POCKET GUIDE **TM 11-5820-890-10-7**

SINCGARS ICOM GROUND RADIOS

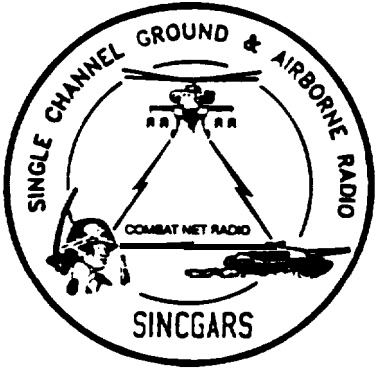
Used with
Automated Net Control Device
(ANCD) AN/CYZ- 10
and
Precision Lightweight GPS Receiver
(PLGR) AN/PSN-11

NET CONTROL STATON (NCS) POCKET GUIDE

RADIO SETS

MANPACK RADIO
(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)



Approved for public release: distribution is unlimited.

Headquarters, Department of the Army
1 December 1998

LITHIUM BATTERY WARNINGS

Your manpack radio uses a lithium battery as the main power source. All SINCGARS radii use a lithium battery for the HUB, and the ANCD uses three 3-volt lithium batteries for power. Lithium batteries contain pressurized toxic, sulfur dioxide gas. Batteries can explode; treat them with CARE!

For safety's sake, follow these rules when handling lithium batteries:

Do NOT ABUSE LITHIUM BATTERIES IN ANY WAY
Do NOT HEAT, SHORT CIRCUIT, CRUSH, PUNCTURE. OR CUT THEM.
Do NOT USE ANY LITHUM BATTERY SHOWING SIGNS OF DAMAGE
DO NOT TEST THEM FOR STATE OF CHARGE (IMAINTENER TASK ONLY).
Do NOT ATTEMPT TO RECHARGE LITHIUM BATTERIES.
Do NOT PLACE THEM IN ORDINARY TRASH: TURN IN USED BATTERIES TO UNIT SUPPLY, OR WHEN OPERATIONAL FOLLOW UNIT SOP REGARDING DISPOSAL.
Do NOT USE A HALON-TYPE FIRE EXTINGUISHER ON A LITHIUM FIRE. IN CASE OF FIRE. DO USE WATER. USE CO2 [CARBON DIOXIDE) OR CLASS D [GRAPHITE BASED] EXTINGUISHER
Do NOT STORE BATTERIES IN UNUSED EQUIPMENT.
Do NOT STORE LITHIUM BATTERIES WITH OTHER HAZARDOUS MATERIALS
Do NOT STORE LITHIUM BATTERIES NEAR FLAME OR HEAT.

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

TURN OFF EQUIPMENT
LET EQUIPMENT COOL FOR AT LEAST AN HOUR.
AFTER EQUIPMENT IS COOL, REMOVE BATTERY/BATTERIES.
INSTALL NEW BATTERY/BATTERIES; RESUME OPERATING.

If you experience a safety hazard or Incident, notify your unit Safety Officer; file Form 368 (Product Quality Deficiency Report); and notify CECOM Safely Office, Ft. Monmouth, NJ (DSN 995-3112).

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* Supersedes TM 11-5820-690-10-7, dated 1 July 1995

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Section 1. INTRODUCTION

PURPOSE: This Pocket Guide is designed for use by Net Control Station (NCS) personnel equipped with the SINCGARS ICOM Ground Radio, Automated Net Control Device (ANCD), Precision Lightweight GPS Receiver (PLGR), and Frequency Hopping Multiplexer (FHMUX) (when available). It is expected that users of this Pocket Guide have been trained, both as operators and as NCSs, on all items of equipment being employed. NCS personnel using this pocket guide are expected to be proficient int he performance of all operator tasks, both primary and special. The purpose of this Pocket Guide is to provide SINCGARS NCS personnel with quick reference, easy to use, memory joggers that can be carried on the job during field operations. Users should understand that reference to other manuals may be required, when appropriate, to supplement the summary guidance contained in this Pocket Guide.

SCOPE: This pocket guide covers the basic and special SINCGARS/ANCD tasks that an NCS must be able to perform as normal requirements during unit field operations. It also covers use of the PLGR, HRCRD and FHMUX by an NCS. The user is provided essential graphics, and each task is presented in abbreviated flowchart format for ease of use. The user is told what to do to perform required tasks, but not how or why. For NCS special purposes tasks. electronic updating and' STU' transfer, see SINCGARS Operator's Manual. TM 11-5820-8-90-10-8.

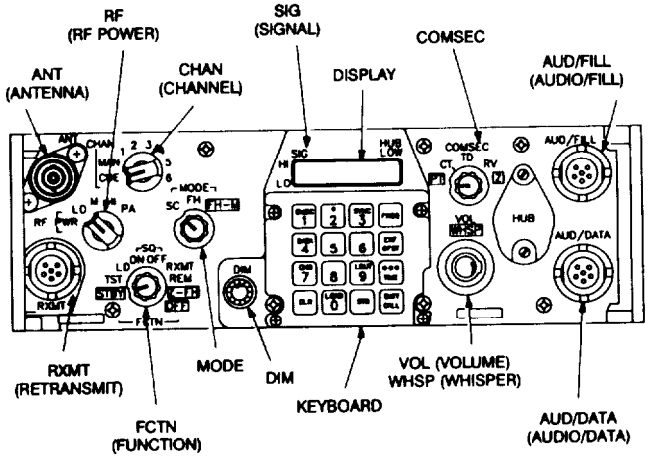
DESIGNATIONS: SIP radio configurations carry a 'D" designation. Unit authorized SIP radio configurations will receive only SIP components: RT- 1523C/D and AM-7239C/D. ASIP radio configurations carry a "F" designation. Unit authorized ASIP radio configurations will receive only ASIP components: RT-1523E and AM-7239E. Other SINCGARS radios will carry an "A' designation.

AUXILIARY: The Automated Net Control Device (ANCD) and ITEMS: PLGR are considered to be authorized and employed in conjunction with SINCGARS.

