





## SECTION V

### INSTALLATION AND CHECKOUT

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## 1. GENERAL

**1.01** This section provides information necessary to install and check out the B325 terminal. It recommends tools and test equipment; discusses space considerations, unpacking and inspection, installer wiring and strapping information, and initial turn-on and checkout procedures. After completing installation procedures, the per-

iodic alignment procedures of Section VI may be performed to verify end-to-end performance.

## 2. RECOMMENDED TOOLS AND TEST EQUIPMENT

**2.01** Refer to Table A for a list of tools and test equipment recommended for installation and checkout.

**TABLE A**  
**TEST EQUIPMENT AND SPECIAL TOOLS**

EQUIPMENT	MANUFACTURER	MODEL*
Multimeter	Simpson	260
Transmission and Noise Measuring Set (TNMS)	Hewlett-Packard	3555B
**Noise Measuring Test Set	Northeast Electronics	TTS-37 Series
	Western Electric	Type 3A
Oscillator (Test Tone Generator)	Hewlett-Packard	200CD/236A
Test and Alignment Panel	Lynch	325TA01
Test Kit (Includes patch cords, plugs and card extenders)	Lynch	325TK01
Channel Unit Terminations 1. 900 ohm resistor and 2.2 $\mu$ F capacitor series connected to dual pin plug. (2 required) 2. 600 ohm resistor and 2.2 $\mu$ F capacitor series connected to dual pin plug. (2 required)	Locally Manufactured <i>Note:</i> If required capacitor is not immediately available, a purely resistive termination may be substituted to facilitate testing.	

\*Or equivalent.

\*\*Alternates for transmission and noise measuring set.

### 3. INSTALLATION CONSIDERATIONS

**3.01** The B325 terminal should be located in an office area that provides for proper lighting and equipment access. Rear access is required for installation.

**3.02** The terminal should be located a minimum of three feet from strong magnetic fields and sources of impulse noise, which may introduce undesirable noise in the circuits of the terminal. Locate the B325 terminal where the temperature and relative humidity do not exceed the limits specified in Section II of this manual. The terminal should not be mounted in a rack above heat-producing sources, such as power supplies or tube-type equipment. Dusty environments should be avoided.

**3.03** VF and signaling drop wiring, power connections, hf wiring to span terminating equipment, and external office alarm wiring are provided by the user. Power wiring should be at least 16 AWG, and all other wiring should be at least 24 AWG. It is recommended that SB, QB, SB GND, and QB GND be run separately back to the power source or battery filter and not "daisy chained" with other systems in the rack.

**3.04** The hf wiring to the span terminating equipment should be limited to 150 feet of high-frequency shielded cable.

**3.05** The VF and signaling should be in separate cable runs from the hf signals. The standard connections, which in a typical central office are wired to a cross-connected frame, are: T and R, T1 and R1, E and M leads, and the OS/MB lead. When these seven connections are made, they also provide for the A and B leads, Peg Count (PC), ATB, S and HS leads. The lead designation depends only on the type of channel unit that is plugged into a given channel position.

### 4. UNPACKING AND INSPECTION

**4.01** Unpack the equipment carefully, and examine it closely for evidence of improper handling or damage. Common equipment circuit boards and foreign exchange channel unit circuit boards are packed in an antistatic bag for shipping. After inspection, store these circuit boards in the antistatic shipping bags until they are installed in the channel bank.

*Warning (1): Some circuit boards contain CMOS logic devices. To prevent damage from static discharge during inspection, handle common equipment and foreign exchange channel unit circuit boards at front and side edges only.*

*Warning (2): Do not install circuit boards in channel bank until installation wiring is completed and checked out.*

### 5. INSTALLATION

**5.01** The B325 terminal is supplied for flange mounting into a 19-inch equipment rack. Secure the unit in place with at least four mounting screws. Ensure that all circuit boards are removed prior to performing wiring procedures.

### 6. WIRING

*Caution: Operation of the B325 terminal can be adversely affected if the office battery exhibits excessive noise, especially from office switching transients.*

**6.01** Measure the office battery noise prior to making wiring hook-ups. If battery noise level is higher than 35 dBrnC, it is advisable to install a battery filter in the -48 Vdc line to the B325 terminal. The Lynch battery filter and alarm unit (200FA02) will provide a "quiet battery."

