Chapter 6

EPLRS Troubleshooting

This chapter covers troubleshooting using the operational program and nonprogram alert indicators of the EPLRS NCS, RSs, and the network.

NCS

6-1. NCS troubleshooting is based on–

- On-line program alert messages observed during normal operation.
- Symptoms observed when the NCS power is brought up.
- Indicators that result from equipment built-in-tests (BITs).

OPERATIONAL PROGRAM ALERT MESSAGES

6-2. Table 6-1 contains a list of operational program alert indications, type and description of alert, and corrective actions required to resolve the specified fault.

Table 6-1. Operational Program Alert Indications

Event	Alert Indication	Type	Description	Corrective Action
1	ACT PLRS DO QUEUE FULL	I	An active unit may have lost an output message due to poor communications (comm) with unit.	If message was just sent to unit, wait 5 minutes and resend it.
2	ADJ MS DO QUEUE FULL	I	Output message to adjacent NCS may have been lost due to poor or no comm with adjacent NCS.	Determine which adjacent NCS is having comm problems. If this adjacent NCS is not deployed, delete this adjacent NCS assignment. If this adjacent NCS is deployed and comm is important, deploy more units, if possible, near the NCS community to increase number of units that have comm with that community. Reducing data rate or sending messages slower to adjacent NCS may reduce problem.

Table 6-1. Operational Program Alert Indications (Continued)

Event	Alert Indication	Type	Description	Corrective Action
				Continue to monitor number of intercommunity contacts. If supplemental data is 00000000, check if a duplicate (DUP) user unit identifier (UUID) fault has occurred. If DUP UUID has occurred, clear or zeroize RSs involved, contact SYSCON to have RSs loaded with correct unique Position Location Reporting System (PLRS) ID and keys.
3	ALT-MS DO QUEUE FULL	I	Output message to alternate NCS may have been lost due to message queue overflow; possibly due to poor or no comm with alternate NCS.	If this alternate NCS is not deployed, delete it. If alternate NCS is deployed and comm is important, deploy more units, if possible, near the NCS community to increase number of units that have comm with that community. Reducing the data rate or sending messages slower to the alternate NCS may reduce the problem. Continue to monitor number of INTERCOMMUNITY contacts.
4	CC UNIT DO QUEUE FULL	I	Output message to CC unit may have been lost due to message queue overflow; possibly due to poor or no comm with CC unit.	Determine if CC is active by hooking unit. If not active, delete CC designation. If CC is active, increase report rate to 8. If cycle rate is less than 8, suggest PLAs to the unit. If cycle rate is greater than 8, look at CC reliability. If PLAs have low reliability, deploy another unit along a favorable comm path. Reducing the data rate or sending messages slower to the CC may reduce the problem.
5	CLASSIFICATIO N MISMATCH	P	Units on needline indicated in supplemental data are not keyed to same classification level.	Supplemental data, 0000XXXX, contains a needline identifier (decimal). Review needline indicated in supplemental data and find which units are source and destination. Determine classification level of units. Verify each unit is keyed correctly. Rekey unit with correct security classification level. If both units are keyed correctly, report problem to SYSCON.

Table 6-1. Operational Program Alert Indications (Continued)

Event	Alert Indication	Type	Description	Corrective Action
6	CMP FAULT	P	Malfunction or unusual conditions detected by software.	Record actions taken before alert. If persistent, use RTEP and evaluate need to transfer control to alternate NCS. Note all occurrences and supplemental data.
7	CMTU FAULT	P	Read or write error occurred on CMTU. Indicates problem with CMTU drive or cartridge tape used. Data read or written will be in error.	When supplemental data has a value of XXXXXXX2, XXXXXXX3, XXXXXXX6, XXXXXXX7, XXXXXXXA, XXXXXXXB, XXXXXXXD, XXXXXXXF, or XXXXX2XX, XXXXX3XX, XXXXX6XX, XXXXX7XX, XXXXXAXX, XXXXXBXX, XXXXXDXX, XXXXXFXX (where X = don't care), possible causes for alert are– • Write operation attempted on write-protected cartridge. • Tape drive is off-line or does not have cartridge inserted, or tape drive cannot sense cartridge due to drive fault or cartridge not properly inserted. If drive is off-line, remove cartridge, toggle OFF-LINE/ON-LINE switch to ON-LINE and reinsert cartridge. • Unrecoverable write or read error on cartridge. Try another tape cartridge to determine if cartridge is bad. Try another tape drive to determine if problem is drive. If problem is not one of the above, record system alert and supplemental data and notify maintenance.
8	COMM CHANNEL RESET	I	A remote NCS or other host system has reset an NCS data distribution needline. The reset may be due to the remote host system initiating comm over the needline, or the remote host system is experiencing difficulties with the	The supplemental data, AAAAOOXX, contains the PLRS ID (AAAA) and LCN (XX) associated with the remote host system. If the alert persists, attempt to coordinate with the remote host system via dispatch message to verify the remote host system is operational. If the remote host system is not operational, notify SYSCON that the data distribution

Table 6-1. Operational Program Alert Indications (Continued)

Event	Alert Indication	Type	Description	Corrective Action
			needline.	needline is non-operational.
9	CRU FAULT Seventh character of supplemental data field has any character 8 through F.	S	LOW BATTERY VOLTAGE (system alert) received.	Send -N message; if LO 28V BTRY continues at DECRU, set POWER switch to OFF; wait at least 30 seconds, then set POWER switch to ON. If LO 28V BTRY message continues, notify maintenance.
10	Seventh character of supplemental data field has any character 4 through 7 or C through F.	S	OCXO/TCVCXO timing fault. All comm with existing network stops and DECRU rejoins network after OCXO/TCVCXO fault clears.	None. DECRU automatically rejoins network after fault clears. If persistent, at DECRU set POWER switch to OFF; wait at least 30 seconds, then set POWER switch to ON. If alert remains, notify maintenance.
11	Seventh character of supplemental data field has any character 2,3,6,7, A, B, E, or F. or Eighth character of supplemental data field has any character 1-3, 5-7, 9-B, or D-F.	P	DECRU hardware fault detected.	If persistent, at DECRU set POWER switch to OFF, wait at least 30 seconds; then set POWER switch to ON. If alert remains, notify maintenance.
	or Seventh character of supplemental data field has any character 1,3,5,7,9, B, D, or F.	S	Load device was connected to VARIABLE FILL connector on DECRU while DECRU was in comm with NCP. All comm with existing DECRU stops and DECRU rejoins network at approximately 4 to 10 minutes after load device has been disconnected from the VARIABLE FILL connector.	DECRU automatically rejoins network after load device has been disconnected from the VARIABLE FILL connector. If persistent, at DECRU set POWER switch to OFF; wait at least 30 seconds, then set POWER switch to ON. If DECRU does not reenter net, notify maintenance.