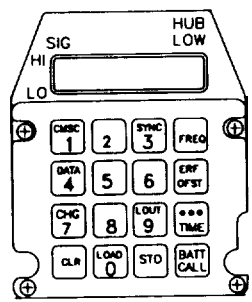
REFERENCES:

TB 11-5620-690-12, ANCD Operator & Unit Maintenance Manual
TM 115620-890-10-6. SINCGARS Operator's Pocket Guide
TM 11-5620-890-10-8. SINCGARS Operator's Manual
TM 11-5625-291-13. Operation & Maintenance, PLGR (AN/PSN-11)
PM-SINCGARS New Equipment Handbook

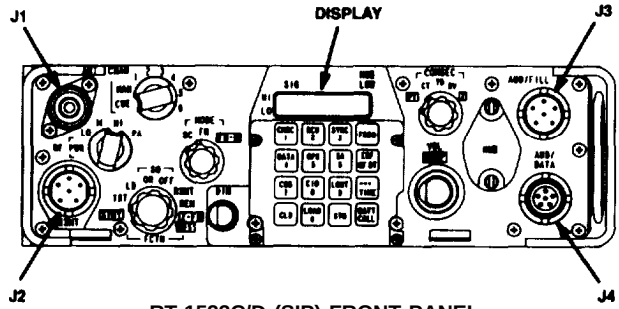
SECTION II. GRAPHICS



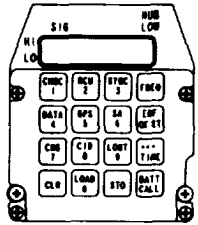
RT-1523/A/B FRONT PANEL



RT-1523/A/B KEYBOARD



RT-1523C/D (SIP) FRONT PANEL



RT- 1523C/D (SIP) KEYBOARD

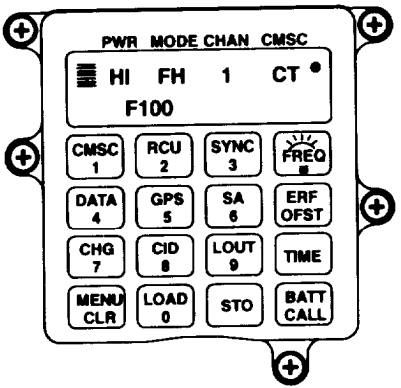
NOTES:

1) Four keys of SIP keypad are redesignated.

2) SA and CID keys are not used.

3) RCV key enables use of SIP UT as an RCU.

4) GPS key enables loading of GPS time.



RT-1523E (ASIP) KEYBOARD

NOTES:

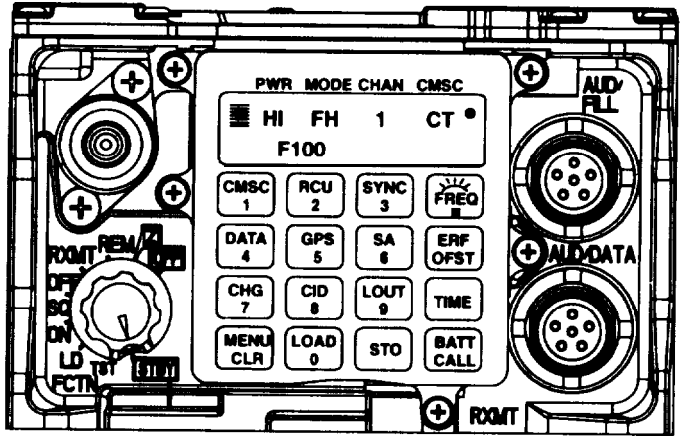
1) Six keys *of ASIP keypad are* redesignated

2) SA, *CID* and *GPS keys are not used.*

3) RCU key enables use of ASIP RT as an RCU.

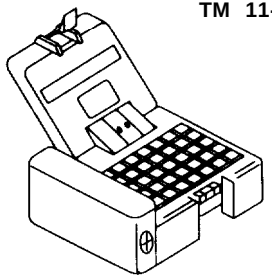
4) MENU key scrolls athrough MENU selections.

5) FREQ/Backlight key controls backlight brightness. *RT* must *be In SO ON and CHG scrolls level.*

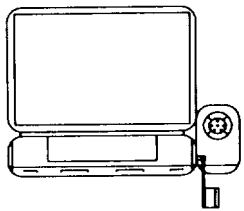


RT-1523E (ASIP) FRONT PANEL

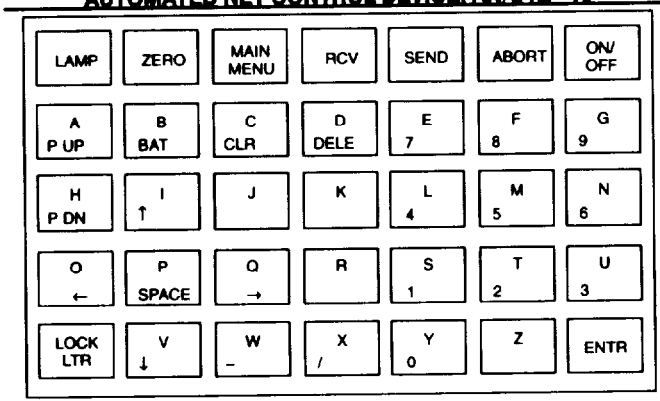
FRONT VIEW >

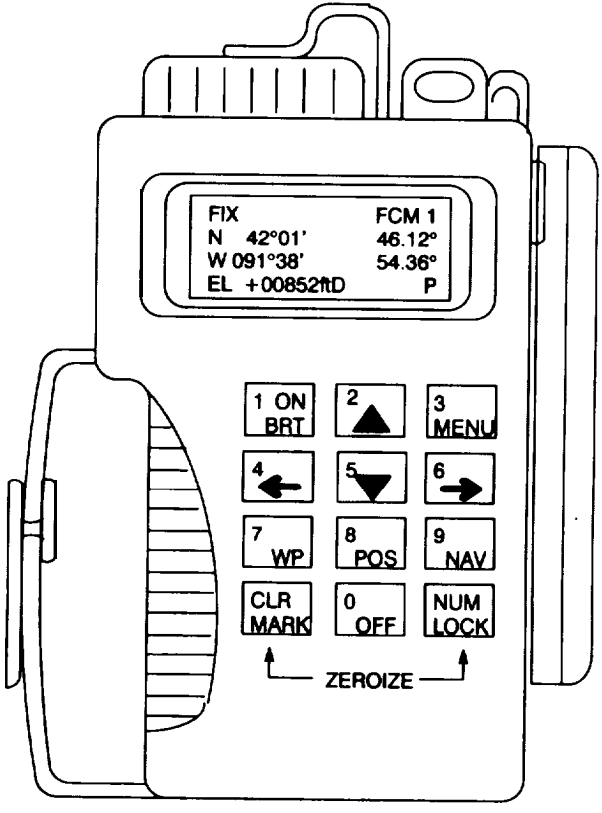


REAR VIEW >
(cover open)



AUTOMATED NET CONTROL DEVICE, AN/CYZ-10





PRECISION LIGHTWEIGHT GPS RECEIVER (PLGR)

Section 3: PRIMARY NCS/PREPARATION TASKS

Preparation TASK 1: Select RT Preparation Settings from MENU

a. Set RT Volume	**(1) Press MENU (2) Press Digit (1–9) for Vol Setting (0) for Whisper Mode**	Press Menu to display Vol level Display reads WHSP if 0 selected
b. Set RT Channel	(2) Press MENU (until CHAN) (2) Press Digit (1-6) for Channel desired (0) for MAN (7) for CUE	Display reads (1-6). (Q) for CUE, (M) for Manual
c. Set RT Power	(1) Press MENU (until PWR) (2) Press CHG for desired PRW setting	Display reads (LO. M. HI, PA)
d. Set RT Mode	(1) Press MENU (until MODE (2) Press CHG for desired MODE	Display reads (SC, FH, FHM
8. Set **COMSEC**	(1) Press MENU (until **CMSC)** (2) Press CHG for desired CMSC setting	Display reads (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)

Section 3. Primary NCS/Preparation Tasks

SUMMARY OF PRIMARY NCS TASKS

PRIMARY TASK 1: Transfer Partial COMSEC/FH Data, ANCD to ANCD

Used to download selected COMSEC keys or FH data elements from one ANCD to another. Supplements Special Operator Task 1 which transfers complete loads.

