

"BELLBOY"
 PERSONAL SIGNALING SYSTEM NO. 1A
 J1 CONTROL TERMINAL

TEST PROCEDURE - GENERAL

CONTENTS

- | | |
|-----------------------------|--|
| 1. GENERAL INFORMATION | 6. INSTALLING PLUG-IN UNITS |
| 2. RECORDS AND REQUIREMENTS | 7. CROSS-CONNECTIONS AND OPTIONAL WIRING |
| 3. TEST EQUIPMENT | 8. APPLICATION OF TESTS |
| 4. ARBITRARY DESIGNATIONS | 9. CONTINUITY |
| 5. PRECAUTIONS | |

<u>1. GENERAL INFORMATION</u>	<u>Note Amt.</u>	<u>Code</u>	<u>Description</u>
1.1 <u>Description</u> : This section contains information concerning test procedures for the J1 Control Terminal for use with Personal Signaling System 1A (Bellboy).	1	ITE-4442	Volt-Ohmmeter
	1	ITE-4002	Tone Buzzer
	1	R-9572	Receiver, Test
	1	ITE-9650	Telephone Set, Operator's
1.2 <u>Circuits Tested</u> :	A	1 Model 524C, or D	Electronic Counter - Hewlett Packard
SD-96501-01 Incoming Trunk Register and Connect or Circuit	A	1 Model 526C	Period Multiplier - Hewlett Packard, plug-in unit for Electronic Counter
SD-96504-01 Register Check and Connector Control Circuit	B,T	1 400C or 400D	Vacuum Tube Voltmeter - Hewlett Packard
SD-96505-01 Storage and Storage Connector Circuit	C,T	1 J27453A	Timing Test Set
SD-96506-01 Translator and Translator Connector Circuit	D,T	1 J94021A	Transmission Measuring Set
SD-96507-01 Storage Control Circuit			
SD-96562-01 Tone Generator Circuit (36A Oscillator)			
SD-96563-01 Tone Supply Circuit			
SD-96564-01 Transmitter Control Circuit			
SD-96565-01 Number Check Translator Circuit			
SD-99720-01 Tone Generator Circuit (employing 401A Tone Generator)			
1.3 <u>System Operation Information</u> : The "Bellboy" is described in CD-96504-01 and BSP A975-301-100. These descriptions will provide information which will aid in understanding the over-all operation of the various circuits involved in the "Bellboy."			
<u>2. RECORDS AND REQUIREMENTS</u>			
2.1 <u>Records</u> : Test results shall be recorded on ID-1313, Test Trouble Record, and summarized on ID-1315, Summary of Tests other than General or Routine.			
2.2 <u>Requirements</u> : Bell System Practices requirements are specified in the paragraphs describing the particular tests.			
<u>3. TEST EQUIPMENT</u>			
3.1 <u>Test Sets and Accessories</u>			
<u>Note Amt.</u>	<u>Code</u>	<u>Description</u>	
E -	ITE-4647	Bellboy Transmitter Trunk Simulator	
1	ITE-4608	Bellboy Test Set	
1	ITE-4546	Reader, Dry Reed Relay	
5	(349A)	Plug, Make Busy	
10	(258C)	Plug, Dummy	
1	R-3314	Watch, Stop	
			<u>3.2 Notes</u>
			A - This test equipment or its equivalent is required as maintenance test equipment, and should be available from the telephone company during installation.
			B - If not available, requisition ITE-4414 Vacuum Tube Voltmeter.
			C - If not available requisition ITE-4325 Timing Test Set.
			D - If not available, requisition ITE-4089 Transmission Measuring Set.
			T - Telephone company maintenance test equipment.
			E - One required for each Transmitter Trunk Originating Unit.(J99281W-1)
			<u>4. ARBITRARY DESIGNATIONS</u>
			4.1 <u>Purpose</u> : In order to simplify the description of circuit units and frames in this section and others used with the J1 Control Terminal, the following list of arbitrary designations will be used.
			4.2 <u>Circuit Units</u> :
			TRK - Various outgoing trunks from connecting office.
			ITR - Incoming Trunk Register and Connector Ckt SD-96501.
			RC-A - Register Check and Connector Control Ckt A SD-96504.

