Installation Engineering Handbook 269
Western Electric
Northern Illinois Works

Section

730.04

11-23-79

NO. 3 ESS
CONTROL FRAME 1 AND NETWORK FRAME 8
SYSTEM VERIFICATION

CONTENTS

1. GENERAL INFORMATION

    1.1 Description

        1.11 This section provides a method
              for testing of Control Frame 1
    and Network Frame 8.

        1.12 The procedure in this section
              should be followed in a step-
    wise manner and may be incorporated into
    an MOP.

    1.2 Sequence

        1.21 All preliminary steps in
              Section 730 should be com-
    pleted

        1.22 All operations and tests in
              Sections 730.01, 730.02, and
    730.03 should be completed.

    1.3 Records

        1.31 The results of the tests of
              this section shall be recorded
    on Forms SD-97-1313 and SD-97-1315. For
    detailed information on filling out test
    records see Section 6B, Handbook 3.

    1.4 References

        1.41 The following documents will
              be useful references during the
    performance of this section.

Code	Title
IM/OM3H300	Input/Output Message Manual
TLM-3H100	FIOC

Code	Title
TLM-3H101	Scanner Controller
TLM-3H102	Peripheral Pulse Distributor
TLM-3H103	Network Controller
TLM-3H115	Test Vertical Test Circuit
TXXXX-XX-463	Assignment Record Peripheral Decoder Points.
TXXXX-XX-463	Master Scanner Assignments.
TXXXX-XX-464	Peripheral Pulse Distributor Assignments.
SD/CD-3H110-01	Peripheral Control Circuit.
SD/CD-3H120-01	15A Grid.
SD/CD-3H121-01	15B Grid.
SD/CD-3H122-01	First and Second Stage Access Circuit.
SD/CD-3H130-01	15C Grid.
SD/CD-3H131-01	Third Stage Access Circuit.
SD/CD-3H200-01	Junctor and Junctor Control Circuit.
SD/CD-3H901-01	Network Frame Circuit
SD/CD-3H902-01	Control Frame Circuit
SD-3H912-01	Scanner and PPD Assignment Rules.

2. SCAN POINT TABLE REALLOCATION

    2.1 With the addition of Network
         Frame 8 it will be necessary to
    reallocate memory to create a scan point
    number translator for Network Frame 8.
    Execute the following steps to perform the
    reallocation.

STEPS

1.) Verify the offline SYC is in standby.

2.) Depress the lock key on the System Status Panel (SSP).

3.) Input the following message to activate the Administrative Control Program.

    ALW:ADM;UCL!

The system should respond with:

    ADM PROG READY

4.) Input the following message to perform the reallocation.

    DIST:SCAN 8!

The system should respond with:

    DIST COMPL

5.) At SSP release the lock key.

6.) Switch to the offline SYC by inputting:

    DIST:SW!

The system should respond with an OK and switch SYCs.

7.) Update the offline main store, input message:

    DIST:UPD!

System responds with an OK and then prints:

    ADM PROG ABT.
    UPD OMAS COMPL.

The reallocation is now complete.

3. RECENT CHANGE PROCEDURE

3.1 Preliminary

3.101 Prior to inputting any Recent Change Messages, the installer should perform the operation's outlined in the following paragraphs.

3.102 Consult office record drawings TXXXX-XX-462 and TXXXX-XX-464 and determine the miscellaneous PPD points that are to be made active.

NOTE: PPD points 1252 through 1255 for Control Frame 1, and points 1000 through 1015 for Network Frame 8 should always be made active.

3.103 In Control Frame 1 verify that the FC206 PPD Matrix Circuit Packs that correspond to the PPD points to be activated are equipped. See SD-3H912, Figure 1 and Table A.

Note: If only Network Frame 8 is to be equipped, a FC206 circuit pack must be equipped in Location 058-32 and 158-32 and Terminating Resistor Boards must be installed at Locations 058-32-100 and 158-32-100. If no resistor boards are available and Network Frame 9 is to be added, the PPD cable (ZB204) for Network Frame 9 should be connected at this time.

3.104 Verify that the FC181 Peripheral Decoder Circuits Packs are equipped in the proper frames and positions.

3.105 Verify that the cabling to the Miscellaneous Peripheral Decoder packs is connected.

3.106 At Control Frame 1, verify that the FC330 Scanner Interrogate Circuit Packs are equipped in locations 062-2, 162-2, 062-3, 162-3, 062-4, 162-4, 062-5, and 162-5.

