E2A TELEMETRY SWITCHING CONTROL CENTER

CENTRAL AND REMOTE MAINTENANCE

1. GENERAL

1.01 This practice provides the maintenance procedures for the E2A telemetry equipment used in SCCS (Switching Control Center Systems).

1.02 This practice is reissued to include information on the E2A DAS (digital alarm scanner) telemetry remote unit and to delete tests of the C&D central group report and relay output command troubleshooting. Revision arrows are used to identify the significant changes. Equipment Test Lists are affected.

1.03 This practice contains maintenance information for the 1 ESS Switching Equipment, 2B/3 ESS Switching Equipment Switching Equipment, 2 ESS/Automatic Intercept System, the TSPS (Traffic Service Position System), DMS-10* Digital Switching System, DMS-100* Digital Switching System, and the master/slave arrangement for network terminal equipment (NTE) to be connected to the SCCS critical indicator panel (CIP). The D5 channel bank and DACS (Digital Access Cross-Connect System) are used with this application.

1.04 The procedures include tests for the critical indicator (CI) central, the TCT (telemetry computer translator), and the E2A remote units at the central offices.

1.05 When a step-procedure chart refers to a table, ensure that the table referred to is for the system being maintained. See Table A for a list of the systems being maintained by this practice and the associated table.

† Trademark of the Northern Telecom Ltd.

1.06 The tests for the CC1A (Control Console 1A) or CC2A (Control Console 2A) can be found in Practice 190-110-321.

2. CI CENTRAL TESTING AND MAINTENANCE (A and B Cabinets)

2.01 This test presents a step-procedure method of performing the maintenance of the CI central unit (A and B cabinets). It assumes that the CIPs and the wiring from the CI central unit to the CIPs are in proper operating condition.

2.02 Maintenance of the CI central (J92621-D) is accomplished through the use of the E-telemetry station test set and the CIPs (critical indicator panels) at the SCC.

2.03 The following are the apparatus items required to perform this test:

(a) E-telemetry station test set (KS-20937, L1)

(b) General purpose plug-in (KS-20937, L4)

(c) E2A test cable (KS-20937, L6)

(d) Volt-ohm-milliammeter (KS-14510, L1), or equivalent.

STEP	PROCEDURE
1	*Caution: Remove power before removing or replacing any circuit pack.*
2	At bottom of the CIP, operate the lamp test switch.
	Requirement: All lamps light.

STEP	PROCEDURE
3	If any lights do not light, replace lamps.
4	Repeat Step 2 for each CIP.
5	At the SCC equipment, set all switches to audible off position.
6	At TSA terminal strip, ensure that the +5, +15, and −15 volts direct current (dc) power sources are being supplied to the unit.
7	If any voltages are not present, repair or replace the power supply.
8	On the 202T data set, depress and hold the LT (local test) key for approximately 15 seconds.

Requirement: The MR, RS, CS, CO, and TM lamps will light and remain lighted for the duration of time that the LT key is depressed.

9	If the TM lamp goes off during the 15-second period, repeat Step 8 four additional times.
10	If the TM lamp continues to go off, replace the data set and repeat the test.
11	Once the original data set or the new data set has met the requirement in Step 8, ensure that the following options in the data set are set as indicated and as listed in the associated applications schematic:

FEATURE OPTION		SETTING*
(1)	4—wire operation	(FF)
(2)	Soft turnoff and squelch intervals	0,0
(3)	Fast—carrier detection—in	(FF)
(4)	Clear—to—send interval—8 ms	(FF)
(5)	Clamp—in	(FF)
(6)	Carrier detection—in	
(7)	Continuous carrier—out	(FF)
(8)	Grounding option (S1 screw)—signal ground not connected to frame ground	
*(FF) indicates factory furnished.		

1	2	3	4	5	6	7	8	9	0
0	0	x	x	0	0	0	x	x	x

Note: Once the requirement in Step 8 is met and the proper options are set, there is reasonable assurance that the data set is in proper working condition. Additional problems are probably within

STEP	PROCEDURE

the remote circuitry. Steps 12 through 28 isolate the central circuit problems with the data set disconnected.

12 At the E-telemetry station test set, insert and connect the general purpose plug-in unit.

13 At the E2A telemetry remote unit CP (circuit pack) 48, operate the ACO switch to the down position to prevent a local office alarm.

14 At the CI central unit, locate and remove plug P1 from the 202T data set.

15 Mate the female pin connector of the E2A test cable to the P1 plug removed from the data set in Step 14.

16 Plug the other end of the E2A test cable to the J2 connector on the E-telemetry station test set.

17 At the E-telemetry station test set, set the following controls:

SWITCH	POSITION
SYSTEM	E2A
PARITY	B
BIT RATE	1200
MODE	ANSWER
ENABLE	NORMAL
DISPLAY ERROR WORD	OFF
DISPLAY WORD SELECT	1
POWER	OFF
RCU	OFF
MESSAGE LENGTH	1
WORD 1	1000000000000000
WORD 2 through WORD 4	0000000000000000

18 Move the POWER switch to the ON (up) position.

19 Depress, in order, the MASTER CLEAR and START pushbuttons.

Requirement 1: The RCV and TMT lamps will blink.

Requirement 2: Information lamps 2, 13, 16, and 17 will be lighted.

Requirement 3: Information lamps 4 through 7 (or only as many remote stations that are active) will light in a sequential and cyclic manner as shown in Table B.

STEP	PROCEDURE
20	If requirement 1 is not met, repeat Step 19.
21	If requirements 2 and 3 are not met, check the cross-connections on CP 8 per Note 104 on SD-1C541-01.
22	If the cross-connects are correct, replace all the following circuit packs (CP):

    1. CP1

    2. CP2

    3. CP3

    4. CP13 or 36

    5. CP14

    6. CP15

    7. CP16

Note: To determine the defective CP(s), replace the original CP(s) back in the central unit one at a time, repeating Step 19 after each replacement, until the unit malfunctions. The last originally installed CP is defective and will be replaced with a spare.

| 23 | On the general purpose plug-in unit, move switch number 3 in WORD 1 to the 1 (up) position. |

Requirement: At the CIPs, the CRITICAL lamps will light in sequential order.

24	If the requirement is not met, replace CP 17 and CP 18 and repeat Step 23.
25	At the COSJU (central office select unit), depress the ALM REL key. (This step is only required for latching alarms [see Tables C through I.])
26	At E-telemetry station test set, return switch number 3 in WORD 1 to the 0 (down) position.

Requirement: All CRITICAL lamps will go off.

| 27 | If the requirement is not met, replace CP 17 and CP 18 and repeat Step 26. |
| 28 | Repeat the procedures used in Steps 23 through 26 for each remaining switch (4-17) in the appropriate table (Table C, D, E, F, G, H, or I), depending on the system. |

Requirement: The corresponding CIP lamp will light as shown in Table C, D, E, F, G, H, or I.

| 29 | If any part of the requirement of Step 28 fails, replace CP 17 and CP 18 and repeat Step 28. |

Note: Determine the defective CP(s) by replacing the original CP(s) back in the central unit, one at a time, until the unit malfunctions. The last CP replaced is defective and will be replaced with a spare.

STEP	PROCEDURE
30	Remove the test set.
31	Connect plug P1 to the 202T data set.
32	At the E2A telemetry remote unit CP 48, operate the ACO switch to the reset position and release.

3. TCT REPLACEMENT

3.01 A spare TCT (J92621-E) is provided at the SCC central unit for maintenance purposes. If a TCT is determined to be faulty, through the use of the system tests, it is replaced with the spare as set forth in this procedure. The defective TCT is then returned to a appropriate service center for repair. Once the TCT has been replaced, verify proper operation through the use of the system test.

3.02 This procedure requires no additional apparatus.

STEP	PROCEDURE
1	Notify the control console operator that the TCT is about to be replaced.
2	At back of TCT, disconnect the power cord and the three connectorized cables from connectors J1, J2, and J3.
3	Slide the defective TCT out of the control console 1A cabinet and replace it with the spare.
4	Reconnect the cables and power cord removed in Step 2.
5	Notify the control console operator that the defective TCT has been replaced.

4. REMOTE STATUS POINT MAINTENANCE

4.01 This procedure provides the method for troubleshooting the SCC E2A telemetry remote units (J92621-B, -AD, -AE, -M, and -AH).

4.02 The following are the appartus items required to perform this procedure:

(a) E-telemetry station test set (KS-20937, L1)

(b) General purpose plug-in (KS-20937, L4)

(c) E2A test cable (KS-20937, L6)

(d) Volt-ohm-milliammeter (KS-14510, L1), or equivalent.

STEP	PROCEDURE
1	*Caution: Remove power before removing or replacing any circuit pack.*
2	At remote unit, ensure that the +5, +15, and −15 volts dc power sources are being supplied to the remote unit.
3	If remote units are J92621B, J92621AD, J92621AE, and J92621M, at terminal strips TSA and TSB, verify that +5, +15, and −15 volts dc power sources are being supplied to the remote unit.
4	If any voltages are not present, replace CP 12 (J92621B - location CA, J92621AD, J92621AE, and J92621M - location EC).
5	If a J92621AH remote unit, verify the following voltages:

VOLTAGE	POWER MODULE	CONNECTOR TERMINAL	VOLTAGE NOT PRESENT—REPLACE
+15	LPM	5	LPM—CP 12
−15	LPM	9	LPM—CP 12
+5	LPM	201	LPM—CP 12
+5	RPM	201	RPM—CP 12
(LPM + RPM = left and right power modules as viewed from the rear.)			

