

CONTACT NOISE MEASUREMENTS

1. GENERAL

1.01 This addendum supplements Section 215-175-501, Issue 3. The 30A level distribution register will be used only as required.

1.02 This addendum describes the method of detecting contact noise in panel offices using the Call-Thru Test Set, Rapid Dialer, 106B loudspeaker, 3A Noise Measuring Set, and other auxiliary equipment. Installation and use of this equipment will be a standard requirement in all panel offices.

1.03 The tests covered are:

A. Monitoring calls for contact noise:

This test describes the method of making calls with the modified call thru test set, listening for noise with the 106B loudspeaker, and locating the contacts causing the noise.

B. Contact noise measurements:

This test describes the method of making calls with the modified call thru test set and using the 3A Noise Measuring Set to measure the noise.

C. Outgoing noise monitoring and measurements:

This test describes the method of making calls with the modified call thru test set to other offices. The 3A noise measuring set or the 106B loudspeaker can be used.

1.04 It is preferable that the test calls be made during periods of reasonably heavy traffic loads in order to obtain a greater distribution of the test calls over the equipment.

1.05 Modifying the call-thru test set per Figure 1 replaces the supplementary terminating set shown in Figure 3 of 215-175-501. The modification will make it possible to use the 3A noise measuring set or 106B loudspeaker to measure or monitor originating and terminating calls.

1.06 One man can trace a noisy connection and locate the trouble by placing the office intercom transmitter in front of the 106B loudspeaker. When additional tension is placed on the noise source, the noise will disappear.

1.07 Refer to Section 215-175-501, Paragraph 1.11 for selecting originating and terminating lines.

1.08 One or more terminating lines can be assigned to each key. 20 final choice numbers should be used if possible.

1.09 An intercepted number within the same hundred can temporarily be assigned to a terminating key for routing of noisy incoming calls.

1.10 The group and terminal of a noisy outgoing line can temporarily be bridged on a vacant originating jack for routing of noisy outgoing calls.

1.11 Noise Test Form GP58 per Fig. 4 - Test B

A. Enter Office unit, date, group and term, and called numbers in proper spaces.

B. 20 test calls will be made from orig. keys to 20 final choices. Patch originating keys to different Group and Terminal jacks until at least 20 line groups are used. Each week rotate Group and Terms until all start circuits have been tested.

C. Observe 3A noise measuring set for 30 seconds on each call.

D. Steady noise should be less than 20 dbrnc. An occasional hit over 20 is acceptable; however, if the hits persist for more than 30% of the observed time the connection will be considered out of limits.

1.12 Using the Rapid Dialer will eliminate the use of the Pen Register.

2. REQUIREMENTS

2.01 Noise measurements per Test B are to be made weekly in all Panel Offices, See Para. 1.11.

2.02 Test Forms, GP58 shall be kept on file to watch the general condition of the office. When a pattern develops that certain equipment is having more trouble than others, action shall be taken to correct the trouble. Forms can be ordered from Centralized Distribution Center.

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3. APPARATUS

3.01 The apparatus required in each test is shown in Table A.

TABLE A

APPARATUS	TESTS		
	A	B	C
Call-Through Test Set, Modified per Figure 1 (3.02)	1	1	1
Rapid Dialer	1	1	1
106B Loudspeaker	1		1
3A Noise Measuring Set		1	1
Cord for 3A - 1 289 Plug, 1 310 Plug		1	1
Cord for 106B 2 310 Plugs	1		1

3.02 Method of Modifying Call Thru Test Set Per Figure 1, 2, and 3.

- a. Replace A & B Tel jacks with 106B and 3A Noise Measuring Set jacks.
- b. Remove 2 coin key (RLS-CN) blanks or 2 coin keys not used. See Fig. 2. Install ORIGINATE-TERMINATE (CIKF) and TEST (CIS) Keys.
- c. Drill plate in front of missing Message Registers for NE 51 Lamp Mounting. If there is no room to mount, remove one Message Register and make a plate from a connecting block cover (37D or equiv)
- d. Mount CUT THRU and 900 + 2 MF Keys and Test lamp socket per Figure 2.
- e. Mount "A" (48 V Bat) jack in any convenient location.
- f. Remove T, R, and S leads from break contacts of NM Jack and wire TEST INTERCEPT key in series with jack. See Note 1 of Figure 1.
- g. Remove T & R leads from Talk and Hold side of D & E resistors of Figure 2, SD-96063-011 and wire ORIG key in series with resistors. See Note 1 of Figure 1.

