NO. 3 ESS
SYSTEM VERIFICATION
NETWORK CONTROLLERS

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1. GENERAL INFORMATION

1.1 Description

1.11 The No. 3 ESS generic Network Controller (NWC) diagnostic function is used to verify the office network controller hardware. Operator actions are made on the maintenance TTY which trigger the Network Controller diagnostic. The diagnostic programs, generally nonresident, are called into a paging area, from the generic tape cartridge mounted on the mini-recorder, reserved in main store for execution.

1.2 Sequence - The diagnostic testing of the Network Controller (Section 520.12) should follow the completion of Handbook 269, Section 520.08.

1.3 References

CODE	TITLE
SD/CD-3H110-01	Peripheral Controller
CPS-FA993	FIOC Sequence Controller
CPS-FA994	FIOC Register Board
CPS-FA998	NWC Input Level and Misc. Decoder
CPS-FA999	NWC Switch or Level Decoder
CPS-FA1000	NWC Concentrator Group Decoder
CPS-FA1001	NWC Control Logic
CPS-FB351	FIOC Receiver Transmitter
CPS-FB404	NWC Input Group Select
CPS-FB405	NWC High and Dry Select
CPS-FB406	NWC Stage Three Group Select
CPS-FB409	Power Control
CPS-FB421	NWC Timing and Guard Control
CPS-FC188	NWC Output Group Select
CPS-FC193	NWC Node Select
CPS-FC219	NWC Group Checks
CPS-FC229	NWC 16V Supply
CPS-FC307	NWC Gate Select
SD/CD-3H122-01	First and Second Stage Access Circuit
CPS-FC191	NWC Output Level Select
CPS-FC192	NWC Input Level Select
SD/CD-3H131-01	Third Stage Access Circuit
CPS-FC190	NWC Stage Three Level Select
→ TLM-3H103	NWC TLM
→ IM/OM-3H300	No. 3 ESS Input/Output Message Manual

2. RECORDS AND REQUIREMENTS

2.1 Records - This section's test records should be recorded on forms SD-97-1313 and SD-97-1315. Handbook 3, Section 6B may be referenced for detailed information on test record completion.

2.2 Requirements - This section's testing is intended to satisfy BSP 820-650-180; Performance Requirements, No. 3 ESS, General Equipment Requirements, Electronic Switching Systems.

3. TEST EQUIPMENT

3.1 Required - None

3.2 Troubleshooting - As required. Refer to ITE-5653, Specification for Test Accessory Set, No. 3 ESS, and Handbook 250, Section 2.26, Test Set Planning and Scheduling Information, No. 3 ESS.

4. TEST PROCEDURE

4.1 General

4.11 The NWC diagnostic tests are conducted via the "stand-by" CU under control of the "active" CU.

4.12 If an automatic CU switch occurs while conducting NC diagnostics, the diagnostics will be terminated automatically. The REPEAT or STEP mode should then be requested on the failing test(s) (phase) to isolate and fix the trouble. Normally, a trouble should be eliminated before again requesting the diagnostic in the NORMAL mode.

4.2 Test Procedure

4.21 Perform the steps in Table A in the order found. All detected troubles should be cleared before proceeding with the tests in this section. Table A procedure should be conducted at least one time completely with no detected faults or deviations in the procedure.

4.22 "SN" indicates procedure number and "Y" indicates the stand-by CU in Table A.

4.23 Each CU has either one or two sets of NWC's associated with it. Diagnostics are conducted on only one set at a time and that set must be indicated. Table A directs that diagnostics on the lower set (0) be conducted first from one CU and then from the alternate CU. The diagnostics are then conducted on the higher numbered set (1), if available, from one CU and then from the alternate CU.

4.3 Test Requirements

4.31 All input requests for NWC diagnostics must receive an associated "All Tests Pass" (ATP) output message before the NWC's can be considered as having passed verification requirements. Refer to the IMOM for message descriptions and formats.

