUB and ANCD batteries look similar and can be physically interchanged. The HUB battery is 6.5 Volts, while ANCD batteries are 3 Volts each. If three HUB batteries are mistakenly placed in an ANCD, the ANCD will be destroyed. Placing one ANCD battery in the SIP radio HUB position will cause the RT to lose its fill of data.

Be sure you know which battery you are installing. Always read the label before installing either HUB or ANCD batteries!

CAUTION

TURN RADIO OFF WHEN NOT IN USE.

Turn Loudspeaker LS-671 power switch **OFF** when radio is not in use to prevent drain on vehicle batteries.

Technical Manual
HEADQUARTERS
DEPARTMENT OF THE ARMY
No. 11-5820-890-10-6
WASHINGTON, D.C., 1 JULY 2007

TECHNICAL MANUAL

SINCGARS GROUND ICOM RADIOS

Used with
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MANPACK RADIOS AN/PRC-119A/D/F
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VEHICULAR RADIOS
AN/VRC-87A/D/F thru AN/VRC-92A/D/F)
(NSN: N/A) (EIC: N/A)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms)
directly to: Commander, U.S. Army Communications-Electronics Life Cycle Management Command (C-E LCMC) and Fort Monmouth, ATTN: AMSEL-LC-LEO-E-ED, Fort Monmouth, NJ 07703-5006. You may also send in your recommended changes via electronic mail or by fax.

Our e-mail address is MONM-AMSELLEOPUBSCHG@conus.army.mil.

Our fax number is 732-532-3421, DSN 992-3421

Our online web address for submitting DA Form 2028 is
http://edm.monmouth.army.mil/pubs/2028.html

A reply will be furnished to you.

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*This manual supersedes TM 11-5820-890-10-6, dated 1 December 1998.

Distribution Statement A: Approved for public release; distribution is unlimited.

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Chapter 1. General Information

WP 0001: General Information

Purpose

To provide operators of SINCGARS manpack and vehicular radios with an easy to carry, quick reference guide to assist in task performance. Using this pocket guide, the operator should be able to perform without assistance all <u>Primary</u> operator tasks, and those <u>Special</u> tasks for which specifically trained.

Scope

This pocket guide covers the five Primary and ten Special Sincgars operator tasks. Initial preparation and two additional Special tasks are provided for ASIP operators. Tasks for the use of the PLGR, HRCRD, EGR and CDU with Sincgars are also included. Tasks are presented in flowchart format, with the minimum essential explanation. Refer to the appropriate Operator's manuals when additional information is needed.

Nomenclature

Sincgars radio system nomenclatures indicate which version of the RT (and VAA) is used.

RT	Type	System Nomenclature
RT-1523 RT-1523A RT-1523B	ICOM	Manpack: AN/PRC-119A Vehicular: AN/VRC-87A thru AN/VRC-92A
RT-1523C RT-1523D	SIP	Manpack: AN/PRC-119D Vehicular: AN/VRC-87D thru AN/VRC-92D
RT-1523E RT-1523F	ASIP	Manpack: AN/PRC-119F Vehicular: AN/VRC-87F thru AN/VRC-92F

Auxiliary Items

The Automated Net Control Device (ANCD), Simple Key Loader (SKL) and Precision Lightweight GPS Receiver (PLGR) are to be authorized and employed in conjunction with SINCGARS.

References:
SINCGARS NCS Pocket Guide, TM 11-5820-890-10-7
SINCGARS Operator's manual, TM 11-5820-890-10-8
PLGR Operator and Maintenance manual, TM 11-5825-291-13
ANCD (Used with SINCGARS), TB 11-5820-890-12
ANCD Operator and Maintenance manual, TB 11-5810-394-12
SKL Operator and Maintenance manual, TM 11-7010-354-12&P

Abbreviations:

ANCD	Automated Net Control Device
ASIP	Advanced System Improvement Program
BPS	Bits Per Second
CID	Combat Identification
CDU	Control Display Unit
COMSEC	Communications Security
CT	Cipher Text
DTD	Data Transfer Device
EDM	Enhanced Data Mode
EGR	Embedded GPS Receiver
EXT	External
FH	Frequency Hopping
GPS	Global Positioning System
HRCRD	Handheld Remote Control Radio Device
ICOM	Integrated Communications Security
INC	Internet Controller
KEK	Key Encryption Key
LDE	Local Data Entry
N	New or Enhanced Data Mode
NCS	Net Control Station
PCKT	Packet Data Mode
PLGR	Precision Lightweight GPS Receiver
PT	Plain Text
RCU	Remote Control Unit
RCU (RT)	SIP/ASIP used as an RCU
SA	Situational Awareness
SIP	System Improvement Program
SKL	Simple Key Loader
TEK	Traffic Encryption Key
TFOM	Time Figure of Merit
VAA	Vehicular Amplifier Adapter
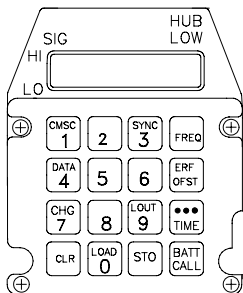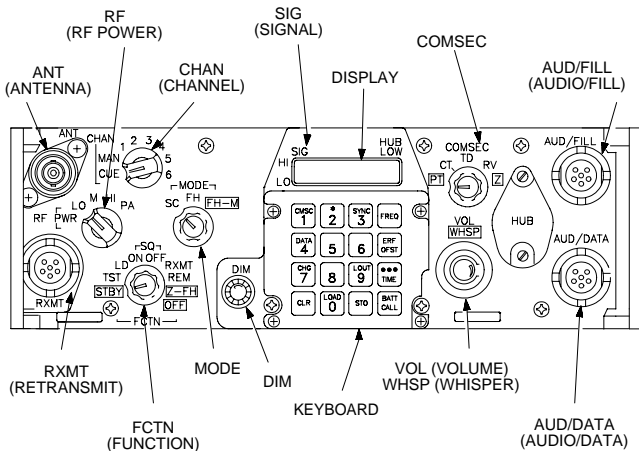
RT-1523/A/B KEYBOARD

Figure 1. RT-1523/A/B FRONT PANEL - ICOM

0001-3
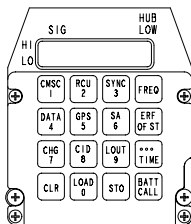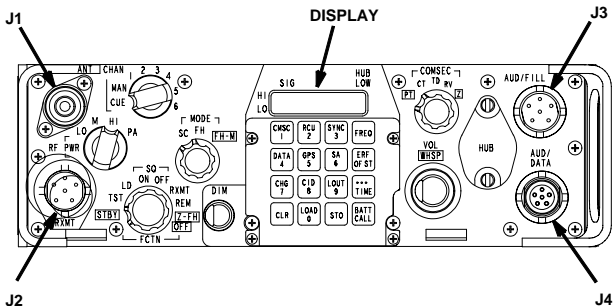
RT-1523C/D (SIP) KEYBOARD

Four keys redesignated on SIP keypad:

SA – Situational Awareness

CID – Combat Identification

RCU – enables use of SIP RT as an RCU

GPS – enables loading of GPS time

Figure 2. RT-1523C/D FRONT PANEL - SIP

0001-4
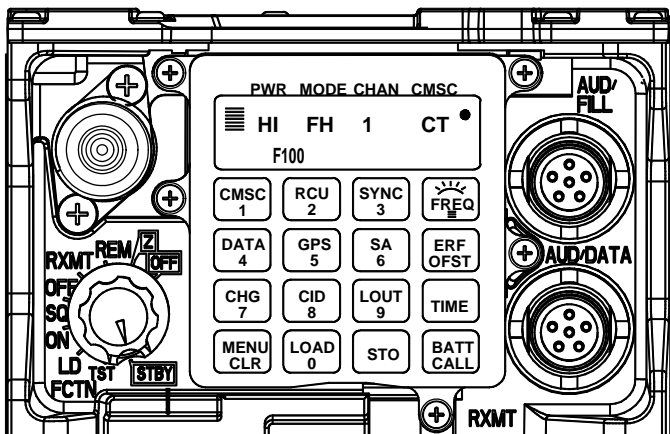
Figure 3. RT-1523E/F FRONT PANEL - ASIP
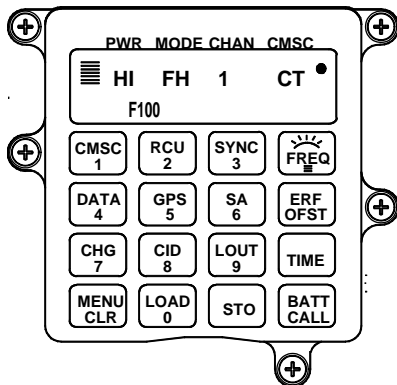
Six keys redesignated on ASIP keypad:

MENU key scrolls through MENU options.

FREQ/Backlight key controls backlight brightness. RT must be in SQ ON; CHG key scrolls brightness level.