4.2 Circuit Units: (Cont'd)

RC-B	- Register Check and Connector Control Ckt B SD-96504
RC-C	- Register Check and Connector Control Common Ckt - SD-96504
NCT	- Number Check Translator Ckt - SD-96565
AC-A	- Announcement Ckt A (Completion) SD-95283
AC-B	- Announcement Ckt B (Completion) SD-95283
AC-TBL	- Announcement Ckt C (Trouble) SD-95283
AC-SI	- Announcement Ckt (Station Identification) SD-95283
VA	- Voice Alarm Ckt SD-95959
S	- Storage and Storage Connector Ckt SD-96505
SC-A	- Storage Control Ckt A SD-96507
SC-B	- Storage Control Ckt B SD-96507
SC-C	- Storage Control Common Ckt SD 96507
T-A	- Translator and Translator Connector Ckt A - SD-96506
T-B	- Translator and Translator Connector Ckt B - SD-96506
TC	- Transmitter Control Ckt SD-96565
TTO	- Transmitter Trunk Originating Unit SD-96564
TS-TG	- Tone Supply and Tone Generator Ckts SD-96563 and SD-96562

4.3 Frames:

CCF	- Common Control Frame J99281A
ANF	- Announcer Frame J99281B
1SF	- First Supplementary Frame J89281C
2SF	- Second Supplementary Frame J99281D
TCF	- Transmitter Control and Tone Supply Bay J99281S

4.4 Figure 1 is provided to aid in locating Circuit Units on Frames.

5. PRECAUTIONS

5.1 This equipment contains coils and semiconductor devices subject to damage by improper procedures. Methods of Section 0.3 of this handbook must be observed.

5.2 Do not use R-9572 Test Receiver or ITE-4137 ac Buzzer on any portion of this equipment except as instructed. The ITE-4002 Tone Buzzer or the ITE-4442 Volt-Ohmmeter shall be used for all continuity tests and trouble locating checks.

5.3 Hazardous Voltages exist at many points in this equipment. Care should be exercised when making test operations to avoid electrical shock.

5.4 The KS-16515-L3 Crystal Units used in 36A Oscillators of Transmitter Control Frame have contact pins sealed in glass. This seal is subject to damage if the pins suffer any sidewise movement. Exercise extreme care in placing the Crystal Unit on Oscillator card.

6. INSTALLING PLUG-IN UNITS

6.1 Announcement Sets: Section 410 of this handbook contains information concerning KS-16765 Announcement Sets and associated KS-16754 Amplifiers used in J1 Control Terminal.

6.2 36A Oscillators and Crystals: All positions in Tone Supply Unit J99281T must be equipped with a plug-in unit before fusing tests of Section 311 of this handbook are started.

6.21 The Tone Supply Unit is capable of mounting 64 oscillators in two groups of positions numbered 1 to 16 and 18 to 33.

6.22 Determine from Job Specifications which of the positions should be equipped with a 36A Oscillator.

6.23 Each 36A Oscillator must be equipped with a plug-in KS-16515-L3 Crystal Unit. The frequency of the crystal determines in which position the oscillator should be mounted. Circuit Note 106 on SD-96563-01 relates crystal frequency and oscillator position.

6.24 A dummy oscillator (4035A Network) must be mounted in positions not equipped with a 36A Oscillator.

6.3 401A Tone Generator: The two inductors at the front of amplas card plug-in unit must handled with extreme care to prevent disturbing the factory-set core adjustment. The alignment of this core to provide the proper "tinkle-tone" can not be made at the job without damaging the inductor due to the factory sealing process. This plug-in unit should be replaced if "tinkle-tone" trouble occurs.

7. CROSS-CONNECTIONS AND OPTIONAL WIRING

7.1 The factory-wired telephone company assigned cross connections of circuits in the following list shall be in place during these tests, except as directed in the tests:

(a) NCT - (NCK to X and Y terminals).
(Some of these cross connections may be removed by telephone company assignment after tests are completed.)