Table 6-1. Operational Program Alert Indications (Continued)

Event	Alert Indication	Type	Description	Corrective Action
	Eighth character of supplementary data field has any character 8 through F.	P	Barometric pressure transducer in DECRU is reporting a fault. This condition should seriously degrade system performance.	Remove any object that is in the way of the static exterior access. If persistent, at DECRU set POWER switch to OFF; wait at least 30 seconds, then set POWER switch to ON. If DECRU does not reenter net, notify maintenance.
	Eighth character of supplementary data field has any character 4 through 7 or C through F.	S	DECRU is reporting a fault in the DECRU antenna interface. This may cause the transmit power to be severely reduced and may prohibit reception of some (or all) signals.	Verify DECRU attenuator is set to OUT position. Verify antenna is on and all connections are tight. Be careful not to strip threads on antenna. If persistent, switch antenna with NCS-RS antenna. If alert remains, at DECRU set POWER switch to OFF; wait at least 30 seconds; then set POWER switch to ON. If DECRU does not reenter net, notify maintenance.
12	DCC DISPLAY FULL	I	Too much information displayed on DCC.	If persistent, reduce number of units displayed, turn off comm display, port link display, needline displays, and other special displays to declutter display.
13	DCC FAULT	P	Status fault detected.	Verify normal functioning and display. Check external indications, over temperature, GO/NO GO, and power supply indications. Reload RTEP. If problem persists, record system alert and supplemental data and notify maintenance.
14	DCC MAP FULL	I	Background storage overflow. Data may be lost.	Discontinue entry of map data or delete background map data, then load maps in most desirable order.
15	DCC TABULAR FULL	I	Queue overflow. Data may be lost.	Increase time between switch actions.
16	DCP FAULT	P	Malfunction or unusual conditions detected by software of display control processor (DCP).	Record actions taken before alert. If persistent, reload RTEP and evaluate need to transfer control to alternate NCS. Note all occurrences and supplemental data.

17	DEST NOT ACCEPTING DATA	I	A remote NCS or other host is not accepting messages sent over the communication network to it as a DEST.	The supplemental data, AAAAOOXX, contains the PLRS ID (AAAA) and LCN (XX) associated with the remote host system. Review the system configuration for the indicated remote host system and correct as necessary per the current OPORDs. If the system configuration is correct, send dispatch message to the remote host system requesting that the remote host system correct its configuration information.
18	DISPATCH QUEUE FULL	I	A DISPATCH or NAV-AID message has been discarded because over 10 messages (incomplete messages included) have been received at NCS without operator reviewing/removing them. The DISPATCH and NAVAID advisory counts indicate the number of complete messages and timed-out incomplete messages.	Review DISPATCH and NAVAID advisories and keep counts at or near zero. If complete NAVAID messages are in queue, check library entry for originating NCS; verify NCS has message set H as intended. Determine if CC or other NCSs recently sent DISPATCH or NAVAID messages. Ask CC/NCSs to wait five minutes and retransmit messages recently sent.
19	DUPLICATE IRID	I	Units indicated in supplemental data have duplicate initial rekey ID (IRID).	Supplemental data, AAAABBBB, contains two PLRS IDs. First PLRS ID, AAAA, is unit reporting duplicate IRID. Notify both units of problem and have them contact their signal officer; otherwise NCS operator should contact appropriate signal officer or maintenance. Zeroize one or both units and reload with a new I-KEK (consisting of a unique IRID).
20	END OF PLAY-BACK	I	End of playback.	None.

21	EXCESSIVE LOGGING RATE	P	Recording data may be lost. Too much data being recorded, unit not on line, or possible hardware fault exists.	Supplemental data indicates drive on which fault occurred. If CMTU FAULT alert exists, correct it first. If CMTU fault is persistent, notify maintenance at conclusion of run. In the meantime, use another CMTU drive. If alert is persistent without CMTU fault, assign another CMTU drive and monitor CMTU alerts. If fault continues, use a different tape. If changing tapes does not fix the problem, reduce amount of data recorded by disabling level of recording.
22	INTERCOM-MUNITY MESSAGE TIMEOUT	P	RTEP has been unable to deliver INTERCOMMUNITY message to alternate NCS, adjacent NCS, or CC via the control network for at least four epochs. INTERCOMMUNITY messages not delivered will be lost. The supplemental data contains the PLRS ID of the message's destination unit.	Determine quality of comm between NCSs (hook own NCS and use link display). If the destination unit is not active, consider changing system configuration by deleting the alternate or adjacent NCS assignment. If the destination unit is active, deploying more units near the destination unit may help.
23	INACT UU DO QUEUE	I	Inactive user unit (UU) may have lost an output message due to message queue overflow; possibly due to poor or no comm with unit.	If message was just sent to unit, wait 5 minutes and resend it.
24	INVALID COMM CHANNEL	P	There has been an attempt to activate a group-addressed needline on a channel that has not been assigned.	Supplemental data, 0000XXXX, contains the needline number. Verify needline entry is correct. If not correct, reenter correct needline parameters. If correct, contact SYSCON for problem resolution.

25	INVALID GROUP LTS	P	There has been an attempt to activate a group-addressed needline on an LTS assigned to be used by duplex needlines.	Supplemental data, 0000NNNN, contains the needline number. Verify needline entry is correct. If not correct, reenter correct needline parameters. If correct, contact SYSCON for problem resolution.
26	I/O FAIL, CMP-NCS RS	P	CMP NCS RS I/O transfer failure.	If supplemental data is 00000001, the NCS-RS has restarted. Reinitiate the transfer of any critical messages (dispatch messages or library data transfers) sent within the last two minutes over the comm network. If supplemental data is 00000002, RTEP has detected a hardware malfunction on the MIL-STD-1553B interface. Notify maintenance. If supplemental data is 00000003, the NCS-RS is not responding. Verify the NCS-RS is powered-on, the NCS-RS host interface is connected properly, and the NCS-RS link parameters are set correctly; send extended -L message. If the problem can not be corrected, notify maintenance.
27	I/O FAIL, CRU-NCP	P	DECRU-NCP data transfer failure detected by DECRU.	Record all occurrences, supplemental data, and if persistent, notify maintenance.
28	I/O FAIL, DCP-CMTU			Check if CMTU drive is off-line, (if OP INT light is on, CMTU drive is reported as off-line). If drive is off-line, remove cartridge, toggle ON-LINE/OFF-LINE switch, reinsert cartridge, and determine if CMTU drive changes to on-line. Select another drive. Record all occurrences and supplemental data and notify maintenance.
29	I/O FAIL, DCP-DCC	I	DCP-DCC I/O transfer failure.	If persistent, reload RTEP. If fault remains, notify maintenance.

30	I/O FAIL, DCP-DCP-KBD/PRT	I	Keyboard/ Printer KBD/PTR serial data transfer failure.	If persistent, reload RTEP. If fault remains, notify maintenance.
31	I/O FAIL KOK-13-CRU	P	KOK-13-DECRU I/O transfer failure.	Record all occurrences and supplemental data. If alert is persistent, cycle power on KOK-13. If alert remains, cycle power on DECRU. If alert remains, notify maintenance.
32	I/O FAIL, NCP-CRU	P	NCP-DECRU I/O transfer failure.	If persistent and supplemental data is 00000004, at DECRU set POWER switch to OFF; wait at least 30 seconds, then set POWER to ON. If fault remains after two attempts, notify maintenance. No matter what value supplemental data, note all occurrences and supplemental data (intermittent or repeatable) and what was being done with the system at time of occurrence. If alert is persistent, notify maintenance.
33	I/O FAIL, CMP-DCP I/O FAIL, CMP-NCP I/O FAIL, DCP-CMP I/O FAIL, DCP-NCP I/O FAIL, DCP- TOAP	P P P P P	. I/O transfer failure between listed processors.	If persistent, reload RTEP. If fault remains, notify maintenance. Note all occurrences and supplemental data (repeatable and intermittent) and what was being done with system at time of occurrences. Notify maintenance (even for one occurrence) at a convenient time.