**6.02** The B325 terminal is supplied with channel unit connections prewired to five rear-mounted "AMP-CHAMP" type connectors, but cable harness standoffs are also provided for complete hard-wired installations.

**6.03** Installer wiring for a hard-wired installation consists of routing applicable channel unit wiring to each channel unit connector, connecting hf (in and out) and office alarm circuits to alarm and power unit connector A2J8 and making office battery connections (QB and SB) to TB1. These connections are detailed in Fig. 1 and E335 engineering drawings at the end of this section.

*Caution: Channel unit connector wiring does not include talk battery supply for dial pulse originating units (325DP01) or 20-Hz ringing and ground connections for foreign exchange units. See Notes of Fig. 2 for additional connections if these units are to be installed.*

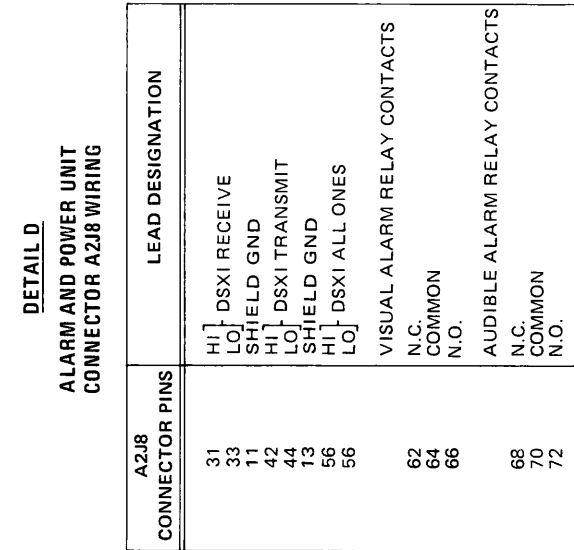
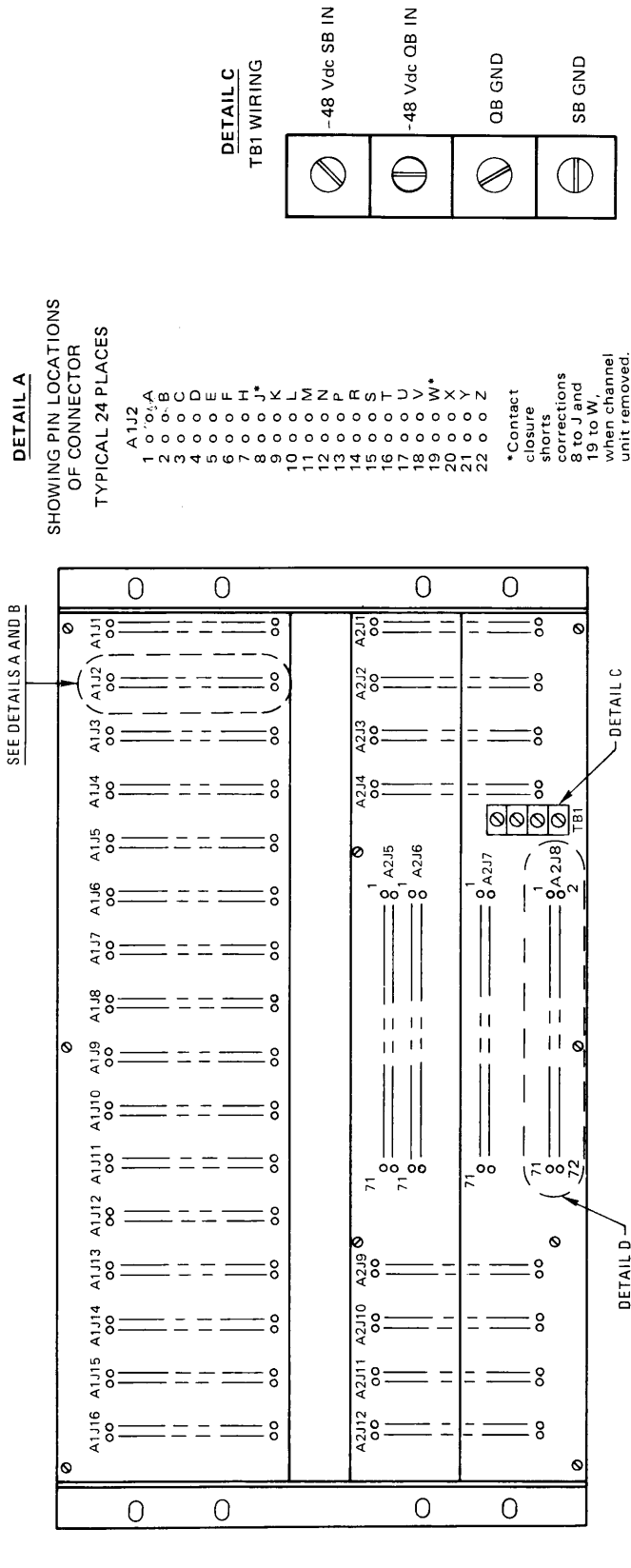
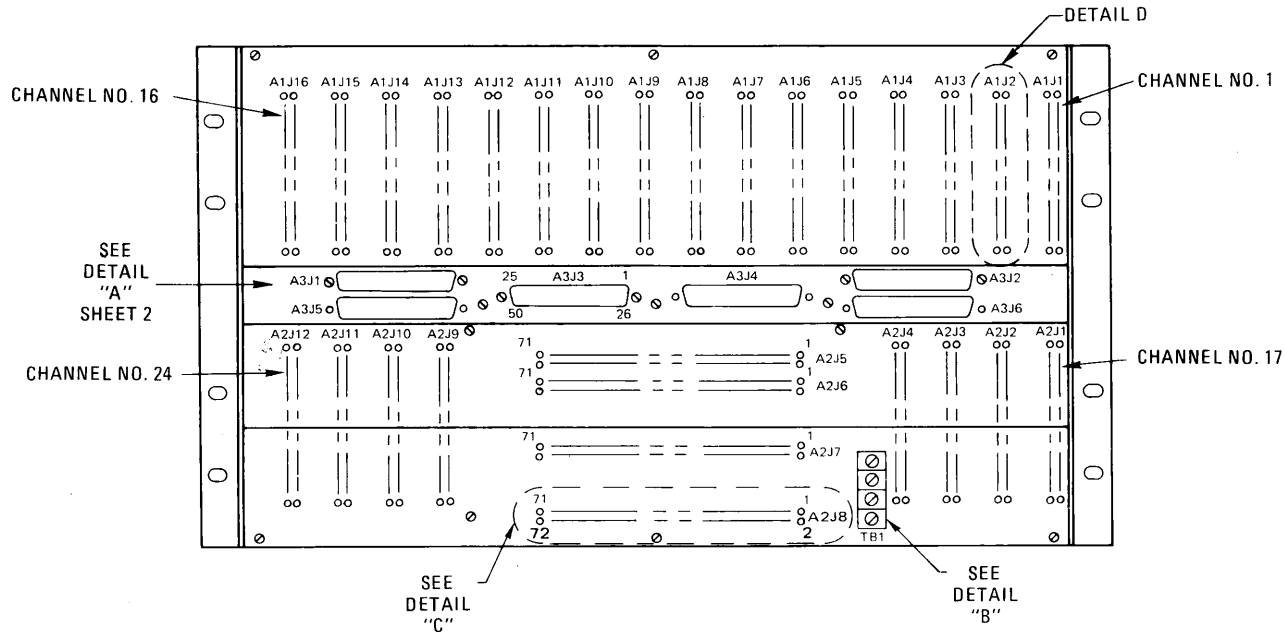


