COMMON SYSTEMS
RECORDED ANNOUNCEMENT FRAME

CONTENTS

---

1. GENERAL INFORMATION

1.1 General: The Common System Recorded Announcement Frame (CSRAF) is a heavy duty announcement system, with the design based upon a modular building block concept. This results in a unit with the capability to provide many types of announcement services. The CSRAF is largely electronic, using A-type circuit packs, these circuit packs are used in the control, recording, playback, maintenance, and test of the audio signal. All interfacing circuits usually distribution and trunk circuits, are located on separate interfacing frames that are part of the switching system providing the recorded announcement service.

1.2 Description: This section describes a method of testing the CSRAF equipped with the following module or combination of these, depending on the type of service required:

a) Variable Message Length (VML)

b) Modular Message Length (MML)

c) Phased Message Length (PML)

1.3 Circuits

SD-97723-01 Drum Storage Unit
SD-97724-01 Circuit Pack
SD-97725-01 Recorder Announcement Frame
SD-97725-03 Recorder Announcement Frame
SD-97725-04 Recorder Announcement Frame

1.4 Precautions

1.41 This equipment contains semi-conductor devices subject to damage by improper procedures. Methods of Section 0.3 of this handbook must be observed.

1.42 Before -48V power is connected to frame the -48V Off Key, Motor Off Key and all Control Unit Off Keys should be operated.

1.43 Once the wick and headbar assembly have been put in place per Paragraph 5.2 and 5.3 should the -48V power be lost from the frame or the Drum Motor Off Key operated stopping the motor for more than eight hours the wick assembly and each Headbar assembly must be loosened. This is to prevent flat spots on the drum surface.

1.44 To prevent possible destroying a previously recorded message, due to the inter action of the Record Key, it is advisable on Channels that are not being tested to have their Nor Keys or Off Keys operated.

1.45 Until this test section is complete up to Paragraph 7, Remote Test, the only interfacing connector that should be plugged in is the PS I/O. This will allow CSRAF power alarms be connected to C.O. major alarms.

2. RECORDS AND REQUIREMENTS

2.1 Forms SD-97-1313 and SD-97-1315 are required for recording the results of these tests. For further information on records, refer to Handbook 3, Section 6B.

3. TEST EQUIPMENT

AMT. REQ.	CODE OR ITE NUMBER	DESCRIPTION
1	R-3314	Stop Watch
1	J94023D* or ITE-4103	Transmission Measuring Set

AMT. REQ.	CODE OR ITE NUMBER	DESCRIPTION
1	ITE-5237/A or	453 Tektronix Scope
	ITE-5237/B	465 Tektronix Scope
1	ITE-4442 or ITE-4442A	Volt-Ohmmeter
1	158A	Adapter Board
1	J94003A* or ITE-4616	Noise Measuring Set
1	52* or ITE-9650	Telephone Headset
1	ITE-5244 or Equivalent*	Frequency Counter

*Acquire from TELCo when available.

4. POWER VERIFICATION

4.1 Power Supplies

4.2 Verify Motor Off Key and -48V Off Key on the Drum Storage Module (DSM) are operated.

4.3 Verify that each Message Control Unit Off Keys are operated.

4.4 Verify Power Off lamp is lit on the DSM.

4.5 Operate Power Nor Key. Verify Power Off lamp extinguishes.

4.6 With the use of a ITE-4442 Volt-Ohmmeter, verify frame voltage -48V, 15V, +5V and +15V, as indicated by PS1 Test Jacks.

4.7 If equipped with PS2 Power Module, refer to Paragraph 4.6 and verify voltage at PS2 Test Jacks.

4.8 When SD-97725-01 CSRAF is equipped with auxiliary frame SD-97725-04 refer to Paragraph 4.6, verify voltage at PS3 and if equipped at PS4 Test Jacks.

5. DRUM STORAGE MODULE (DSM)

5.1 Code Wheel

5.11 Open the door to the magnetic Drum, Storage Module (DSM) and slide door upwards to remove it from its hinges.

5.12 At the side of the drum housing, release the latch assembly by pushing the latch downward. Pull the Drum Storage Unit out (DSU) of the DSM until it stops and locks on the slides.