PRIMARY TASK 2: Transfer Seiacted SOI Information, ANCD to ANCD

Used when less than a complete SOI load is to be downloaded from one ANCD to another. Supplements Special Operator Task 2.

PRIMARY TASK 3: Conduct Hot Start Net Opening

Principal method used for net openings; operators load required **data** and sync time; then request to enter the secure, FH net.

PRIMARY TASK 4: Conduct Cold Start Net Opening

An alternate method for net openings in which NCS sends ERF to all net members; requires close coordination and correct operator actions.

PRIMARY TASK 5: Respond to CUE Calls

Performed when CUE message appears in NCS RT display; requires NCS to answer CUE sender and send ERF if needed.

PRIMARY TASK 1 : Transfer Partial COMSEC/FH Data, ANCD to ANCD*

FOR ALL TASKS: RT–1523E Settings are set in MENU

SOURCE ANCD**	TARGET ANCD**
1} select: Soi Radio sUpervisor	1} select: Soi Radio sUpervisor
2} Send Receive Database sEtup Comsec Time	2} Send Receive Database sEtup Comsec Time
3} send to: Radio Ancd Stu Pc	3} receive from: Ancd Cfd Stu Pc Mx
4} select: Database Loadset Eset Key Time***	4} select: Database Loadset Eset Key Time***
5} select: Loadset# (name) ENTR	5} Connect to ANCD and press [RCV)##
6} Do you want to include time? (Y/N)	6} select: Replace iNsert (data item name)###
7} Connect to ANCD and press [SEND](WAIT)##	7} Transfer successful [↓]
8} Transfer successful [↓]	

This task is primarily used to transfer specific loadsets, Esets, keys, or time from one ANCD to another. When replacing/ overwriting keys, new COMSEC and FH keys must be named the same as those to be replaced or overwritten.

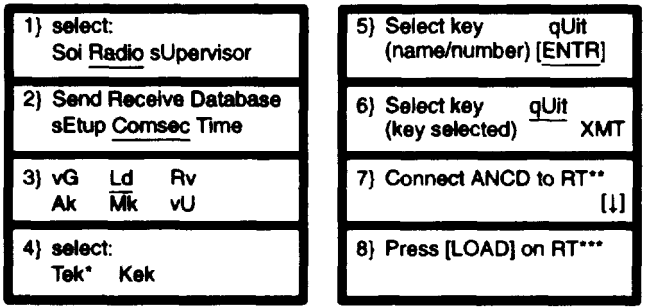
* *You may select Loadset, Eset, Key, or Time. Item selected for Target ANCD must be the same as that selected for the Source ANCD.*

\# *Press PUPMP ON] to scro//.*

\## *DO NOTpress SEND until ready to press RCV. Press RCV within 20 seconds of pressing SEND.*

R## *This screen will appear only if data item name exists in Target ANCD.*

OPTION 1A: Transfer COMSEC Key, ANCD to RT*

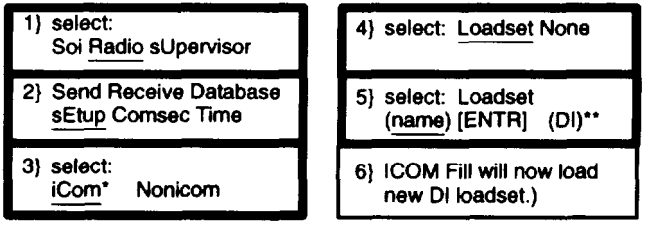


Caution: CUE 6 MAN channels use COMSEC key stored in Chan 5.

*** Set RT FCTN to LD. (This procedure may be used to transfer COMSEC keys to KYK-13* and *other COMSEC devices.)*

**** RT display will show H TEK; press STO, then CHAN in which you want to store the COMSEC key.*

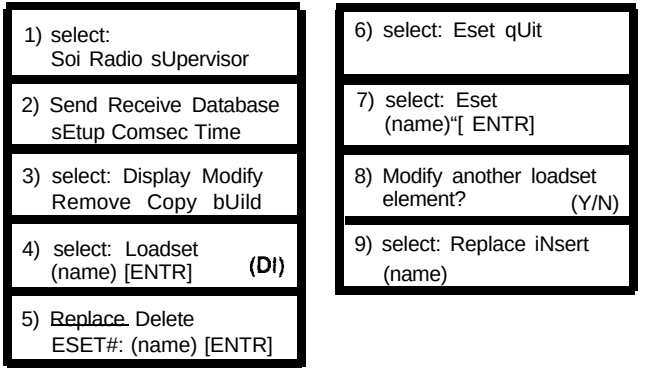
OPTION 1B: Designate New Default Loadset



- ***ICOM is also selected for RCU.***

** **Loadsets are identified with "D" indicating default loadset, followed by "I for ICOM, or "N" *for Non-ICOM.***

OPTION 1C: Change Eset in One Channel



- **Select the Eset you *wish to rep/ace.***

** ***Select your replacement* Eset *by name.***

PRIMARY TASK2: Transfer Selected SOI Information, ANCD to ANCD*

SOURCE ANCD
1) select: Soi Radio sUpervisor
2) qRef Group Net sufX Pyro Tmpd Set C/s Find Memo
3) select: Choose Send Receive
4) Scroll (↑/↓) and press ENTR to select SOI [↓]
5) SOI Set: (name/nr) Edn: (name/tp)
6) Do you want to transfer QREF? (Y/N)
7) Do you want to specify groups to send? (Y/N)
8) Scroll (↑/↓) and press ENTR to select groups
9) 1 groups selected – Keep selecting? (Y/N)
10)Do you want to specify a time pd to send: (Y/N)
11) Enter Time Pd (#–#) => ##

TARGET ANCD
1) select: Soi Radio sUpervisor
2) qRef Group Net sufX Pyro Tmpd Set C/s Find Memo
3) select: Choose Send Receive
4) receive from: Ancd Pc Broadcast
5) Connect ANCD to ANCD [↓]
6) Press [RCV] to receive***
7) Processing. Please wait (shows nr of bytes sent)
8) Receive operation was successful [↓]

(Source ANCD steps continue on next page)

12) Include Suffix 8 Smoke/Pyro data? (Y/N)	< < < SOURCE ANCD < < < continues
13) Send to: Arial PC Broadcast	
14) Do you want to save this new SOI set? (Y/N)	
15) New SOI set name: = > ??????????	
16) Connect ANCD to ANCD [↓]	
17) Press [SEND] to send (WAIT)"'	
18) Processing. Please wait (shows % of bytes sent)	
19) Sending of SOI data is completed [↓]	

For transfer of OREF file from ANCD to ANCD, use Operator Special Task 2 procedure.