STEP	PROCEDURE
6	If a J92621AH remote unit, proceed to Step 10.
7	On the 202T data set, depress and hold the LT (local test) key for approximately 15 seconds.
	Requirement: The MR, RS, CS, CO, and TM lamps will light and remain lighted for the duration of time that the LT key is depressed.
8	If the TM lamp goes off during the 15-second period, repeat Step 7 four additional times.
9	If the TM lamp continues to go off, replace the data set and repeat the test.

STEP	PROCEDURE

11   Once the original data set or the new data set has met the requirement in Step 7, ensure that the following options in the data set are set as indicated and as listed in the associated applications schematic:

FEATURE OPTION		SETTING*
(1)	4—wire operation	(FF)
(2)	Soft turnoff and squelch intervals	0,0
(3)	Fast—carrier detection—in	(FF)
(4)	Clear—to—send interval—8 ms	(FF)
(5)	Clamp—in	(FF)
(6)	Carrier detection—in	
(7)	Continuous carrier—out	(FF)
(8)	Grounding option (S1 screw)—signal ground not connected to frame ground	
	*(FF) indicates factory furnished.	

1	2	3	4	5	6	7	8	9	0
0	0	x	x	0	0	0	x	x	x

Note: Once the requirement in Step 7 is met and the proper options are set, there is reasonable assurance that the data set is in proper working condition. Additional problems are probably within the remote circuitry. Steps 12 through 29 isolate the remote circuit problems with the data set disconnected.

12   Insert and connect the general purpose plug-in unit into the E-telemetry station test set.

13   Locate and remove plug P1 of the remote unit 202T data set.

14   Mate the female pin connector of the E2A test cable to the P1 plug removed from the data set in Step 13.

15   Plug the other end of the test cable into the J2 connector on the E-telemetry station test set.

STEP	PROCEDURE

16   Set the following controls on the E-telemetry station test set:

SWITCH	POSITION
SYSTEM	E2A
PARITY	B
BIT RATE	1200
MODE	CONT
ENABLE	NORMAL
DISPLAY ERROR WORD	OFF
DISPLAY WORD SELECT	1
POWER	OFF
RCU	OFF
MESSAGE LENGTH	1
WORD 1	01011111111000000
WORD 2 through WORD 4	00000000000000000

17   Move the POWER switch to the ON (up) position.

18   Depress, in order, the MASTER CLEAR and START pushbutton switches.

      Requirement: The TMT, RCV, and VALID WORD lamps will blink.

19   If the requirement is not met, repeat Step 18.

20   If the requirement is still not met, replace *all* of the following CPs:

          1. CP1

          2. CP2

          3. CP3

          4. CP48

          5. CP5

21   Repeat Step 17.

22   If the requirement of Step 18 is met, insert original CP(s) back in the central unit one by one. Repeat Step 18 after each replacement.

STEP	PROCEDURE
	Requirement: Central unit malfunctions.
	Note: When a malfunction occurs, the last originally installed CP is defective and should be replaced with a spare CP.
23	If a defective CP cannot be found in Step 22, inspect CP 34 for proper connections per Note 104 of SD-1C539-01-D1 for J92621-B; SD-2P021-01-D1 for J92621-AD, -AE, and -M; or SD-2P023-01-D1 for J92621-AH.
24	Hold the TEST switch, on CP 34, in the 1 (up) position.
	Requirement: INFORMATION lamps 1 through 17 will light.
25	If the requirement of Step 24 is not met, replace the CP in location AA (see Table J, K, L, M, or N [depending on system]).
26	Hold the TEST switch on CP 34 in the 0 (down) position.
	Requirement: INFORMATION lamp 1 will remain lighted, and lamps 2 through 17 will go off.
27	If the requirement of Step 26 is not met, replace the CP in location AA (see Table J, K, L, M, or N).
28	Repeat the procedures used in Steps 24 through 27 for each set of switch settings (WORD 1, switches 13 through 17, and the DISPLAY WORD SELECT switch) as shown in Table J, K, L, M, or N.
	Requirement: The INFORMATION lamps will light as set forth in the requirements for Steps 22 and 24.
29	If the requirements of Steps 24 and 26 are not met, replace the associated CP (see Table J, K, L, M, or N) and repeat the test.

5. REMOTE RELAY OUTPUT MAINTENANCE

5.01 This procedure provides the method for troubleshooting the SCC E2A telemetry remote units (J92621-B, -AD, -AE, -M, and -AH).

5.02 The following apparatus items are required to perform this procedure:

   (a) E-telemetry station test set (KS-20937, L1)

   (b) General purpose plug-in (KS-20937, L4)

   (c) E2A test cable (KS-20937, L6)

   (d) E2A K1-1 extender board (KS-20937, L9)

   (e) E2A K1-4 lamp board (KS-20937, L12)

   (f) E2A K1-5 lamp board (KS-20937, L13)

   (g) Volt-ohm-milliammeter (KS-14510, L1), or equivalent.

STEP	PROCEDURE

1   ***Note:*** Before starting the step-procedure testing of the E2A remote unit, a preliminary test should be performed to ensure that the +5, +15, and −15 Vdc power sources are supplied to the remote. For remote J92621-B, -AD, -AE, or -M, check for the voltages on terminal strips TSA and TSB. If any of the power sources are absent, replace CP 12 in location CA for J92621-B or CP 12 in location EC for J92621-AD, -AE, and -M. Verify J92621-AH remote voltages as follows:

VOLTAGE	POWER MODULE	CONNECTOR TERMINAL	VOLTAGE NOT PRESENT — REPLACE
+15	LPM	5	LPM—CP 12
−15	LPM	9	LPM—CP 12
+5	LPM	201	LPM—CP 12
+5	RPM	201	RPM—CP 12
(LPM + RPM = left and right power modules as viewed from the rear.)			

2   ***Caution: Remove power before removing or replacing any circuit pack.***

3   If testing J92621-AH remotes only, proceed to Step 7.

4   On the 202T data set, depress and hold the LT key for approximately 15 seconds.

    Requirement: The MR, RS, CS, CO, and TM lamps will light and remain lighted for the duration of time that the LT key is depressed.

5   If the TM lamp goes off during the 15-second period, repeat this step four additional times.

6   If the TM lamp continues to go off, replace the data set and repeat the test.

STEP	PROCEDURE

7   Once the original data set or the new data set has met the requirement in Step 4, ensure that the following options in the data set are set as indicated and as listed in the associated applications schematic:

FEATURE OPTION		SETTING*
(1) 4—wire operation		(FF)
(2) Soft turnoff and squelch intervals		0,0
(3) Fast—carrier detection—in		(FF)
(4) Clear—to—send interval—8 ms		(FF)
(5) Clamp—in		(FF)
(6) Carrier detection—in		
(7) Continuous carrier—out		(FF)
(8) Grounding option (S1 screw)—signal ground not connected to frame ground		
*(FF) indicates factory furnished.		

1	2	3	4	5	6	7	8	9	0
0	0	x	x	0	0	0	x	x	x

Note: Once the requirement in Step 4 is met and the proper options are set, there is reasonable assurance that the data set is in proper working condition. Additional problems are probably within the remote circuitry. Steps 8 through 37 isolate the remote circuit problems with the data set disconnected.

8   Insert and connect the general purpose plug-in unit into the E-telemetry station test set.

9   Locate and remove the plug P1 from the 202T data set at the remote unit.

10   Mate the female pin connector of the E2A test cable to the P1 plug removed from the data set in Step 9. Plug the other end of the test cable into the J2 connector on the E-telemetry station test set.

STEP	PROCEDURE

11   Set the following controls on the E-telemetry station test set:

SWITCH	POSITION
POWER	OFF
SYSTEM	E2A
PARITY	B
BIT RATE	1200
MODE	CONT
ENABLE	NORMAL
DISPLAY ERROR WORD	OFF
DISPLAY WORD SELECT	1
RCU	OFF
MESSAGE LENGTH	3
WORD 1	01001111111011111
WORD 2	10011111111001111
WORD 3	10000000000000000
WORD 4	00000000000000000

12   Move the POWER switch to the ON position.

13   Depress, in order, the MASTER CLEAR and START pushbuttons.

         Requirement: RECEIVE lamps 1 and 12 will light.

14   If the requirement of Step 13 is not met, perform Chart 3 test (remote status point maintenance).

15   Remove power from the remote.

16   Remove CP 6 or CP 37 from location AA and insert the List 9 extender board in its place.

17   Plug the removed CP 6 or CP 37 card into the end of the extender board.

18   Plug the List 12 lamp board into the List 9 extender board.

19   Return power to the remote.

20   Set WORD 3, switch 2, on the test set to the 1 (up) position.

21   Depress, in order, the MASTER CLEAR and START pushbuttons.

         Requirement: Lamp 1, on the List 12 lamp board, will light.