5.13 Remove cover retaining screws and cover from the bottom of the DSU. This will expose the detector and code wheel. With a Mylar stock feeler guage verify a .005 clearance between bottom surface of code wheel and detector. If this is not met proceed to Paragraph 5.15 otherwise proceed to next paragraph.

5.14 Operate Motor Nor Key. Watch and listen to the rotation of the code wheel. It should run smooth at 4 seconds per revolution and must not screech or show evidence of rubbing the detector assembly. If it is rubbing or running at incorrect speed, proceed to next paragraph, otherwise proceed to Paragraph 5.16.

5.15 Operate Motor Off Key. Loosen the two screws holding the detector assembly. Use a .005 Mylar stock (WARNING: DO NOT USE METAL FEELER GAUGE) to obtain a .005 clearance between bottom surface of code wheel and detector. Tighten the screws holding the detector assembly and keep approximate clearance.

5.16 Connect scope probe to Circuit Pack A-1021 pin 16. Operate Motor Nor Key, wait five minutes for motor to stabilize. Verify a 16 - 20 V P-P square wave pulses. If this is not met, slightly loosen the two screws holding the detector assembly. Watch the scope, position the detector for correct wave shape, retighten screws holding the detector assembly.

CAUTION: DO NOT LET DETECTOR RUB CODE WHEEL.

5.17 Disconnect scope probe and connect Frequency Counter to Circuit Pack A-1022 pin 24. Verify a frequency of 3150 ± 2HZ. If this is not met, operate Motor Power Off Key. Remove A-1022 circuit pack and mount on Adapter Board, insert into same frame location. Operate Motor Nor Key, wait five minutes for motor to stabilize. Adjust R6 (20 K ohm) potentiometer for correct frequency.

5.18 Operate Motor Off Key. Remove Adapter Board, reinsert A-1022 back into same frame location. Operate Motor Nor key. Disconnect Frequency Counter.

5.19 Remount detector assembly cover and tighten the four allen screws.

5.2 Wick Assembly

5.21 To prevent scoring the Magnet Drum Surface, a new wick must be installed and the Drum Surface lubricated. The following procedure should be followed.

5.22 Remove the four allen screws holding the dust cover. Raise the cover straight up until it clears the Headbar Assemblies and Drum, then light out.

5.23 Clean and lubricate the Drum Surface by putting SD-1147 Silicon Fluid (General Electric 200 centistokes viscosity) on a clean lint free cloth. Hold the cloth against the Drum Surface while drum is rotating. After the Drum Surface has been thoroughly cleaned and lubricated, operate Motor Off key.

NOTE: When equipped with 10 Headbars, run Paragraph 5.32 in conjunction with 5.23 on one of the front Headbars Assembly, this will allow room to clean and lubricate the Drum Surface.

5.24 To install a new wick, the wick holder must be removed from the Drum Assembly. Unscrew the spring loaded allen screws located at the top and bottom of the wick holder. Caution must be taken to insure wick spring is still in the wick holder before a new wick is installed. Install a new wick (with long bevel of wick to trailing edge when holder assembly is in correct position on drum) in the holder and remount wick holder assembly. Secure the wick holder by evenly tightening the two allen screws.

NOTE: The spring loaded allen screw retainers have a tendency to thread onto the allen screws each time the wick or Headbars are lossened or removed. The retainer must be free to slide up on the allen screw otherwise it will act as a lock nut preventing the wick and heads from making proper contact with the drum.

5.3 Headbar Assembly

5.31 The spacers at the top and bottom of each Headbar Assembly must be removed before the heads can make proper contact with the drum. The following procedure should be followed:

5.32 Back out the two spring loaded allen screws one at the top and one at the bottom of each Headbar Assembly. As the top screw is backed out, the top spacer can be removed. In order to remove the bottom spacer, the Headbar Assembly must be temporarily removed. Once the spacers have been removed, caution must be taken in cleaning and remounting the Headbar Assembly.

5.33 Wipe each head clean of all dirt particles by using a clean lint free cloth. Verify each Head is free to slide without sticking.

5.34 Press Headbar Assembly into grooves of the Headbar Mounting Frame. See note in Paragraph 5.24.

5.35 Start tightening the two allen screws. Before they become tight, press Headbar Assembly in and downward. Be sure Headbar does not become cocked on the grooves and that it is pressed downward against the bottom mounting stop. Tighten the two allen screws evenly until the Headbar is secure.