Fig. 1—Wiring Installation (Hard-Wired Model)



**NOTE 1:** Installation of dial pulse originating units (325DP01) requires an additional wire jumper to be added between channel connector pins 21 and Y to supply talk battery to the unit. This jumper should not be used with any other type of channel unit.

**NOTE 2:** Installation of foreign exchange units (325FX01) requires 20-Hertz ringing and ground connections to channel unit connector pins 22 and 14, respectively, on any one channel unit.

**DETAIL D**

SHOWING PIN LOCATIONS  
OF CONNECTOR  
TYPICAL 24 PLACES

A1J2	
1	o o A
2	o o B
3	o o C
4	o o D
5	o o E
6	o o F
7	o o H
8	o o J*
9	o o K
10	o o L
11	o o M
12	o o N
13	o o P
14	o o R
15	o o S
16	o o T
17	o o U
18	o o V
19	o o W*
20	o o X
21	o o Y
22	o o Z

\*Contact closure shorts corrections 8 to J and 19 to W, when channel unit removed.

**DETAIL C**  
ALARM AND POWER UNIT  
CONNECTIONS

CONNECTOR A2J8	LEAD DESIGNATION
31	DSX1 Receive (Hi)
33	DSX1 Receive (Lo)
11	SHIELD GND
42	DSX1 Transmit (Hi)
44	DSX1 Transmit (Lo)
13	SHIELD GND
56	DSX1 All Ones (Hi)
58	DSX1 All Ones (Lo)
62	Visual Alarm N.C.
64	Visual Alarm Common
66	Visual Alarm N.O.
68	Audible Alarm N.C.
70	Audible Alarm Common
72	Audible Alarm N.O.

**DETAIL B**

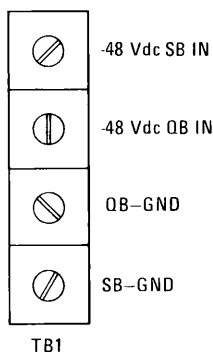


Fig. 2—Wiring Installation (Plug-In Model) (1 of 2 Sheets)

T-R

WIRING LIST				
DESIGNATOR	FROM		TO	
	CONNECTOR	PIN NO	CONNECTOR	PIN NO
T	A3J1	26	A1J1	T
R	A3J1	1	A1J1	U
T	A3J1	27	A1J2	T
R	A3J1	2	A1J2	U
T	A3J1	28	A1J3	T
R	A3J1	3	A1J3	U
T	A3J1	29	A1J4	T
R	A3J1	4	A1J4	U
T	A3J1	30	A1J5	T
R	A3J1	5	A1J5	U
T	A3J1	31	A1J6	T
R	A3J1	6	A1J6	U
T	A3J1	32	A1J7	T
R	A3J1	7	A1J7	U
T	A3J1	33	A1J8	T
R	A3J1	8	A1J8	U
T	A3J1	34	A1J9	T
R	A3J1	9	A1J9	U
T	A3J1	35	A1J10	T
R	A3J1	10	A1J10	U
T	A3J1	36	A1J11	T
R	A3J1	11	A1J11	U
T	A3J1	37	A1J12	T
R	A3J1	12	A1J12	U
T	A3J1	38	A1J13	T
R	A3J1	13	A1J13	U
T	A3J1	39	A1J14	T
R	A3J1	14	A1J14	U
T	A3J1	40	A1J15	T
R	A3J1	15	A1J15	U
T	A3J1	41	A1J16	T
R	A3J1	16	A1J16	U
T	A3J1	42	A2J1	T
R	A3J1	17	A2J1	U
T	A3J1	43	A2J2	T
R	A3J1	18	A2J2	U
T	A3J1	44	A2J3	T
R	A3J1	19	A2J3	U
T	A3J1	45	A2J4	T
R	A3J1	20	A2J4	U
T	A3J1	46	A2J9	T
R	A3J1	21	A2J9	U
T	A3J1	47	A2J10	T
R	A3J1	22	A2J10	U
T	A3J1	48	A2J11	T
R	A3J1	23	A2J11	U
T	A3J1	49	A2J12	T
R	A3J1	24	A2J12	U
		50		
		25		

A-B

WIRING LIST				
DESIGNATOR	FROM		TO	
	CONNECTOR	PIN NO	CONNECTOR	PIN NO
TI	A3J2	26	A1J1	R
RI	A3J2	1	A1J1	S
TI	A3J2	27	A1J2	R
RI	A3J2	2	A1J2	S
TI	A3J2	28	A1J3	R
RI	A3J2	3	A1J3	S
TI	A3J2	29	A1J4	R
RI	A3J2	4	A1J4	S
TI	A3J2	30	A1J5	R
RI	A3J2	5	A1J5	S
TI	A3J2	31	A1J6	R
RI	A3J2	6	A1J6	S
TI	A3J2	32	A1J7	R
RI	A3J2	7	A1J7	S
TI	A3J2	33	A1J8	R
RI	A3J2	8	A1J8	S
TI	A3J2	34	A1J9	R
RI	A3J2	9	A1J9	S
TI	A3J2	35	A1J10	R
RI	A3J2	10	A1J10	S
TI	A3J2	36	A1J11	R
RI	A3J2	11	A1J11	S
TI	A3J2	37	A1J12	R
RI	A3J2	12	A1J12	S
TI	A3J2	38	A1J13	R
RI	A3J2	13	A1J13	S
TI	A3J2	39	A1J14	R
RI	A3J2	14	A1J14	S
TI	A3J2	40	A1J15	R
RI	A3J2	15	A1J15	S
TI	A3J2	41	A1J16	R
RI	A3J2	16	A1J16	S
TI	A3J2	42	A2J1	R
RI	A3J2	17	A2J1	S
TI	A3J2	43	A2J2	R
RI	A3J2	18	A2J2	S
TI	A3J2	44	A2J3	R
RI	A3J2	19	A2J3	S
TI	A3J2	45	A2J4	R
RI	A3J2	20	A2J4	S
TI	A3J2	46	A2J9	R
RI	A3J2	21	A2J9	S
TI	A3J2	47	A2J10	R
RI	A3J2	22	A2J10	S
TI	A3J2	48	A2J11	R
RI	A3J2	23	A2J11	S
TI	A3J2	49	A2J12	R
RI	A3J2	24	A2J12	S
		50		
		25		