GPS – displays current GPS setting: OFF, AUTO, PER, MOV; Also enables loading of GPS time and EGR key.

RCU – enables use of SIP RT as an RCU

SA – displays current SA receive selection: ON or OFF.

CID – displays CID status: NO ID or CID.

Figure 4. RT-1523E/F KEYBOARD - ASIP

FRONT VIEW >
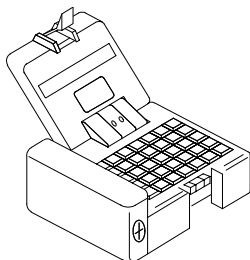
REAR VIEW >
(cover open)
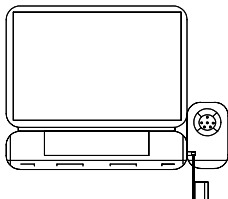
LAMP	ZERO	MAIN MENU	RCV	SEND	ABORT	ON/ OFF
A P UP	B BAT	C CLR	D DELE	E 7	F 8	G 9
H P DN	I ↑	J	K	L 4	M 5	N 6
O ←	P SPACE	Q →	R	S 1	T 2	U 3
LOCK LTR	V ↓	W -	X /	Y 0	Z .	ENTR

Figure 5. ANCD, AN/CYZ-10

0001-7
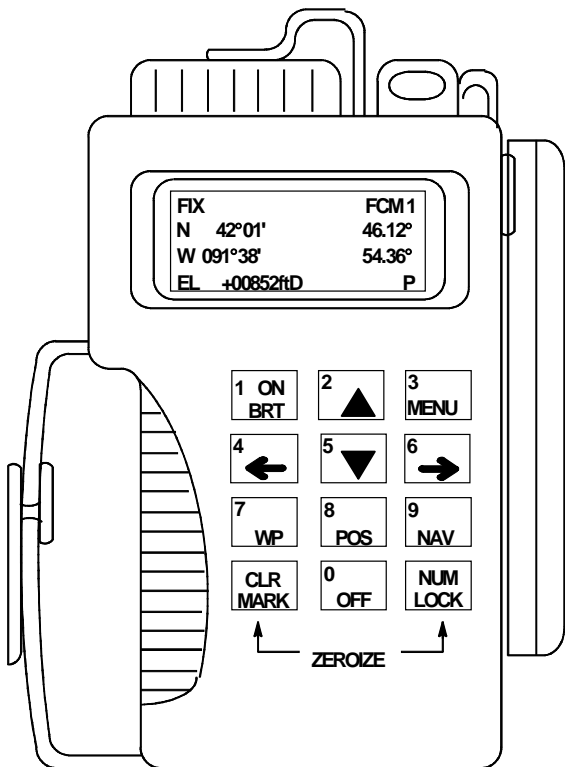
Figure 6. PLGR, AN/PSN-11

0001-8
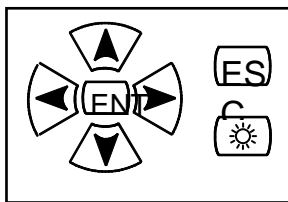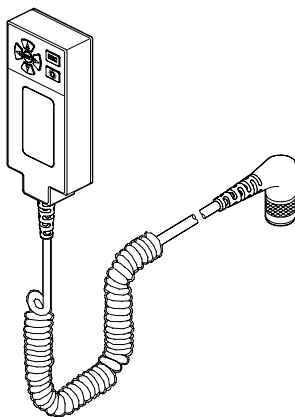
Figure 7. CONTROL DISPLAY UNIT

KOV Light

Fill Port

Zeroize Button

Power Push Button
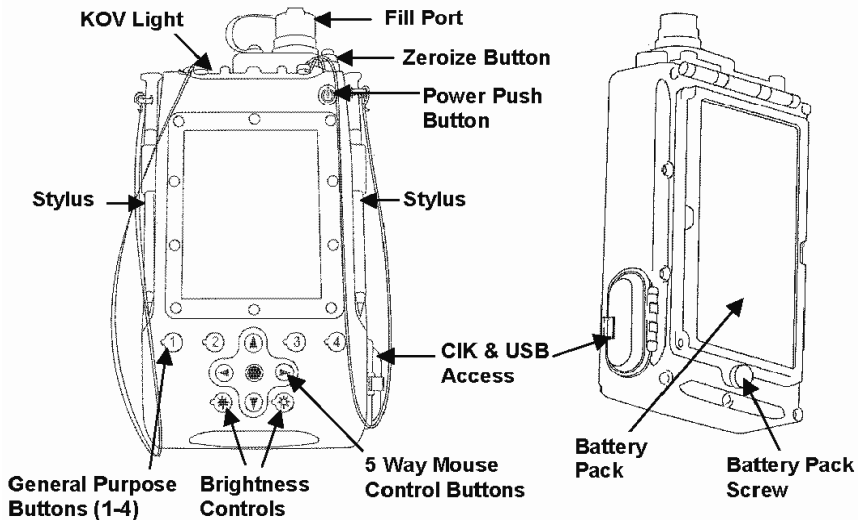
Chapter 2. Operator Tasks

WP 0002: RT-1523E/F (ASIP) Preparation Tasks

Preparation Task 1: Select RT Preparation Settings from MENU

SUBTASKS	ACTION	RESULTS
a. Set RT Volume	1. Press MENU 2. Press number key (1-9) for Vol setting, (0) for Whisper Mode	Display shows Vol level; WHSP if 0 is entered
b. Set RT Channel	1. Press MENU (until CHAN) 2. Press number key (1-6) for Channel desired; (0) for MAN, (7) for CUE	Display shows (1-6), (M) for Manual, (Q) for CUE,
c. Set RT Power	1. Press MENU (until PWR) 2. Press CHG for desired PWR setting	Display shows (LO, M, HI, PA)
d. Set RT Mode	1. Press MENU (until MODE) 2. Press CHG for desired MODE	Display shows (SC, FH, FHM, FH2, FH2M)
e. Set COMSEC	1. Press MENU (until CMSC) 2. Press CHG for desired CMSC setting	Display shows (PT, CT, TD, RV)
f. Set Backlight	1. Place RT in SQ ON 2. Press FREQ/Backlight 3. Press CHG until desired setting	Backlight lights (4 settings: Low to High, then OFF)

Default settings are:
VOL (5), CHAN (1), PWR (LO), MODE (FH), COMSEC (CT)

END OF WORK PACKAGE

0002-1/2 blank

Primary Task 1:	**Load SC Frequencies into SINCGARS RT:** Required for Cold Start net opening, CUE and ERF method of Late Net Entry, single channel communications, and SC frequency updates.
Primary Task 2:	**Load COMSEC/FH Data/Sync Time Using ANCD*:** Required for Hot Start Net Opening, Cold Start net opening (less sync time), and COMSEC/FH Data updates (less sync time).
Primary Task 3:	**Perform Hot Start Net Opening:** Required when net has been down and is now to become operational at a prescribed time; and may be used when an individual operator has been out of the net for any reason and wishes to re-enter the net without resort to CUE and ERF.
Primary Task 4:	**Perform Passive Late Net Entry:** Required when RT sync time becomes more than 4 seconds but less than one minute off from net sync time; enables individual operator to re-enter net without action on the part of the NCS.
Primary Task 5:	**Obtain SOI Information from ANCD*:** Required when SOI info on Nets, Suffixes, Pyro/Smoke, or Sign/Countersign is needed; may be used to view QREF related items in Group, Time Period, Set, Find, and Memo; used to obtain net ID of net not in current loadset.

NOTE:

ANCD displays are shown in cells highlighted with dark borders, RT messages state "Display shows" without the dark border.

* For SKL, see TM 11-7010-354-12&P

Primary Task 1: Load Single Channel Freq into SINCGARS RT

SUBTASKS	ACTION	RESULTS
a. Prepare to perform task	1. Obtain proper freqs from ANCD* Set RT controls: COMSEC to PT *** MODE to SC FCTN to Z-FH, TST, then LD CHAN to MAN, CUE, or 1-6	(Load CUE freq only if directed)** RT display shown [GOOD] (or see unit maintainer)
b. Load SC freq	1). Press: FREQ CLR XXXXX (Freq) STO	Display shows [00000] or [30000] Display shows [_ _ _ _ _] Display shows SC freq entered Display blinks (data is stored)
	2). Repeat step b(1) for each freq needed	(As directed by NCS or unit SOP)
	3). Set: FCTN to SQ ON	Loading of SC freq is complete

* In units using secure, FH nets, operators normally load on a routine basis only a MAN SC frequency. CUE and CHAN 1-6 SC frequencies are loaded only as needed or directed.