5.36 Repeat Paragraph 5.32 through 5.35 for each Headbar Assembly.

5.37 Operate Motor Nor Key, as the Drum rotates, the entire surface of the drum should be lubricated as evidence by a shiny appearance. If it is dry, add SD-1149 lubricant to the top of the wick with an eve dropper. If equipped with ten Headbars, temporarily remove wick assembly for inspector and lubricating.

CAUTION: DO NOT ALLOW OIL TO ACCUMULATE IN THE RESERVIOR AS IT WILL OVERFLOW AND RUN DOWN ON THE MOTOR BRUSHES.

NOTE: The drum surface must be inspected for proper lubrication at least once a day until the wick stays fully saturated. Once the wick saturates, the time interval for inspection may gradually be increased. The installer should notify TELCo of the importance that must be placed on how to add lubricant to the wick and on how often the drum surface must be visually inspected.

5.38 Remove all dirt and dust from the dust cover. reinstall dust cover and tighten down.

5.39 Release latch assembly by pressing the two side lever latches in. Push DSU back into the DSM until it latches. Replace door on hinges and close.

5.4 Clock Pulse Test

5.41 Disconnect PS I/O connector. With an oscilloscope, verify a minimum +13.5 volts pulse for a minimum of 75 milliseconds every (A) and/or (B).

(A) 4 seconds when equipped with VML or PML channels. Connect jumper from JS I/O pin 5 to pin 7. Connect Scope Probe to JS I/O pin 34.

(B) 1.33 seconds when equipped with MML channels. Connect jumper from JS I/O pin 4 to pin 6. Connect Scope Probe to JS I/O pin 35.

5.42 Disconnect Scope Probe and jumpers.

5.43 Connect PS I/O connector.

5.5 Power and Channel Normal Alarm Test

5.51 Operate all Frame Nor Keys, and with VOM, verify for open or continuity* between pins, according to Table A.

NOTE: On Table A the 1 or 0 in parenthesis ( ) should be used when SD-97725-03 frame is tested.

*1 = Continuity
0 = Open

TABLE A

JS I/O CONNECTOR				
CONDITIONS	FROM TO	PIN 58 PIN 70	PIN 59 PIN 71	PIN 60 PIN 72
All channels Normal Any Fuse Blown		1 (0)	1 (0)	1 (1)
One Channel Off Any Fuse Blown		1 (1)	0 (0)	0 (0)
One Channel Off No Fuse Blown		1 (1)	0 (0)	0 (0)
All Channels Normal No Fuse Blown		0 (1)	0 (1)	0 (0)

5.56 Disconnect VOM.

5.6 1000 Hz Central Office Test

5.61 Jumper Central Office 1000 Hz to CSRA frame output jack by the following connections.

NOTE: This will be available at the 1000 Hz output jack when the 1000 Hz signal is cabled to PS I/O and plugged into the JS I/O connector. The C.O. signal should be 1000 Hz at 0 DBM across 600 ohm.

C.O. 1000 Hz - A to JS I/O pin 24
C.O. 1000 Hz - B to JS I/O pin 12

5.62 On 3A NMS, verify 3A functional by setting Function Switch to Bat position.

5.63 Operate 3A NMS Function Switch and dbrn switch to CAL. position. Calibrate 3A NMS.

5.64 Set the 3A NMS controls to measure -64 dbrn by the following procedure. Norm switch and Function Switch to 600 position. Select C message 497A network. Select switch to position 60.

5.65 ON the CSRA frame, plug W1 cord between DSM 1000 Hz jack and 3A NMS jack. Verify a +64 dbrn 1000 Hz test signal.

5.66 Disconnect W1 cord.

6. LOCAL TEST

NOTE: This frame can be equipped with different types of message, only run those paragraphs that pertain. Part of the following tests simulate system, initiated tests or loop closure and require an external jumper across the respective pins.

6.1 Variable Message Length (VML)

6.11 Control Unit Test

6.111 Operate Control Off (0) key. Verify Power Off and Off Nor lamp light.

6.112 Operate Control Nor key. Verify Power Off and Off Nor lamps extinguishes.

6.113 Repeat Paragraph 6.111 and 6.112 on each VML equipped Control Unit.

6.12 Record 1000 Hz Test Signal

6.121 If SD-97725-03 VML announcements are under test connect jumper between JVM I/O pin 19 and 20 on each equipped VML control unit with associated channel module.