22   If the requirement of Step 21 is not met, replace the associated CP 6 or CP 37 and repeat Step 21.

STEP	PROCEDURE
23	Set WORD 3, switch 2, on the test set to the 0 (down) position.
	Requirement: Lamp 1, on the List 12 lamp board, will go off.
24	If the requirement of Step 23 is not met, replace the associated CP 6 or CP 37 and repeat Step 23.
25	Repeat the procedures used in Steps 20 through 23 for all remaining WORD 3 switch settings listed in Table O, P, Q, R, or S (depending on the system) for the CP under test.
	Note: Remove power from E2A unit when circuit packs are being removed and inserted.
26	If a CP 6 or CP 37 is replaced while performing Step 25, repeat the test starting at Step 20.
27	Repeat the procedures used in Steps 21 through 27 for all remaining CP 6s or CP 37s listed in Table O, P, Q, R, or S.
28	Remove power from E2A remote.
29	Remove the last CP 6 or CP 37 tested, the List 12 lamp board, and the extender board. Reinsert the CP 6 or CP 37 in the module.
30	Remove the first CP 11 listed in Table T, U, V, or W (depending on system), and insert the List 9 extender board in its place.
31	Plug the CP 11 card into the end of the extender board.
32	Plug the List 13 lamp board into the K-1 extender board.
33	Set WORD 3, switch 2, on the test set to the 1 (up) position.
34	Depress, in order, the MASTER CLEAR and START pushbuttons.
	Requirement: Lamp 1, on the List 13 lamp board, will light.
35	If the requirement of Step 34 is not met, replace CP 11 and repeat the Step 34.
36	Set WORD 3, switch 2, on the test set to the 0 (down) position.
	Requirement: Lamp 1, on the List 13 lamp board, will go off.
37	If the requirement of Step 36 is not met, replace CP 11 and repeat the Step 36.
38	Repeat the procedures used in Steps 33 through 37 for all remaining WORD 3 switch settings listed in Table T, U, V, or W for the CP under test.
39	If a CP 11 is replaced while performing Step 38, repeat the test starting at Step 32.
40	Repeat the procedures used in Steps 33 through 39 for all remaining CP 11s listed in Table T, U, V, or W.

6. E2A DAS TELEMETRY REMOTE UNIT VOLTAGE TEST

6.01 This procedure tests the voltage on the MC-1P054-A1, MC-1P055-A1, MC-1P056-A1, MC-1P057-A1, TM312 (if equipped), TM318, and TM319 (if equipped) circuit cards.

6.02 The following are the apparatus items required to perform this procedure:

(a) E-telemetry station test set (KS-20937, L1)

(b) General purpose plug-in (KS-20937, L4)

(c) E2A test cable (KS-20937, L6)

(d) Volt-ohm-meter (VOM) (KS-14510, L1) or equivalent

(e) DAS test extender card (39A)

(f) Spare circuit packs.

Note: Whenever the extender is used, the switches on it must be in the normal (up) position unless otherwise specified.

STEP	PROCEDURE
1	*Warning: Before removing any circuit packs, the +5 volt supply must be turned off.*
2	*Warning: Before any service is attempted on the panel, the office battery, alarm battery supply, and the users supply voltage fuses must be turned off.*
3	*Caution: When replacing the MC-1P054-A1 or MC-1P055-A1 circuit card, the new circuit pack must have a station constant EPROM (erasable programmable read-only memory) in the IC13 position with the same serial number as the EPROM of the board it replaces. This number should agree with the serial number in the office records.*
4	At E2A DAS telemetry remote unit dc-to-dc converter, turn ON/OFF switch to OFF.
5	Remove either the MC-1P054-A1, MC-1P055-A1, MC-1P056-A1, or MC-1P057-A1 circuit card from slot D.
6	Insert the DAS test extender card (39A) into slot D.
7	Insert circuit card removed in Step 6 into extender card.
8	At the E2A DAS telemetry remote unit dc-to-dc converter, turn ON/OFF switch to ON.
9	Using a VOM, check pins 000, 001, 100, and 101 for +5 volts, ±0.25 volts by using pins 200, 201, 300, and 301 as ground references.
10	Using a VOM, check pin 032 on the circuit card. *Requirement:* −5 volts, ±0.5 volts.
11	At E2A DAS telemetry remote unit dc-to-dc converter, turn ON/OFF switch to OFF.
12	Remove circuit card and extender card.
13	Reinsert circuit card into slot D.

STEP	PROCEDURE
14	Remove TM318 card from slot E.
15	Insert the DAS test extender card (39A) into slot E.
16	Insert TM318 card into extender card.
17	At E2A DAS telemetry remote unit dc-to-dc converter, turn ON/OFF switch to ON.
18	Using a VOM, check pins 000, 001, 100, and 101 for +5 volts, ±0.25 volts using pins 200, 201, 300, and 301 as ground references.
19	Using a VOM, check pin 032 on the circuit card. ***Requirement:*** −5 volts ±0.5 volts.
20	Using a VOM, check pin 056 on the circuit card for alarm battery supply. ***Requirement:*** Either −24 or −48 volts.
21	At E2A DAS telemetry remote unit dc-to-dc converter, turn ON/OFF switch to OFF.
22	Remove circuit card and extender card.
23	Reinsert circuit card into slot E.
24	If the E2A DAS telemetry remote unit is equipped with either the MC-1P056-A1 or MC-1P057-A1 circuit card, remove the TM319 circuit card from slot A.
25	If the E2A DAS telemetry remote unit is equipped with either the MC-1P054-A1 or MC-1P055-A1 circuit card, remove the TM312 card from slot B.
26	Insert the DAS test extender card (39A) into slot where the circuit card was removed.
27	Insert circuit card into extender card.
28	At E2A DAS telemetry remote unit dc-to-dc converter, turn the ON/OFF switch to ON.
29	Using a VOM, check pin 056 for user supply voltage. ***Requirement:*** −24 or −48 volts.
30	Using a VOM, test pins 000, 001, 100, and 101 for +5 volts, ±0.25 volts using pins 200, 201, 300, 101 as ground references.
31	At E2A DAS telemetry remote unit dc-to-dc converter, turn the ONN/OFF switch to OFF.
32	Remove circuit card and extender.

STEP	PROCEDURE
33	If E2A DAS telemetry remote unit has the MC-1P056-A1 or MC-1P057-A1 circuit card, reinsert the TM319 circuit card into slot A.
34	If E2A DAS telemetry remote unit has the MC-1P054-A1 or MC-1P055-A1 circuit card, reinsert TM312 circuit card into slot B.
35	At E2A DAS telemetry remote unit dc-to-dc converter, turn the ON/OFF switch to ON.
36	If any voltage indications are not correct, refer to SD-1P185-01 and determine the faulty circuit pack, converter, or wiring.

7. E2A DAS TELEMETRY REMOTE UNIT 202T DATA SET TEST

7.01 This procedure tests the operation of the 202T data set which is used to connect the E2A DAS telemetry remote unit with the associated central unit.

7.02 The connection is via a 4-wire private line multipoint data network, and the test should be performed on all 202T data sets associated with the remote unit.

7.03 No additional apparatus items are required to perform this procedure.

STEP	PROCEDURE
1	On the 202T data set, depress and hold the LT key for approximately 15 seconds. ***Requirement:*** While the LT key is depressed, the MR, RS, CS, CO, and TM lamps light and remain lit for the duration of time that the LT key is depressed.
2	If the TM lamp extinguishes while the LT key is depressed, repeat Step 1 four additional times.
3	If the TM lamp continuous not to be lighted while the LT key is depressed, replace the 202T data set and repeat Step 1.

STEP	PROCEDURE
4	Verify the following 202T data set options:

FEATURE OPTION		SETTING*
(1) 4—wire operation		(FF)
(2) Soft turnoff and squelch intervals		0,0
(3) Fast—carrier detection—in		(FF)
(4) Clear—to—send interval—8 ms		(FF)
(5) Clamp—in		(FF)
(6) Carrier detection—in		
(7) Continuous carrier—out		(FF)
(8) Grounding option (S1 screw)—signal ground not connected to frame ground		
*(FF) indicates factory furnished.		

1	2	3	4	5	6	7	8	9	0
0	0	x	x	0	0	0	x	x	x

5	If the test indicates that the 202T data set is working properly, the problem could be in the E2A DAS telemetry remote unit.

8. E2A DAS TLEMETRY REMOTE UNIT OPERATIONAL TESTS WHEN EQUIPPED WITH MC-1P054-A1, MC-1P056-A1, AND MC-1P057-A1 CIRCUIT CARDS ONLY

8.01 This procedure tests the ability of the E2A DAS telemetry remote unit to communicate with the central unit.

8.02 The following are the apparatus items required to perform this procedure:

  (a) E-telemetry station test set (KS-20937, L1)

  (b) General purpose plug-in (KS-20937, L4)

  (c) E2A test cable (KS-20937, L6)

  (d) Volt-ohm-milliammeter (VOM) (KS-14510, L1), or equivalent

  (e) DAS test extender card (39A)

  (f) Spare circuit packs.

  Note: Whenever the extender is used, the switches on it must be in the NORMAL (up) position unless otherwise specified.

STEP	PROCEDURE

A. Initial Setup

1   *Warning: Before removing any circuit packs, the +5 volt supply must be turned off.*

2   *Warning: Before any service is attempted on the panel, the office battery, alarm battery supply, and the users supply voltage fuses must be turned off.*

3   *Caution: When replacing the MC-1P054-A1 circuit card, the new circuit pack must have a station constant EPROM (erasable programmable read-only memory) in the IC13 position with the same serial number as the EPROM of the board it replaces. This number should agree with the serial number in the office records.*

4   Disconnect the 202T data set cable from P1.

5   Using the E2A test cable, connect between P1 and E-telemetry test set.

6   At the E-telemetry station test set, insert the general purpose plug-in.

7   Set the following controls:

SWITCH	POSITION
SYSTEM	E2A
PARITY	B
BIT RATE	1200
MODE	ONCE
ENABLE	NORMAL
DISPLAY ERROR WORD	OFF
DISPLAY WORD SELECT	1
POWER	OFF
RCU	OFF
MESSAGE LENGTH	1

STEP	PROCEDURE

SWITCHES	POSITION																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
WORD 1	0	1	0	1	1	1	1	1	1	1	1	0	0	0	0	1	1
WORD 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WORD 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WORD 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

8   If the DAS is equipped with MC-1P056-A1 or MC-1P057-A1, proceed to Step 16.

9   If the DAS is equipped with MC-1P054-A1, perform Steps 10 through 15.

10   At the E2A DAS telemetry remote unit dc-to-dc converter, set ON/OFF switch to OFF.

11   At the E2A DAS telemetry remote unit, remove the MC-1P054-A1 circuit card from slot D.

12   Insert the DAS test extender card (39A) into slot D.

13   Insert the MC-1P054-A1 circuit card into the test extender card.

14   Set all the test extender card switches in the down position (loopback).

15   At the E2A DAS telemetry remote unit dc-to-dc converter, set ON/OFF switch to ON.

16   At the E-telemetry station test set, set POWER switch to ON.

17   Depress MASTER CLEAR pushbutton.

18   Depress START pushbutton.

     Requirement: The TMT, RCV, and VALID WORD lamps blink.