3.107 At Control Frame 1, verify that the FC288 Scanner Interrogate Current Driver Circuit Packs are equipped in locations 062-7 and 162-7.

3.108 At Control Frame 1, verify that a FC135 circuit pack is equipped at Locations 058-04 and 158-4.

3.109 At Control Frame 0, mount the four 15c Grids. Do not connect any cables to these grids at this time.

3.110 At Network Frame 8, disconnect the T and R cables to the HCDF. This is done by removing their associated 951A connectors on the front of the 15A Grids.

3.2 Recent Change Input

3.21 Prior to performing the tests in this section, the office parameters must be changed. This is accomplished with Recent Change Messages. All parameters that must be changed are located in PR-3H018 TDATA and defined in PA-3H300-02, Figure 20.

3.22 At this time the office will be recent changed to define the added equipment. Follow the steps below:

STEPS:

1. Verify the system is normal, offline system in standby.

2. Recent Change the office to equip Network Frame 8 and Control Frame 1 for maintenance with the following message:

> RC:OFFICE /
> NETS 1 /
> MFEM XXXXXX!

NETS = The highest equipped control frame for maintenance.

MFEM = Each bit 1 - 15 indicates which networks are equipped for access by maintenance. Bit 0 is always set.

3. Use the RC:DP XXXX message to activate all the assigned PPD points.

4. FIOC TESTS

4.1 Make SYC 0 active.

4.2 Connect the coaxial serial input/ output cables between CU-1 and Control Frame 1, Controller 1. This cable assembly is designated ZC28. Refer to Section 730.01, Table No. 9 for connecting information.

4.3 Switch systems.

> NOTE: Monitor the Maintenance TTY for possible interference with normal traffic and resolve any troubles before proceeding.

4.4 Connect the coaxial serial input/ output cable assembly between CU0 and Control Frame 1, Controller 0. This cable assembly is designated ZC27. Refer to Section 730.01, Table 8 for connecting information.

4.5 Execute FIOC diagnostics and resolve any problems.

INPUT MESSAGE	RESPONSE
DGN:FIOC 10!	IP

NOTE! If FIOC diagnostics fail in Phase 4, diagnose the PPD in the unconditional mode. Then retry the FIOC diagnostic.

4.6 Switch systems.

4.7 Execute FIOC diagnostics and resolve any problems

INPUT MESSAGE	RESPONSE
DGN:FIOC 11!	IP

5. MAJOR CONTROLLER TESTS

5.1 Execute Network Controller Diagnostics on NWC 10 and NWC 11. Both controllers must ATP before proceeding.

5.2 Execute Scanner Controller Diagnostics on SC 10 and SC 11. Both controllers must ATP before proceeding.

5.3 Execute Peripheral Pulse Distributor Controller Diagnostic on PPD 10 and PPD 11. Both controllers must ATP before proceeding.

6. RINGING AND TONE MULTIPLE

6.1 Make ringing and tone plant 0 active.

6.2 At Network Frame 7 connect the following leads from the ZB420 cable. At location 047-06-TSA as shown below.

LEAD	COLOR	TERM
AR10-T1	BL1W	21
R1	BL2W	22
BT120-T1	G1W	01
R1	G2W	02

6.3 Diagnose ringing and tone plant 1.

INPUT MESSAGES	RESPONSE
RMV:RT 1!	IP
	RMV RT 1 000000
RST:RT 1!	IP
	DGN:RT 1 ATP
	RST:RT 1 COMPL

6.4 Switch ringing and tone plants.

INPUT MESSAGE	RESPONSE
SW:RT!	OK
	REPT RT 1ACT

6.5 At Network Frame 7 connect the remaining leads from the ZB420 cable at location 046-06-TSA as shown below.

LEAD	COLOR	TERM
AR10-TO	01W	23
RO	02W	24
BT120-TO	BR1W	03
RO	BR2W	04
TRFR	S1W	53

6.6 Diagnose ringing and tone plant 0.

	INPUT MESSAGE	RESPONSE
	RMV:RT 0	IP
		RMV RT 0 000000
	RST:RT 0	IP
		DGN:RT 0 ATP
		RST:RT 0 COMPL.