6.122 Connect W1 cord between 1000 Hz jack on DSM and TMS jack on Control Unit to be tested. On same unit operate channel (0) Test key. Hold operated Record key, verify Record lamp lights within 4 seconds.

6.123 Hold operated Record key. Within 4 seconds Record lamp lights indicating the channel is ready to start recording. Record 1000 Hz test signal for full channel capacity*. When this is reached Record lamp extinguishes, release Record key, the channel will automatically go into playback mode.

* This will depend on how many A-1016 circuit packs are needed to meet message length requirements. Minimum of one A-1016 for 16 second message, two A-1016 for 32 and three maximum A-1016 for 48 seconds per VML channel.

6.124 Remove W1 cord from 1000 Hz jack and plug W1 cord into Monitor jack on DSM. Plug telephone headset into Headset jack on DSM. Listen to the test signal. With a stop watch verify the signal last for full channel capacity*.

6.125 Remove W1 cord from Monitor jack and plug W1 cord into jack on 23D Transmission Measuring Set. Operate Channel Monitor (0) key. Verify a -9 dBM** signal level with less than 2 DB variation throughout the entire test signal length. If the level is not -9 dBM** proceed to next paragraph. If dBM level is correct proceed to Paragraph 6.13.

NOTE: For SD-97725-03 CSRAF set DBM level at -18**.

** This is an average audio output level and may need to be changed to meet system requirements.

6.126 Operate Control (0) Off key. Remove A-1013 circuit pack for channel (0) and mount on adapter board, insert board into same frame location.

6.127 Operate Control Nor key. Repeat paragraphs 6.122 through 6.125. Adjust R-20 10K ohm potentiometer on A-1013 circuit pack for channel (0) to required dBM level output.

6.128 Operate Control Off (0) key. Remove adapter board reinsert A-1013 back into same frame location.

6.129 Operate Control Nor key and Channel (0) Test key. Hold MEM key operated from silent period to the beginning of next silent period. This should restore message to full channel capacity.

6.13 Noise Level Test

6.131 On 3A NMS set controls to measure dbrn by the following procedure. Norm switch and Function switch to 600 position. Select C message 497A network. Select switch to position 80.

6.132 On CSRA frame operate Channel (0) Monitor key. Remove W1 cord from 23D TMS and plug W1 cord into 3A NMS jack. Note the average dbrn reading over the entire channel length.

6.133 Erase channel test signal by operating Channel (0) Test key and hold operated Record key. Within 4 seconds Record lamp lights and should stay lit until end of channel is reached. Record lamp extinguishes release Record key.

6.134 Remove W1 cord from 3A NMS and plug W1 cord into DSM Monitor jack. With headset, verify test signal has been erased.

6.135 Remove W1 cord from Monitor jack and plug W1 cord from Monitor jack and plug W1 cord into 3A NMS jack. Operate Channel Monitor (0) key. Note the average dbrn reading over entire channel length. The signal to noise ratios, that is, minimum difference between this reading and one taken in Paragraph 6.132 should not be less than 30 dbrn.

6.14 Voice Recorded Test

NOTE: Once a recording has been made should power be temporarily removed from the channel the message may be restored by the use of MEM key.

6.141 Remove W1 cord from 3A NMS and plug W1 cord into DSM Monitor jack. Operate Channel (0) Test key. Hold operated Record key. As soon as Record lamp lights, with the headset record "this is a test variable message length channel (0)*** count 1,2,3, etc." in a normal speaking level until record lamp extinguishes. Record lamp extinguishes release Record key. The channel will automatically go into playback mode. Listen to the recorded announcement, verify a recording has been made.

*** This should be channel number under test.

6.142 Operate Channel Monitor key. Verify an increase in audio level with a clear and distinct message. At end of message there should be a 4 second silent period (cut through).

6.15 Voice Alarm Adjust

6.151 Operate Control (0) Off key. Back out channel (0) A-1020 circuit pack. Mount channel (0) A-1014 circuit pack on adapter board and insert into same frame location. Operate Control Nor Key.

6.152 Operate Channel (0) Test key. Hold MEM key operated until about 1 second into the beginning of message. Release MEM key. The channel should have a repeating 4 second message followed by a 4 seconds silent period.