4. PREPARATION

Step Action Verification

TEST A

Using the 106B Loudspeaker -

- | | |
|--|---|
| <ol style="list-style-type: none"> 1 Plug power cord of 106B loudspeaker into the A jack of call-thru test set. 2 Plug input cord of 106B loudspeaker into 106B jack of modified call-thru test set. 3 Operate 900 ohm +2 MF capacitor key. 4 Operate all "TR" keys except the one assigned to the calling number. 5 Operate the new test Intercept Key to test for the proper type office. (Battery Cut-Off or Ground Cut-Off) NOTE: When this key is operated no calls can go to the intercept operator. 6 If an incoming call comes in on any of the TR keys that were operated. 7 Restore the Test Intercept Key to Intercept and the TR Key to the lighted IC lamp. 8 Wait until the operator has had time to handle the call. 9 Before continuing with testing, operate the TR and Talk Keys of Step 6 and 7. 10 If dial tone is heard, restore the Talk Key and operate the Test Intercept Key. | <p>Test Lamp lights.</p> <p>It's IC lamp will light.</p> <p>IC lamp will be extinguished.</p> |
|--|---|

<u>Step</u>	<u>Action</u>	<u>Verification</u>	<u>Step</u>	<u>Action</u>	<u>Verification</u>
11	Any Talk Key (for this office) can be used to originate a call to the terminating number. See Step 4.		23	900 ohm + 2 MF capacitor Key should be in the off position.	
12	Set the Rapid Dialer on the terminating number.		24	Refer to Paragraph 1.11 and fill in Noise Test Form, Figure 4.	
13	Operate the Talk Key and start the Rapid Dialer.	The Term Test IC neon lamp will light during the ringing cycle.	25	Repeat Steps 4 through 13.	
14	Operating the Term Trip Key will trip the ringing and terminate the call to a quiet line with 900 ohms + 2 MF.	The Term Test IC neon lamp will be extinguished.	26	Operating the Term Trip Key will trip the ringing.	The Term Test IC neon lamp will be extinguished.
15	Operate the Talk Key (Step 13) to Hold, and the Cut Thru Key to Cut Thru.	The 106B loudspeaker will amplify any noise on the connection.	27	Operate the Talk Key to Hold (Step 13) and the Cut Thru key to Cut Thru.	The 3A Noise Measuring Set will read any noise on the connection.
16	If a noisy connection is encountered the transmitter of the office intercom should be placed in front of the 106B loudspeaker.		28	Observe each call for 30 seconds.	Any call with more than 20 DBRNC of noise or that has noise bursts higher than 20 DBRNC and continues for more than 30% of the observed call shall be considered noisy.
17	Trace the call.		29	The 106B loudspeaker will be used to locate noisy connections. Refer to Steps 15 through 18.	
18	Locate the connection causing the noise by placing additional tension on it.	The noise will disappear from the intercom.	30	Fix the trouble, make out a routine ticket and record on Action column of Noise Test Form GP 58.	
19	Fix the trouble and make out a routine ticket for reference.				
20	Restore all TR Keys, Test and Term Trip Keys.				

TEST B

Using the 3A Noise Measuring Set

- 21 Refer to Section 103-611-100 for calibration of 3A Noise Measuring Set.
- 22 Plug input cord of 3A Noise Measuring Set into 3A jack of modified call-thru Test Set.

TEST C

- 31 Refer to Steps 1 to 3 when using the 106B loudspeaker.
- 32 Refer to Steps 21 to 23 when using 3A Noise Measuring Set.
- 33 Leave all TR Keys normal.
- 34 Leave new Test Intercept Key on Intercept.

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<u>Step</u>	<u>Action</u>	<u>Verification</u>
35	Any Talk Key can be used to originate calls to other offices.	
36	Set the Rapid Dialer on the number to be called (quiet line).	
37	Operate Talk Key and start Rapid Dialer.	
38	After Dialer has completed dialing, operate "ORIG" Measure Key to Originate Measure.	
39	Operate Cut-Thru Key and monitor or measure the noise on the connection.	
40	If noise is encountered refer to Steps 16 to 19.	

PANEL OFFICE NOISE TESTS

CENTRAL OFFICE: _____ Tests Made By: _____

DATE: _____

<u>Key No.</u>	<u>Group and Terminal</u>	<u>Called Tel. Number</u>	<u>Reading DBRNC</u>	<u>Action</u>
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