* * *If this screen appears, enter NO. Either the set or QREF may be transferred, but not both at one time.*

**** DO NOT press SEND until ready to press RCV. Press RCV within 20 seconds of pressing SEND.*

PRIMARY TASK 3:

SUBTASK	ACTION	RESULTS
a. Load NCS RT w/COMSEC/FH data and time*	(See Opr Primary Task 2 for ICOM Fill Procedure)	COMSEC/FH data and time are loaded into all 6 RT channels**
b. Load net RTs w/COMSEC/FH data and time	Direct net members to perform Opr Primary Task 3 (Hot Start)***	Net member RTs are prepared to enter FH, CT net upon request
c. Admit members to net	Respond to call in FH, CT mode	Hot Start net opening is complete

*If ANCD message *RT* cannot *accept time from ANCD" appears during ICOM fill procedure, go to Operator Primary Task 3, perform subtasks "c"* and "d, then standby while *members request net entry.*

* *ANCD converts current date to two-digit Julian Date.*

** *Unit SOP should specify if net RTs* are loaded by individual *operators, communications specialists,* or *designated unit NCOs.*

PRIMARY TASK Cold Start Net Opening

SUBTASK	ACTION	RESULTS
a. Load NCS RT with data	(1) Load CUE, MAN, & SC freq as required	Perform Primary Opr Task 1
	(2) Load COMSEC, FH data, sync time	Perform Primary Opr Task 2
b. Set proper RT controls	Set: CHAN to MAN MODE to FH-M COMSEC to CT FCTN to LD	Prepares NCS radio for alert of net members
c. Alerts Oprs that net will open at time prescribed	(1) Announce: time net is to be opened	Gives Oprs time to load COMSEC/FH
	(2) Alert: net for ERF on MAN, using CT	Alerts Oprs to stand by for receipt of ERF
	(3) Direct: Alt NCS to follow up*	NCS focus is on Oprs who respond
d. Send ERF	(1) Press: LOAD	Causes RT to obtain data from memory
	(2) Enter: Chan in which data is stored	Display shows 'HF xxx," blinks, beeps
	(3) Press: ERF	Display shows "SEND"
	(4) Press: STO, and CHAN # to store'	Display shows 'STO_," 'STO x," beeps

SUBTASK	ACTION	RESULTS
e. Confirm receipt	(1) Allow: Oprs time to store the ERF	N/A
	(2) Direct: Oprs ACK receipt and storage	NCS & Oprs continue to use MAN in CT
f. Perform comm check	(1) Direct: Oprs go to Opnl Chan, SQ ON	Net goes to FH mode of communications
	(2) Check: Comm with net members	Note which Oprs do not respond
	(3) Direct: Alt NCS to enter other net oprs**	FH SINCGARS net is now open

* *An alternate procedure is to move the FCTN switch from LD to SO ON.*

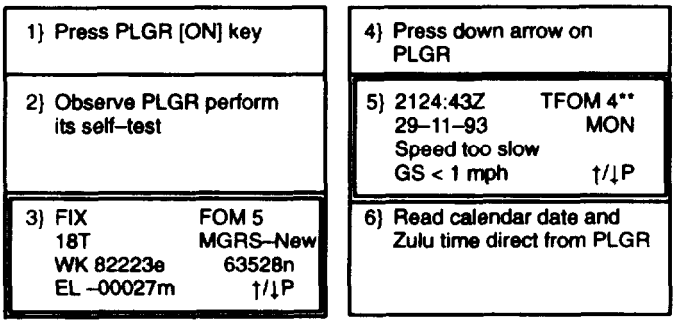
** *For various reasons, some net operators may not be available. or ready, to receive and store the Cold Start net opening ERF at the time specified by the NCS. Unit SOP should require one or mom Alternate NCS to monitor the Cold Start net opening, note which operators do not enter at the prescribed time, and when possible, bring each into the FH, secure net.*

PRIMARY TASK 5: Respond to CUE Calls

SUBTASK	ACTION	RESULTS
a. Note "CUE" in RT display	(1) Switch: to CUE channel	Caller CUEs in PT, listens in CT
	(2) Call: CUE caller on CUE freq, in CT	QUE caller gets response
	(3) Direct: CUEer go to MAN/CT	
	(4) Determine: CUE caller's need	Authenticate if required
	(5) Provide: ERF if appropriate	If CUEer wishes to enter net
	(6) Return: to Opnl Channel	
	(7) Displace: If enemy has DF cap	CUE & MAN freqs can be DF'd
b. Have Alt NCS reply to CUE calls	(1) Continue: to control the net	NCS primary responsibility
	(2) Ensure: Alt NCS takes above steps*	Alt responds, then displaces

Section 4. PLGR Tasks

PLGR TASK 1: Obtain Date and GPS Zulu The From PLGR*



* *TFOM reading of 8 or less indicates accurate GPS* time. *TFOM 9* means *PLGR is not tracking satellites and time is not of GPS accuracy. It may take as long as 15 minutes for the PLGR to acquire* satellites when device is first turned *on. Battery powered PLGR will automatically go to* standby as soon *as* satellite *tracking is accomplished.*

PLGR TASK 2: Manually Load PLGR Date and Zulu Time Into ANCD

1) Perform PLGR Task 1 to obtain date and time

2) Turn ANCD ON

3) select:
Soi Radio sUpervisor

4) Answer questions until following screen appears

5) Appl Date Time sEtup
Util Bit {MAIN}

6) Date is Mon 11–29–1993
New mm–dd–yy:

7) Date is Mon 11–29–1993
New mm–dd–yy:12–07–93*

8) Appl Date Time sEtup
Util Bit

9) Time is: 15:27:42
New hh:mm:ss

10) Time is:15:27:42
New hh:mm:ss:21:55:00**

11) Appl Date Time sEtup
Util Bit*** {MAIN}

12) SOI RADIO RDS

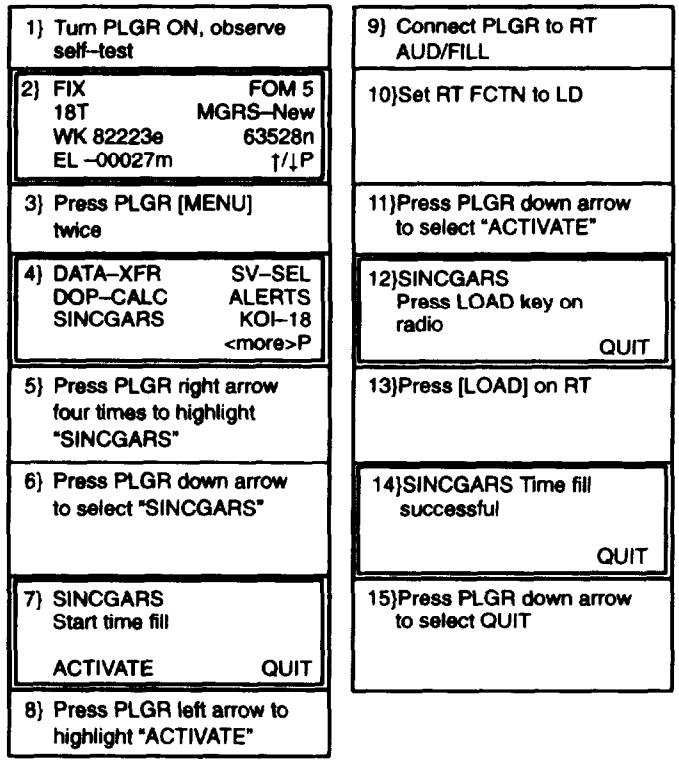
13) select:
Soi Radio sUpervisor

* *Upon entry, ANCD automatically converts calendar date to two-digit Julian Date required by the SINCGARS radio.*

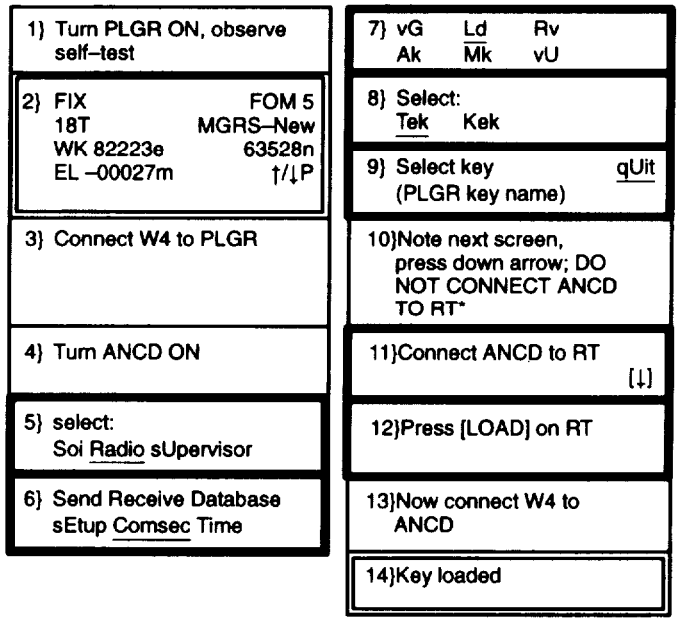
** *Press ENTR on ANCD when PLGR and ANCD times are identical (00/00) or ANCD reads :59. You may find that it lakes the ANCD about one second for time to load. Go to RADIO menu of ANCD and select TIME to check accuracy of GPS Zulu running time loaded into the ANCD. If there is more than one second difference, re-load time from PLGR.*

*** *Follow Steps 11-13 to return to SOI or RADIO program.*

PLGR TASK 3: Load PLGR Date and Zulu Time Into SINCGARS RT



PLGR TASK 4: Load PLGR Key From ANCD Into PLGR



- *When screen 11 appears, press down arrow prior to connecting the W4 to the ANCD. Key is immediately transferred once the W4 is connected to the ANCD.*

Section 5. FHMUX Tasks

SUBTASK	ACTION	RESULTS
a. Set POWER switch	(1) Set POWER switch to ON.	Power indicator illuminates continuously. The 4 BIT indicators should blink for 5 seconds after Power ON, then extinguish.'
b. Set RADIO PRIORITY switch.	(2) Set RADIO PRIORITY switch to**:	
	EQUAL	All connected RTs have equal communications priority.
	or 1A	RT 1 A has highest communications priority.
	or 1B	RT 1B has highest communications priority.
	or 2A	RT 2A has highest commBnications priority.
	or 2B	RT 2A has highest communications priority.
	or RXMT (1A+1B)	RTs 1A and 1A have highest communications priority (retransmit).

- ***Any other indication other than described, call Unit Level* Maintenance.**
- **** Select the RADIO PRIORITY switch position based on the desired operating scenario (which radio, if any, should get highest communications priority).***

Section 6. Recap of Primary Operator Tasks

Primary Task 1: Load Single Channel Frequencies into Radio

FOR ALL TASKS: RT 1523 E Settings are set in MENU

ACTION	RESULT
1) Obtain: required frequencies from ANCD*	1) Load CUE only if directed.
2) Set RT to CT, SC, LD, & CHAN to MAN/CUE/or 1–6	2) N/A
3) Press: FREQ, CLR, XXXXX, & STO	Display shows 00000/30000, ———, XXXXX, & blinks (data is stored)
4) Repeat: Step 3) for each freq	(As directed by NCS or SOP)
5) Set: FCTN to SQ ON	SC freq loading is complete

* *In units using CT, FH nets, Oprs normally load only a MAN freq routinely. CUE and SC freqs for Chan 1–6 are loaded only as needed.*

Primary Task 2: Load COMSEC/FH Data into RT, using ICOM Fill

[NOTE: Set RT to CT, LD, FH, MAN, & DATA OFF (PTT twice to clear alarm)]

1) select: Soi Radio sUpervisor	5) Connect to RT AUD/FILL Connector [↓]
2) Send Receive Database sEtup Comsec Time	6) Set FCTN switch to LD on RT [↓]
3) send to: Radio Ancd Stu Pc	7) Do you want to include time?* (Y/N)
4) select: iCom Nonicom Abn Rcu	8) Press [LOAD] on RT

9} Transfer in progress/ Transfer successful	10}RT cannot accept time from ANCD*

* *Load time for net opening only not during updates.*
** *If this message appears, load date and time manually.*

Primary Task 3: Perform Hot Start Net Opening

1} Load RT w/COMSEC/FH, Date and Time*	2} Call NCS and request to enter CT, FH net

* *If massage RT cannot accept time from ANCD" appears. set FCTN to L D and go to steps 3 & 4 to load time.*

3} Load Julian Day in RT (Read down)	4} Load Sync Time in RT (Read down)
select: Soi Radio sUpervisor	Julian Day: X X [↓]
Send Receive Database sEtup Comsec Time	ANCD Time: (running) HH:MM:SS (22:45:15)
Julian Day: X X [↓]	Press: TIME on RT; Display shows "HH MM"
Press: TIME on RT; Display shows "D D"	Press: CLR on RT; Display shows "_ _ _ _"
Press: CLR on RT; Display shows "_ _"	Enter: HH from ANCD; Display shows "HH"
Enter: X X (JD) in RT; Display shows "X X" (JD)	Enter: MM (min ahead of ANCD) Display shows "HH MM"
Press: STO on RT: Display blinks and JD is stored	Press: STO when ANCD MM:SS are same as RT MM:SS**