6.153 Operate Voice Alarm Adjust key. On channel (0) A-1014 circuit pack adjust R-2 (10K ohm) potentiometer counter clockwise until V ALM LED on front of circuit pack extinguishes.

6.154 Adjust R2 clockwise slow until V ALM LED lights for approximately 1 second during silent period.

6.155 Operate Voice Alarm Adjust Nor key and Control (0) Off key. Remove adapter board reinsert A-1014 back into same frame location.

6.16 Switching Alarm Adjust

6.161 Mount channel (0) A-1020 circuit pack on adapter board and insert into same frame location.

6.162 Operate Control Nor key. Repeat Paragraph 6.152 to obtain a 4 second message.

6.163 On the Scope set controls to measure peak to peak voltage by the following procedure.

(a) Sweep frequency to 5 seconds time/division.

(b) Both channel volts/division to division that will allow a .75V peak reading.

(c) Pull channel 2 invert switch.

(d) Channel mode to add position.

(e) Adjust each channel for center trace.

6.164 Connect channel 1 scope probe to pin 3 and channel 2 probe to pin 4 of A-1020 circuit pack for VML channel (0).

6.165 Verify within silent period the trace sharply rises .75V. As the recording is played back the level gradually decreases. At the end of 4 second message the trace should be in center position. At the next silent period verify the trace sharply falls .75V. As the recording is repeated the trace will gradually rise to center position. If voltage level requirements are not met, adjust R-28 (50K ohm) potentiometer on A-1020 circuit pack.

6.166 Operate Control (0) Off key. Remove adapter board and reinsert A-1020 back in same frame location. Remove scope probes.

6.167 Operate Control Nor key.

6.17 Memory Test

6.171 Operate Channel (0) test key. Hold MEM key operated for 12 seconds into the beginning of message. Verify channel (0) has a repeating 4 second silent period followed by a 16 second message.

6.172 If equipped with two A-1016 circuit packs. hold MEM key operated for 30 seconds into the beginning of message. Verify channel (0) has a repeating 4 second silent period followed by a 32 second message.

6.173 If equipped with three A-1016 circuit packs hold MEM key operated for 46 seconds into the beginning of message. Verify channel (0) has a repeating 4 second silent period followed by a 48 second message.

6.18 Switching Alarm Test

NOTE: After recording a new message or a recording is restored with the MEM key, the message must be heard at least once completely in the test mode to initialize A-1020 Switching Alarm circuit pack.

6.181 Operate Channel Nor key. LED alarms on channel (0) A-1014 and A-1020 circuit packs should be extinguished.

6.182 Connect 1/4 watt 620 ohm resistor between A-1012 for channel under test pin 15 and ground. By end of complete message, LED alarms on channel under test A-1014 and A-1020 should light.

6.183 Remove 620 ohm resistor. Operate channel (0) Test key. Hold MEM key operated to reset memory to the desired message length.

6.184 Listen to one complete message.

6.185 Operate Channel Nor key. The Alarm LED's on A-1014 and A-1020 should be extinguished.

6.186 Repeat Paragraphs 6.12 through 6.185 for each equipped channel on all VML control units and associated Channel Modules.

6.187 Remove jumpers that was connected in Paragraph 6.121.

6.2 Modular Message Length (MML)

6.21 Control Unit Test

6.211 Operate Control Off key. Verify Power Off and Off Nor lamp light.

6.212 Operate Control Nor key. Verify Power Off and Off Nor lamps extinguish.

6.213 Repeat Paragraphs 6.211 and 6.212 on each MML Control Unit.

6.22 Record 1000 Hz Test Signal

6.221 If SD-97725-03 MNL announcements are under test connect jumper between JMM I/O 2 pin 61 and 62 on each equipped MML control unit with associated channel module.

6.222 Operate Control Off key. Remove channel (1) A-1019 circuit pack and mount on adapter board insert into same frame location.

6.223 Connect W1 cord between DSM 1000 Hz jack and TMS jack on Control Unit under test. Connect W2 cord between Channel Access jack on same Control Unit and associated channel (1) A-1019 circuit pack test points.

6.224 Operate Control Nor key and Channel Test key. Hold operated Channel Record key. Verify Record lamp flashes 3 times in a 4 second interval. This indicates the channel is in the record mode and should record between the flashes of Record lamp.