7. RECENT CHANGE AND OVERWRITE PROCEDURE TO EQUIP CONTROL FRAME 1 AND NETWORK FRAME 8 FOR CALL PROCESSING

7.1 A translation overwrite will have to be done to equip the added control frame for call processing and change the MTI entries LOG__ SCAN and BO__ SCAN. Follow the steps below.

1.) Dump store at the following locations and record the data, This data will be used as the old data in the overwrite.

LOG_ SCAN ISS 4A ADDRESS 260565

BO_ SCAN ISS 4A ADDRESS 260054

2.) Input the following overwrite.

```
ALW:OW!
IN:GENID:SO2!
IN:ISSID:ISXXXX! (xxxx = Issue ID)
IN:OW XXXX;TTY!
IN:OWDATA: 0, 0, 260631, 0, 1!
IN:OWDATA: 0, 0, 260565, old data, 10!
IN:OWDATA: 0, 0, 260054, old data, 10!
OP:OW; TTY!
VFY:OW; OLD!
LOD:OW:NEW!
SW:SYC!
LOD:OW:NEW!
STOP:OW!
```

3.) Using THE RC:OFFICE message recent network frame 8 for call processing.

RC:OFFICE/
CFEM XXXXXX!

CFEM = Each bit 1-15 indicates which networks are equipped for access by call processing. Bit 0 is always set.

4.) Using the RC:SP, Recent the following scan points to the ACTIVE state.

CONTROLLER	DESCRIPTION	SP
10	REQUEST	00 19 11
10	Minor Power	00 19 12
10	Major Power	00 19 13
11	REQUEST	00 21 00
11	Minor Power	00 21 01
11	Major Power	00 21 02
1	FCG CKT	00 23 10
1	FCG CKT	00 23 11
1	Power Cross Ckt	00 24 10
1	FCG WIRE	00 25 08
1	FCG WIRE	00 25 09
1	Power Cross	00 27 07

5.) Zero SEG_STAT ADDRESS 24133 with the following message.

LOD:ST 24133;SGL:0!

6.) Update the translation file on tape with the following message.

OP:DATA;CURR!

8. STAGE III BUILDOUT

8.1 With the addition of Control Frame 1, the third stage of switching has to be expanded. This is accomplished by adding 4 15c grids and 4 FC190 circuit packs in Control Frame 0 and the T & R pairs from Control Frame 0 to Control Frame 1. The following paragraphs provide a method to expand the third stage network.

NOTE: Monitor the maintenance TTY during the execution of the following paragraphs for possible interference with normal traffic.

8.11 Insure that the system is normal. OFFLINE CU and peripheral controllers in standby.

8.12 Insert the FC190 third stage level select circuit packs in the following locations in Controller Frame 0.

LOCATION	SWITCH GROUP
166-05	2L
166-06	3L
166-27	2H
166-29	2H

8.13 At the rear of Control Frame 0 connect the Network Controller Gate Cables (designated CA09) and the Node and Pulse Cables (designated CA15) to the new 15c grids.

> NOTE: These are local cables and should be tied to existing cable forms.

8.14 Execute NWC diagnostics on NWC 00 and NWC 01 and resolve all troubles.

8.15 Connect the test vertical test multiple cable between Control Frame 0 and Control Frame 1. This cable is designated ZC19 and connects at Loc. 144-33-100 at both control frames.

8.16 Execute test vertical diagnostics on TV TC 0 and TV TC 1. Resolve any problems.

9. NET FAB, JUNCTOR AND TEST VERTICAL TESTS

9.1 At the front of the Control Frame 0, connect the third stage junctor T & R multiple cables between the existing 15c grids and those added for the network expansion. These are ED-3H046-01, Groups 1 & 2 cables designated and connected as follows:

DESIGNATION	FROM	TO
CA10	SG0L	SG2L
CA11	SG1L	SG3L
CA12	SG0H	SG2H
CA13	SG1H	SG3H

9.11 The T & R cables (ZC15, ZC16, ZC17, ZC18) should now be connected between Control Frame 0 & 1. This should be done using Handbook Section 730.01, Table 3.

9.12 Alternately execute the tests in paragraphs 8.3 through 8.5 until all troubles have been cleared.

9.13 Execute Network Fabric on Frame 8.

MESSAGE

EX:NW 8!