** Only NCS and Alt NCS routinely load a CUE frequency.

*** RT settings for RT-1523E/F are set via MENU.

Primary Task 2: Load COMSEC/FH Data/Sync Time Using ANCD*

NOTE: Set RT controls to CT, LD, FH, MAN, and DATA OFF. (There is no requirement to clear a COMSEC alarm.)*****

1). select:
    Soi <u>Radio</u> sUpervisor
	6). Set FCTN switch to LD
	    on RT [↓]

2). <u>Send</u> Receive Database
    sEtup Comsec Time
	7). Do you want to include
	    time?**** (<u>Y</u>/N)

3). send to: <u>Radio</u> Ancd Stu Pc	8). Press [LOAD] on RT

4). select:** <u>iCom</u> Nonicom
    Abn   Rcu   Haveq
	9). Transfer in progress/
	    Transfer successful

5). Connect to RT
    AUD/FILL Connector   [↓]
	10). RT cannot accept time
	    from ANCD

* This ICOM Fill procedure loads the radio with COMSEC keys, FH data, and sync time for all six SINCGARS channels.

** Select "Rcu" to fill an RCU, C-11561, with COMSEC keys. Procedure is the same as that shown for "iCom."

*** Throughout this manual, when [↓] appears in the lower right corner of a screen, you must press the down arrow to proceed.

**** Load time as part of ICOM Fill during net openings and Hot Start Late Net Entry only, not net updates.

***** RT settings for RT-1523E/F are set via MENU.

Primary Task 3: Perform Hot Start Net Opening

SUBTASK	ACTION	RESULT
a. Load RT with COMSEC/FH Data and Time*	(See Primary Task 2 for ICOM Fill)	COMSEC/FH data and time load into all 6 channels of the RT
b. Enter net	Call NCS in CT, FH and request to enter net	Hot Start net opening is complete

* All SIP radios will accept time from an ANCD or SKL as part of a loadset and from a PLGR as a separate loading of time.

Primary Task 4: Perform Passive Late Net Entry (LNE)

SUBTASK	ACTION	RESULT
Use Passive method of Late Net Entry	1). Press: FREQ SYNC	 Display shows [F XXX] Display shows [LF XXX]
	2). Wait for radio traffic to be heard. (Do not press PTT)	Display shows [F XXX] ("L" is dropped)
	3). Call NCS and Re-enter net	Passive LNE is complete**

** If traffic is not heard for 3 minutes or so after using Passive Late Net Entry method, use the Hot Start procedure or CUE and ERF method.

Primary Task 5: Obtain SOI Information from ANCD

(Assumes QREF has been loaded into Operator's ANCD)

1). To look at any of the QREF items, perform the following steps:

```
select:
  Soi  Radio  sUpervisor

qRef*  Group  Net  sufX  Pyro
Tmpd  Set    C/s  Find  Memo
```

*Last item viewed appears in display.

2). QREF displays up to 40 items from Net, sufX, Pyro, or C/s, available by scrolling. For each net stored as QREF items, the following information is available to the QREF user: net name, CUE frequency, MAN frequency, time period, call sign, net ID, and call word. To view items in Group, Tmpd, Set, Find, and Memo, as extensions of QREF entries, return to the main SOI menu and select the type of information needed. In viewing QREF or extension entries, be sure you have the correct time period selected.

3). Rules to remember in obtaining SOI information from the ANCD:

ABORT	Causes ANCD to return to SOI menu
Arrow down [↓]	You must press the down arrow to go to next screen
Arrow right/arrow left	Allows viewing of additional information and return
Arrow up/arrow down	Allows viewing of each item
DELETE [DELE]	To delete SOI set, enter SOI, then Set, and press DELE key
ENTER [ENTR]	Causes activation of the entry you have selected

Hot keys	Capital letter of selection (eg, suf<u>X</u>). Allows direct shift from QREF to full SOI file category.
"J" key (JUMP)	In Find, causes ANCD to continue search for next item
"K" key (KEEP)	Causes item being viewed to be stored in QREF file
MAIN MENU	Returns you to SOI/RADIO/ SUPERVISOR menu
PgUP/PgDN	Moves to top or bottom of list
ZERO (red button)	Used in combat emergency only; DO NOT use for deletions

4). Following are examples of the information which may be available in a full SOI information file.*

    a. GROUP: (Group)

> qRef <u>Group</u> Net sufX Pyro
> Tmpd Set C/s Find Memo
>
> TO1 Set:52ID DEM 003
> 003 52ID SPT

* Once a time period has been selected, the same time period will appear each subsequent time the ANCD is turned on. Thus, you need to change the time period only when advancing to the next day. To change the time period, enter TMPD and make time period selection.

b. NET: (Net)

```
qRef  Group Net sufX Pyro
Tmpd Set    C/s Find Memo
```

```
TO6 1-4 FA BN W7T
C81975 M74800 0424
```

```
TO6 1-4 FA BN W7T
Callwrd:BULLDOG*
```

* Obtained by pressing right arrow.
(Press left arrow to return.)

c. SUFFIX: (sufX)

```
qRef  Group Net sufX Pyro
Tmpd Set    C/s Find Memo
```

```
Commander            02
COFS/XO              27
```

d. PYRO: (Pyro)

```
qRef  Group Net sufX Pyro
Tmpd Set    C/s Find Memo
```

```
GREEN SMOKE**

                    [↓/→]
```

```
Safe to land or drop
supplies here**
```

** Meaning of signal is obtained by
pressing right arrow. (Press left
arrow to return.)

e. TIME PERIOD: (Tmpd)

```
qRef  Group Net sufX Pyro
Tmpd  Set   C/s Find Memo
```

```
Enter Time Pd:
=> # #
```

f. SET: (Set)*

```
qRef  Group Net sufX Pyro
Tmpd  Set   C/s Find Memo
```

```
select:
Choose Send Receive
```

```
Scroll ↑/↓, press
ENTR to select set      [↓]
```

```
Set: (name/nr)
Edn: (name/tp)          [ENTR]
```

* A set may be deleted by entering
Set and pressing the DELE key on
the ANCD

g. SIGN/CNTRSIGN: (C/s)

```
qRef  Group Net sufX Pyro
Tmpd  Set   C/s Find Memo
```

```
TO1 Sign: HARDWOOD
Cntrsign: SNEAKER
```

h. FIND:***** (Find)

```
qRef  Group Net sufX Pyro
Tmpd Set    C/s  Find  Memo
```

```
Find: Net  nEtid  Sfx  Word
Clsgn Grp gRp# Des Frq
```

* FIND is used with full SOI file for
quick location of item desired. If
first item viewed is not the desired
one, press "J" to cause ANCD to
continue search.

i. MEMO:****** (Memo)

```
qRef  Group Net sufX Pyro
Tmpd Set    C/s  Find  Memo
```

```
Memo: 1-      2-
         3-      4-
```

** Each of 4 Memos may be 6 lines
of 22 spaces each. Memos will be
included in transfer of SOI data
(QREF or Full SOI File).

END OF WORK PACKAGE

WP 0004: Special Operator Tasks

Special Task 1: **Transfer COMSEC/FH Data, ANCD to ANCD*:**
Used when individual operators are required to
load their own ANCD from a shared unit ANCD.
*For SKL, see TM 11-7010-354-12&P

Special Task 2: **Transfer QREF SOI Information, ANCD to
ANCD*:**
Used when individual operators are required to
load their own ANCD from a shared unit ANCD.
*For SKL, see TM 11-7010-354-12&P

Special Task 3: **Perform Cold Start Net Opening:**
This provides NCS an alternate method of net
opening, if desired. Net operators respond to NCS
direction to receive and store ERF broadcast by
the NCS.

Special Task 4: **Receive Net Update ERF from NCS:**
Used when NCS needs to update some element
of FH data using electronic transfer means.
Operator requirements are similar to the Cold Start
net opening.

Special Task 5: **Perform CUE & ERF Late Net Entry:**
This is required when sync time in RT is more than
60 seconds different from that of operational net.
SIP radio allows up to 100 hours sync time
difference for CUE and ERF late net entry.

Special Task 6: **Conduct RXMT Operations**
Used when one or more net stations are out of
normal SINCGARS range or an obstacle blocks
line of sight communications. (See NOTE next
page.)

Special Task 7: **Send an ERF as Part of RXMT Operation:**
Used during RXMT operations when required to establish initial contact with distant station.

Special Task 8: **Change Net ID:**
Used when contact with a non-loadset station is desired. Operator changes one, two, or all three digits of the net ID.

Special Task 9: **Use SIP/ASIP RT as an RCU:**
Used when remote control of a radio is required. A SIP/ASIP RT cannot be used in an RCU configuration when HRCRD is being used.

Special Task 10: **Send Data Via RS-232 Mode:**
Used when data message is to be sent from one computer to another over a SINCGARS net. Uses Xmodem file transfer protocol.

NOTE:

DATA RXMT: All data rates except PCKT may be RXMT with the following provisions:

1. SDM data: TF and AD1: No change to normal RXMT procedures. Radios do not have to be set in Data mode (data off). Mixed radios at RXMT site or outstations is permitted.