6.225 Hold Record key operated for 5 flashes of Record lamp. Release Record key.

6.226 Remove W1 cord from DSM 1000 Hz jack and plug W1 cord into DSM Monitor jack. Plug telephone headset into DSM Headset jack. Verify a 1000 Hz test signal.

6.227 Remove W1 cord from DSM Monitor jack and connect W1 cord to 23D Transmission Measuring Set.

6.228 Operate Channel MON key. Verify a -9 dBM** output level with less than 2 dBM variation. If level output is not -9 dBM** adjust R-3 (10K ohm) potentiometer on A-1019 circuit pack.

NOTE: For SD-97725-03 CSRAF set dBM level at -18**.

**This is an average audio output level and may need to be changed to meet system requirements.

6.23 Noise Level Test

6.231 On 3A NMS set controls to measure dbrn by the following procedure. Norm switch and Function switch to 600 position. Select C message 497A networks. Select switch to position 80.

6.232 Remove W1 cord from the 23D TMS and plug W1 cord into 3A NMS. Note the dbrn reading.

6.233 Operate Channel Test key. Hold operated Channel Record key. After 5 flashes of Record lamp release Record key.

6.234 Remove W1 cord from 3A NMS and plug W1 cord into DSM Monitor jack.

6.235 Operate Channel Monitor key. With the headset verify test signal has been erased.

6.236 Remove W1 cord from DSM Monitor jack and plug W1 cord into 3A NMS. Note the dbrn reading. The signal to noise ratio, that is, minimum difference between this reading and one taken in Paragraph 6.232 should not be less than 35 dbrn.

6.237 Remove W1 cord from 3A NMS and plug W1 cord into DSM Monitor jack.

6.24 Voice Recorded Test

6.241 Operate Channel Test key. Hold operated Channel Record key. With the headset record "test channel (1)***" in a normal speaking level. This must

be done a minimum of 3 times, each one spaced between Record lamp flash before Record key is released.

*** This should be the channel number under test.

6.242 Operate Channel Monitor key. the announcement should be clear and distinct with a short silent period between each message.

6.25 Voice Alarm Adjust

6.251 Operate Voice Alarm Adjust key. On channel (1) A-1019 adjust R-4 (10K ohm) potentiometer counterclockwise until LED on front of circuit pack lights.

6.252 Slowly turn R-4 (10K ohm) potentiometer on same channel (1) A-1019 circuit pack until LED just extinguishes.

6.253 Operate Voice Alarm Adjust Nor key. LED on A-1019 should stay extinguished.

6.254 On Control Unit under test operate Voice Alarm Test key. Within few seconds LED on channel (1) A-1019 should light.

6.255 Operate Voice Alarm Nor key. Within few seconds LED on A-1019 should extinguish.

6.256 Operate Control off key. Remove adapter board and reinsert channel (1) A-1019 circuit pack.

6.257 Operate Control Nor key.

6.258 Repeat Paragraphs 6.222 through 6.257 for each equipped channel on all PML Control Units and associated Channel Modules.

6.259 Remove jumpers that were connected in Paragraph 6.221.

6.3 Phase Message Length (PML)

NOTE: To operate REC lamp in tests of Paragraph 6.3 the ROS key must be operated. This provides more current to channel lamps in the dedicated phone.

6.31 Control Unit Test

6.311 Operate Control Off key. Verify Power Off and Off Nor lamps light.

6.312 Operate Control Nor key. Verify Power Off and Off Nor lamps extinguish.

6.313 Repeat Paragraphs 6.31 through 6.313 on all PML Control Units.

6.32 Record 1000 Hz Test Signal

6.321 On Control Unit and associated Channel Module under test connect jumper between JPM I/O connector pin 14 and pin 15. Verify OS lamp lights.

6.322 On associated Channel Module connect jumpers between the following. (See Table B.)

TABLE B

	FROM	TO
CONNECTOR	Pin	Pin
JPM I/O	9	43
	10	41
	11	39
	12	37
	24	38
	23	40
	22	42
	21	44

6.323 Connect W1 cord between DSM 1000 Hz jack and TMS jack on Control Unit under test. Operate R Rec key. Hold operated Record key. Verify Record lamp lights within 4 seconds. This will indicate the channel is in Record Mode. Release Record key.

6.324 Hold operated Record key. Within 4 seconds Record lamp lights. Verify lamp stays lit for 12 seconds. When Record lamp extinguishes release Record key the channel will automatically go into playback mode.