	I/O FAIL, NCP-CMP I/O FAIL, NCP-DCP I/O FAIL, NCP-TOAP I/O FAIL, TOAP-DCP I/O FAIL, TOAP-NCP	P P P P P		
34	KG-87 FAULT	P	KGV-13 status fault detected.	Record all occurrences and supplemental data. If persistent, at DECRU set POWER switch to OFF; wait at least 30 seconds, then set POWER to ON. If alert is persistent, notify maintenance.
35	KOK-13 FAULT	P	Indicates KOK-13 attempted to use next month key and it was not loaded.	Load next monthly key.
36	Anything else received as supplemental data.	P	Indicates a KOK-13 DECRU interface fault.	If persistent at KOK-13, set POWER switch to OFF; wait 30 seconds, then set POWER switch to ON. If alert remains, at DECRU set POWER switch to OFF; wait at least 30 seconds, then set POWER switch to ON. If still persistent, notify maintenance.
37	LOW THRUPUT	P	Generated when throughput drops by 20 percent or more in 30 seconds, or drops from above 50 percent to below 50 percent (system experiencing a jamming transient). May occur after an advance.	Monitor and determine if low throughput is persistent. If not persistent, note occurrence and continue. If persistent, notify maintenance. Forced PLAs on inactive units may cause this alert.
38	MAP ID MISMATCH	P	Incorrect map ID entered.	Reenter map ID or change map cartridge.

39	MESSAGE QUEUE OVER-FLOW	I	USER MSG queue has more than 25 messages and oldest message in queue may have been lost.	Review USER MSG advisories. Queue should be maintained at, or near, zero.
40	MSG TIMEOUT, CMP-NCS RS	I	RTEP has been unable to deliver a message to remote NCS or other host system via the communications network for over one epoch; possibly due to a delay in initially establishing the needline or temporary needline outage.	The supplemental data, AAAA00XX, contains the PLRS ID (AAAA) and LCN (XX) associated with the remote system. If any critical messages (dispatches or library data transfers) have been sent within the last two minutes to the indicated remote host system, allow sufficient time for needline to build or rebuild. Reinitiate transfer of messages; monitor LCN status in library and at RS. If alert persists, notify SYSCON that NCS data distribution needline is non-operational.
41	MSG TIMEOUT, CMP-ACS RS	I	RTEP has been unable to deliver a message to a remote NCS or other host system via the communication network for over one epoch; possibly due to a delay in initially establishing the needline, or a temporary needline outage.	The supplemental data, AAAA00XX, contains PLRS ID (AAAA) and LCN (XX) associated with remote host system. If any critical messages (dispatches or library data transfers) have been sent within the last two minutes to the indicated remote host system, allow sufficient time for needline to build or rebuild, then reinitiate transfer of messages. If alert persists, notify SYSCON that NCS data distribution needline is non- operational.
42	NCP FAULT	P	Malfunction or unusual conditions detected by software.	Record actions taken before alert. If persistent, reload RTEP and evaluate need to transfer control to alternate NCS. Note all occurrences and supplemental data.
43	NEEDLINE NOT IN LIBRARY	P	Unit makes request for an LCN that is not in needline library.	Record alert and supplemental data. Supplemental data, AAAA00XX, contains the PLRS ID (AAAA) and LCN (XX) that is not in the needline library. Notify SYSCON; if needline does not need to be added to library, restart unit. If alert is still persistent after retest, call maintenance.
44	NET CONFLICT	P	Comm LTS or comm frequency allocation or frequency hop mode	Coordinate frequency hop setting, comm LTS, and comm frequency allocation with SYSCON and other

Table 6-1. Operational Program Alert Indications (Continued)

Event	Alert Indication	Type	Description	Corrective Action
			mismatch detected between DECRU and NCS software or DECRU and other community.	NCSs. Monitor at least 5 minutes. If alert persists, evaluate need to reload RTEP or consolidate NCS network into other NCS networks.
45	NO ALT MS COMMUNICA-TIONS	I	At least two epochs have passed since a message was received from alternate NCS (primary or secondary).	The supplementary data, AAAA00XX, contains the PLRS ID (AAAA) and LCN (XX) of the alternate NCS. The logical channel will be 00 if the control network is being used to communicate with the alternate NCS. If the alternate NCS is not deployed, delete the NCS that is designated as an alternate. If the alternate NCS is deployed, review the comm reliability between the NCSs (hook NCS and select link display). If the number of units having reliable contact with the alternate NCS is dropping rapidly, the alternate NCS may have experienced an unplanned outage.
				If the alternate NCS is deployed and the control network is being used to communicate with the alternate NCS, use the SUGGEST SECONDARY MS control action or deploy additional units near the alternate NCS community. This increases the number of units that have comm with the community. The interface controller (IC) MESSAGE TIMEOUT alert may occur when there is no comm between the NCS and alternate NCS over the control network.

Table 6-1. Operational Program Alert Indications (Continued)

Event	Alert Indication	Type	Description	Corrective Action
				If the alternate NCS is deployed, and the comm network is being used to communicate with the alternate NCS, there has been a delay in initially establishing the needline or a temporary needline outage has occurred. The MESSAGE TIMEOUT CMP NCS-RS alert may also occur when the needline between the NCSs experiences an outage. If any critical messages (dispatches or library data transfers) have been sent within the last two minutes to an indicated alternate NCS, allow sufficient time for needline to build or rebuild, then reinitiate transfer of messages. If alert persists, notify SYSCON that NCS data distribution needline in nonoperational.
46	NO ALTITUDE REFERENCE	P	Indicates no barometric transducer datum processed through sea level pressure filter during an epoch. Means no reports on altitude or full reference in an epoch (no active reference unit occurs during initial network build).	Check if altitude and/or full reference units exist in library. If in library, determine if units are active. Once units are active, alert will cease. If not, designate units as altitude or full reference units.
47	NO HOR OR FULL REFERENCE	P	Indicates one of the following: • Less than two HOR or full reference units are active (no TOAs from them). • Only HOR and full reference units are active. • Reference unit positions are grossly mislocated.	Verify current reference units are active, locations or reference units are correct, and/or review and correct reference unit problems. Designate more units as reference units. After making any reference unit changes above, wait approximately 4 minutes to allow change to take effect.
48	PLAYBACK	P	Playback rate cannot	Lower playback rate. If persistent at

Table 6-1. Operational Program Alert Indications (Continued)

Event	Alert Indication	Type	Description	Corrective Action
	RATE TOO HIGH		be supported.	playback RATE X1, notify maintenance.
49	PLRS COMM NET FULL	I	Maximum EPLRS communications capability has been assigned.	Add more active units to network. If adding more units is not possible, delete low priority needlines. Reduce needline rate of selected needlines.
50	QUEUE OVER-FLOW CMP-NCS RS	I	RTEP was unable to deliver a message to a remote NCS or other host system via the comm network. This is due to message queue overflow, temporary needline outage, or a sudden burst of data to be transmitted over the needline.	The supplemental data, AAAA00XX, contains the PLRS ID (AAAA) and LCN (XX) associated with the remote host system. If any critical messages (dispatch messages or library data transfer) have been sent within the last 2 minutes to the indicated remote host system, allow sufficient time for the backlog of messages to clear. Reinitiate the transfer of the messages. If the alert persists, review and evaluate the assigned rate for the need-line to determine if an increase in the assigned rate is needed (notify SYSCON and wait for instructions).
51	REKEY ALARM	P	Radio set I-KEK/KOK-13 yearly seed key mismatch detected.	Record alert and supplemental data. Supplemental data, AAAA0LCE, contains : • Unit ID in the first four characters, AAAA. • L = last yearly seed key in KOK-13 (0 through 3). • C = current yearly seed key in KOK-13 (0 through 3). • E = I-KEK year (0 through 3) of RS (unit AAAA). Based on the conditions, perform the following: • If C is greater than E or if C=0 and E=3, load KOK-13 with last yearly seed key, if available. If not available, reload AAAA with a new I-KEK from the KOK-13. • If C is less than E (except for C=0 and E=3), load the KOK-13 with the next yearly seed key.