2. EDM Data: Radios at the RXMT site have to be set to the same EDM data rates as outstations, ONLY SIP/ASIP radios can be used at the RXMT site and outstations

Special Task 1: Transfer COMSEC/FH Data, ANCD to ANCD****

SOURCE ANCD	TARGET ANCD

1). select:
    Soi <u>Radio</u> sUpervisor
	1). select:
	    Soi <u>Radio</u> sUpervisor

2). <u>Send</u> Receive Database
    sEtup Comsec Time
	2). Send <u>Receive</u> Database
	    sEtup Comsec Time

3). send to: Radio <u>Ancd</u> Stu Pc	3). receive: <u>Ancd</u> Cfd Stu Pc Mx

4). Loadset <u>Database</u>* Time
    Key   Eset   Mwod
	4). Loadset <u>Database</u> Time
	    Key Eset Mwod

5). Do you want to include
    time?   (<u>Y</u>/N)
	5). Want to delete***
	    FH&COMSEC data? (<u>Y</u>/N)

6). Connect to ANCD
    (WAIT)**
    Press [SEND] when ready
	6). Connect to ANCD and
	    press [RCV] after Source
	    ANCD begins sending**

7). Transfer in progress/
    Transfer successful
	7). Transfer in progress/
	    Transfer successful

* You must enter "DATABASE" to proceed.

** DO NOT press [SEND] until you are ready to press [RCV]. Then press [RCV] within about 20 seconds of pressing [SEND].

*** You must enter "YES" to proceed.

**** For SKL, see TM 11-7010-354-12&P.

NOTE:
You can clear your ANCD of COMSEC/FH data by performing Target ANCD Steps 1-5, above, and pressing ABORT.

Special Task 2: Transfer QREF SOI Information, ANCD to ANCD

SOURCE ANCD	TARGET ANCD
1). select: Soi Radio sUpervisor	1). select: Soi Radio sUpervisor
2). qRef Group Net sufX Pyro Tmpd Set C/s Find Memo	2). qRef Group Net sufX Pyro Tmpd Set C/s Find Memo
3). select: Choose Send Receive	3). select: Choose Send Receive
4). Scroll (↑/↓) and press ENTR to select Set [↓]	4). receive from: Ancd Pc Broadcast Stu
5). Set: (name/nr) Edn: (name/tp) [ENTR]	5). Connect ANCD to ANCD [↓]
6). Do you want to transfer QREF?* (Y/N)	6). Press [RCV] to receive**
7). send to: ANCD Pc Broadcast Stu	7). Processing Please wait (shows nr of bytes sent)
8). Connect ANCD to ANCD [↓]	8). Receive operation was successful [↓]
9). (WAIT)** Press [SEND] to send	
10). Processing Please wait (shows % of bytes sent)	
11). Sending of SOI data is completed [↓]	

* You must select YES.

** DO NOT press SEND until ready to press RCV. Then press RVC within 20 seconds.

Special Task 2 (Alt): Transfer Full SOI Information, ANCD to ANCD*

SOURCE ANCD	TARGET ANCD

1). select:
   Soi   Radio   sUpervisor
	1). select:
	   Soi Radio sUpervisor

2). qRef Group Net sufX Pyro
   Tmpd Set   C/s Find Memo
	2). qRef Group Net SufX Pyro
	   Tmpd Set C/s Find Memo

3). select:
   Choose Send Receive
	3). select:
	   Choose Send Receive

4). Scroll (↑/↓) & press
   ENTR to select Set   [↓]
	4). receive from:
	   Ancd Pc Broadcast Stu

5). Set: (name/nr)
   Edn: (name/tp)   [ENTR]
	5). Connect ANCD to ANCD
	                    [↓]

6**). Do you want to transfer QREF?*** (Y/N)	6). Press [RCV] to receive****

7**). Want to specify
   groups to send?*** (Y/N)
	7). Processing Please wait
	   (shows nr of bytes sent)

8**). Want to specify a time
   pd to send?   (Y/N)
	8). Receive operation was
	   successful [↓]

9**). Include Suffix & Smoke/ Pyro data? (Y/N)	
10). Send to: Ancd Pc Broadcast Stu	
11). Connect ANCD to ANCD [↓]	

| 12). (WAIT) **** |
| Press [SEND] to send |

| 13). Processing Please wait |
| (shows % of bytes sent) |

| 14). Sending of SOI data is |
| completed |

* Special Task 2 enables the operator to download quick reference (QREF) file containing up to 40 data items. The QREF gives the operator easy and quick access to selected items of SOI information. Special Task 2 (Alt) enables those operator who need more SOI information than is contained in the QREF to download the complete SOI information file in addition to, or in lieu of, the QREF.

** Screen appear only when related data is stored in the ANCD.

*** You must enter NO to transfer full SOI.

**** DO NOT press [SEND] until ready to press [RCV]. Then press [RCV] within 20 seconds of pressing [SEND].

Special Task 3: Perform Cold Start Net Opening

SUBTASK	ACTION	RESULT
a. Prepare radio to receive an ERF	1). Load MAN (SC) freq into RT	(See Primary Operator Task 1)
	2). Load RT with COMSEC/FH data	(See Primary Operator Task 2)
	3). Set: *** FCTN to LD COMSEC to CT* CHAN to MAN MODE to FH	Display shows [COLD] (ready)
b. Receive and store ERF	1). Standby until NCS sends ERF	N/A
	2). Note Signal Display activate	Display shows [HF XXX]
	3). Press: STO	Display shows [STO __]
	4). Press: X (1-6)	Display shows [STO X]; blinks
c. Check communications	1). Set: CHAN to X FCTN to SQ ON	N/A
	2). Call or respond to NCS**	Cold Start net opening is complete

* Net may open in PT if COMSEC is not a consideration.

** If contact with NCS fails, standby on MAN channel for NCS call.

*** RT settings for RT-1523E/F are set via MENU.

Special Task 4: Receive Net Update ERF from NCS

SUBTASK	ACTION	RESULT
a. Prepare to receive net update	1). Stay on net operational channel	N/A
	2). Set: FCTN to LD	N/A
b. Receive and store net update	1) Standby for NCS to send ERF	N/A
	2). Note Signal Display activation	Display shows [HF XXX]
	3). Press: STO	Display shows [STO __]
	4). Enter: X (1-6)*	Display shows [STO X], blinks
c. Check communications	1). Set: CHAN to X FCTN to SQ ON	N/A
	2). Call or respond to NCS call	Net update ERF is complete**

* NCS will direct the channel for storage of ERF. When update becomes effective, this channel becomes new net operational channel.

** It is assumed that the Operator has the same COMSEC key loaded in channels 1 thru 5/6

Special Task 5: Perform CUE & ERF Late Net Entry

SUBTASK	ACTION	RESULT
Use CUE and ERF Method of LNE*	1). Load CUE freq (and MAN if not loaded)	(See Primary Operator Task 1)
	2). Set COMSEC to PT	(RT must be in PT to send CUE)
	3). Press PTT (4-5 sec)	(Press PTT, but do not talk)
	4). Set (at once) COMSEC to CT	(NCS/Alt NCS will answer in CT)
	5). Wait for answer	N/A
	6). Repeat: every 15 seconds until NCS answers	(CUE goes through only if net is quiet)
	7). Request NCS send you an ERF	(Go to MAN when NCS directs)
	8). Receive and store ERF when sent	(See Special Operator Task 4)
	9). Re-enter net	CUE and ERF LNE is complete

* An operator having a loaded ANCD or SKL and access to GPS time may elect to re-enter the net by use of the Hot Start procedure.

Special Task 6: Conduct Retransmission (RXMT) Operations

SUBTASK	ACTION	RESULT
a. Prepare for RXMT mission*	1). Obtain SC/FH data for RXMT	N/A
	2). Load RXMT radios	Ready to operate at RXMT site
	3). Move to RXMT site	N/A
b. Establish comm from RXMT site	1). Call NCS on F1 using Radio-C	Radio-A has comm to Radio-C on F1
	2). Call Radio-B using Radio-D	(RXMT crew may have to relocate)
	3). Send ERF to Radio-B if required	Syncs Radio-B with Radio-D
c. Initiate Radio-A to Radio-B comm	1). Install RXMT cable Radio-C to -D	Required for RXMT operation
	2). Set Radio-C to FH and -D to FH-M	Radio-A and -D serve NCS role
	3). Request Radio-A call -B via RXMT	N/A (Perform Step 4 at once)
	4). Set Radio-C and -D FCTN to RXMT	RXMT operation is ongoing**

* See RXMT Graphic below for identification of RTs and net IDS and frequency.