6.325 Remove W1 cord from DSM 1000 Hz jack and plug W1 cord into DSM Monitor jack. Plug telephone headset into DSM headset jack.

6.326 Operate Phase (0) key. With the headset verify a 12 second 1000 Hz test signal.

6.327 Remove W1 cord from Monitor jack and plug W1 cord into 23D TMS jack. Verify a -18 dBM** output level with less than 2 dBM variation throughout the entire test signal length. If dBM

level is not -18 dBM**, operate Control Off key. Remove Phase (0) A-1013 and mount on adapter board insert into same frame location. Operate Control Nor key. On Phase (0) A-1013 circuit pack adjust R-20 (10K ohm) potentiometer to required output level.

** This is an average audio output level an may need to be changed to meet system requirements.

6.238 Operate Control Off key. Remove adapter board and reinsert A-1013 back into same frame location.

6.329 Operate Control Nor key. Repeat Paragraphs 6.326 through 6.328 for Phase 1, 2 and 3 on Control Unit and associated Channel Module Under test.

6.33 Noise Level Test

6.331 On 3A NMS set controls to measure dbrn by the following procedure. Norm switch and Function switch to 600 position. Select C message 497A network. Select switch to position 80.

6.332 On CSRA frame, remove W1 cord from 23D TMS and plug W1 cord into 3A NMS jack. Operate Phase 0 key. Note the average dbrn reading over the 12 second channel length.

6.333 Erase channel test signal by operating R Rec key and hold operated Record key. Within 4 seconds Record lamp lights, when Record lamp extinguishes release Record key.

6.334 Remove W1 cord from 3A NMS and plug W1 cord into DSM Monitor jack. Operate Phase 0 key. With headset, verify test signal has been erased.

6.335 Remove W1 cord from DSM Monitor jack and plug W1 cord into 3A NMS jack. Note the average dbrn reading over the 12 second channel length. The signal to noise ratio, that is, minimum difference between this reading and one taken in Paragraph 6.332 should not be less than 30 dbrn.

6.34 Voice Recorded Test

6.341 Remove W1 cord from 3A NMS and plug W1 cord into DSM Monitor jack. Operate R Rec key. Hold operated Record key. As soon as Record lamp lights, with headset record "this is a test phase message length channel (0)*** count 1,2,3, etc." in a normal speaking level until record lamp extinguishes. Record lamp extinguishes release record key. The channel will automatically go into playback mode.

*** This should be channel number under test.

6.342 With headset, verify a clear and distinct message. At end of message there should be a 4 second silent period (cut through).

6.35 Voice Alarm Adjust

6.351 Operate Control Off key. Back out A-1020 circuit packs for Phase (0) on Channel Module under test.

6.352 Remove Phase (0) A-1014 circuit pack and mount on adapter board insert into same frame location.

6.353 Operate Control Nor key and Phase (0) key.

6.354 Operate Voice Alarm Adjust key. On Phase (0) A-1014 circuit pack adjust R-2 (10K ohm) potentiometer counter-clockwise until ALM LED on front of circuit pack extinguishes.

6.355 Adjust R-2 (10K ohm) clockwise slow until ALM LED lights for approximately 1 second during silent period.

6.356 Operate Control Off key. Remove adapter board reinsert A-1014 and A-1020 back into same frame locations.

6.357 Repeat Paragraphs 6.35 through 6.356 for Phase 1,2 and 3.

6.358 Operate Voice Alarm Adjust Nor key.

6.36 Switching Alarm Adjust

6.361 Mount Phase (0) A-1020 circuit pack on adapter board and insert into same frame location.

6.362 Operate Control Nor key.

6.363 On the Scope set controls to measure peak to peak voltage by the following procedure.

(a) Sweep frequency to 5 seconds time/ division.

(b) Both channels volt/division to a division that will allow a 1.5V peak reading.

(c) Pull channel 2 invert switch.

(d) Channel mode to add position.

(e) Adjust each channel for center trace.

6.364 Connect channel 1 scope probe to adapter board pin 3 and channel 2 probe to adapter board pin 4.

6.365 Operate Phase (0) key. Verify within silent period the trace sharply rises 1.5V. As recording is played back the level gradually decreases. At the end of 12 second message the trace should be in center position. At the next silent period verify the trace sharply falls 1.5V. As the recording is repeated the trace will gradually raise to center position. If voltage level is not met, adjust R-28 (50K ohm) potentiometer on A-1020 circuit pack.