			DECRU failed to load key into KGV-13.	• If two yearly seed keys are loaded, verify correct key configuration in KOK-13. RS should be zeroized and reloaded with current yearly seed key. Record alert and supplemental data. Supplemental data, AAAAXXXX, contains a unit ID in the first four characters, AAAA. If unit ID is DECRU and alert is persistent, at DECRU, set POWER switch to OFF; wait at least 30 seconds, then set POWER switch to ON. If unit ID is not DECRU, restart unit AAAA. If alert is occurring with several different unit IDs, at KOK-13 set POWER switch to OFF; wait 30 seconds, then set POWER switch to ON. If alert remains, at DECRU set POWER switch to OFF, wait at least 30 seconds; then set POWER switch to ON. If alert remains, notify maintenance.
52	SECURITY ALERT	P	An invalid key request is made to the KOK-13.	If the advance time was set without a rekey net switch action and the KOK-13 does not have next weekly or next monthly key, reload original (current) seed keys into KOK-13. If an advance has taken place while the DECRU is turned off and RTEP has been reloaded, this alert will occur as RSs or DECRU request keys. Reload RTEP as soon as possible. Otherwise, note all occurrences and record supplemental data. If alert is persistent, notify maintenance at a convenient time.
53	TAPE FULL, DRIVE N	P	Last track on drive N has been recorded as indicated in supplemental data in TOAP.	

54	TOAP FAULT	P	Malfunction or unusual conditions detected by software in TOAP.	Record actions taken before alert. If persistent, reload RTEP and evaluate need to transfer control to alternate

Table 6-1. Operational Program Alert Indications (Continued)

Event	Alert Indication	Type	Description	Corrective Action
				NCS. Note all occurrences and supplemental data.
55	TOO MANY ACTIVE PLRS (NLs)	I	Number of active EPLRS needlines exceeds 750.	Select noncritical or low priority needlines; send messages to source and destination units to deactivate these needlines.
56	TOO MANY ACTIVE PLRS UU	I	Number of active UUs equals or exceeds 465.	Hand over some active UUs to alternate or adjacent NCS. If alert persists, select noncritical (preferably stationary) units and set inactive.
57	TOO MANY PLAYBACK UNITS	I	Number of playback units exceeds 470.	
58	TOO MANY LIBRARY PLRS RSs	O	Library is full. Limit is 999 units.	Delete unnecessary or low priority reference items.
59	9 TRACK FAULT	P	Possible 9-track tape drive hardware fault.	If supplemental data is XXXXX8XX, XXXXX9XX, XXXXXBXX, XXXXXCXX, XXXXXDXX, XXXXXEXX, or XXXXXFXX (where X = don't care), selected tape unit is file protected. Change protection of selected tape unit. If supplemental data is XXXXXX8X, XXXXXX9X, XXXXXXAX, XXXXXXBX, XXXXXXCX, XXXXXXDX, XXXXXXEX, or XXXXXXFX, possible causes are– • Write command issued and no write ring installed on tape. Verify write ring installed on tape. • Tape unit is off-line. Verify unit is off-line. If alert is persistent, record system alert and supplemental data and notify maintenance.

60	UNEXPECTED ID	P	Unexpected PLRS ID in message.	Supplemental data indicates PLRS ID (AAAAXXXX). Monitor unit data for about 5 minutes while checking for cryptovariables (CVs) FAULT, DUP UUID, TREE FAULT, or limit faults. This fault could be a one-time occurrence, but if it repeats, this indicates there is more than one RS with the same PLRS ID. Units may also appear with NO MILID, and the only communicant in the UNIT LINK display is the unexpected ID. This is another symptom of two units with the same PLRS ID (DUP UUID fault). See RS alert message index for corrective action.

[1] I – informational type alert; O – operator feedback to a switch action; S – serious problem; P – potential problem; operator action required.

OPERATIONAL NONPROGRAM ALERT MESSAGES

6-3. Table 6-2 lists the operational nonprogram alert indications, descriptions, and corrective actions required to resolve the fault.

Table 6-2. Operational Nonprogram Alert Indications

Event	Alert Indication	Description	Corrective Action
		AN/UYK-44EP	
1	COOLING FAULT TEMP	When lit, indicates internal cabinet air temperature has risen to 65°C.	Verify air conditioners are operating. If fault persists, notify maintenance.
2	COOLING FAULT FAN	When lit, indicates fan revolutions per minute (RPM) have decreased by 25 percent. Indicates fault with power being supplied.	Notify maintenance.
3	PWR FAULT displayed in REGISTER DATA as follows: XFXX (where X=doesn't care).	Indicates fault in stored program.	Press MA CLR on processor control panel. Verify input voltage and frequency at AC circuits control panel. Reload RTEP. Notify maintenance if fault persists.

Table 6-2. Operational Nonprogram Alert Indications (Continued)

Event	Alert Indication	Description	Corrective Action
4	PROG FAULT displayed in REGISTER DATA as follows: XXFX (where X=doesn't care).	Indicates program stop switch is in STOP position.	Press MA CLR switch on processor control panel. Reload RTEP. Notify maintenance. Record actions being taken prior to failure and save any logging tapes.
5	STOP 1 displayed in REGISTER DATA.	Indicates program stop due to possible hardware failure.	Verify STOPS 1/OFF switch is in OFF position. Press START switch. Reload RTEP. Notify maintenance.
6	STOP 2 displayed in REGISTER DATA	Indicates program stop or possible hardware failure.	Verify the processors are running. Reload RTEP. Notify maintenance.
7	STOP 3 displayed in REGISTER DATA.	Indicates program stop.	Verify other processors are running. Reload RTEP. Notify maintenance.
8	STOP 4 displayed in REGISTER DATA	Indicates program stop.	Reload RTEP. If fault persists, notify maintenance.
DECRU			
1	Alarm indicator lit.	Indicates problem with DECRU secure data unit.	On DECRU, set POWER switch to OFF; wait at least 30 seconds, then set POWER switch to ON. If fault persists, notify maintenance.

2	If URO message received with KO as MESSAGE LABEL:		
	URO message has 50XX0EXX in EAST/BRG NORTH/RNG field.	Indicates KOK-13 has run out of I-KEK.	KOK-13 cannot supply any more I-KEKs. To get more I-KEKs, go to another NCS within same division, preferably one that is not controlling a network. As an alternative, an entire network may be restarted and loaded with yearly keys. In any case, all NCSs within a network must be loaded with new yearly keys before entire network is brought up next time. This is typically done during a yearly update.
	URO message has 50XX0BXX in EAST/BRG NORTH/BRG field.	Indicates AN/CYZ-10 is not connected to KOK-13 when Kl or Ka is set to DECRU.	Connect AN/CYZ-10 to KOK-13 and reperform key load. If problem persists, at KOK-13, set POWER switch to OFF; wait 30 seconds, then, set POWER switch to ON. If recurring, at DECRU set POWER switch to OFF, wait at least 30 seconds; then, set POWER switch to ON. If still recurring, notify maintenance.
	URO message has 60012FXX in EAST/BRG NORTH/RNG	Indicates AN/CYZ-10 is not ready to accept keys to be sent from KOK-13.	Place AN/CYZ-10 in correct state to receive keys and retry key load.
	URO message has 50391600 in EAST/BRG NORTH/RNG field.	Indicates KOK-13 yearly seed key/DECRU I-KEK mismatch.	Load DECRU with initial I-KEKs from KOK-13.