E-M

WIRING LIST				
DESIGNATOR	FROM		TO	
	CONNECTOR	PIN NO	CONNECTOR	PIN NO
E	A3J3	26	A1J1	W
M	A3J3	1	A1J1	Y
E	A3J3	27	A1J2	W
M	A3J3	2	A1J2	Y
E	A3J3	28	A1J3	W
M	A3J3	3	A1J3	Y
E	A3J3	29	A1J4	W
M	A3J3	4	A1J4	Y
E	A3J3	30	A1J5	W
M	A3J3	5	A1J5	Y
E	A3J3	31	A1J6	W
M	A3J3	6	A1J6	Y
E	A3J3	32	A1J7	W
M	A3J3	7	A1J7	Y
E	A3J3	33	A1J8	W
M	A3J3	8	A1J8	Y
E	A3J3	34	A1J9	W
M	A3J3	9	A1J9	Y
E	A3J3	35	A1J10	W
M	A3J3	10	A1J10	Y
E	A3J3	36	A1J11	W
M	A3J3	11	A1J11	Y
E	A3J3	37	A1J12	W
M	A3J3	12	A1J12	Y
E	A3J3	38	A1J13	W
M	A3J3	13	A1J13	Y
E	A3J3	39	A1J14	W
M	A3J3	14	A1J14	Y
E	A3J3	40	A1J15	W
M	A3J3	15	A1J15	Y
E	A3J3	41	A1J16	W
M	A3J3	16	A1J16	Y
E	A3J3	42	A2J1	W
M	A3J3	17	A2J1	Y
E	A3J3	43	A2J2	W
M	A3J3	18	A2J2	Y
E	A3J3	44	A2J3	W
M	A3J3	19	A2J3	Y
E	A3J3	45	A2J4	W
M	A3J3	20	A2J4	Y
E	A3J3	46	A2J9	W
M	A3J3	21	A2J9	Y
E	A3J3	47	A2J10	W
M	A3J3	22	A2J10	Y
E	A3J3	48	A2J11	W
M	A3J3	23	A2J11	Y
E	A3J3	49	A2J12	W
M	A3J3	24	A2J12	Y
		50		
		25		

WIRING LIST				
DESIGNATOR	FROM		TO	
	CONNECTOR	PIN NO	CONNECTOR	PIN NO
N1	A3J5	26	A1J1	N
N2	A3J5	1	A1J1	P
N1	A3J5	27	A1J2	N
N2	A3J5	2	A1J2	P
N1	A3J5	28	A1J3	N
N2	A3J5	3	A1J3	P
N1	A3J5	29	A1J4	N
N2	A3J5	4	A1J4	P
N1	A3J5	30	A1J5	N
N2	A3J5	5	A1J5	P
N1	A3J5	31	A1J6	N
N2	A3J5	6	A1J6	P
N1	A3J5	32	A1J7	N
N2	A3J5	7	A1J7	P
N1	A3J5	33	A1J8	N
N2	A3J5	8	A1J8	P
N1	A3J5	34	A1J9	N
N2	A3J5	9	A1J9	P
N1	A3J5	35	A1J10	N
N2	A3J5	10	A1J10	P
N1	A3J5	36	A1J11	N
N2	A3J5	11	A1J11	P
N1	A3J5	37	A1J12	N
N2	A3J5	12	A1J12	P
N1	A3J5	38	A1J13	N
N2	A3J5	13	A1J13	P
N1	A3J5	39	A1J14	N
N2	A3J5	14	A1J14	P
N1	A3J5	40	A1J15	N
N2	A3J5	15	A1J15	P
N1	A3J5	41	A1J16	N
N2	A3J5	16	A1J16	P
N1	A3J5	42	A2J1	N
N2	A3J5	17	A2J1	P
N1	A3J5	43	A2J2	N
N2	A3J5	18	A2J2	P
N1	A3J5	44	A2J3	N
N2	A3J5	19	A2J3	P
N1	A3J5	45	A2J4	N
N2	A3J5	20	A2J4	P
N1	A3J5	46	A2J9	N
N2	A3J5	21	A2J9	P
N1	A3J5	47	A2J10	N
N2	A3J5	22	A2J10	P
N1	A3J5	48	A2J11	N
N2	A3J5	23	A2J11	P
N1	A3J5	49	A2J12	N
N2	A3J5	24	A2J12	P
		50		
		25		