9.14 Execute Junctor Diagnostics on all junctor in Network Frame 8.

INPUT MESSAGE

DGN: JC 8 XX

XX = 0 through 31

9.15 Execute Test Vertical Test Circuit Diagnostic.

INPUT MESSAGE

DGN:TV TC X

X = 2 and 3

9.16 After an ATP response has been received for the tests in paragraphs 8.3 through 8.5, switch systems and repeat paragraphs 8.3 through 8.5.

10. REMOTE TEST CONTROL

10.1 At Control Frame 0 connect the ZC21 cable at location 140-42-310.

10.2 Execute junctor diagnostic in the repetitive mode. Use any junctor in Network Frame 8 that has passed diagnostics

INPUT MESSAGE	RESPONSE
RMV:JC 8 X!	M XX RMV JC 8 X

DGN: JC 8 1,PH 1,TST 102;RPT! PF

10.3 The following system indications should be observed.

    A. At the system status panel the execute lamp lights.

    B. The TTY prints;

       XX DGN JC 8 1 ATP

    C. The pass lamp on both control frames and the system status panel lights.

10.4 Depress the execute key on Control Frame 1.

    A. The execute and pass/fail lamps extinguish.

10.5 Physically remove Junctor 8 XX circuit pack from Frame 8. Depress the execute key at Control Frame 1. Observe the following system indications.

    A. At the SSP the execute and fail lamps light

    B. At both Control Frames the fail lamp lights.

    C. The TTY prints:

XX DGN JC 8 X STF

01-0102-05 0 0000 0000 0000 0001

10.6 Replace the circuit pack and stop the diagnostics.

INPUT MESSAGE   RESPONSE

STOP:RPT!   OK

11. FUSE ALARM AND TEL LINE TESTS

11.01 At Network Frame 7 connect the Tel Line Cable ZB225 at location 080-43-300.

11.02 Verify proper operation of the Tel Line between Network Frame 7 and 8 with a headset.

11.03 At Control Frame 0 connect the ZC20 cable at location 140-42-110.

11.04 Verify proper operation of the Tel Line between Control Frame 0 and Control Frame 1 with a headset.

11.05 At the fuse panel in Control Frame 1 insert a blown fuse into position TRRO. The following indications should be received from the system.

  A. Fuse alarm lamp on the fuse panel lights.

  B. Office minor audible sounds.

  C. At the SSP the minor and fuse alarm LEDs light.

  D. The TTY prints;

     REPT MISCA 20-12 000000 OFN

11.06 Replace the fuse and retire the alarm. Observe the following:

  A. Minor and fuse LEDs extinguish.

  B. TTY prints;

     REPT MISCA 20-12 NORM.

11.07 At the fuse panel insert a blown fuse into position TRR1. System indications should be the same as in Paragraph 1.5.

11.08 Replace the fuse and retire the alarm.

11.09 At Network Frame 7 connect the ZB226 cable at location 080-44-300.

11.10 At the fuse panel in Network Frame 8 insert a blown fuse into Position 0A2. The following indications should be received from the system.

  A. Fuse alarm lamp on the fuse panel lights.

  B. The FAA relay operates.

  C. Office minor audible sounds.

  D. At the SSP the minor and fuse LEDs light.

  E. The TTY prints;

     REPT MISCA 20-13 000000 OFN

11.11 Replace the fuse and retire the alarm. Observe the following:

  A. Minor and fuse LEDs extinguish.

  B. TTY prints:

     REPT MISCA 20-13 000000 NORM.

11.12 At the fuse panel in Network Frame 8 insert a blown fuse into position SRRO. The following indication should be received from the system.

  A. Fuse alarm lamp on the fuse panel lights.

  B. The FAB relay operates.

  C. Office Minor audible sounds.

  D. At the SSP the minor and fuse LEDs light.

  E. The TTY prints:

     REPT MISCA 20-12 000000 OFN

11.13 Replace the fuse and retire the alarm. Observe the following:

  A. Minor and fuse LEDs extinguish.

  B. TTY prints:

     REPT MISCA 20-12 000000 NORM.

12. FINAL TESTS

12.1 At Network Frame 8, reconnect the T and R cables

12.2 Repeat all Peripheral Diagnostics and Network Fabric from both systems. All tests must pass.

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