***Time stored in RT should be within 1 sec of that in ANCD; if not, repeat.*

Primary Task 4: Perform Passive Late Net Entry

1) Press: FREQ Display shows "F XXX	3) Wait: for traffic"' Display shows 'F XXX" (No L)
2) Press: SYNC Display shows "LF XXX	4) Call: NCS and re-enter net (Passive LNE is complete)

. ** *Do NOT PTT while waiting; if not* traffic *after 3 min, use CUE an ERF LNE or Hot Start method of net entry*

Primary Task 5 Obtain SOI Information from ANCD (QREF in ANCD)

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

1} select: Soi Radio supervisor	2) qRef Group Net sufX Pyro Tmpd Set C/s Find Memo

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: netname, 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 OREF or extension entries, be sure you have the correct time period selected.*

3. *Rules to remember in obtaining SO/information from the ANCD are:*

ABORT	Causes ANCD to return to SOI menu
Arrow down (shown as [↓])	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	To delete SOI set, enter SOI, then Set. and press DELE key
ENTER (shown as [ENTR]	Causes activation of the entry you have selected
Hot keys	Capital letter of selection (eg. sufX). Allows direct shift from QREF to full SOI file category.
'J" key (for JUMP)	In Find, causes ANCD to continue search for next item
"'K" key (for KEEP)	Causes item being viewed to be stored In QREF file
MAIN MENU	Returns you to SOI/ RADIO/SUPERVISOR menu
PgUP/PgDN	Moves to fop or bottom of list
ZERO (red button)	Used in **combat emergency** only; DO NOT use foe deletions

4. *Examples of information available in a full SOI information file are: **

a. GROUP: *(Group)*

1} qRef Group Net sufX Pyro Tmpd Set C/s Find Memo	2} 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 SET* and *make time period selection.*

b. NET: *(Net)*

1} qRef Group Net sufX Pyro Tmpd Set C/s Find Memo	3} TO6 1–4 FA BN W7T Callwrd:BULLDOG**
2} TO6 1–4 FA BN W7T C81975 M74800 0424	

** Callword is obtained by pressing right arrow; then left arrow to return to NET display

c. SUFFIX: (sufX)

1} qRef Group Net sufX Pyro Tmpd Set C/s Find Memo	2} Commander 02 COFS/XO 27

d. PYRO: (Pyro)

1} qRef Group Net sufX Pyro Tmpd Set C/s Find Memo	3} Safe to land or drop supplies here*
2} GREEN SMOKE* [↓/→]	

- Press right arrow to obtain explanation; left arrow to return to Pyro menu.

e. TIME PERIOD: *(Tmpd)*

1} qRef Group Net sufX Pyro Tmpd Set C/s Find Memo	2} Enter Time Pd: = > # #

f. SET: (Set)

1} qRef Group Net sufX Pyro Tmpd Set C/s Find Memo	3} Scroll ↑/↓, press ENTR to select net [↓]
2} select: Choose Send Receive	4} Set: (name/nr) Edn: (Name/tp) [ENTR]

g. SIGN/CNTRSIGN: (C/s)

1) qRef Group Net sufX Pyro Tmpd Set C/s Find Memo	2) TO1 Sign: HARDWOOD Cntrsign: SNEAKER

h. FIND: (Find)

1} qRef Group Net sufX Pyro Tmpd Set C/s Find Memo	2} Find: Net nEtid Sfx Word Cisgn Grp gRp# Des Frq

i. MEMO: (Memo)*

1} qRef Group Net sufX Pyro Tmpd Set C/s Find Memo	2} Memo: 1– 2– 3– 4–

* *Four memos may be 6 lines, 22 spaces each; part of QREF/SOI transfer.*

Section 7. Recap of Special Operator Tasks

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

SOURCE ANCD	TARGET ANCD
1) select: Soi Radio sUpervisor	1) select: Soi Radio sUpervisor
2) Send Receive Database sEtup Comsec Time	2) Send Receive Database sEtup Comsec Time
3) send to: Radio Ancd Stu Pc	3) receive: Ancd Cfd Stu Pc Mx
4) select: Database* Loadset Eset Key Time	4) select: Database Loadset Eset Key Time
5) Do you want to include time? (Y/N)	5) Want to delete*** FH & COMSEC data? (Y/N)
6) Connect to ANCD and press [SEND](WAIT)**	6) Connect to ANCD and press [RCV]**
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.*

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

OI 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
5) Set: (name/nr) Edn: (name/tp)	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	7) Processing Please wait (shows number sent)
8) Connect ANCD TO ANCD [↓]	8) Receive operation was successful [↓]
9) Press [SEND] to send (WAIT)**	
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 [RCV within 20 seconds of pressing SEND.*

* * * *See Opr Special Task 2 (Alt) it full SOI data is required.*

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

SOURCE ANCD

1) select:
Soi Radio sUpervisor

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

3) select:
Choose Send Receive

4) Scroll (↑/↓) and press
ENTR to select Set [↓]

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

6*) Do you want to transfer
QREF?** (Y/N)

7*) Want to specify
groups to send?** (Y/N)

8*) Want to specify a
time pd to send? (Y/N)

9*) Want to specify a
Smoke/Pyro data? (Y/N)

10) send to:
Ancd Pc Broadcast Stu

11) Connect ANCD to
ANCD [↓]

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

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

14) Sending of SOI data is
completed

TARGET ANCD

1) select:
Soi Radio sUpervisor

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

3) select:
Choose Send Receive

4) receive from:
Ancd Pc Broadcast Stu

5) Connect ANCD to ANCD
[↓]

6) Press [RCV] to
receive***

7) Processing Please wait
(shows number sent)

8) Receive operation was
successful [↓]

- *Screens 6-9 appear* only *if* related *data is in ANCD.*
- full enter *NO* to *transfer*
- ** 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

1) Load MAN freq into RT	5) Press: STO; Display shows 'STO _"
2) Load RT with COMSEC/FH data	6) Press: X (1-6); Display shows 'STO X", blinks
3) Set: RT to LD, CT, MAN, & FH	7) Set: CHAN to X (1-6) and FCTN to SQ ON
4) Standby for ERF; Display shows 'HF XXX"	8) Call or respond to NCS comm check**

* Net may *open in PT if COMSEC* is *not a consideration.*
** *If NCS contact fails, standby on MAN for NCS call.*

Special Task 4: Receive Net Update ERF from NCS

1) Set: RT FCTN to LD (stay on net operational channel)	4) Enter: X (1-6)'; Display shows 'STO X", blinks
2) Standby: for update ERF; Display shows 'HF XXX	5) Sat: CHAN to X (1-6) and FCTN to SQ ON
3) Press: STO; Display shows 'STO _"	6) Call or respond NCS call (Net update is complete)**

• *NCS directs* Chan *for storage. when update is effective, go to this Chart.*
** *Assumes same COMSEC key in Chan 1-5 or 1-6.*

Special Task 5: CUE and ERF Late Net Entry'