** Mixed mode RXMT (FH-SC/SC-FH) is slower than FH mode RXMT

RETRANSMISSION GRAPHIC
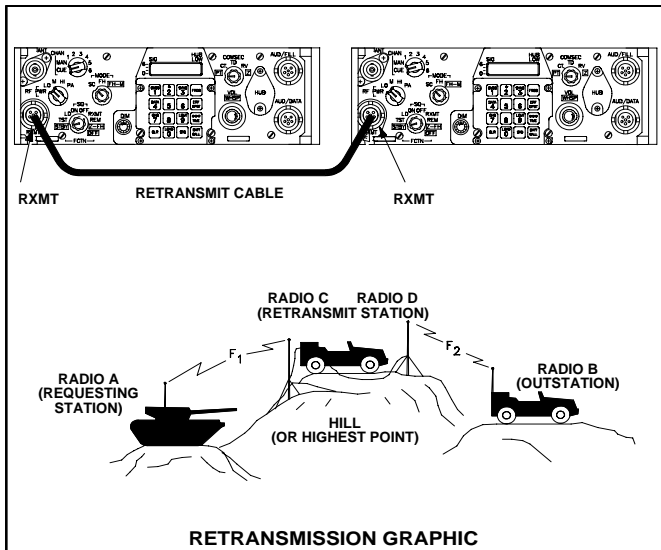
NOTES:

1). An RXMT station operating in EDM mode will pass both EDM and SDM data traffic, as well as voice messages.

2). For RXMT of RS-232 data, both RXMT radios must be set to the data rate used for RS-232 data transfer. Transfer of data by RS-232 mode through an RXMT station requires a longer time than FH only RXMT or point-to-point RS-232 traffic.

3). Mixed mode RXMT (SC to FH, FH to SC) of data traffic can be passed in SDM mode only, not in EDM mode.

Special Task 7: Send an ERF as Part of RXMT Operation

SUBTASK	ACTION	RESULT
a. Obtain data to be sent by ERF	Load data into Radio-D	Prepares Radio-D to send an ERF
b. Contact receiving station	Alert Radio-B that ERF is to be sent	N/A
c. Send ERF	1). Set Radio-D to LD and FH-M	Required for sending an ERF
	2). Press LOAD	Display shows [HLD _]
	3). Enter Chan where data stored	Display shows [HF xxx]
	4). Press ERF	Display shows [SEND]
	5). Set FCTN to SQ ON	Display is cleared
d. Check communications	1). Wait for Radio-B to store ERF	(20-30 sec should be adequate)
	2). Call Radio-B to confirm ERF	(Sending of ERF is complete)

Special Task 8: Change Net ID

SUBTASK	ACTION	RESULT
a. Set proper RT controls	1) Set:* FCTN to LD CHAN to 1-6 (chan in which data is stored)	
b. Enter new Net ID in RT	2) Press: FREQ CLR ID numbers (3) STO	Display shows: [F XXX] Display shows: [F _ _ _] Display shows: [F XXX] Display blinks; net ID is stored
c. Resume normal communications	3). Set: FCTN to SQ ON CHAN to 1-6 (as desired)	New Net ID is now available for use

* The SIP radio allows a change of all three digits of a net ID with the MODE switch set to FH or FH-M.

Special Task 9: Use SIP/ASIP RT as an RCU

STEP	ACTION	RESULT
1	Load RT & RCU(RT) with proper data	Prepares for remote operations*
2	Install wire link from RCU(RT) to Rem radio	(See TM 11-5820-890-10-8 for setup instructions)
3	Set Rem RT FCTN switch to REM position	Enables RCU(RT) to control Rem radio
4	Set RCU(RT) FCTN switch to SQ ON	(LD, SQ OFF, and RXMT may also be used)
5	Set RCU(RT) DATA to any option	N/A
6	Press [RCU] key on RCU(RT); select "RCU"	"RT," "RCU," "EXT," and "LDE" show in RT display
7	Wait 7 sec; then note RCU(RT) display blink	SIP RT is now ready to perform as an RCU(RT)
8	Set RCU(RT) FCTN to REM position ***	Enables RCU(RT) Opr to call remote radio by wire
9	Press RCU(RT) CALL key & PTT at same time; hold for 4 to 7 seconds	Produces ring tone and CALL message at Rem RT; oprs can talk on orderwire
10	Set RCU(RT) FCTN to SQ ON	Remoted radio is now controlled by RCU(RT)

* For use of a SIP RT as either a manpack RCU or a manpack remoted radio, Battery Box CY-8523A/B is required. ASIP requires a two wire adapter.

** RCU, C-11561, may be used for remote control of a SIP radio for voice and SDM data only, not for EDM data.

*** RCU (RT) COMSEC must be set to PT to talk over the orderwire.

Special Task 10: Use SIP/ASIP RT to Send Data Via RS-232 Mode

STEP	ACTION	RESULT
1	Load PC with commercial comm SW*	Use any SW program offering "Xmodem"
2	Connect PC to SIP RT AUD/DATA port	RS-232 method does not require SW in SIP VAA
3	Alert net data is to be sent via RS-232 mode	If not fixed, coordinate data rate to be used**
4	Select data rate to be used for RS-232 data***	Sending and receiving RTs must use same data rate
5	Prepare data message or load PC with data	N/A
6	Check to ensure net is clear of traffic	Need clear net to ensure data goes through****
7	Follow comm SW procedures to send/ receive RS-232 data	Control is from computer; SIP radio serves as data communications carrier

* Both sending and receiving stations must use the same or compatible communications programs.

** Depending upon the distance between sending and receiving stations, any one of four enhanced data rates may be used for RS-232 traffic: 1200N, 2400N, 4800N, and 9600N.

*** To select data rate, select RS-232 at SIP RT, press ENTER on PC, and note data rate displayed on PC screen.

**** If voice mode has priority of use on your net, it may be necessary to wait for a quiet period to send data messages. (Pressing PTT will not interrupt data flow except to your radio.)

END OF WORK PACKAGE

WP 0005: PLGR Tasks

PLGR Task 1: Obtain Date and GPS Zulu Time from PLGR

SUBTASKS	ACTION	RESULT
a. Place PLGR into operation	1). Press PLGR [ON] key	Power is applied to the PLGR
	2). Observe PLGR perform self-test	No action required of operator
b. Select proper screen and TFOM	1). At end of self-test, note this screen* >>>	FIX** FOM 5 18T MGRS-New WK 82223e 63528n EL-00027m ↑/↓ P
	2). Press down arrow on PLGR, and note this screen >>>	2124:43Z TFOM 4*** 25-12-95 SUN Speed too slow GS < 1mph ↑/↓ P
c. Read date and time from PLGR screen	1). Read date as 25-12-95****	N/A
	2). Read time as 2124, 43 sec, Zulu	PLGR Task 1, Obtaining Date & Time, completed

* In this section, PLGR screens are shown in double lined boxes.

** A battery powered PLGR will automatically go to standby as soon as satellites have been acquired.

*** Time Figure of Merit (TFOM) of 8 or less indicates that PLGR is tracking at least one satellite and GPS time is accurate.

**** When the date read from the PLGR is entered into the ANCD or SKL, it is automatically converted to the two-digit Julian Date needed for SINCGARS sync time.

PLGR Task 2: Manually Load PLGR Date and Zulu Time into ANCD

SUBTASKS	ACTION	RESULT
a. Determine GPS date and Zulu time	1). Perform PLGR Task 1 as shown above	N/A
	2). Read date and time from PLGR (with TFOM of 8 or less)	2124:43Z TFOM 4 25-12-95 MON Speed too slow GS < 1mph ↑/↓ P
b. Prepare ANCD for	1). Turn ANCD ON	select: Soi Radio sUpervisor
	2). Enter: SUPERVISOR	Are you authorized to use this feature? (Y/N)
	3). Respond: YES	WARNING – This could cause data loss. [↓]
	4). Press down arrow [↓]	Are you sure you want to continue? (Y/N)
	5). Respond YES	Appl Date Time Setup Util Bit {MAIN}
c. Load new date and time	1). Enter: DATE	Date is Mon 12-25-1995 New mm-dd-yy:
	2). Enter new date as mm-dd-yy	Date is Mon 12-25-1995 New mm-dd-yy:12-25-95
	3). Press: ENTR	Appl Date Time Setup Util Bit {Main}

SUBTASKS	ACTION	RESULT
	4). Enter TIME	Time is 14:53:27 New hh:mm:ss:
	5). Enter new time as hh:mm:ss*	Time is 14:53:27 New hh:mm:ss:21:25:00
	6). When PLGR reads 25:00, press ENTR	Appl Date Time Setup Util Bit {MAIN}
	7). Enter APPL	SOI RADIO RDS
	8). Enter RDS	select:** Soi Radio sUpervisor

* Enter one minute beyond PLGR time and wait until PLGR seconds reach 00 to press ENTR on ANCD. Because the ANCD requires time to load, you may find that pressing ENTR on the ANCD when PLGR time reads :59 gives you a more accurate entry.

** To check the accuracy of your ANCD time entry, enter RADIO, then TIME. You can then read ANCD time in running format and compare it with running time in the PLGR. If the two times are more than one second different, reload PLGR time into your ANCD.