6.366 Operate Control Off key. Remove adapter board and reinsert A-1020 back into same frame location.

6.367 Repeat Paragraph 6.361 through 6.366 on Phase 1,2, and 3.

6.368 Operate Control Nor key and Phase Nor key.

6.37 Switching Alarm Test

NOTE: The Voice Alarm RST key must be operated for at least 32 seconds or when a new recording is made the message must be heard at least twice completely in the R Record mode to initialize A-1020 Switching Alarm circuit packs.

6.371 Operate Voice Alarm RST key for at least 32 seconds.

6.372 Operate Voice Alarm Nor key. The RED LED on all A-1014 and A-1020 circuit packs in Channel Module under test should be extinguished.

6.373 Operate Voice Alarm Adjust key. Within 16 seconds RED LED on all A-1014 and A-1020 circuit packs in Channel Module under test should light.

6.374 Operate Voice Alarm Adjust Nor key. Repeat Paragraphs 6.371 and 6.372 to reset alarms.

6.375 Remove all jumpers connected in Paragraphs 6.321 and 6.322.

6.376 Repeat Paragraphs 6.32 through 6.375 on each equipped Channel Module and associated control unit.

7. REMOTE TEST

7.1 Dedicated Phone VML Test

7.11 If Dedicated Phone is connected for SD-97725-03 VML announcements connect jumper on CSRAF between JS I/O pin 42 and 43.

7.12 Lift receiver from the Dedicated Phone. Operate VML Channel (0) key.

7.13 Listen to the recorded announcement. Verify that it is the recording made in Paragraph 6.141. The recorded channel number should be the same as assigned Channel key.

7.14 Hold operated Record key. As soon as selected Channel key lamp lights, record "test D variable message length channel (0) ****" in a normal speaking level repeatedly over the entire channel capacity. When Channel lamp extinguishes, release Record key.

**** This should be channel number under test.

7.15 Listen to the recorded announcement. Verify a new recording has been made and that the recording is clear and distinct.

7.16 Operate Dedicated Phone RLS key and place receiver back on hook.

7.17 Repeat Paragraphs 7.12 through 7.15 for each assigned channel.

7.18 Remove jumpers that were connected in Paragraph 7.11.

7.2 Dedicated Phone MM Test

7.21 If Dedicated Phone is connected for SD-97725-03 MML announcements connect jumper on CSRAF between JS I/O pin 42 and 43.

7.22 Lift receiver from the Dedicated Phone. Operate MML channel (1) key.

7.23 Listen to the recorded announcement. Verify that it is the recording made in Paragraph 6.241. The recorded channel number should be the same as assigned channel key.

7.24 Hold operated Record key. Record "D channel (1) ****" in normal speaking level, a minimum of three times, each one spaced between the MM lamp flash.

**** This should be channel number under test.

7.25 Listen to the recorded announcement. Verify a new recording has been made and that the recording is clear and distinct.

7.26 Operate Dedicated Phone RLS key and place receiver back on hook.

7.27 Repeat Paragraphs 7.22 through 7.25 for each assigned channel.

7.28 Remove jumper that was connected in Paragraph 7.21.

7.3 Dedicated Phone PML Test

7.31 Lift receiver from the Dedicated Phone. Operate PML channel (0) key.

7.32 Listen to the recorded announcement. Verify that it is the recording made in Paragraph 6.341. The recorded channel number should be the same as assigned channel key.

7.33 Hold operated Record key. As soon as selected Channel key lamp lights, record "test D phase message length channel (0)****" in a normal speaking level repeatedly over the 12 second channel capacity. After Channel lamp extinguishes release Record key.

**** This should be channel number under test.

7.34 Listen to the recorded announcement at least twice. Verify a new recording has been made and that the recording is clear and distinct.

7.35 Operate Dedicated Phone RLS key and place receiver back on hook

7.36 Repeat Paragraph 7.3 through 7.35 for each assigned channel.

Arrowed Lines indicate new or changed information.

Manager, Product Engineering
Control Center

Reason for Reissue:
1. Incorporate UIS dated 1-13-83.
2. Add note under Paragraph 6.3.