	URO message has 40001F00 in EAST/BRG NORTH/RNG field.	Indicates duplicate seed key tape is loaded into KOK-13.	Verify status of seed key; send -V message.
	URO message has 40001300 in EAST/BRG NORTH/RNG field.	Seed key loaded incorrectly (most likely loaded upside down).	Reload seed key with printed side facing up.
	URO message has any other pattern in EAST/BRG NORTH/RNG field.	Indicates a KOK-13 - DECRU interface fault has occurred or a KOK-13 alert condition (incorrect key, unique variable update number [UVUN]) has occurred.	At KOK-13, set POWER switch to OFF; wait 30 seconds, then set POWER switch to ON. If URO device received message with KO as MESSAGE LABEL, at DECRU, set POWER switch to OFF; wait at least 30 seconds, then set POWER switch to ON. If URO device received message with KO as MESSAGE LABEL again, perform operational key load procedure again. If URO device received message with KO as MESSAGE LABEL again, notify maintenance.

RS

6-4. When an RS fault occurs, the NCS operator is notified that a problem exists. The following tables contain RS alert indications, types and descriptions of alert, and corrective actions required to resolve faults.

RADIO SET ALERT MESSAGES

6-5. Table 6-3 lists RS alert indications, descriptions, and corrective actions required to resolve the fault.

Table-6-3. RS Alert Indications

Event	Alert Indication	Type[1]	Description	Corrective Action
1	ANT FLT	P	Antenna status indicates either a short or an open.	If persistent, send message to unit to check antenna. If fault persists, refer unit to maintenance
2	ANT TYPE	P	Mismatch between reported antenna type and library data for unit.	If persistent, review unit status to get reported unit type or fault. If library is correct, refer unit and its antenna to maintenance. If unit is NCS or GR-RS, check for proper antenna installation. If TYPE under Unit Status is SVU and AGU is expected, AGU mount without antenna will show up as an SVU.
3	BARO FLT	P	Mismatch between reported barometric transducer altitude and tracked (or input) altitude.	If persistent, do not use unit as reference unit. Take relocate-track switch action on unit at the NCS. If problem persists, refer unit to maintenance.
4	CRTL BIT	P	Control bit is out of step with what is expected. Unit is potentially confused and may have lost some messages.	If persistent, restart unit.
5	CVS FLT	P	Unit has experienced any of the following: Division ID mismatch with DECRU. Detection of old key present.	 Ensure division ID unit data tabular display area is same as DECRU division ID. If different, refer to maintenance for zeroizing and key reloading with correct division ID. Check UVUN in unit status display area. If different from ECRU UVUN, refer to maintenance for zeroizing and key reloading with correct division ID.

Table-6-3. RS Alert Indications (Continued)

Event	Alert Indication	Type[1]	Description	Corrective Action
			Unexpected transition of cryptographic state to traffic protection.	Monitor fault for at least 10 minutes. Problem will usually clear itself. Monitor unit data for DUP UUID faults and system ALERTS for unexpected ID alarms. If ID matches RS with cryptovariable state fault (CVS FLT), refer to maintenance for zeroizing and key reloading with correct PLRS ID. If fault continues, perform restart. If persistent, refer unit to maintenance.
6	DUP UUID	S	At least two units are using same PLRS ID. Can cause confusion if allowed to persist.	Restart unit and clear fault. If it recurs, clear unit. Have each unit's PLRS ID set correctly. If unit has been cleared (do not delete if unit has needlines, unless authorized by SYSCON), print and delete unit library entry. After confirming PLRS ID has been set correctly, reenter each unit's library entry.
7	FORC PLA	O	Cannot comply with force PLA action. TO unit does not have forced PLA or PLA is already fully occupied.	Either force PLA at higher rate for TO unit or use another unit.
		O	Cannot comply with release PLA switch action. FROM unit is still supporting forced PLAs.	Release forced PLAs for some or all units supported by FROM unit.
		I	Forced PLA assigned earlier is not communicating with its supporting forced PLA.	Ignore or release forced PLA as desired.

Table-6-3. RS Alert Indications (Continued)

Event	Alert Indication	Type[1]	Description	Corrective Action
		O	NCS operator has requested third force PLA for this unit. Limit is two forced PLAs.	Depends on operator intent.
8	NO MILID	I	No MILID	Review advisories. Determine if unit is active, check unit data, and verify unit STATE and CYCLE RATE. If unit is active, STATE will be active and CYCLE RATE will be nonzero. If unit is inactive, delete from library. If unit is active or reappears after deleting, request library entry data (including MILID) from SYSCON. If number of units in library increased unexpectedly, or if several NO MILID faults have occurred, a DUP UUID fault may have occurred. Check unit link display for communicant that reported NO MILID unit. This unit probably has a DUP UUID fault or will have shortly. If DUP UUID has occurred, clear or zeroize RSs involved, contact SYSCON to have RSs loaded with unique PLRS IDs and keys reloaded for affected units. If unit was zeroized by NCS using clear command, PRINT/DELETE unit library entry after SYSCON has reloaded unit, then reenter unit into library. See corrective action for DUP UUID.

9	OSC LIMIT	P	Unit is reporting low supply voltage, preamble threshold alarm, or TCVCXO limit.	If persistent, restart unit. If problem persists, refer to unit maintenance. Unit is probably nonfunctional and should be replaced.
10	TREE FLT	P	Unit is reporting TREE allocation fault.	If TREE allocation change was recently made, delete fault. If it persists or TREE allocation change was not made, review units that unit can communicate with. If any appear to have low track quality or poor comm, restart them. If most of the community is reporting this fault, reload RTEP. Monitor reporting unit for DUP UUID fault or unexpected ID alert. See corrective action for DUP UUID.

[1] I – information type alert; O – operator feedback to a switch action;
S – serious problem; P – potential problem; operator action required.

RS OPERATOR TROUBLESHOOTING

6-6. RS operator troubleshooting is limited to the inspection and self-test of the RS. Corrective action is limited to replacing batteries and defective parts of the RS. During normal operation, faults may occur in the RSs. Table 6-4 lists probable faults and recommended corrective action for each. Faults not identified or corrected require evacuation of RS to unit maintenance.

Table 6-4. RS Probable Faults and Recommended Corrective Actions

Fault	Corrective Action
POWER indicator fails to light when power is applied, or power goes out during operation.	MP-RS. Remove battery case, rotate 180 degrees to align spare battery with connector on rear of RT, and reinstall battery case. Perform self-test.[1] SV-RS, GR-RS, and AV-RS. Perform self-test.[1]
Battery leakage (strong odor of sulfur dioxide or hissing sound) or corrosion.	Turn off RS immediately. Call maintenance.
RS fails to enter EPLRS network after keys are loaded or drops out of net during operation.	Perform self-test.[1]
Self-test messages volunteered frequently and ALARM and OUT OF NET lights flashing frequently.	ycle power on RS. If problem persists, zeroize and reload keys. If problem persists, notify maintenance.
Improper display during operation.	Perform self-test.[1]

[1]The RS self-test is initiated when the POWER switch on the RS is set from OFF to ON or ON + AUDIBLE. The self-test tests the various functions of the RS and URO device and displays the results.