PLGR Task 3: Electronically Load PLGR Date and Time into RT

SUBTASKS	ACTION	RESULT
a. Prepare PLGR for task	1). Turn PLGR ON	N/A
	2). Observe PLGR self-test	N/A
	3). Note this PLGR screen >>>	FIX FOM 5 18T MGRS-New WK 82223e 63528n EL-00027m ↑/↓
	4). Press PLGR MENU key twice; note this screen >>>	DATA-XFR SV-SEL DOP-CALC ALERTS SINCGARS KOI-18 <more>P
	5). Press PLGR right arrow 4 times to Highlight SINCGARS	DATA-XFR SV-SEL DOP-CALC ALERTS <u>SINCGARS</u> KOI-18 <more>P
	6). Press PLGR down arrow to select SINCGARS	SINCGARS Start time fill ACTIVATE QUIT
	7). Press left arrow to highlight ACTIVATE (Do <u>NOT</u> press [↓] yet)	SINCGARS Start time fill <u>ACTIVATE</u> QUIT
b. Prepare RT for transfer	1). Connect PLGR to RT AUD/FILL	N/A
	2). Set RT FCTN to LD	N/A

SUBTASKS	ACTION	RESULT
c. Perform date/time Transfer from PLGR to RT	1). Press PLGR down arrow to select ACTIVATE	SINCGARS Press LOAD key on radio QUIT
	2). Press LOAD on SIP/ASIP RT	SINCGARS time fill successful QUIT
	3). Press PLGR down arrow to select QUIT	Date/time transfer is completed

PLGR Task 4: Load PLGR Key from ANCD into PLGR*

SUBTASK	ACTION	RESULT
a. Prepare PLGR	1). Turn PLGR ON	N/A
	2). Observe PLGR self-test	N/A
	3). Note when this screen appears >>>	FIX FOM 5 18T MGRS-New WK 82223e 63528n EL-00027m ↑/↓ P
	4). Connect W4 to PLGR, but NOT to ANCD yet	N/A
b. Prepare ANCD	1). Turn ANCD ON	select: Soi Radio sUpervisor
	2). Enter RADIO	Send Receive Database sEtup Comsec Time
	3). Enter COMSEC	vG Ld Rv Ak Mk vU
	4). Enter LD	select: Tek Kek
	5). Enter TEK, press PgDN; ENTR	Select key qUit (name/number)
	6). Press PgUP/DN to view, then ENTR	Select key qUit (PLGR key name) XMT
	7). Enter QUIT	Connect ANCD to RT (WAIT)* [↓]

SUBTASK	ACTION	RESULT
c. Load key	1). Press [↓], Do not connect to RT**	Press [LOAD] on RT***
	2). Now connect W4 to ANCD	Key loaded

* For SKL, see TM 11-7010-354-12&P.

** Do not connect W4 to ANCD until directed to do so by the ACTION column. Sequence of task requires that you connect W4 to PLGR, select key to be transferred, and then connect the W4 to the ANCD. When you connect the W4 to the ANCD, the PLGR key is immediately transferred.

*** Ignore this reference to the RT; only the ANCD and PLGR are involved for this task.

END OF WORK PACKAGE

WP 0006: HRCRD Operations

General: The HRCRD is used with the SINCGARS manpack radio, AN/PRC-119A/D/F, and dismount kits of vehicular radios AN/VRC-88A/D/F and AN/VRC-91A/D/F.

Radio Control Using the HRCRD, a manpack radio operator can control the Channel, RF Power, Mode, and COMSEC functions of the radio, without requiring access to the RT. The RT FCTN switch must be set to REM for HRCRD to be functional.

Volume The level of audio volume at the HRCRD can be adjusted by use of the thumb wheel on the side of the HRCRD.

Back Light The HRCRD back light can be turned on with one press of the round light button. A second press of the light button turns the back light off.

Cabling The cable of the HRCRD forms a "Y." Connect P1 (straight connector) to the RT AUD/DATA or AUD/FILL port and connect P2 (right angle connector) to the 6-pin connector on Battery Box CY-8523C or the AUX connector of the RT-1523E/F. (Battery Box CY-8523C is required to use the HRCRD with RT-1523/A/B/C/D in the manpack configuration.)

RT Keypad Access to the RT keypad is required to change the RT FCTN switch, to adjust audio volume at the RT, and to change the light level in the RT display.

Vehicular Use   The HRCRD can also be employed with vehicular configurations that do not include a control-monitor (Radio A only). To do so, connect P1 (straight connector) to the RT AUD/DATA or AUD/FILL port and connect P2 (right angle connector) to the J9 connector (C-M) at the rear of the VAA.
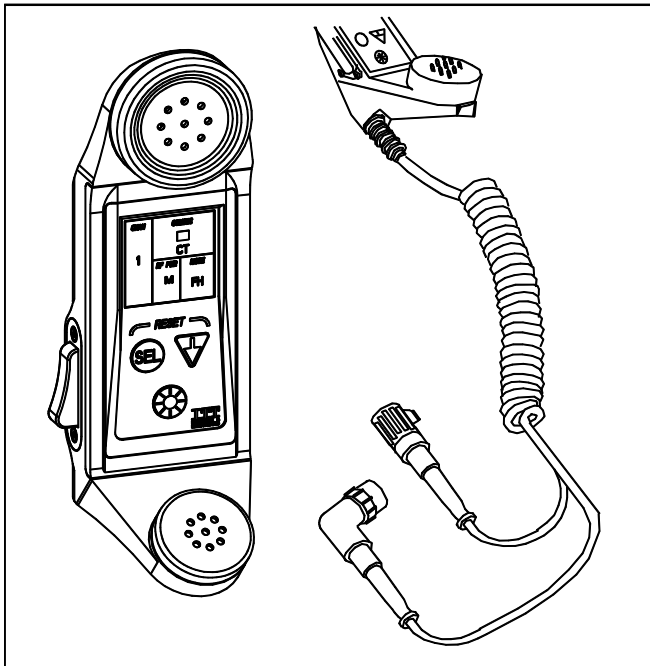
Figure 1. HRCRD

END OF WORKPACKAGE

0006-2

EGR Task 1: Load Combat Identification

NOTE: Your CID will be established by unit SOP

SUBTASK	ACTION	RESULT
a. Set RT to receive load	Set RT FCTN to LD	N/A
b. Select CID	Press CID/8 key on RT	RT display shows NO ID or CID.
c. Clear RT display	Press CLR on RT keypad	RT displays – – – – –
d. Enter the CID number	Press five keypad number buttons to enter CID	RT displays shows CID number (e.g. 12345).
e. Store the CID in the RT	Press STO on RT	RT display will blink and change to CID. CID number will not be displayed again.

* Embedded GPS Receiver (EGR) tasks available only on ASIP RT-1523E/F with EGR Kit installed.

EGR Task 2: Enable GPS

SUBTASK	ACTION	RESULT
a. Verify RT is in CT mode	Observe RT display	Display reads CT. If not, set up the RT for CT operation.
b. Show GPS mode	Press GPS/5 on RT keypad	RT display shows OFF, AUTO, PER, or MOV*.
c. Set GPS mode	Press CHG/7 on RT keypad, as often as needed	RT display will change to OFF, AUTO, PER, or MOV.

* "–" means no GPS synchronization (e.g. "–AUTO") (OFF indicates GPS is OFF. AUTO, PER, and MOV turn GPS on. AUTO transmits your position with each message. PER transmits your position with each message, and when a transmission has not occurred with the previous two minutes. MOV transmits your position with each message, and when your RT has moved a minimum distance since the last transmission. The MOV distance is 100 ± 10 meters in manpack or 300 ± 30 meters in vehicular configuration.)

EGR Task 3: Enable Situation Awareness

SUBTASK	ACTION	RESULT
a. Verify RT is in CT mode	Observe RT display	Display reads CT. If not, set up the RT for CT operation.
b. Show SA mode	Press SA/6 on RT keypad	RT display shows OFF or ON. A "–" indicates no GPS sync, it goes away when you have GPS sync.
c. Set SA mode	Press CHG/7 on RT keypad	RT display changes to ON.

EGR Task 4: Load EGR Key from ANCD into EGR

SUBTASK	ACTION	RESULT
a. Prepare RT to load key	1. Set FCTN to LD	N/A
	2. Set COMSEC to CT	N/A
	3. Set MODE to FH	N/A
	4. Connect GPS Fill Cable (W20) to RT only	N/A
b. Prepare ANCD to load key	1. Turn ANCD ON	select:* Soi <u>Radio</u> sUpervisor **NOTE: ANCD may go directly to next display
	2. Enter RADIO	send Receive Database sEtup <u>Comsec</u> Time
	3. Enter COMSEC	vG <u>Ld</u> Rv Ak Mk vU
	4. Enter LD	select: <u>Tek</u> Kek
	5. Enter TEK, press PgDN and ENTR to select	select key qUit (name/number)
	6. Press PgUP/ PgDN to view, ENTR to select	Select key <u>qUit</u> (GPS keyname) XMT
	7. Enter QUIT	Connect ANCD to RT [↓]

SUBTASK	ACTION	RESULT
c. Transfer key from ANCD to EGR	1. Press [↓]	Sending TEK XXXX
		Press [LOAD] on RT
	2. Connect GPS Fill Cable (W20) to ANCD**	
	3. On RT, press GPS, LOAD, CHG, and LOAD	Key loaded
		RT display shows "WAIT" then "DONE". The RT will display "WAIT" for several seconds.
	4. Turn ANCD OFF	
	5. Disconnect W20	

* ANCD may go directly to next display.