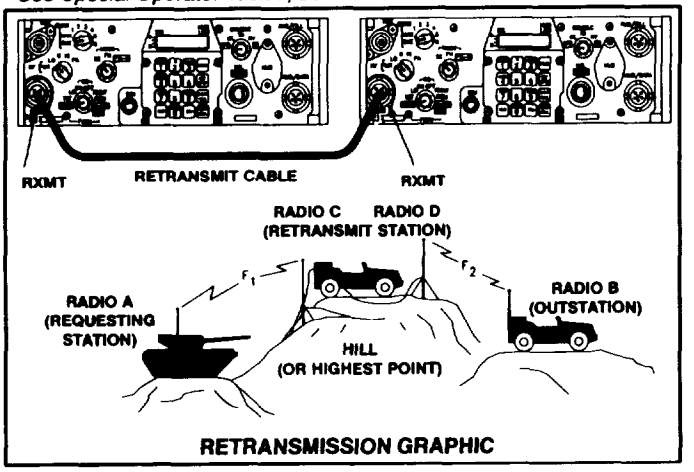
1} Load CUE and MAN freq is not already loaded	6} Repeat: every 15 sec (CUE goes thru only if net is quiet)
2} Set: CHAN–CUE, COMSEC–PT	7} Request: ERF (when NCS responds)
3} Press: PTT for 4–5 seconds (Do not talk)	8} Store: ERF (when received)
4} Set: COMSEC–CT (at once) (NCS responds in CT)	9} Re–enter: net (CUE & ERF LNE is complete)
5} Wait: for NCS to respond	

*The Hot Start net opening procedure may be used in lieu of CUE & ERF when a loaded ANCD and GPS time are available.

Special Task 6: Conduct RXMT Operations

1} Obtain RXMT COMSEC/FH data	6} Send ERF to RT–B if needed*
2} Load RXMT radios	7} Install RXMT cable, RT–C to D
3} Move to RXMT site	8} Set RT–C&D FCTN to RXMT
4} Call RT–A on F1 using RT–C	9} Set RT–C to FH, RT–D to FH–M
5} Call RT–B using RT–D	10}Have RT–A call RT–B via RXMT

* *See Special Operator Task 7, below.*



RETRANSMISSION GRAPHIC

NOTES: 1) RXMT RTs should be set to CT to enable RXMT crew to monitor RT–A to RT–B communications. 2) An RXMT station operating in EDM mode will pass both EDM and SDM data traffic, as well as voice messages. 3) 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. 4) 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

1} Obtain data to be sent by ERF	7} Press ERF
2} Load data into RT	8} Press STO*
3} Alert receiver, ERF to be sent	9} Enter CHAN for storing data*
4} Set RT to LD and FH–M	10}Wait for receiver to store ERF
5} Press LOAD	11}Confirm receipt of ERF
6} Enter CHAN where ERF data is stored	12}Set RT to FH and SQ ON; resume normal communications

* *Or, move FCTN switch from LD to SQ ON.*

Special Task 8: Change Net ID

1} Set RT to LD*	4} Enter new net ID (XXX)**
2} Set CHAN to 1–6 (one to change)	5} Press STO
3} Press FREQ, then CLR	6} Set RT to SQ ON, chan desired

* *Some versions of the RT require the FCTN to be set to the FH-M position in order to change the Net ID of any channel. When the FH-M position is required for a Net ID change, it is important that the FH-M back to FH upon task completion (except for NCS).*

** *Some versions of the SINCGARS radio will allow you to change only the last two Net ID numbers.*

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

STEP	ACTION	RESULT
1	Load RT &. RCU(RT) with proper data	Prepares SIP RTs for remote operations'
2	Install wire link from RCU(RT) to Rem radio	(See TM 11-5820-890-10-6 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, SO 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 Mink	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 radii 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 orderwire.*

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

STEP	ACTION	RESULT
1	Load PC with commercial comm SW	Use any SW program offering 'X modem"
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 made 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.)

SECTION 8 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 -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. 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.

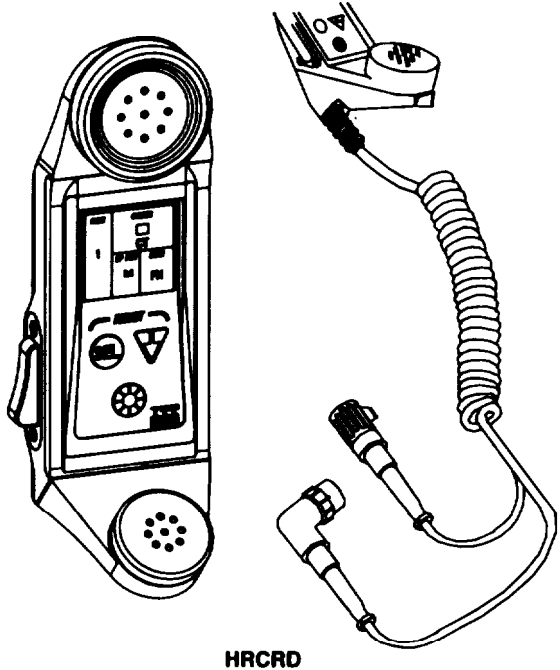
BACK LIGHT The HRCRD back light can be turned on with one press of the round light button. A second press of the light button turns the backlightoff.

CABLING The cable of the HRCRD forms a 'Y,' with one end connected to the RT AUD/DATA or AUD/FILL port. The other end is connected to the 6-pin connector on Battery Box **CY-8523C** or the AUX connector of the RT-1523E. This battery box is required for use of the HRCRD in normal manpack radio configuration.

RT KEYPAD Access to the RT Front Panel is required whenever it is necessary to change the FCTN switch, to adjust audio volume at the RT, and to change the light level in the RT display.

VEHICULAR USE

Although the HRCRD is intended for use with manpack radios, if can be employed with vehicular configurations that do not include a control-monitor. To do so, connect one end of the Y" cable to the RT (A position) AUD/DATA or AUD/FILL port and the other end to J9 connector (C-M) at the rear of the VAA.