SELF-TEST

6-7. The self-test tests the various functions of the RS and URO and displays the results. See Figure 6-1 for complete procedures and results. Self-test generation methods the operator can initiate include–

- Using the TEST key on the URO device.
- Moving the RS power switch from OFF to ON or ON+AUDIBLE switch.
- Sending a -T message from the host RS equipment.
- Removing the key loading device (AN/CYZ-10).

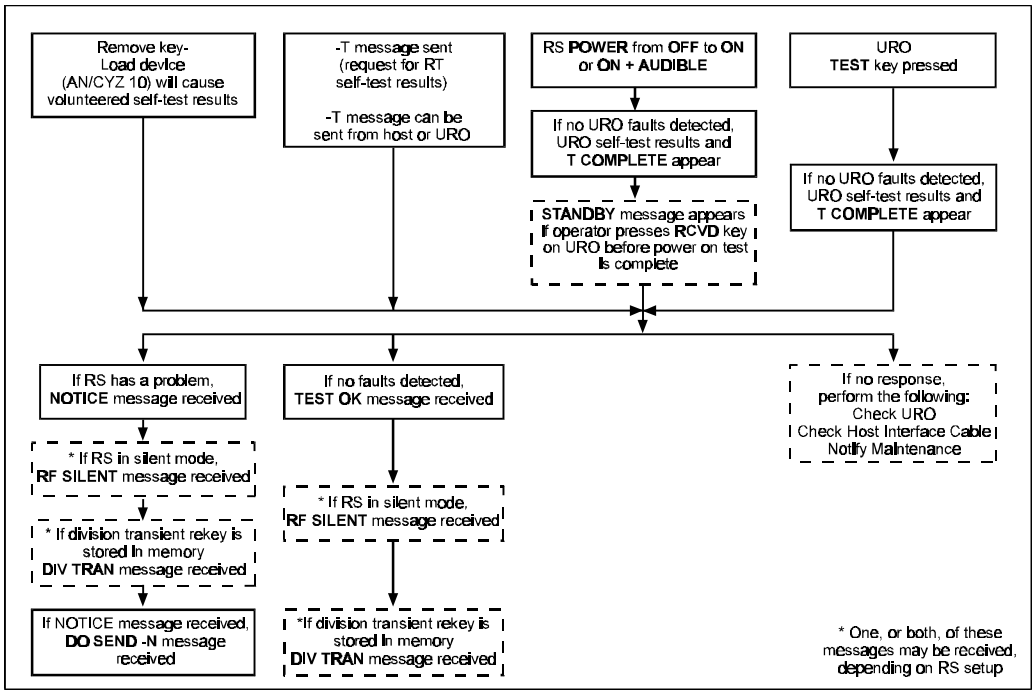

Figure 6-1. RS Self-Test Generation

RS OPERATOR CLEARABLE FAULTS

6-8. Table 6-5 lists the messages that indicate a fault that the operator may be able to clear. If corrective actions fail to clear the fault, zeroize the RT and turn it into maintenance.

Table 6-5. RS Fault Messages and Recommended Corrective Actions

Message	Corrective Action
CK ANTENNA	Check antenna and antenna cable connections. Remove any foreign materials found in connections.
CK BAR	Check pressure port for dirt and other foreign materials. Clean as required.
CK HOST I/O	Check host to ensure that it is present, connected, and powered.
CK KEYS	Verify configuration is correct for mission; if not, zeroize RS and reload keys.
DO CYCL PWR	Set POWER switch on RT to OFF; wait 30 seconds, then set to ON or ON+AUDIBLE. If fault persists, replace RT.
ID NEEDED	Indicates RS is not operational. Zeroize RS and enter RSID, then reload keys. Notify maintenance.

Table 6-5. RS Fault Messages and Recommended Corrective Actions (Continued)

Message	Corrective Action
I/O FAIL	Check URO device cable connections. Replace URO device. Replace RT.
LO 28V BTRY	Check battery connection. If fault repeats, change 28V battery. If not battery-operated, check power connections and power source. If fault persists, replace RT or replace power source.
NG 4HOST OP	Indicates RT is not supporting host communications, although other functions may be normal. For 1553B RS, verify host is on and cable connected. Enter -L parameters. If unit is faulty, replace RT.
NO KEYS	Indicates RT is completely zeroized. Keys must be reloaded before operation. (This message can be desirable if RS is being stored, sent for maintenance, or in danger of enemy action).
NO MESSAGES	Indicates no operator action is required. RS is operational.
NOTICE	Send -N message to review each fault message.
URO PROC	For URO device processor fault, set POWER switch to OFF; wait 30 seconds, then set back to ON + AUDIBLE. Check URO device cable connections. Replace URO device and URO device cable. Replace RT.

NETWORK

6-9. The NCS operator is the communications technical controller for a single community (typically a brigade) of RSs and is responsible to the supported user community, the signal organization, and the SYSCON.

6-10. The NCS provides control and network management and troubleshooting functions necessary to provide EPLRS user-to-user communications, establish and maintain EPLRS control and communication networks, and monitor and report system performance information.

SYSTEM ACCURACY

6-11. Uncontrolled changes in locations of reference units can cause severe problems in system accuracy in terms of B/R data. The NCS operator should know if a site has been relocated to another position or if any changes have been made regarding the position of the reference unit (horizontal, vertical, or both). If the operator is informed that unsatisfactory location and position data is being reported from community units, immediate troubleshooting steps must take place.

6-12. The operator should contact any suspect reference unit and determine if, in fact, position change or unit relocation has occurred. Having determined that a relocation and/or position change has occurred, the operator can take immediate action.

6-13. If the problem is a change in actual position of the reference unit, the operator can make appropriate changes in the network database that reflect new horizontal and/or vertical position data. If a reference unit has actually relocated, the NCS operator enters into the network database the direction and distance the unit has moved from the previous reference point.

GEOMETRIC DISPERSION

6-14. Geometric dispersion is essential to a good EPLRS network. An NCS operator, in his role as system performance monitor, may discover that the system is performing poorly in one area versus another. Many times the problem is determined to be poor dispersion (or clusters) of RSs in a local area. The NCS operator may then attempt to advise the RS-equipped units in that area to further disperse. The units should locate RSs at least a few hundred meters apart, if possible.

RS ANTENNA PROPAGATION LOSS

6-15. When the NCS operator becomes aware that the RS is experiencing poor signal propagation, he and the SYSCON attempt to determine the reason for the signal loss. The NCS operator reviews the site predeployment planning and attempts to determine what is causing the site to experience poor signal transmit quality. This troubleshooting may reveal that the site contains local interference or obstructions that may be causing the propagation loss. Although the original planning for this site seemed good, in actual operation the site may be actually less than optimal for RS propagation.

ANTENNA MOUNTING

6-16. If antenna gain at the NCS site is reduced from the expected norm, there may be a problem with the antenna mounting.

6-17. Towers are a convenient way to elevate the NCS antenna for maximum LOS propagation. However, if the antenna is not mounted on top of the tower, metal towers can disrupt the antenna coverage. This can be an advantage or disadvantage depending on the planned propagation path. The operator troubleshoots the cause of signal propagation coverage by examining the location of the NCS antenna and determining the reason that it is mounted where it is.