S A3J6

WIRING LIST				
DESIGNATOR	FROM		TO	
	CONNECTOR	PIN NO	CONNECTOR	PIN NO
S	A3J6	26	A1J1	V
E	A3J6	1	A1J1	W
S	A3J6	27	A1J2	V
E	A3J6	2	A1J2	W
S	A3J6	28	A1J3	V
E	A3J6	3	A1J3	W
S	A3J6	29	A1J4	V
E	A3J6	4	A1J4	W
S	A3J6	30	A1J5	V
E	A3J6	5	A1J5	W
S	A3J6	31	A1J6	V
E	A3J6	6	A1J6	W
S	A3J6	32	A1J7	V
E	A3J6	7	A1J7	W
S	A3J6	33	A1J8	V
E	A3J6	8	A1J8	W
S	A3J6	34	A1J9	V
E	A3J6	9	A1J9	W
S	A3J6	35	A1J10	V
E	A3J6	10	A1J10	W
S	A3J6	36	A1J11	V
E	A3J6	11	A1J11	W
S	A3J6	37	A1J12	V
E	A3J6	12	A1J12	W
S	A3J6	38	A1J13	V
E	A3J6	13	A1J13	W
S	A3J6	39	A1J14	V
E	A3J6	14	A1J14	W
S	A3J6	40	A1J15	V
E	A3J6	15	A1J15	W
S	A3J6	41	A1J16	V
E	A3J6	16	A1J16	W
S	A3J6	42	A2J1	V
E	A3J6	17	A2J1	W
S	A3J6	43	A2J2	V
E	A3J6	18	A2J2	W
S	A3J6	44	A2J3	V
E	A3J6	19	A2J3	W
S	A3J6	45	A2J4	V
E	A3J6	20	A2J4	W
S	A3J6	46	A2J9	V
E	A3J6	21	A2J9	W
S	A3J6	47	A2J10	V
E	A3J6	22	A2J10	W
S	A3J6	48	A2J11	V
E	A3J6	23	A2J11	W
S	A3J6	49	A2J12	V
E	A3J6	24	A2J12	W
		50		
		25		

Fig. 2—Wiring Installation (Plug-In Model) (2 of 2 Sheets)

**Note:** At connectorized installations, connectors are prewired for VF and signaling only. Office alarms, hf and power leads are hard-wired.

**6.04** Installer wiring for a connectorized installation consists of connecting hf (in and out) and office alarm circuits to Alarm and Power unit connector A2J8, and making office battery and ground connections (QB and SB) to TB1. These connections are detailed in Fig. 2. Channel unit connections are supplied through channel bank connectors A3J1, A3J2, A3J3, A3J5 and A3J6. See sheet 2 of Fig. 2, and E335 engineering drawings at the end of this section.

**6.05** Channel unit connectors contain two sets of switched (shorting) contacts which complete circuits when the channel unit is removed. One circuit is completed between connector pin J (ground) and connector pin 8. The backplane circuit board completes a circuit between connector pin 8 (which does not make connection on the channel unit circuit board) and connector pin V (S-lead or OS/MB-lead connection). When the channel unit is removed, this circuit provides a grounded S-lead at dial pulse originating channel unit (325DP01) locations or a grounded OS/MB-lead at E&M (325EM01, 325EM02, 325EM03) channel unit locations.