19   If the requirement of Step 18 is not met, repeat Steps 17 and 18.

STEP	PROCEDURE
20	If the requirement of Step 18 still cannot be met, replace the MC-coded circuit card in slot D and repeat Steps 17 and 18.
21	If the requirement of Step 18 still cannot be met, replace the TM318 circuit card in slot E and repeat Steps 17 and 18.
22	If the requirement still cannot be met, refer to SD-1P185-01.
23	If the DAS is equipped with the MC-1P054-A1, proceed to Test F, Step 78.

B. Test 1s (MC-10056-A1 or MC-1P057-A1 Circuit Cards Only)

24	At the E-telemetry station test set, change the following control settings:

SWITCHES	POSITION																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
WORD 1	0	1	0	0	1	1	1	1	1	1	1	0	1	1	1	1	1
WORD 2	1	0	0	1	1	1	1	1	1	1	1	0	0	1	1	1	1
WORD 3	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
MESSAGE LENGTH	3																
RECEIVER CLEAR	Depress and release																

25	Depress START pushbutton.

Requirement: RECEIVE INFORMATION indicators 1 and 12 light.

STEP	PROCEDURE

26   Change the following control settings:

SWITCHES	POSITION																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
WORD 1	0	1	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0
WORD 2									All down								
WORD 3									All down								
WORD 4									All down								
MESSAGE LENGTH									1								
RECEIVER CLEAR	Depress and release																

27   Depress START pushbutton.

   Requirement: All RECEIVE INFORMATION indicators light.

28   Set DISPLAY WORD SELECT switch to 2.

29   Depress RECEIVER CLEAR pushbutton.

30   Depress START pushbutton.

   Requirement: All RECEIVE INFORMATION indicators light.

31   Repeat Steps 29 and 30, setting the DISPLAY WORD SELECT switch to 3, then to 4, then to 5.

STEP	PROCEDURE

32   Change the following WORD 1 switch setting:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
0	1	0	1	1	1	1	1	1	1	1	0	0	0	0	0	1

33   Set the DISPLAY WORD SELECT switch to 1.

34   Depress RECEIVER CLEAR pushbutton.

35   Depress START pushbutton.

    Requirement: All RECEIVE INFORMATION indicators light.

36   Set DISPLAY WORD SELECT switch to 2.

37   Depress RECEIVER CLEAR pushbutton.

38   Depress START pushbutton.

    Requirement: All RECEIVE INFORMATION indicators light.

39   If the E2A DAS telemetry remote unit is equipped with the MC-1P057-A1 circuit card, repeat Steps 36 through 38 using the DISPLAY WORD SELECT switch settings of 3 to 10.

40   If the test fails, replace the TM319 circuit card and repeat the entire test.

41   If the test still fails, refer to SD-1P185-01.

STEP	PROCEDURE

C. Test 0s (MC-1P056-A1 or MC-1P057-A1 Circuit Cards Only)

42   At the E-telemetry station test set, change the following control settings:

SWITCHES	POSITION																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
WORD 1	0	1	0	0	1	1	1	1	1	1	1	0	1	1	1	1	1
WORD 2	1	0	0	1	1	1	1	1	1	1	1	0	0	1	1	1	1
WORD 3	1	0	0	1	1	1	1	1	1	1	1	0	0	1	1	1	1
WORD 4	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1
MESSAGE LENGTH	3																

43   Set DISPLAY WORD SELECT switch to 1.

44   Depress RECEIVER CLEAR pushbutton.

45   Depress START pushbutton.

    Requirement: RECEIVE INFORMATION indicators 1 and 12 light.

46   Repeat Steps 26 through 29.

    Requirement: RECEIVE INFORMATION indicator 1 will light each step, and all other indicators will remain extinguished.

47   If the test fails, replace the TM319 circuit card and repeat the entire test.

48   If the test still fails, refer to SD-1P185-01.

D. Relay Output Test (MC-1P056-A1 and MC-1P057-A1 Circuit Cards Only)

49   At the E2A DAS telemetry remote unit, connect the VOM between terminal strip AD, pin 107 (CC16 lead) and pin 117 (CC16R lead).

50   Set the VOM to indicate ohms.

51   Set the VOM range switch to X1.

STEP	PROCEDURE

52   At the E-telemetry station test set, change the following control settings:

SWITCHES	POSITION																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
WORD 1	0	1	0	0	1	1	1	1	1	1	1	0	1	1	1	1	1
WORD 2	1	0	0	1	1	1	1	1	1	1	1	0	0	1	1	1	1
MESSAGE LENGTH	3																

53   If the E2A DAS telemetry remote unit is equipped with the MC-1P056-A1 circuit card, set the E-telemetry station test set WORD 3 switch to the following setting:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	1	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0

54   If the E2A DAS telemetry remote unit is equipped with the MC-1P057-A1 circuit card, set the E-telemetry station test set WORD 3 switch to the following setting:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	1	0	0	0	1	1	1	1	0	0	0	1	0	0	0	0

55   Depress RECEIVER CLEAR pushbutton.

56   Depress START pushbutton.

       Requirement 1:   VOM needle deflects upwards and remains high.

STEP	PROCEDURE
	Requirement 2: E-telemetry station test set RECEIVE INFORMATION indicators 1 and 12 light, and all other indicators remain extinguished.
57	If the test fails, replace the TM319 circuit card and repeat the entire test.
58	If the test still fails, refer to SD-1P185-01.
59	At the MC-1P156-A1 or MC-1P057-A1 circuit card, depress reset pushbutton.
	E. Serial Test (MC-1P056-A1 and MC-1P057-A1 Circuit Cards Only)
60	At the E2A DAS telemetry remote unit dc-to-dc converter, turn ON/OFF switch to OFF.
61	Remove either the MC-1P056-A1 or MC-1P057-A1 circuit card from slot D.
62	Insert the DAS test extender card (39A) into slot D.
63	Insert MC-coded circuit card into extender card.
64	If the E2A DAS telemetry remote unit is equipped with the MC-1P056-A1 circuit card, at the DAS extender card, set switch 10 to the down position (loopback).
65	If the E2A DAS telemetry remote unit is equipped with the MC-1P057-A1 circuit card, at the DAS extender card, set switches 1 and 2 to the down position (loopback).
66	At the E2A DAS telemetry remote unit dc-to-dc converter, set the ON/OFF switch to ON.
67	At the MC-1P056-A1 or MC-1P057-A1 circuit card, depress reset pushbutton.

STEP	PROCEDURE

68   At the E-telemetry station test set, change the following control settings:

SWITCHES	POSTION																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
WORD 1	0	1	0	1	1	1	1	1	1	1	1	0	0	0	0	0	1
WORD 1 THROUGH 4								ALL DOWN									
MESSAGE LENGTH	1																

69   If the E2A DAS telemetry remote unit is equipped with the MC-1P056-A1 circuit card, at E-telemetry station test set, set DISPLAY WORD SELECT switch to 2.

70   If the E2A DAS telemetry remote unit is equipped with the MC-1P057-A1 circuit card, at E-telemetry station test set, set DISPLAY WORD SELECT switch to 5.

71   At E-telemetry station test set, depress RECEIVE CLEAR pushbutton.

72   Depress START pushbutton.

     Requirement: RECEIVE INFORMATION indicators 1, 7, 15, and 17 light, all other indicators will remain extinguished.

     Note: If the requirement is not met, port 1 (MC-1P057-A1) or port 8 (MC-1P056-A1) is not operating properly.

73   If the E2A DAS telemetry remote unit is equipped with the MC-1P057-A1 circuit card, at E-telemetry station test set, set DISPLAY WORD SELECT switch to 9.

74   Depress RECEIVE CLEAR pushbutton.

75   Depress START pushbutton.

     Requirement: RECEIVE INFORMATION indicators 1, 7, 15, and 17 light.

STEP	PROCEDURE

Note: If the requirement indication is not met, port 2 is not operating properly.

76   If the test fails, replace the MC-coded circuit pack and repeat Steps 60 through 72.

77   If the test still fails, refer to SD-1P185-01.

F. Verify Station Constants (MC-1P054-A1 Only)

78   Refer to the central office's assignment record drawing to determine which lists 221 through 226 are assigned.

       Note: An example of the list assignments could be List 221 master discrete, List 222 master serial, List 223 master serial, etc.

79   Record each list 221 through 226 assigned and which attributes (master/slave and serial/discrete) were assigned.

80   If only the master discrete is assigned, proceed to Step 90.

81   At the DAS test extender, set the switches to the following settings:

LIST	EXTENDER CARD SWITCH	USE	SWITCH POSITION	ATTRIBUTE	
221	1	Loopback	Down	Master	Serial, discrete, or not assigned
		Not operating	Straightout		
222	2	Loopback	Down		
		Not operating	Straightout		
223	3	Loopback	Down		
		Not operating	Straightout		
224	4	Loopback	Down		
		Not operating	Straightout		
225	5	Loopback	Down		
		Not operating	Straightout		
226	6	Loopback	Down		
		Not operating	Straightout		
ALL LISTS	7	Loopback	Down	SLAVE 1	Assigned Not assigned
		Not operating	Straightout		
ALL LISTS	8	Loopback	Down	SLAVE 2	Assigned Not assigned
		Not operating	Straightout		

STEP	PROCEDURE

82   At the MC-coded circuit card, depress the reset pushbutton.

83   At the E-telemetry station test set, change the following control settings:

SWITCH	POSITION
SYSTEM	E2A
PARITY	B
BIT RATE	1200
MODE	ONCE
ENABLE	NORMAL
DISPLAY ERROR WORD	OFF
DISPLAY WORD SELECT	1
POWER	OFF
RCU	OFF
MESSAGE LENGTH	1
WORD 1	01011111111000011
WORD 2 through WORD 4	00000000000000000

84   Set the POWER switch to the ON (up) position.

85   Depress, in order, the MASTER CLEAR and START pushbuttons.

Requirement: The TMT, RCV, and VALID WORD lamps will blink, and the RECEIVE LAMP 1 will light.