** Do not connect W20 to ANCD until directed to do so by the ACTIONS column.

EGR Task 5: Obtain Date and GPS Zulu Time from EGR

SUBTASK	ACTION	RESULT
a. Set RT to receive load	Set RT FCTN to LD	N/A
b. Select GPS	Press GPS/5 key on RT	RT display shows AUTO, PER, or MOV*.
c. Select time	Press TIME on RT	N/A
d. Store time in RT	Press STO key on RT	RT display shows GPS date (e.g. 33G).

* If display shows –AUTO, –PER, –MOV, GPS may not be available.

END OF WORKPACKAGE

WP 0008: CDU Tasks

CDU Task 1: RT Control

Description: Allows the operator to set the following RT functions: channel, RF power, SC/FH, and PT/CT.

Detailed Procedure:

RT Control Field ─────▶

1. Set the RT FCTN switch to REM.

2. Observe CDU display.

3. Using UP (▲) and DOWN (▼) keys, select the RT control field. The selected field is boxed.

> NOTE: If necessary, use ESC Key as needed to return to main display.

4. Press ENT to enter RT control.

5. Use UP (▲) and DOWN (▼) keys, select the RT control function: CH, PWR, Mode (SC,FH,FH/M), CT/PT.

6. As each function is selected, the selection is highlighted (boxed). Press the ENT key to select it for editing. It will now be displayed in reverse video.

7. Change the setting by using any arrow key to scroll through the available settings. Press ENT to store. At any point, use the ESC key to return to the previous condition.

CDU Task 2: Local Position Display and Copy

Description: Shows the present position of the RT according to the military grid reference system (MGRS).

Detailed Procedure:

1. Verify that GPS is not OFF. (See EGR Task 2.)

Observe CDU display.

Local Position Field ⟶

2. Using UP (▲) and DOWN (▼) keys, select the local position field. The selected field has a highlighted border.

> NOTE: If necessary, use ESC key as needed to return to main display.

3. Either a local position (POS) or a Waypoint (WP) display is available in the second field. Use the ENT and arrow keys to select POS.

5. When the local position display (POS) is selected, the down arrow (▼), followed by the ENT key may be used to copy the local position into memory for pasting into a waypoint. The entire field will change to reverse video when the down arrow (▼) is pressed.

CDU Task 3: Waypoint Display

Description: Shows the waypoint solution to the last selected waypoint. Waypoints are selected and created in CDU Task 5, Navigation Display.

Detailed Procedure:

1. Verify that GPS is not OFF. (See EGR Task 2.)

Waypoint Display ⟶

```
      79850  CT
CH6 PWRM SC

WP CHECKPT3
 #1    259°
DIST=24150M
ΔEL=+12345M

MENU KEYPAD
      NAV


SA 54321 ABS
        12A  CD
        12345E
        67890N
     EL +12345M
```

2. Observe CDU main display.

3. Using UP (▲) and DOWN (▼) keys, select the second field. The selected field has a high-lighted border.

   NOTE: If necessary, use ESC key as needed to return to main display.

4. Either a local position (POS) or a waypoint (WP) display is available in this box. Use the ENT and arrow keys to select WP.

CDU Task 4: Keypad Display

Description: This task allows the operator to access all RT control functions from the CDU.
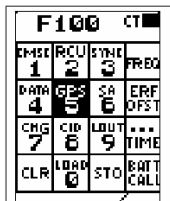
Detailed Procedure:

1. Set the RT FCTN switch to REM.

2. Observe CDU main display.

    NOTE: If necessary, use ESC key as needed to return to main display.

3. Using UP (▲) and DOWN (▼) keys, select the MENU display field. The selected field is boxed. Press the ENT key to go to the menu.

4. The selected menu item is boxed. using UP (▲) and DOWN (▼) keys, select KEYPAD.

5. Press ENT key. The keypad is displayed.

6. Use the arrow keys and the ENT key to select the keypad controls. The ESC key will always return you to the previous condition. The selected control is highlighted in reverse video. To activate the selected control, press ENT.

    NOTE: The display will time out in a few seconds if the keypad is inactive. If this happens during a key procedure, you must begin again.

0008-4

CDU Task 5: Navigation Display

Description: This task allows the operator to access all RT control functions from the CDU.

Detailed Procedure:

1. Verify that GPS is not OFF. (See EGR Task 2.)

2. Observe CDU display.

3. Using UP (▲) and DOWN (▼) keys select the MENU field. (The selected field is boxed.)

> NOTE: If necessary, use ESC key as needed to return to main display.

4. Press ENT. The selected menu item is boxed. Using UP (▲) and DOWN (▼) keys, select NAV.

5. Press ENT key. A waypoint is displayed. Press ENT again to change waypoint number.

> NOTE: The navigation solution to the waypoint, shown on the bottom of the display, is automatically updated every six second to provide "real time" navigation.

6. To change the waypoint, (#, name, and coordinates), select EDIT using the ARROW and ENT keys (step 7). To paste a previously copied position (Local or SA), and thus find the navigation solution to arrive at that waypoint, select COPY/EDIT using the arrow keys (step 8). The new position will appear in the display.

7. If EDIT was selected, the waypoint number is boxed. The highlighted field is selected for editing by pressing the ENT key which causes the first character of the field to change to reverse video, indicating the character can be edited. The UP (▲) and DOWN (▼) arrow keys are used to scroll to a new alpha or numeric character, while the LEFT (◄) and RIGHT (►) arrow keys are used to select the other characters in the field. Once a selected data field is edited, pressing the ENT key stores the data in that field and selects the next field. Pressing ENT while DONE is boxed stores all edits.

```
                    CT
EDITING WAYPT
WAYPOINT 20
   WYPTNAME
   12A  CD
   12345E
   67890N
EL +12345M

             DONE
```

8. When COPY/EDIT is selected, a previously copied position (Local or SA) is displayed. Press ENT to further edit the waypoint (see step 7). Pressing ENT when DONE is boxed stores all edits and returns to the new navigation solution. Pressing ESC at any time during waypoint copy/edit returns to the previous condition and/or restores the original waypoint data.

```
                    CT
EDITING WAYPT
WAYPOINT 20

   - - - - - - -
   12A  CD
   12345E
   67890N
EL +12345M


             DONE
```

CDU Task 6: Situational Awareness Display and Copy

Description: This task allows the operator to view either the current RT position or the position of the originator of the last transmission received. The position may be copied for pasting into a waypoint.

Detailed Procedure:

1. Verify that SA is not OFF. (See EGR Task 3.)

2. Observe CDU display.

3. Using UP (▲) and DOWN (▼) arrow keys, select the SA display field. The selected field has a highlighted border.

SA Display ──────▶

NOTE: If necessary, use ESC key as needed to return to main display.

4. Press ENT to enter Situational Awareness (SA) display.

5. The default selection is ABS (absolute), which is the actual location of the respective RT. The selection of REL (relative) gives a navigational solution to the location of the respective RT. The operator may toggle between ABS and REL using the ENT, UP (▲), LEFT (◄), and RIGHT (►) arrow keys. The navigation solution provided by the REL display option is updated every six seconds to provide real-time tracking of received positions while the RT is moving.

6. The DOWN (▼) arrow and ENT key may be used to copy the SA position into memory for pasting into a specific waypoint. The entire field will change to reverse video when the DOWN (▼) arrow is pressed.

END OF WORKPACKAGE

Chapter 3. PMCS

WP 0009: PMCS for SINCGARS

Perform PMCS Before (B), During (D), and After (A) Operation.