HRCRD

SECTION 9. PMCS FOR SINCGARS RADIOS

ITEM/WHEN	CHECK/SERVICE	NMC 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. Cannot be used d. Missing

ITEM/WHEN	CHECK/SERVICE	NMC IF:
4. (B) Power:		
Manpack	Main battery present?	Missing, cannot be replaced
Vehicular	Vehicle power available?	No power, cannot correct
Manpack or vehicular	Move COMSEC from Z to PT, adjust DIM, move FCTN from OFF to Z-FH, and check that RT display lights?	RT display does not light
5. (B) Self-Test:	(FCTN in Z-FH) Display shows [GOOD]?	Display does not show [GOOD]
	(COMSEC to CT) Alarm will clear?	COMSEC alarm will not clear
	(FCTN to TST) self-test results [GOOD]?	Display shows other than [GOOD]

ITEM/WHEN	CHECK/SERVICE	NMC* IF:
i. (B) Keypad:	(RT at CT, SC, LD, and CHAN as shown below: 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 R T b. Cannot store any frequency
7. (B) Data Loading: 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/WHEN	CHECK/SERVICE	NMC* IF:
8. (B, D, A) Comm Check: (Voice/data in SC/FH modes; PT/CT and RXMT, as required by mission)	a. Check sidetone	a. Not heard
	b. Check voice comm in SC-PT	b. No voice comm in SC-PT or FH-CT
	c. If data comm to be used, check using mission-related data device	c. No data comm using mission-related data device
	d. If RXMT to be used, check in mission-related modes	d. No RXMT capability in mission-related modes

**Non Mission Capable and reportable under The Army Maintenance System (TAMMS).*

*** Before, During, and After Operations checks and services.*

HANDHELD REMOTE CONTROL RADIO DEVICE (HRCRD)
PREVENTATIVE MAINTENANCE CHECKS AND SERVICES

CHECK/ SERVICE	OPERATOR PROCEDURE	NOT FULLY MISSION CAPABLE 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.	
LIGHT (B,D,A)	To turn backlight on, press the light button. To turn the light off, press the light button a second time.	
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.	
CABLE (B,D,A)	a. Check for proper installation. b. Check for tightness of connectors. c. Check for obvious damage to cable.	

CHECK/ SERVICE	OPERATOR PROCEDURE	NOT FULLY MISSION CAPABLE IF:*
CONNECTORS: (B,D,A)	a. Check for obvious damage to connectors. b. Check for missing O–rings. c. Check for bent/broken pins.	
COMM CHECK: (B,D,A)	a. Check for sidetone. b. Check voice comm.	a. Cannot transmit or receive.

Before (B), During (D), After (A)

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 position (SQ ON)/LD) and change function via keypad/switches

Section 10. Miscellaneous
NCS Checklist

It is suggested you use the following general checklist to ensure you are ready to meet all NCS requirements.

USE THE OPERATOR CHECKLIST IN TM 10-6 TO CHECK YOUR RADIO, ANCD, AND ABILITY TO COMMUNICATE.

ENSURE YOU AND NET OPERATORS HAVE THE CORRECT COMSEC/FH/SOI DATA.

USE YOUR PLGR AS A READY SOURCE OF JULIAN DATE AND GPS ZULU TIME.

DESIGNATE ONE OR MORE ALT NCS TO FOLLOW UP NET OPENINGS, RESPOND TO CUE CALLS, AND DISPLACE WHEN REQUIRED.

HAVE RXMT CREW(S) READY FOR EMPLOYMENT WHEN NEEDED.

ONCE EVERY 24 HOURS, CHECK YOU RT'S SYNC TIME AGAINST PLGR GPS TIME; IF MORE MAN 2 SECONDS OFF, RELOAD TIME.

WHEN OPERATING OVER MIDNIGHT OF 31 DECEMBER. RESET JD To 0.1. OPTIONS ARE (1) RELOAD TIME FROM ANCD, (2) CHANGE JD USING RT KEYPAD, OR (3) NCS CHANGE JD AND SEND NET UPDATE ERF ON MAN.

WHEN CNANGING TO ANOTHER CHANNEL, CHANGE TO FH.

HOLD ADMINISTRATIVE TRAFFIC TO A MINIMUM. AND WAIT UNTIL NET IS QUIET

TALK OPERATORS THROUGH TASKS WHENEVER APPROPRIATE.

MAKE BEST USE OF SECOND/THIRD RADIOS TO MONITOR KEY OPERATIONS.

ENSURE THAT ONLY THE NCS RADIO IS SET TO FH-M.

WHEN NET TRAFFIC IS HEAVY. TRANSMIT (OR PUSH PTT) AT LEAST EVERY HALF-HOUR.

KEEP AN INFORMAL RECORD OF WHICH OPERATORS ARE ACTIVE IN THE NET

ABBREVIATIONS USED

ACK	Acknowledge
AK	Automatic Key
ANCD	Automated Net Control Device
APPL	Application
ASIP	Advanced System Improvement Program
BCAST	Broadcast
BPS	Bits Per second
CID	Combat Identification
C/S	Sign/Countersign
CALWD	Call word
CFD	COMSEC Fill Device
CLR	Clear
COMSEC	Communications Security
CNTRSIGN	Countersign
CT	Cipher Text
DBS	Databases
DD	Days shown as two-digit number
DI	Default Identification
DTG	Date-time-group
ECCM	Electronic Counter Counter-Measure
EDITNAEDN	Edition
EDM	Enhanced Data Mode
ERF	Electronic Remote Fill
ESET	One Channel of FH Data
EXT	External
FCTN	RT Function Control
FH-M	Frequency Hopping-Master
FHMUX	Frequency-i-lopping Multiplexer
FREQ/FRQ	Frequency
GPS	Global Positioning System

GRP .... Group
HRCRD . . . . . .Handheld Remote Control Radio Device
HHMMSS . . . . . Hours:Minutes:Seconds
ICOM . . . . . .Integrated Communications Security
ID . . . . . Identification/Infantry Division
INC . . . . . .Internet Controller
INTCM ..... Intercom
JD ..... .Julian Date/Day
KEK ..... Key Encryption Key
LD . . . . . Load
LDE . . . . . Local Data Entry
LNE . . . . . Late Net Entry
MAN . . . . . Manual Frequency
MK . . . . . Manual Key
MM-DD-YY . . . . . Month-Day-Year
N . . . . . New or Enhanced Data Mode
NETID . . . . . Net Identification
NR . . . . . Number
OPR . . . . . Operator
OTAR . . . . . Over-The-Air-Rekey
PC . . . . . Personal Computer
PCKT . . . . . Packet Data Mode
PLGR . . . . . Precision Lightweight GPS Receiver
PT . . . . . Plain Text
PI-T . . . . . Push-To-Talk [Switch]
PYRO . . . . . Pyrotechnics
QREF . . . . . Quick Reference
RCU . . . . . Remote Control Unit
RCT (RT) . . . . . SIP/ASIP used as an RCU
RCV . . . . . Receive
RDS . . . . . RBECS DTD Software

RT . . . . . Receiver-Transmitter
RV . . . . . Receive Variable
RXMT . . . . . Retransmission
SA . . . . . Situational Awareness
SC . . . . . angle channel
SIP . . . . . System Improvement Program
SQ ON . . . . . Squelch On
STO . . . . . stow
STU . . . . . Secure Telephone Unit
S U M . . . . . Suffix
TEK . . . . . Transmission Encryption Key
TFOM . . . . . Time Figure of Merit
T M P O / T P . . . . . The Period
TSK . . . . . Transmission Security Key
VAA . . . . . Vehicular Amplifier Adapter
VG . . . . . Variable Generate
VU . . . . . Variable Update
XMT . . . . . Transmit
Z-FH . . . . . Zero Frequency Hopping Data

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