86   If the requirement is not met, repeat test from Step 81.

87   If the requirement is still not met, replace the MC-coded circuit card and repeat test from Step 81.

88   If the requirement is still not met, refer to SD-1P185-01.

89   If master discrete is also assigned, proceed to Step 90.

STEP	PROCEDURE

90 At the E2A DAS telemetry remote unit, connect the following points to verify the discrete operation:

LIST	TERMINAL STRIP	CONNECT	ATTRIBUTE
221	AB	001 to 011 003 to 013	
222	AB	031 to 041 033 to 043	
223	AB	061 to 071 063 to 073	
224	AB	091 to 101 093 to 103	Master Discrete
225	AC	001 to 011 003 to 013	
226	AC	031 to 041 033 to 043	

91 At the E-telemetry station test set, depress, in order, the MASTER CLEAR AND START pushbuttons.

Requirement: The following are the RECEIVE lamp indications for the specific assigned list numbers:

LIST	RECEIVE INDICATORS LIGHTED
221	1, 4, 13
222	1, 4, 8
223	1, 4, 10
224	1, 4, 12
225	1, 4, 17
226	1, 4, 15

92 If the requirement is not met, replace the TM312 circuit card and repeat Step 91.

STEP	PROCEDURE
93	If the requirement still is not met, replace the MC-coded circuit card and repeat Step 91.
94	If the requirement still is not met, refer to SD-1P185-01.

TABLE A	
SYSTEMS AND ASSOCIATED TABLES	
SYSTEM	**ASSOCIATED TABLE**
1 ESS SWITCH — CRITICAL INDICATORS	C
2B ESS SWITCH — CRITICAL INDICATORS	D
3 ESS SWITCH — CRITICAL INDICATORS	E
2 ESS SWITCH — CRITICAL INDICATORS	F
AIS — CRITICAL INDICATORS	G
TSPS — CRITICAL INDICATORS	H
1A ESS SWITCH — CRITICAL INDICATORS	I
1 ESS — REMOTE STATUS POINTS	J
2 ESS SWITCH/AIS — REMOTE STATUS POINTS	K
2B/3 ESS SWITCH — REMOTE STATUS POINTS	L
TSPS — REMOTE STATUS POINTS	M
1A ESS SWITCH — REMOTE STATUS POINTS	N
1 ESS SWITCH — REMOTE RELAY OUTPUT MAINTENANCE	O
2 ESS SWITCH/AIS — REMOTE RELAY OUTPUT MAINTENANCE	P
2B/3 ESS SWITCH — REMOTE RELAY OUTPUT MAINTENANCE	Q
TSPS — REMOTE RELAY OUTPUT MAINTENANCE	R
1A ESS SWITCH — REMOTE RELAY OUTPUT MAINTENANCE	S
1 ESS SWITCH — REMOTE RELAY OUTPUT MAINTENANCE	T
2 ESS SWITCH/AIS — REMOTE RELAY OUTPUT MAINTENANCE	U
TSPS — REMOTE RELAY OUTPUT MAINTENANCE	V
1A ESS SWITCH — REMOTE RELAY OUTPUT MAINTENANCE	W

TABLE B			
STATION ADDRESS LAMPS			
4	5	6	7
0	0	0	0
1	0	0	0
0	1	0	0
1	1	0	0
0	0	1	0
1	0	1	0
0	1	1	0
1	1	1	0
0	0	0	1
1	0	0	1
0	1	0	1
1	1	0	1
0	0	1	1
1	0	1	1
0	1	1	1
1	1	1	1

Legend:
  1 — Lamp lighted
  0 — Lamp off

TABLE C	
1"ESS" SWITCH — CRITICAL INDICATORS	
WORD 1 SWITCH NUMBER	CORRESPONDING CIP LAMP LIGHTED
2	CKT LIM
3	CRITICAL*
4	MAJOR†
5	MINOR†
6	SYS EMER†
7	CC
8	SP
9	PS
10	CS
11	PERIPH A
12	PERIPH B
13	BLDG/PWR
14	FORCED
15	BLDG INH
16	TRAFFIC
17	—

* Latching alarms
† May be latching (option of SCC)

TABLE D	
2B"ESS" SWITCH — CRITICAL INDICATORS	
WORD 1 SWITCH NUMBER	CORRESPONDING CIP LAMP LIGHTED
2	CKT LIM
3	CRITICAL*
4	MAJOR†
5	MINOR†
6	SYS EMER†
7	CU
8	NET
9	SCAN
10	AMA
11	MAS
12	MISC
13	BLDG/PWR
14	FORCED
15	BLDG INH
16	TRAFFIC
17	—
* Latching alarms † May be latching (option of SCC)	

TABLE E	
3"ESS" SWITCH — CRITICAL INDICATORS	
WORD 1 SWITCH NUMBER	CORRESPONDING CIP LAMP LIGHTED
2	CKT LIM
3	CRITICAL*
4	MAJOR†
5	MINOR†
6	SYS EMER†
7	SYC
8	RT
9	AMA
10	—
11	PERIPH A
12	PERIPH B
13	BLDG/PWR
14	FORCED
15	BLDG INH
16	TRAFFIC
17	—
* Latching alarms † May be latching (option of SCC)	

TABLE F	
2"ESS" SWITCH — CRITICAL INDICATORS	
WORD 1 SWITCH NUMBER	**CORRESPONDING CIP LAMP LIGHTED**
2	CKT LIM
3	CRITICAL*
4	MAJOR†
5	MINOR†
6	SYS EMER†
7	INT DIS
8	NET
9	SCAN
10	AMA
11	—
12	MISC
13	BLDG/PWR
14	FORCED
15	BLDG INH
16	TRAFFIC
17	—
* Latching alarms † May be latching (option of SCC)	

TABLE G	
AIS — CRITICAL INDICATORS	
WORD 1 SWITCH NUMBER	**CORRESPONDING CIP LAMP LIGHTED**
2	CKT LIM
3	CRITICAL*
4	MAJOR†
5	MINOR†
6	SYS EMER†
7	INT DIS
8	FI
9	ON
10	AN
11	PERIPH A
12	PERIPH B
13	BLDG/PWR
14	FORCED
15	BLDG INH
16	TRAFFIC
17	—
* Latching alarms † May be latching (option of SCC)	

TABLE H	
TSPS — CRITICAL INDICATORS	
WORD 1 SWITCH NUMBER	CORRESPONDING CIP LAMP LIGHTED
2	CKT LIM
3	CRITICAL*
4	MAJOR†
5	MINOR†
6	SYS EMER†
7	PROC
8	STORE
9	SPC PU
10	BASE PU
11	PSS/RTA
12	—
13	BLDG/PWR
14	FORCED
15	BLDG INH
16	TRAFFIC
17	—
* Latching alarms † May be latching (option of SCC)	

TABLE I	
1A "ESS" — CRITICAL INDICATORS	
WORD 1 SWITCH NUMBER	CORRESPONDING CIP LAMP LIGHTED
2	CKT LIM
3	CRITICAL*
4	MAJOR†
5	MINOR†
6	SYS EMER†
7	CC
8	FS
9	PS
10	CS
11	PERIPH A
12	PERIPH B
13	BLDG/PWR
14	FORCED
15	BLDG INH
16	TRAFFIC
17	—
* Latching alarms † May be latching (option of SCC)	

TABLE J

1"ESS" SWITCH — REMOTE STATUS POINTS

E-TELEMETRY STATION TEST SET WORD 1 SWITCH SETTINGS					DISPLAY WORD SELECT SWITCH POSITION	ASSOCIATED CPs	
SWITCH NUMBER							
13	14	15	16	17		CP NO.	CP LOCATION
0	0	0	0	0	1	6	AA
0	0	0	0	0	2	6	AB
0	0	0	0	0	3	6	AC
0	0	0	0	0	4	6	AD
0	0	0	0	1	1	10*	CC
0	0	0	0	1	2	10*	CD
0	0	0	0	1	3	9*	CE
0	0	0	0	1	4	9*	CE
0	0	0	1	0	1	9*	CF
0	0	0	1	0	2	9*	CF
0	0	0	1	0	3	9*	CG
0	0	0	1	0	4	9*	CG
0	0	0	1	0	5	9*	CH
0	0	0	1	0	6	9*	CH
0	0	0	0	0	5	9	GC
0	0	0	0	0	6	9	GC
0	0	0	1	0	7	9	GD
0	0	0	1	0	8	9	GD

* In addition to CP 9 or CP 10, replace CP 7 in location AH. Determine the defective CP as described in Step 10.