20 DBRNC is the maximum noise permitted.

CALL THRU TEST SET

PRELIMINARY

FIG. 1

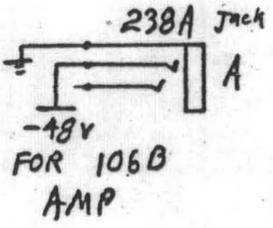
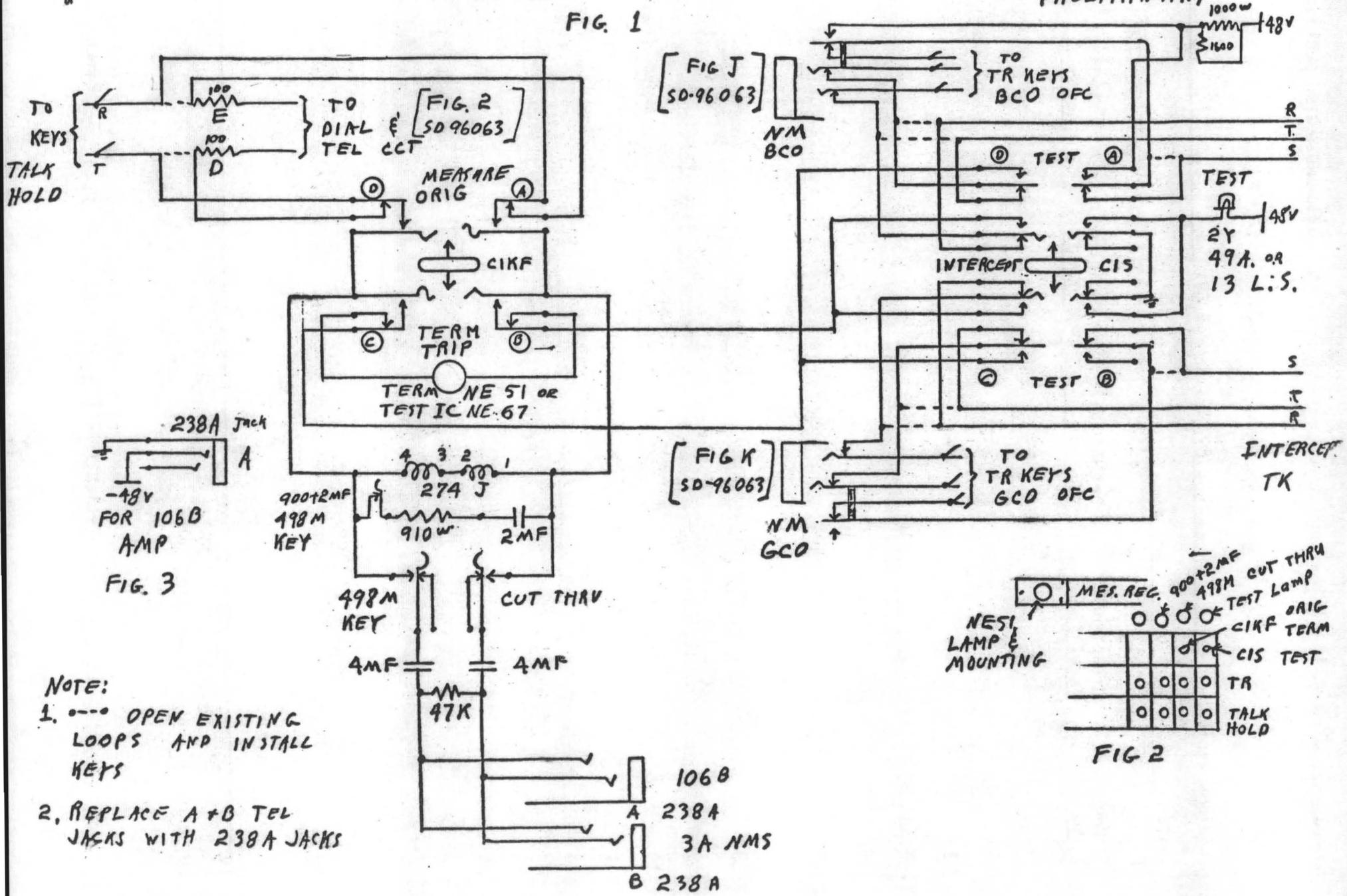


FIG. 3

- NOTE:
1. --- OPEN EXISTING LOOPS AND INSTALL KEYS
 2. REPLACE A+B TEL JACKS WITH 238A JACKS

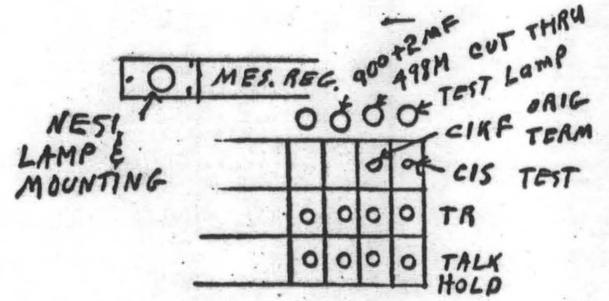


FIG 2