6-18. Antenna gain is severely reduced behind the tower or other metal objects (chain link fence, metal buildings, large vehicles, or power lines). The operator should be familiar with the possible propagation outcomes of signal strength and direction when the antenna is mounted to the side of a tower or other large metal object. When an antenna is mounted near metal objects–

- Propagation coverage behind the tower will be minimal. This can be an advantage in obtaining some shielding from potential ECM while retaining coverage in the other direction.
- Antenna gain can be expected to be changed directly in front of the tower or other metal object. Instead of an omni-directional antenna propagation pattern, the antenna pattern may have peaks and nulls.

Use of the EPLRS frequency hop function will tend to average out these and minimize their impact.

ANTENNA CABLE LENGTHS

6-19. The antenna cable length and type also cause the delay in transmission and reception signals. Because the cable lengths for RSs are fixed for each configuration, the NCS is the only place where there is a real choice of physically adjusting the cable length.

6-20. The NCS cable length is input at the console and can be any length. Therefore, when using a tower or tree to remote the NCS antenna, use only enough cable to do the job. Excess cable causes unnecessary losses in signal strength. In general, if the other units cannot be seen from the ground but can be seen from a higher elevation, the use of a higher antenna, even with cable loss, would be preferable.

SIGNAL LOSS CONSIDERATIONS

6-21. Elevating the NCS antenna with extra cable or leaving the antenna mounted on the NCS van may cause signal propagation problems. When deciding how to correct this, the following questions should be addressed as fundamental troubleshooting steps to identify and correct the signal loss:

- Which method (antenna mounted on the shelter or antenna elevated) provides more A level units? How far out are those A level units? (The further out the A level units are, the more flexibility the NCS operator has in supporting the NCS community.)
- Which method provides better data throughput?
- Does the tracking accuracy degrade by elevating the antenna rather than leaving it on the shelter? (Once the switch-over from one method to the other is made, waiting 15 to 20 minutes before polling the community to measure the difference provides reading that is more accurate. Make only one change at a time.)

ALTERNATE AND ADJACENT NCS CONFIGURATIONS

6-22. When unplanned or undesired changes to the NCS assignments on the AOR boundary occur, the NCS operator must take immediate steps to verify that the desired NCS IDs are on the AOR boundaries after any system configuration change. If not, the desired NCS IDs can be reassigned using the AOR entry switch actions.

REVIEW/EVALUATE ADVISORIES

6-23. During this review process, the NCS operator may make a decision as to what action should be taken to resolve the problem as listed in the advisory. Unless an advisory is being deferred, it is good practice to print all advisories for future reference. Many problems can be self-correcting; printing and/or deleting some advisories and waiting to see if they reoccur may be all that is necessary. Table 6-6 provides a general sequence for review and evaluation of system advisories.

Table 6-6. Advisory Review and Evaluation Sequence Actions

Step	Operator Action	System Indication	Remarks
1	In Interactive Display Window, press REVIEW ADVISORY FFK.	Applicable labels appear in display area.	If the number of advisories for a particular advisory category is 0, the label for that category is not valid. This is indicated by an ILLEGAL statement in feedback area.
2	Select first advisory category for review and choose appropriate UFK.	Unit that generated advisory is automatically hooked.	
3	Advisory action:		
	If advisory is to be deferred, do not use RESET/DELETE or PRINT/DELETE ONE.	Advisory queue count number for advisory category being reviewed remains unchanged.	
	If advisory is to be resolved, take appropriate action to resolve alert, then press PRINT/DELETE, then PRINT or PRINT ALL.	Prompt line display area is cleared. Advisory is printed. Advisory queue count number for advisory category being reviewed is reduced by one.	For proper review and evaluation of each advisory type, refer to applicable procedure for that category.
	If advisory cannot be resolved, select FILE; select PRINT/DELETE; then select PRINT ONE or PRINT ALL.	Prompt line display area is cleared. Advisory is printed. Advisory queue count number for advisory category being reviewed is reduced accordingly.	If advisory is not time corrected, count will increment by one the next time a problem is detected.

UNIT FAULT ADVISORY

6-24. The unit fault advisory advises that an individual unit has reported at least one internal fault condition via a status report message, or the NCS has detected an inconsistent response from the unit. Table 6-7 provides a general sequence for evaluating a unit fault advisory.

Table 6-7. Unit Fault Advisory Actions

Step	Operator Action	System Indication	Remarks
1	In Interactive Display Window, select REVIEW ADVISORY.	Applicable labels appear in display area.	
2	Select UNIT FLT.	Unit that generated advisory is automatically hooked. The fault is displayed at bottom of the Tabular Data window.	For an inactive unit in a large community, it may take a few seconds to find the unit fault, depending on unit's position in library.
3	Review condition that generated advisory and evaluate fault.		Some unit faults can be resolved by operator actions.
4	If advisory is to be deferred, do not select RESET/DELETE or PRINT/DELETE ONE.	Advisory queue count number after UNIT FLT advisory heading remains unchanged.	In a large community, this count may not be maintained at zero but should be kept low to avoid hiding new unit associated problems when they occur.
5	Advisory action: • If advisory is to be resolved, take appropriate action to resolve advisory. Select FILE; select PRINT/DELETE, then PRINT ONE or PRINT ALL. • If advisory cannot be resolved, select FILE; select PRINT/DELETE, then PRINT ONE or PRINT ALL.	Unit data tabular FAULT field is cleared. Unit ID for RS that caused advisory is printed out and advisory queue is reduced by one or more. Unit data tabular FAULT field is cleared. Unit ID for RS that caused advisory is printed out and advisory queue is reduced by one or more.	

NAVAIDS ADVISORY

6-25. The NAVAIDS advisory informs the NCS operator that an incorrect, incomplete NAVAIDS message has been received from another NCS. On review of the advisory, the NCS operator determines whether the NAVAIDS message is applicable. At this point, the operator can change the NAVAIDS message. Table 6-8 lists the NAVAIDS advisory actions.

Table 6-8. NAVAIDS Advisory Actions

Step	Operator Action	System Indication	Remarks
1	In Interactive Display Window, select REVIEW ADVISORY.	Applicable labels appear in display area.	
2	Select MESSAGES.	Message titles including NOT AUTH, USER MSG DISPATCH, NAVAIDS, NL REQUEST, UREC LCN, ONE TIME AUTH are displayed.	
3	Select NAVAIDS message.	NCS that generated advisory is automatically hooked. First line of NAVAIDS advisory is displayed on the prompt line.	
4	Review NAVAIDS advisory to determine if it applies to own AOR.		If NCS has maximum number of NAVAIDS messages, the operator will be unable to review the NAVAIDS advisory. Select PRINT/DELETE advisory and review hard copy.
5	If advisory does not apply, press PRINT/DELETE FFK; press PRINT ONE VFK.	Prompt line display area is cleared. NAVAIDS advisory queue count decreases by one or more and advisory is printed.	Queue count should be maintained at or near zero, otherwise the NAVAIDS advisory could be lost.
	If advisory does apply, press RETURN KEY until all lines of the navigation aid data have been entered, correcting those points that are missing or in error.	System automatically enters new navigation aid.	Contact SYSCON to verify correct NAVAIDS advisory data.

NEEDLINE REQUEST ADVISORY

6-26. The needline request advisory informs the NCS operator that incorrect or incomplete needline requests have been received from units in the field. Performing the needline advisory actions in Table 6-9 helps the operator determine if further action is needed.