5. TROUBLESHOOTING PROCEDURE

5.1 First, refer to pertinent documentation to determine unexpected system response. In some cases, the IM/OM may adequately explain such a response; such as improper condition states or an unexpected sequence of system input events.

5.2 When certain that a trouble does exist, the TLM printout should give an indication of what the trouble is. When this is otherwise, the tester must then carry out basic troubleshooting procedures to isolate the fault.

TABLE A

NO. 3 ESS NC SYSTEM VERIFICATION TEST PROCEDURES

SN	OPERATOR ACTION	SYSTEM RESPONSE	OPERATOR RESPONSE	NOTE
1	RMV:NWC 0(Y)!	M tt RMV NWC 0(Y) 0000 Any other	Go to SN2. Go to paragraph 5.	1,5 7
2	DGN:NWC 0(Y)!	tt DGN NWC 0(Y) ATP Any other	Go to SN3. Go to paragraph 5.	7
3	RST:NWC 0(Y);UCL!	M tt RST NWC 0(Y) COMPL Any other	Go to SN4. Go to paragraph 5.	3,6 7
4	SW:SYC;UCL!	OK Any other	Go to SN5. Go to paragraph 5.	3,8 7
5	RMV:NWC 0(Y)!	M tt RMV NWC 0(Y) 0000 Any other	Go to SN6. Go to paragraph 5.	1 7
6	DGN:NWC 0(Y)!	tt DGN NWC 0(Y) ATP Any other	Go to SN7. Go to paragraph 5.	7
7	RST:NWC 0(Y);UCL!	M tt RST NWC 0(Y) COMPL Any other	(Refer to Notes) Go to paragraph 5.	3,9 7
8	RMV:NWC 1(Y)!	M tt RMV NWC 1(Y) 0000 Any other	Go to SN9. Go to paragraph 5.	1 7
9	DGN:NWC 1(Y)!	tt DGN NWC 1(Y) ATP Any other	Go to SN10. Go to paragraph 5.	7

TABLE A (Cont.)

SN	OPERATOR ACTION	SYSTEM RESPONSE	OPERATOR RESPONSE	NOTE
10	RST:NWC 1(Y);UCL!	M tt RST NWC 1(Y) COMPL Any other	Go to SN11. Go to paragraph 5.	3 7
11	SW:SYC;UCL!	OK Any other	Go to SN12. Go to paragraph 5.	3,8 7
→ 12	RMV:NWC 1(Y)!	M tt RMV NWC 1(Y) 0000 Any other	Go to SN13. Go to paragraph 5.	1 7
→ 13	DGN:NWC 1(Y)!	tt DGN NWC 1(Y) ATP Any other	Go to SN14. Go to paragraph 5.	7
14	RST:NWC 1(Y);UCL!	M tt RST NWC 1(Y) COMPL Any other	(Refer to notes) Go to paragraph 5.	2,4 7

NOTES:

1. A controller must be removed from service before it can be diagnosed.
2. NWC system verification has been successfully completed.
3. A controller must be restored to service before a "switch" can be performed.
4. All equipment should normally be left "in-service".
5. RMV:NWC ms! where: m = member s = side (off-line CU)
6. An "UCL" restoral puts the unit "in-service" without running the diagnostics. In this case it would be the second time or a repeat of the diagnostic on the same controller, which is not required, if "UCL" were not designated.
7. Go to paragraph 5 of this section or "Troubleshooting Procedure."
8. → The off-line SYC must be in stand-by, otherwise a "SW:SYC;UCL!" must be requested and on update of the off-line store is initiated. The switch should occur upon store update completion. An alternative would be to place → an off-line and out-of-service SYC in the stand-by state with a "RST:SYC;UCL!" before switching but is not recommended.
9. NWC controller system verification has been successfully completed on Set "0". If set "1" is not equipped NWC controller system verification has been successfully completed. If set "1" is present continue testing by going to PN8.

→ Arrows indicate new or changed information.

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