TABLE K							
2"ESS" SWITCH/AIS — REMOTE STATUS POINTS							
E-TELEMETRY STATION TEST SET WORD 1 SWITCH SETTINGS					DISPLAY WORD SELECT SWITCH POSITION	ASSOCIATED CPs	
SWITCH NUMBER							
13	14	15	16	17		CP NO.	CP LOCATION
0	0	0	0	0	1	6	AA
0	0	0	0	0	2	6	AB
0	0	0	0	0	3	6	AC
0	0	0	0	0	4	6	AD
0	0	0	0	0	5	9	FA
0	0	0	0	0	6	9	FA
0	0	0	0	1	1	9	EA
0	0	0	0	1	2	9	EA
0	0	0	0	1	3	53	EB
0	0	0	0	1	4	53	EB
0	0	0	1	0	1	9	FB
0	0	0	1	0	2	9	FB
0	0	0	1	0	3	9	FC
0	0	0	1	0	4	9	FC
0	0	0	1	1	1	6	AA

TABLE L							
2B/3"ESS" SWITCH — REMOTE STATUS POINTS							
E-TELEMETRY STATION TEST SET WORD 1 SWITCH SETTINGS					DISPLAY WORD SELECT SWITCH POSITION	ASSOCIATED CPs	
SWITCH NUMBER							
13	14	15	16	17		CP NO.	CP LOCATION
0	0	0	0	0	1	37	AA
0	0	0	0	0	2	37	AB
0	0	0	0	0	3	37	AC
0	0	0	0	0	4	37	AD
0	0	0	0	0	5	9	FA
0	0	0	0	0	6	9	FA
0	0	0	0	1	1	35	EA
0	0	0	0	1	2	35	EA
0	0	0	0	1	3	35	EB
0	0	0	0	1	4	35	EB
0	0	0	1	1	1	37	AA

TABLE M							
TSPS — REMOTE STATUS POINTS							
E-TELEMETRY STATION TEST SET WORD 1 SWITCH SETTINGS					DISPLAY WORD SELECT SWITCH POSITION	ASSOCIATED CPs	
SWITCH NUMBER							
13	14	15	16	17		CP NO.	CP LOCATION
0	0	0	0	0	1	6	AA
0	0	0	0	0	2	6	AB
0	0	0	0	0	3	6	AC
0	0	0	0	0	4	6	AD
0	0	0	0	0	5	9	FA
0	0	0	0	0	6	9	FA
0	0	0	0	1	1	9	EA
0	0	0	0	1	2	9	EA
0	0	0	0	1	3	9	EB
0	0	0	0	1	4	9	EB
0	0	0	1	0	1	9	FB
0	0	0	1	0	2	9	FB
0	0	0	1	0	3	9	FC
0	0	0	1	0	4	9	FC
0	0	0	1	0	5	9	FD
0	0	0	1	0	6	9	FD
0	0	0	1	0	7	9	FE
0	0	0	1	0	8	9	FE
0	0	0	1	1	1	9	AA

						ASSOCIATED CPs		
TABLE N								
1A"ESS" SWITCH — REMOTE STATUS POINTS								
E-TELEMETRY STATION TEST SET WORD 1 SWITCH SETTINGS					DISPLAY WORD SELECT SWITCH POSITION	ASSOCIATED CPs		
SWITCH NUMBER								
13	14	15	16	17		CP NO.	CP LOCATION	MODULE*
0	0	0	0	0	1	37	AA	BRM
0	0	0	0	0	2	37	AB	BRM
0	0	0	0	0	3	37	AC	BRM
0	0	0	0	0	4	37	AD	BRM
0	0	0	0	0	5	35	BA	2nd Exp
0	0	0	0	0	6	35	BA	2nd Exp
0	0	0	0	0	7	35	BB	2nd Exp
0	0	0	0	0	8	35	BB	2nd Exp
0	0	0	0	0	9	35	BC	2nd Exp
0	0	0	0	0	10	35	BC	2nd Exp
0	0	0	0	1	1	35	BD	2nd Exp
0	0	0	0	1	2	35	BD	2nd Exp
0	0	0	0	1	3	35	BE	2nd Exp
0	0	0	0	1	4	35	BE	2nd Exp
0	0	0	0	1	5	35	BF	2nd Exp
0	0	0	0	1	6	35	BF	2nd Exp
0	0	0	0	1	7	35	BG	2nd Exp
0	0	0	0	1	8	35	BG	2nd Exp
0	0	0	1	0	1	35	BA	3rd Exp
0	0	0	1	0	2	35	BA	3rd Exp

* BRM = Basic remote module (located lower right)
  2nd Exp = Second expander module 1 (located upper left)
  3rd Exp = Third expander module 1 (located upper right)

TABLE N (Contd) 1A"ESS" SWITCH — REMOTE STATUS POINTS								
E-TELEMETRY STATION TEST SET WORD 1 SWITCH SETTINGS					DISPLAY WORD SELECT SWITCH POSITION	ASSOCIATED CPs		
SWITCH NUMBER								
13	14	15	16	17		CP NO.	CP LOCATION	MODULE*
0	0	0	1	0	3	35	BB	3rd Exp
0	0	0	1	0	4	35	BB	3rd Exp
0	0	0	1	0	5	35	BC	3rd Exp
0	0	0	1	0	6	35	BC	3rd Exp
0	0	0	1	0	7	35	BD	3rd Exp
0	0	0	1	0	8	35	BD	3rd Exp
0	0	0	1	1	1	37	AA	BRM

* BRM = Basic remote module (located lower right)
   3rd Exp = Third expander module 1 (located upper right)

TABLE O
1"ESS" SWITCH — REMOTE RELAY OUTPUT MAINTENANCE

TESTING		INSERT PLUG-IN	SET WORD 3 SWITCHES						LAMP ON PLUG-IN
CP	LOC		6	7	8	9	10	11	
6 6 6 6	AA	LIST 12	0 1 0 1	0 0 1 1	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	1 2 3 4
6 6 6 6	AA	LIST 12	0 1 0 1	0 0 1 1	1 1 1 1	0 0 0 0	0 0 0 0	0 0 0 0	5 6 7 8
6 6 6 6	AB	LIST 12	0 1 0 1	0 0 1 1	0 0 0 0	1 1 1 1	0 0 0 0	0 0 0 0	1 2 3 4
6 6 6 6	AB	LIST 12	0 1 0 1	0 0 1 1	1 1 1 1	1 1 1 1	0 0 0 0	0 0 0 0	5 6 7 8
6 6 6 6	AC	LIST 12	0 1 0 1	0 0 1 1	0 0 0 0	0 0 0 0	1 1 1 1	0 0 0 0	1 2 3 4
6 6 6 6	AC	LIST 12	0 1 0 1	0 0 1 1	1 1 1 1	0 0 0 0	1 1 1 1	0 0 0 0	5 6 7 8
6 6 6 6	AD	LIST 12	0 1 0 1	0 0 1 1	0 0 0 0	1 1 1 1	1 1 1 1	0 0 0 0	1 2 3 4
6 6 6 6	AD	LIST 12	0 1 0 1	0 0 1 1	1 1 1 1	1 1 1 1	1 1 1 1	0 0 0 0	5 6 7 8

TABLE P									
2"ESS" SWITCH/AIS — REMOTE RELAY OUTPUT MAINTENANCE									
TESTING		INSERT PLUG-IN	SET WORD 3 SWITCHES						LAMP ON PLUG-IN
CP	LOC		6	7	8	9	10	11	
6	AA	LIST 12	0	0	0	0	0	0	1
			1	0	0	0	0	0	2
			0	1	0	0	0	0	3
			1	1	0	0	0	0	4
6	AA	LIST 12	0	0	1	0	0	0	5
			1	0	1	0	0	0	6
			0	1	1	0	0	0	7
			1	1	1	0	0	0	8
6	AB	LIST 12	0	0	0	1	0	0	1
			1	0	0	1	0	0	2
			0	1	0	1	0	0	3
			1	1	0	1	0	0	4
6	AB	LIST 12	0	0	1	1	0	0	5
			1	0	1	1	0	0	6
			0	1	1	1	0	0	7
			1	1	1	1	0	0	8
6	AC	LIST 12	0	0	0	0	1	0	1
			1	0	0	0	1	0	2
			0	1	0	0	1	0	3
			1	1	0	0	1	0	4
6	AC	LIST 12	0	0	1	0	1	0	5
			1	0	1	0	1	0	6
			0	1	1	0	1	0	7
			1	1	1	0	1	0	8
6	AD	LIST 12	0	0	0	1	1	0	1
			1	0	0	1	1	0	2
			0	1	0	1	1	0	3
			1	1	0	1	1	0	4
6	AD	LIST 12	0	0	1	1	1	0	5
			1	0	1	1	1	0	6
			0	1	1	1	1	0	7
			1	1	1	1	1	0	8

TABLE Q									
2B/3"ESS" SWITCH — REMOTE RELAY OUTPUT MAINTENANCE									
TESTING		INSERT PLUG-IN	SET WORD 3 SWITCHES						LAMP ON PLUG-IN
CP	LOC		6	7	8	9	10	11	
37	AA	LIST 12	0	0	0	0	0	0	1
			1	0	0	0	0	0	2
			0	1	0	0	0	0	3
			1	1	0	0	0	0	4
37	AA	LIST 12	0	0	1	0	0	0	5
			1	0	1	0	0	0	6
			0	1	1	0	0	0	7
			1	1	1	0	0	0	8
37	AB	LIST 12	0	0	0	1	0	0	1
			1	0	0	1	0	0	2
			0	1	0	1	0	0	3
			1	1	0	1	0	0	4
37	AB	LIST 12	0	0	1	1	0	0	5
			1	0	1	1	0	0	6
			0	1	1	1	0	0	7
			1	1	1	1	0	0	8
37	AC	LIST 12	0	0	0	0	1	0	1
			1	0	0	0	1	0	2
			0	1	0	0	1	0	3
			1	1	0	0	1	0	4
37	AC	LIST 12	0	0	1	0	1	0	5
			1	0	1	0	1	0	6
			0	1	1	0	1	0	7
			1	1	1	0	1	0	8
37	AD	LIST 12	0	0	0	1	1	0	1
			1	0	0	1	1	0	2
			0	1	0	1	1	0	3
			1	1	0	1	1	0	4
37	AD	LIST 12	0	0	1	1	1	0	5
			1	0	1	1	1	0	6
			0	1	1	1	1	0	7
			1	1	1	1	1	0	8