(b) SC-C - (RL1-10 to TM1-10 terminals)
- (TMC to GRD)

7.2 The job-wired telephone company assigned cross-connections of circuits in the following list shall be in place during these tests:

(a) ITR - (ABS to AS terminals)
- (DIS1-10 to DIS-C, DIS-U and REV)
- (Strapping of ATB, ATB1, ITB, MJ, MJ1 and GRD terminals for Trunk Grouping)
- (ATB and ITB to Traffic Registers)
- (T, R, ST, and ST1 to Intercept or Announcement Circuit)

(b) RC-C - (CS and SB to Traffic Registers)

(c) SC-A - (ATOR to AT- terminals)
- (ATRL to ATL-)

(d) SC-B - (BTOR to BT-)
- (BTRL to BTL-)

7.3 The job-wired telephone company assigned cross-connections of circuits in the following list shall not be in place until so directed in tests of Section 316 of this handbook:

- (a) ITR - (ABS to BS and A0-4 to GRD terminals) (for Step-by-Step office features)
 - (Incoming T and R to T and R of TRK on Distributing Frame)
- (b) RC-C - (HG-- to INT, X-- and Y-- Terminals)
- (c) TC - (Outgoing T and R to T and R of Transmitters on Distributing Frame)

7.4 The job-wired telephone company assigned strapping of DLJ 203-204 and DLJ 207-208 Delay Networks should be in place during these tests. "N" wiring of SD-96564-01 may bridge the 26-36 and 37-47 terminals of the "C" T.S. of each TTO if the strapping assignments are not available at time of tests.

7.5 The factory-wired "R" and "Y" options of SD-96564-01 shall remain in place until directed in Section 316 of this handbook to be changed to telephone company assigned "Q", "X" and "Z" options.

8. APPLICATION OF TESTS

8.1 Methods for testing new J1 Control Terminal installations are provided in Sections 311 through 316 of this handbook.

8.11 Sequence of Tests: The methods in Section 311 (Fusing) shall be completed prior to starting tests in other sections.

8.12 Section 312 (Tone Supply Tests) shall be performed as soon as the necessary Electronic Counter is available to allow for 24 hour warm-up interval.

8.121 Section 312 may be performed at the same time as any other tests when necessary power is available.

8.122 Currently, an appreciable amount of defective crystals are being found. It is suggested that Section 312 be performed as early as possible in order to locate any defective crystals and arrange with Field Service for replacement.

8.13 The tests of Sections 313 through 316 shall be performed in numerical sequence when fusing is complete.

8.131 The methods of Sections 410 (Announcement Set Tests) and 411 (Voice Alarm Tests) shall be performed as indicated in Section 314.

8.132 The operations within Sections 313-316 shall be performed in order given as control conditions and Test Set preparation are dependent on sequence.

8.2 A method for testing "Bellboy" B0-39NS General Electric Transmitter installations is provided in Section 318.

9. CONTINUITY

9.1 All job connected leads terminating on the circuits tested by this section shall be verified with the ITE-4002 Tone Buzzer and the applicable CAD figures of the various schematic drawings.

9.2 Verify operation of Frame Line Telephone circuit at TEL A and B jacks of each Frame Miscellaneous Unit by talk test with ITE-9650 Telephone Set.

→ Arrowed lines indicate new or changed information

Manager, Panel and Step-by-Step
Engineering

ATTACHMENT

Figure 1 on page 4.

Reason for Reissue:
Para. 8.2 read Para 8.3
Para. 8.2 removed

FUSE PANEL		FUSE PANEL	T.S. "C"	T.S. "B"	FUSE PANEL	FUSE PANEL
T.S. "A"	T.S. "B"		ITRO - 9 (CA-, CB-) RELS		T.S. "A"	T.S. "A"
TS-TG		T.S. "A"	ITR 5	ITR 6	ITR 9	
		RC-C (-CA, -CB, -CT) RELS	ITR 4	ITR	ITR 8	
		RC-A	ITR 3	SC-A	ITR 7	
		RC-B	ITR 2	SC-B	NCT 11	
VA	B	ITR 1	VA	NCT 10		
TC (LAMP PANEL)	T-A	ITRO		NCT 9	NCT 15	
	T-B		NCT 5	NCT 8		
	LAMP PANEL			NCT 7	NCT 13	
AC-SI	C	NCT 2	NCT 4	NCT 6	NCT 12	
TTO	SC-C	HCT 1	NCT 3	S21-30	S31-40	
		NCT 0	AC-A			
	SI-10	SI1-20	AC-B			
			AC-TBL			

LEGEND
A. MISC. UNIT
B. T-A & T-B, (T-) RELS
C. RC-C (AA- & BA-) RELS
D. 401A TONE GENERATOR

BAY 0

BAY 1

TCF

CCF

ANF

ISF

2SF

600 OR 1200 LINES

2400 LINES

3200 LINES

FIG. 1. EQUIPMENT LAYOUT IN J-1 CONTROL TERMINAL.