Table 6-9. Needline Request Advisory Actions[1]

Step	Operator Action	System Indication	Remarks
1	In Interactive Display window, select REVIEW ADVISORY.	Applicable labels appear in display area.	
2	Select MESSAGES.	Message titles including NOT AUTH, USER MSG, DISPATCH, NAVAIDS, NL REQUEST, UREC LCN, ONE TIME AUTH are displayed.	
3	Select NL REQUEST.	Queue of NL REQUEST is displayed.	
4	Review queue to determine if further action is required.		Review request and compare advisory to SYSCON instructions or request correct information from SYSCON. If NL REQUEST had an error in LCN, RATE, or PRIORITY fields, it can be edited. If request is edited, selecting NL accepts changes. The UNIT SOURCE, DESTINATION, and TYPE fields cannot be edited.
5	If advisory is to be deferred, do not select RESET/DELETE or PRINT/DELETE ONE.	Queue count after NL REQUEST advisory heading remains unchanged.	Queue count should be maintained at or near zero, otherwise requests could be lost.
6	If not authorized, request cannot be granted. Select RESET/DELETE or PRINT/DELETE ONE.	Queue count after NL REQUEST advisory heading is reduced by one.	
7	If not authorized, request can be granted; select ONE TIME AUTH.	Queue count after NL REQUEST advisory heading is reduced by one.	

[1]This advisory indicates incompatibility between the system configurations of two communities or an incorrect definition in the needline library.

UNRECOGNIZED LCN ADVISORY

6-27. The unrecognized LCN advisory informs the NCS operator that the NCS has received a message on an LCN that is unknown to this NCS. Performing the unrecognized LCN advisory actions in Table 6-10 helps the operator determine if further action is needed.

Table 6-10. Unrecognized LCN Advisory Actions

Step	Operator Action	System Indication	Remarks
1	In Interactive Display window, select REVIEW ADVISORY.	Applicable labels appear in the display area.	
2	Select MESSAGES.	Message titles including NOT AUTH, USER MSG. DISPATCH, NAVAIDS, NL REQUEST, UREC LCN, ONE TIME AUTH are displayed.	
3	Select UREC LCN.	Queue of unrecognized LCNs and message is displayed.	
4	Review queue to determine if further action is required.		At this point, system configuration should be verified to ensure it is correct.
5	If advisory is to be deferred, do not select RESET/DELETE or PRINT/DELETE ONE.	Queue count after UREC LCN advisory heading remains unchanged.	Advisory should be deleted as soon as the condition that caused the advisory has been corrected.
6	If system configuration is not correct, correct it; select RESET/DELETE.	Prompt line display area is cleared. Queue count after UREC LCN advisory heading is reduced by one.	
7	If system configuration is correct, select PRINT/DELETE ONE.	Prompt line display area is cleared. Queue count after UREC LCN advisory heading is reduced by one and advisory is printed.	

Table 6-10. Unrecognized LCN Advisory Actions (Continued)

Step	Operator Action	System Indication	Remarks
8	If needline library is not correct, correct it; select RESET/DELETE.	Prompt in display area is cleared. Queue count after UREC LCN advisory heading is reduced by one.	
9	If needline library is correct, select PRINT/DELETE ONE.	Prompt line display area is cleared. Queue count after UREC LCN advisory headings is reduced by one and advisory is printed.	

NO TRACK ADVISORY

6-28. The NO TRACK advisory notifies the NCS operator of units that cannot meet acceptable position location criteria. The operator must be familiar with the no track advisories.

6-29. If the NCS is unable to establish correct location for the RS, then one of the following ambiguities exists–

- **Zero-link ambiguity**. This occurs when the system is unable to get a link to the RS. If the NCS network is already operating at capacity, the NCS operator may have to set an active RS to an inactive state.
- **Two-link ambiguities.** This occurs when the RS has only two acceptable range measurement links. The two-link RS has two possible locations. If the locations of only two reference units have been provided at startup time, or if an ambiguity has persisted for some time and automatic resolution seems unlikely, it may become desirable to resolve two-link ambiguities. Because the RS has two possibilities, it is not essential that the NCS operator have exact location coordinates. If the approximate location of the RS relative to other RSs or to geographic features is known, it is possible for the operator to select the correct location. If the operator does not have the approximate location, then it is best to defer the advisory.

6-30. A NO TRACK advisory may exist if the RS location has a considerable degree of uncertainty associated with its range measurements or if the RS has a low track quality. During the early stages of initialization, many NO TRACK advisories occur. The NCS system resolves most, if not all, of these advisories. In a large community, the advisory count is normally zero. However, the size of this count indicates the quality of service being provided, and a large or growing count may be an indication of significant communication problems. Table 6-11 contains the required sequence of actions that the NCS operator can take to process a NO TRACK advisory.

Table 6-11. No Track Advisory Actions

Step	Operator Action	System Indication
1	In Interactive Display Window, select REVIEW ADVISORY.	Applicable labels appear in display area.
2	Select NO TRACK.	The RS that generated the advisory is automatically hooked.
3	Review conditions that caused advisory: • Examine command and port links. • Check communicants and rate position. • Examine, if possible, the terrain features and the cycle rate. It may be necessary to force new links or change the rate.	

6-31. Table 6-12 contains the required sequence of actions that the NCS operator can take to process a two-link ambiguity.

Table 6-12. Two-Link Ambiguity Actions

Step	Operator Action	System Indication	Remarks
1	In Interactive Display Window, select REVIEW ADVISORY.	Applicable labels appear in display area.	
2	Select NO TRACK.	Three RS symbols are displayed. Two of the RS symbols indicate possible locations. A dash-dot line connects these two locations, and the RS with most probable location has a designate symbol around it. Previous location of RS has a hook symbol around it.	
3	Select NET.	Menu appears. Message titles include AUTO TRACK and HORIZ.	
4	Select TRACK.	REF, ALTITUDE REF, RELOCATION TRACK, and AVERAGE POSITION are displayed.	
5	Select AUTO TRACK.	MGR POSITION ALT LAT MIN SEC LONG MIN SEC LAST (BLANK MGR OR LAT/LONG) prompt appears in prompt line display.	If an accurate non-EPLRS derived position is available, enter this location.

Table 6-12. Two-Link Ambiguity Actions (Continued)

Step	Operator Action	System Indication	Remarks
6	Trackball designate symbol of accurate location, or manually enter correct position.	Symbol has the designate symbol around it.	
7	Press RETURN key or select APPLY.	Symbol that was not designated, dash-dot line, and symbol indicating previous location disappear from screen. Symbol that was designated remains, and the NO TRACK advisory queue count number is reduced by one.	

LINK CHECK

6-32. If a report of a communications problem between RSs occurs, the NCS operator can perform a LINK CHECK as the first step in troubleshooting the problem. LINK CHECK information provides the NCS operator with the MILID or UNIT ID (depending on display mode selected), MGR, position, and B/R between the two RSs. Additionally, this troubleshooting procedure lists the number of communications attempts that were made since the RS was hooked and the percentage of communications reliability. Table 6-13 contains the required sequence of actions that the NCS operator can take to process a LINK CHECK.

Table 6-13. Link Check Actions

Step	Operator Action	System Indication
1	Hook RS to be checked.	Hook symbol appears around the selected RS. The FROM portion of LINK CHECK tabular display area displays hooked RSs ID and MGR position.
2	Designate another RS.	Designate symbol appears around the selected RS. The TO portion of LINK CHECK tabular display area displays designated RS ID and MGR position. B/R indicates magnetic bearing in degrees and range in kilometers from hooked RS to designated RS. TRY displays cumulative number of communication attempts tried since RS was hooked. REL indicates percent of reliability of communication information.