TABLE R
TSPS — REMOTE RELAY OUTPUT MAINTENANCE

TESTING		INSERT PLUG-IN	SET WORD 3 SWITCHES						LAMP ON PLUG-IN
CP	LOC		6	7	8	9	10	11	
6	AA	LIST 12	0	0	0	0	0	0	1
			1	0	0	0	0	0	2
			0	1	0	0	0	0	3
			1	1	0	0	0	0	4
6	AA	LIST 12	0	0	1	0	0	0	5
			1	0	1	0	0	0	6
			0	1	1	0	0	0	7
			1	1	1	0	0	0	8
6	AB	LIST 12	0	0	0	1	0	0	1
			1	0	0	1	0	0	2
			0	1	0	1	0	0	3
			1	1	0	1	0	0	4
6	AB	LIST 12	0	0	1	1	0	0	5
			1	0	1	1	0	0	6
			0	1	1	1	0	0	7
			1	1	1	1	0	0	8
6	AC	LIST 12	0	0	0	0	1	0	1
			1	0	0	0	1	0	2
			0	1	0	0	1	0	3
			1	1	0	0	1	0	4
6	AC	LIST 12	0	0	1	0	1	0	5
			1	0	1	0	1	0	6
			0	1	1	0	1	0	7
			1	1	1	0	1	0	8
6	AD	LIST 12	0	0	0	1	1	0	1
			1	0	0	1	1	0	2
			0	1	0	1	1	0	3
			1	1	0	1	1	0	4
6	AD	LIST 12	0	0	1	1	1	0	5
			1	0	1	1	1	0	6
			0	1	1	1	1	0	7
			1	1	1	1	1	0	8

TABLE S
1A"ESS" SWITCH — REMOTE RELAY OUTPUT MAINTENANCE

TESTING		INSERT PLUG-IN	SET WORD 3 SWITCHES									LAMP ON PLUG-IN
CP	LOC		6	7	8	9	10	11	12	13	14	
37	AA	LIST 12	0	0	0	0	0	0	0	0	0	1
			1	0	0	0	0	0	0	0	0	2
			0	1	0	0	0	0	0	0	0	3
			1	1	0	0	0	0	0	0	0	4
37	AA	LIST 12	0	0	1	0	0	0	0	0	0	5
			1	0	1	0	0	0	0	0	0	6
			0	1	1	0	0	0	0	0	0	7
			1	1	1	0	0	0	0	0	0	8
37	AB	LIST 12	0	0	0	1	0	0	0	0	0	1
			1	0	0	1	0	0	0	0	0	2
			0	1	0	1	0	0	0	0	0	3
			1	1	0	1	0	0	0	0	0	4
37	AB	LIST 12	0	0	1	1	0	0	0	0	0	5
			1	0	1	1	0	0	0	0	0	6
			0	1	1	1	0	0	0	0	0	7
			1	1	1	1	0	0	0	0	0	8
37	AC	LIST 12	0	0	0	0	1	0	0	0	0	1
			0	0	0	0	1	0	0	0	0	2
			1	0	0	0	1	0	0	0	0	3
			1	1	0	0	1	0	0	0	0	4
37	AC	LIST 12	0	0	1	0	1	0	0	0	0	5
			1	0	1	0	1	0	0	0	0	6
			0	1	1	0	1	0	0	0	0	7
			1	1	1	0	1	0	0	0	0	8
37	AD	LIST 12	0	0	0	1	1	0	0	0	0	1
			1	0	0	1	1	0	0	0	0	2
			0	1	0	1	1	0	0	0	0	3
			1	1	0	1	1	0	0	0	0	4
37	AD	LIST 12	0	0	1	1	1	0	0	0	0	5
			1	0	1	1	1	0	0	0	0	6
			0	1	1	1	1	0	0	0	0	7
			1	1	1	1	1	0	0	0	0	8

TABLE T
1"ESS" SWITCH — REMOTE RELAY OUTPUT MAINTENANCE

TESTING		INSERT PLUG-IN	SET WORD 3 SWITCHES							LAMP ON PLUG-IN
CP	LOC		6	7	8	9	10	11	12	
11			0	0	0	0	0	1	0	1
11	CB	K1-5	1	0	0	0	0	1	0	2
11			0	1	0	0	0	1	0	3
11			1	1	0	0	0	1	0	4
11			0	0	1	0	0	1	0	5
11	CB	K1-5	1	0	1	0	0	1	0	6
11			0	1	1	0	0	1	0	7
11			1	1	1	0	0	1	0	8
11			0	0	0	1	0	1	0	9
11	CB	K1-5	1	0	0	1	0	1	0	10
11			0	1	0	1	0	1	0	11
11			1	1	0	1	0	1	0	12
11			0	0	1	1	0	1	0	13
11	CB	K1-5	1	0	1	1	0	1	0	14
11			0	1	1	1	0	1	0	15
11			1	1	1	1	0	1	0	16
11			0	0	0	0	1	1	0	1
11	GA	K1-5	1	0	0	0	1	1	0	2
11			0	1	0	0	1	1	0	3
11			1	1	0	0	1	1	0	4
11			0	0	1	0	1	1	0	5
11	GA	KA-5	1	0	1	0	1	1	0	6
11			0	1	1	0	1	1	0	7
11			1	1	1	0	1	1	0	8
11			0	0	0	1	1	1	0	9
11	GA	K1-5	1	0	0	1	1	1	0	10
11			0	1	0	1	1	1	0	11
11			1	1	0	1	1	1	0	12

TABLE T (Contd)										
1"ESS" SWITCH — REMOTE RELAY OUTPUT MAINTENANCE										
TESTING		INSERT PLUG-IN	SET WORD 3 SWITCHES							LAMP ON PLUG-IN
CP	LOC		6	7	8	9	10	11	12	
11	GA	K1-5	0	0	1	1	1	1	0	13
11			1	0	1	1	1	1	0	14
11			0	1	1	1	1	1	0	15
11			1	1	1	1	1	1	0	16
11	GB	K1-5	0	0	0	0	0	0	1	1
11			1	0	0	0	0	0	1	2
11			0	1	0	0	0	0	1	3
11			1	1	0	0	0	0	1	4
11	GB	K1-5	0	0	1	0	0	0	1	5
11			1	0	1	0	0	0	1	6
11			0	1	1	0	0	0	1	7
11			1	1	1	0	0	0	1	8
11	GB	K1-5	0	0	0	1	0	0	1	9
11			1	0	0	1	0	0	1	10
11			0	1	0	1	0	0	1	11
11			1	1	0	1	0	0	1	12
11	GB	K1-5	0	0	1	1	0	0	1	13
11			1	0	1	1	0	0	1	14
11			0	1	1	1	0	0	1	15
11			1	1	1	1	0	0	1	16

TABLE U
2"ESS" SWITCH/AIS — REMOTE RELAY OUTPUT MAINTENANCE

TESTING		INSERT PLUG-IN	SET WORD 3 SWITCHES						LAMP ON PLUG-IN
CP	LOC		6	7	8	9	10	11	
11	FG	LIST 13	0	0	0	0	0	1	1
			1	0	0	0	0	1	2
			0	1	0	0	0	1	3
			1	1	0	0	0	1	4
11	FG	LIST 13	0	0	1	0	0	1	5
			1	0	1	0	0	1	6
			0	1	1	0	0	1	7
			1	1	1	0	0	1	8
11	FG	LIST 13	0	0	0	1	0	1	9
			1	0	0	1	0	1	10
			0	1	0	1	0	1	11
			1	1	0	1	0	1	12
11	FG	LIST 13	0	0	1	1	0	1	13
			1	0	1	1	0	1	14
			0	1	1	1	0	1	15
			1	1	1	1	0	1	16
11	FH	LIST 13	0	0	0	0	1	1	1
			1	0	0	0	1	1	2
			0	1	0	0	1	1	3
			1	1	0	0	1	1	4
11	FH	LIST 13	0	0	1	0	1	1	5
			1	0	1	0	1	1	6
			0	1	1	0	1	1	7
			1	1	1	0	1	1	8
11	FH	LIST 13	0	0	0	1	1	1	9
			1	0	0	1	1	1	10
			0	1	0	1	1	1	11
			1	1	0	1	1	1	12
11	FH	LIST 13	0	0	1	1	1	1	13
			1	0	1	1	1	1	14
			0	1	1	1	1	1	15
			1	1	1	1	1	1	16