Item/Interval	Check/Service	Equipment Not Ready/Available If:
1. (B, D, A) **Controls:** (Front of RT and on VAA)	a. Cracked/broken? b. Loose? c. Frozen? d. Missing?	Any RT or VAA control is missing or cannot be used
2. (B, D, A) **Cables:** (W2, RF, W4, and PA Pwr)	a. Missing? b. Installed properly? c. Connectors tight? d. Obvious damage?	Any cable is missing, or damaged and cannot be used
3. (B, D, A) **Antennas:** (Manpack short and long; vehicular regular and SLPA)	a. Installed properly? b. Grounded? c. Broken parts? d. Missing parts? e. Tips and tie-downs present?	b. Not grounded c. Parts broken d. Parts Missing e. Items Missing
4. (B) **Power:** Manpack Vehicular Manpack or vehicular	a. Main battery present? b. Vehicle power available? c. Move COMSEC from Z to PT, adjust DIM, move FCTN from OFF to Z-FH, and check that RT display lights?	a. Missing, cannot be replaced b. No power, cannot correct c. RT display does not light

Item/Interval	Check/Service	Equipment Not Ready/Available If:
5. (B) **Self-Test:**	a. (FCTN in Z-FH) Display shows GOOD? b. (COMSEC to CT) Alarm will clear? c. (FCTN to TST) self-test results in GOOD?	a. Display does not show GOOD b. COMSEC alarm will not clear c. Display shows other than GOOD
6. (B) **Keypad:**	(RT at CT, SC, LD, and CHAN as shown: a. Press FREQ, CLR, and enter frequency: CUE 31000 MAN 32000 CHAN 1 43000 CHAN 2 54000 CHAN 3 65000 CHAN 4 76000 CHAN 5 87000 CHAN 6 87975 b. Press STO for each frequency entered	a. Any test frequency (0-9) cannot be entered into the RT b. Cannot store any frequency
7. (B) **Data Loading:** (SC freq, COMSEC key, FH data, sync time)	a. Load SC frequency b. Load COMSEC key c. Load FH data d. Load sync time	a. Will not load b. Will not load c. Will not load d. Will not load

Item/Interval	Check/Service	Equipment Not Ready/Available If:
8. (B, D, A) **Comm Check:** (Voice/data in SC/FH modes; PT/CT and RXMT as required by mission	a. Check sidetone b. Check voice comm in SC-PT and FH-CT c. If data comm is to be used, check using mission-related data device d. If RXMT is to be used, check in mission-related modes	a. Not heard b. No voice comm in SC-PT or FH-CT c. No data comm using mission-related data device d. No RXMT capability in mission-related modes

Handheld Remote Control Radio Device (HRCRD) PMCS

NOTE:
HRCRD is mission capable as long as transmit and receive functions are operable. If controls are not functioning, place radio function switch to normal operating positions. (SQ ON)/(LD) and change functions via keypad/switches.

Perform PMCS Before (B), During (D), and After (A) Operation.

Check/ Service	Operator Procedure	Equipment Not Ready/ Available If:
CONTROLS: (B,D,A)	To control radio functions, press [SEL] until the required function is highlighted (CHAN; COMSEC;RF PWR; MODE). Then press the [DOWN ARROW] until specific item you need appears in the display.	HRCRD cannot control RT
LIGHT: (B,D,A)	To turn backlight on, press the light button. To turn the light off, press the light button a second time.	Backlight required for mission but not functioning
VOLUME: (B,D,A)	To change the level of audio volume, rotate the volume control knob on the side of the HRCRD to reach desired level.	HRCRD cannot control RT volume
CABLE: (B,D,A)	Check for proper installation. Check for tightness of connectors. Check for obvious damage to cable.	Cable is damaged

Check/Service	Operator Procedure	Equipment Not Ready/Available If:
CONNECTORS: (B,D,A)	Check for obvious damage to connectors. Check for missing O-rings. Check for bent/broken pins.	Any connector damaged
COMM CHECK: (B,D,A)	Check for sidetone. Check voice comm.	Cannot transmit or receive.

CONTROL DISPLAY UNIT (CDU) PMCS

Perform PMCS Before (B), During (D), and After (A) Operation.

Check/Service	Operator Procedure	Equipment Not Ready/ Available If:
SELF-TEST (B,D,A)	Turn on radio with CDU connected. CDU passes self-test.	CDU fails self-test.
CONTROLS: (B,D,A)	To control radio functions, set radio FCTN to REM, use UP (▲) and DOWN (▼) arrows to select control field. Press ENT to enter radio control, use UP (▲) and DOWN (▼) and ENT to change settings.	CDU does not control radio.
GPS DISPLAY (B,D,A)	With GPS on and satellite acquired, CDU displays your position.	CDU does not display position.
BACKLIGHT: (B,D,A)	To turn backlight on, press the light button. To turn the backlight off, press the light button a second time.	Backlight required for mission but not functioning
CABLE: (B,D,A)	a. Check for proper installation. b. Check for tightness of connectors. c. Check for obvious damage	Cable is damaged
CONNECTOR: (B,D,A)	a. Check for obvious damage. b. Check for bent or broken connectors.	Connectors are damaged

END OF WORKPACKAGE

Chapter 4. Jamming/Anti-Jamming Procedures

WP 0010: Jamming/Anti-Jamming Actions

Definition

Jamming is the intentional transmission of signals that interrupt your ability to transmit and receive. Interference is the accidental disruption of communications by friendly sources. For practical purposes, the following coverage of jamming includes both situations. Anti-jamming includes any corrective action taken by the operator to work through intentional jamming and accidental interference.

Identification

If you are being jammed, you may hear strong static, strange noises, random noise, or no noise or signals at all. These signals depend upon the type of jamming signals and whether your net is operating in single channel (SC) or frequency hopping (FH) mode. The simplest method the enemy can utilize to disrupt your communications is to transmit noise or audio signals on your single channel operating frequency, or on multiple FH frequencies during FH operation. If the enemy can generate enough power on your hopset frequencies, it is possible that your communications capability will be disrupted or even stopped. While SINCGARS is jam-resistant due to it's frequency hopping capability, in the event that SINCGARS is jammed, it may be necessary for you to take corrective actions. The action you take depends on the type of jamming or interference that is disrupting net communications as well as the authorized FH hopset frequencies that are available to your net. If you suspect you are being jammed, look for one of the specific symptoms shown in the table below.

Jamming/Anti-Jamming Procedures: SC Mode of Operations

SYMPTOM	POSSIBILITIES	ACTIONS
You hear no traffic, and you are not transmitting. SIG display is lit and shows a signal higher than LO.	Your handset could be stuck, producing a "hot mike" situation.	Press PTT several times to free up mike. If necessary, replace handset with known good one.
	You are being jammed. In SQ OFF, you hear strong static or random noise. When antenna is disconnected, SIG display drops and noise disappears or is reduced.	If feasible, try to place an obstacle between you and the enemy. Notify your supervisor and, if appropriate, prepare a MIJI feeder report and submit to NCS. Continue to operate.
	Your RT is faulty or locked up. With handset and antenna disconnected, your SIG display remains lit and above LO.	Set RT FCTN to STBY position and then back to SQ ON. If problem continues, contact your unit maintenance.
You hear random radio traffic. Your SIG display is lit and shows a signal higher than LO.	You are experiencing friendly or enemy radio interference.	Set RT FCTN to SQ OFF and try to communicate. Change to a longer range antenna. Try to place an obstacle between you and the source of interference. Advise NCS of your problem. Continue to operate.

SYMPTOM	POSSIBILITIES	ACTIONS
You may or may not hear any noise. SIG display goes on and off at regular intervals or in random order.	You are probably experiencing enemy sweep jamming.	Set RT FCTN to SQ OFF, and you hear noise or static each time the SIG display lights. If feasible, try to place an obstacle between you and the enemy. Advise NCS of your problem. Continue to operate.

Jamming/Anti-Jamming Procedures: FH Mode of Operations

SYMPTOM	POSSIBILITIES	ACTIONS
You hear loud noise or strong static making net traffic difficult to impossible to hear. Your SIG display remains on or goes on and off at regular intervals. Signal strength is greater than LO.	You are being jammed if disconnecting the antenna causes the SIG display to drop to LO and noise level is reduced.	If feasible, try to place an obstacle between you and the enemy. Notify your supervisor. If appropriate, prepare and submit MIJI report to NCS. Advise NCS of your problem. Continue to operate.
	You may be experiencing interference from a friendly communication system (called a co-site problem).	Try to get interfering system shut down momentarily to determine if it is the source of your problem. If it is, change your location, remote your antenna or RT, or try to place an obstacle between you and the interfering station. Continue to operate.

SYMPTOM	POSSIBILITIES	ACTIONS
You hear a constant hiss or background noise in the handset but no loud noise or net traffic.	There is a captured RT in your net, constantly transmitting to act as a jammer.	Press your PTT two times. Net should clear. Advise NCS of your action.
	There is a stuck mike or bad handset in you net that is locked in the PTT position.	Press your PTT two times. Net should clear. Advise NCS of your action.
	Your own handset is stuck if you hear sidetone without pressing PTT. SIG display drops to LO or below when handset is disconnected.	Free up PTT or replace handset with a known good one.
You hear background popping or static when receiving, and your operating range is reduced. Your SIG display is flickering.	You are probably experiencing co-site interference from a friendly radio.	Identify interfering radio and request operator to reduce RF PWR setting, move your radio at least 50 meters, or remote your RT or antenna. Advise NCS of your action. Continue to operate.

END OF WORKPACKAGE

By Order of the Secretary of the Army:

GEORGE W. CASEY, JR
General, United States Army
Chief of Staff

Official:

JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army
0717202

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