TABLE V
TSPS — REMOTE RELAY OUTPUT MAINTENANCE

TESTING		INSERT PLUG-IN	SET WORD 3 SWITCHES							LAMP ON PLUG-IN
CP	LOC		6	7	8	9	10	11	12	
11	FG	LIST 13	0	0	0	0	0	1	0	1
			1	0	0	0	0	1	0	2
			0	1	0	0	0	1	0	3
			1	1	0	0	0	1	0	4
11	FG	LIST 13	0	0	1	0	0	1	0	5
			1	0	1	0	0	1	0	6
			0	1	1	0	0	1	0	7
			1	1	1	0	0	1	0	8
11	FG	LIST 13	0	0	0	1	0	1	0	9
			1	0	0	1	0	1	0	10
			0	1	0	1	0	1	0	11
			1	1	0	1	0	1	0	12
11	FG	LIST 13	0	0	1	1	0	1	0	13
			1	0	1	1	0	1	0	14
			0	1	1	1	0	1	0	15
			1	1	1	1	0	1	0	16
11	FH	LIST 13	0	0	0	0	1	1	0	1
			1	0	0	0	1	1	0	2
			0	1	0	0	1	1	0	3
			1	1	0	0	1	1	0	4
11	FH	LIST 13	0	0	1	0	1	1	0	5
			1	0	1	0	1	1	0	6
			0	1	1	0	1	1	0	7
			1	1	1	0	1	1	0	8
11	FH	LIST 13	0	0	0	1	1	1	0	9
			1	0	0	1	1	1	0	10
			0	1	0	1	1	1	0	11
			1	1	0	1	1	1	0	12
11	FH	LIST 13	0	0	1	1	1	1	0	13
			1	0	1	1	1	1	0	14
			0	1	1	1	1	1	0	15
			1	1	1	1	1	1	0	16
11	FJ	LIST 13	0	0	0	0	0	0	1	1
			1	0	0	0	0	0	1	2
			0	1	0	0	0	0	1	3
			1	1	0	0	0	0	1	4

TABLE V (Contd)										
TSPS — REMOTE RELAY OUTPUT MAINTENANCE										
TESTING		INSERT PLUG-IN	SET WORD 3 SWITCHES							LAMP ON PLUG-IN
CP	LOC		6	7	8	9	10	11	12	
11	FJ	LIST 13	0	0	1	0	0	0	1	5
			1	0	1	0	0	0	1	6
			0	1	1	0	0	0	1	7
			1	1	1	0	0	0	1	8
11	FJ	LIST 13	0	0	0	1	0	0	1	9
			1	0	0	1	0	0	1	10
			0	1	0	1	0	0	1	11
			1	1	0	1	0	0	1	12
11	FJ	LIST 13	0	0	1	1	0	0	1	13
			1	0	1	1	0	0	1	14
			0	1	1	1	0	0	1	15
			1	1	1	1	0	0	1	16

TABLE W												
1A"ESS" SWITCH — REMOTE RELAY OUTPUT MAINTENANCE												
TESTING 1ST EXP MOD		INSERT PLUG-IN	SET WORD 3 SWITCHES									LAMP ON PLUG-IN
CP	LOC		6	7	8	9	10	11	12	13	14	
11	BA	LIST 13	0	0	0	0	0	1	0	0	0	1
			1	0	0	0	0	1	0	0	0	2
			0	1	0	0	0	1	0	0	0	3
			1	1	0	0	0	1	0	0	0	4
11	BA	LIST 13	0	0	1	0	0	1	0	0	0	5
			1	0	1	0	0	1	0	0	0	6
			0	1	1	0	0	1	0	0	0	7
			1	1	1	0	0	1	0	0	0	8
11	BA	LIST 13	0	0	0	1	0	1	0	0	0	9
			1	0	0	1	0	1	0	0	0	10
			0	1	0	1	0	1	0	0	0	11
			1	1	0	1	0	1	0	0	0	12
11	BA	LIST 13	0	0	1	1	0	1	0	0	0	13
			1	0	1	1	0	1	0	0	0	14
			0	1	1	1	0	1	0	0	0	15
			1	1	1	1	0	1	0	0	0	16
11	BB	LIST 13	0	0	0	0	1	1	0	0	0	1
			1	0	0	0	1	1	0	0	0	2
			0	1	0	0	1	1	0	0	0	3
			1	1	0	0	1	1	0	0	0	4
11	BB	LIST 13	0	0	1	0	1	1	0	0	0	5
			1	0	1	0	1	1	0	0	0	6
			0	1	1	0	1	1	0	0	0	7
			1	1	1	0	1	1	0	0	0	8
11	BB	LIST 13	0	0	0	1	1	1	0	0	0	9
			1	0	0	1	1	1	0	0	0	10
			0	1	0	1	1	1	0	0	0	11
			1	1	0	1	1	1	0	0	0	12
11	BB	LIST 13	0	0	1	1	1	1	0	0	0	13
			1	0	1	1	1	1	0	0	0	14
			0	1	1	1	1	1	0	0	0	15
			1	1	1	1	1	1	0	0	0	16
11	BC	LIST 13	0	0	0	0	0	0	1	0	0	1
			1	0	0	0	0	0	1	0	0	2
			0	1	0	0	0	0	1	0	0	3
			1	1	0	0	0	0	1	0	0	4

TABLE W (Contd)												
1A"ESS" SWITCH — REMOTE RELAY OUTPUT MAINTENANCE												
TESTING 1ST EXP MOD		INSERT PLUG-IN	SET WORD 3 SWITCHES									LAMP ON PLUG-IN
CP	LOC		6	7	8	9	10	11	12	13	14	
11	BC	LIST 13	0	0	1	0	0	0	1	0	0	5
			1	0	1	0	0	0	1	0	0	6
			0	1	1	0	0	0	1	0	0	7
			1	1	1	0	0	0	1	0	0	8
11	BC	LIST 13	0	0	0	1	0	0	1	0	0	9
			1	0	0	1	0	0	1	0	0	10
			0	1	0	1	0	0	1	0	0	11
			1	1	0	1	0	0	1	0	0	12
11	BC	LIST 13	0	0	1	1	0	0	1	0	0	13
			1	0	1	1	0	0	1	0	0	14
			0	1	1	1	0	0	1	0	0	15
			1	1	1	1	0	0	1	0	0	16
11	BD	LIST 13	0	0	0	0	1	0	1	0	0	1
			1	0	0	0	1	0	1	0	0	2
			0	1	0	0	1	0	1	0	0	3
			1	1	0	0	1	0	1	0	0	4
11	BD	LIST 13	0	0	1	0	1	0	1	0	0	5
			1	0	1	0	1	0	1	0	0	6
			0	1	1	0	1	0	1	0	0	7
			1	1	1	0	1	0	1	0	0	8
11	BD	LIST 13	0	0	0	1	1	0	1	0	0	9
			1	0	0	1	1	0	1	0	0	10
			0	1	0	1	1	0	1	0	0	11
			1	1	0	1	1	0	1	0	0	12
11	BD	LIST 13	0	0	1	1	1	0	1	0	0	13
			1	0	1	1	1	0	1	0	0	14
			0	1	1	1	1	0	1	0	0	15
			1	1	1	1	1	0	1	0	0	16
11	BE	LIST 13	0	0	0	0	0	1	1	0	0	1
			1	0	0	0	0	1	1	0	0	2
			0	1	0	0	0	1	1	0	0	3
			1	1	0	0	0	1	1	0	0	4
11	BE	LIST 13	0	0	1	0	0	1	1	0	0	5
			1	0	1	0	0	1	1	0	0	6
			0	1	1	0	0	1	1	0	0	7
			1	1	1	0	0	1	1	0	0	8

			TABLE W (Contd)										
			1A"ESS" SWITCH — REMOTE RELAY OUTPUT MAINTENANCE										
TESTING 1ST EXP MOD		**INSERT PLUG-IN**	**SET WORD 3 SWITCHES**										**LAMP ON PLUG-IN**
CP	**LOC**		**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	
11	BE	LIST 13	0	0	0	1	0	1	1	0	0	9
			1	0	0	1	0	1	1	0	0	10
			0	1	0	1	0	1	1	0	0	11
			1	1	0	1	0	1	1	0	0	12
11	BE	LIST 13	0	0	1	1	0	1	1	0	0	13
			1	0	1	1	0	1	1	0	0	14
			0	1	1	1	0	1	1	0	0	15
			1	1	1	1	0	1	1	0	0	16
11	BF	LIST 13	0	0	0	0	1	1	1	0	0	1
			1	0	0	0	1	1	1	0	0	2
			0	1	0	0	1	1	1	0	0	3
			1	1	0	0	1	1	1	0	0	4
11	BF	LIST 13	0	0	1	0	1	1	1	0	0	5
			1	0	1	0	1	1	1	0	0	6
			0	1	1	0	1	1	1	0	0	7
			1	1	1	0	1	1	1	0	0	8
11	BF	LIST 13	0	0	0	1	1	1	1	0	0	9
			1	0	0	1	1	1	1	0	0	10
			0	1	0	1	1	1	1	0	0	11
			1	1	0	1	1	1	1	0	0	12
11	BF	LIST 13	0	0	1	1	1	1	1	0	0	13
			1	0	1	1	1	1	1	0	0	14
			1	1	1	1	1	1	1	0	0	15
			1	1	1	1	1	1	1	0	0	16
11	BG	LIST 13	0	0	0	0	0	0	0	1	0	1
			1	0	0	0	0	0	0	1	0	2
			0	1	0	0	0	0	0	1	0	3
			1	1	0	0	0	0	0	1	0	4
11	BG	LIST 13	0	0	1	0	0	0	0	1	0	5
			1	0	1	0	0	0	0	1	0	6
			0	1	1	0	0	0	0	1	0	7
			1	1	1	0	0	0	0	1	0	8
11	BG	LIST 13	0	0	0	1	0	0	0	1	0	9
			1	0	0	1	0	0	0	1	0	10
			0	1	0	1	0	0	0	1	0	11
			1	1	0	1	0	0	0	1	0	12

TABLE W (Contd)												
1A"ESS" SWITCH — REMOTE RELAY OUTPUT MAINTENANCE												
TESTING 1ST EXP MOD		INSERT PLUG-IN	SET WORD 3 SWITCHES									LAMP ON PLUG-IN
CP	LOC		6	7	8	9	10	11	12	13	14	
11	BG		0	0	1	1	0	0	0	1	0	13
			1	0	1	1	0	0	0	1	0	14
			0	1	1	1	0	0	0	1	0	15
			1	1	1	1	0	0	0	1	0	16