**6.06** The other circuit is completed between connector pin W (E-lead for E&M channel unit locations and ATB-lead for dial pulse originating channel unit locations) and connector pin 19. The channel bank is shipped from the factory with no circuit connections to connector pin 19. This provides an open circuit connection to connector pin W when the channel unit is removed. The installer may wire connector pin 19 to provide for battery or ground on pin W, when the channel unit is removed.

- (a) If an open circuit connection to pin W is required when the channel unit is removed, no circuit changes are necessary.
- (b) If a battery connection to pin W is required when the channel unit is removed, connect jumper wire from connector pin 19 to connector pin Z.

- (c) If a ground connection to pin W is required when the channel unit is removed, connect jumper wire from connector pin 19 to connector pin J.

**6.07** If Alarm and Power unit office alarm outputs are to be connected to inductive loads, the installer should ensure that adequate induced voltage suppression devices are installed in the office circuitry.

**6.08** If installation requirements include hard wiring an office milliwatt supply to the 325TA01 test and alignment panel, make signal wire connections to A2J7-62 and A2J7-66.

## **7. PLUG-IN INSTALLATION AND POWER APPLICATION**

**7.01** Carefully inspect each circuit board unit prior to installation to ensure that option straps are installed in the proper places. Table B defines available strapping options for all applicable units. See Fig. 3 for strap connection locations on the alarm and power unit (325AP01) and the transmit converter (325TC01). Strap connection locations on the channel units are detailed on circuit board.

**7.02** All units are equipped with circuit board extractors mounted to the unit leading edge. In addition the common equipment unit connectors are keyed to mate only with the proper receptacles. To install all units, close the extractor, slide unit into the proper slot and press firmly into the mating connector. If the unit will not seat in the mating connector, remove and inspect for connector misalignment or foreign matter in the track or connector. Do not use undue pressure or pound on the unit to force seating.

**7.03** Install 325AP01 alarm and power unit, 325RC01 receive converter and 325TC01 transmit converter in locations indicated in Fig. 4.

**Caution:** *Fuses F1, F2, and F3, in the alarm and power unit must be pulled, before inserting or removing common equipment units.*

**7.04** At the alarm and power unit, ensure that the LOOP switch is in the looped position



**TABLE B**  
**STRAPPING OPTIONS**

PART NUMBER	UNIT NOMENCLATURE	FUNCTION	STRAP
325AP01 (See Note)	Alarm and Power Unit	12-sec trunk processing.	J – K
		2-sec trunk processing.	J – H
		280-msec local alarm detection.	B – C E – F L – N
		2-sec local alarm detection.	A – B D – E L – M
325DP01	Dial Pulse Originating Channel Unit	Absence of ground searching. Battery searching.	1 – 2 2 – 3
325EM01 325EM02 325EM03	E&M Channel Units (E&M Trunk Types): 1-Way Incoming	E-lead is forced open for alarm duration.	A – B E – F
	1-Way Outgoing or 2-Way Dial Service Calling Party Control	E-lead is forced open at T = 0, and busy (ground or battery) after *T-seconds. (*T = 12-sec nominal, 2-sec optional strapping in alarm and power unit, 325AP01.)	B – C E – D
	2-Way Outgoing Dial Access Incoming Operator Direct	E-lead is forced open at T = 0 for entire alarm. MS (OS) lead is grounded at T = 0 for entire alarm to step idle relay chain CKT.	A – B E – F
	2-Way Service in Common Control Office	E-lead is forced open at T = 0 for entire alarm. MB lead is grounded at T = 0 to make that trunk busy to the common control processor.	A – B E – F
	E-Lead Options	<i>On-Hook</i> <i>Off-Hook</i> Open            GND Open            BAT	H – J H – K

**TABLE B (Cont)**  
**STRAPPING OPTIONS**

PART NUMBER	UNIT NOMENCLATURE	FUNCTION	STRAP
325FX01	Foreign Exchange Channel Units	Ground Start (D2)*  Ground Start (D3)*  Loop Start (D2)*  Loop Start (D3)*  <i>Ring Generator</i> Loops > 600 Ohms Loops < 600 Ohms	B – A E – D  B – C E – H  B – A E – F  B – C E – F  J – K K – L
325FX02	Foreign Exchange Channel Units	Ground Start (D2)*  Ground Start (D3)*  Loop Start (D2)*  Loop Start (D3)*	B – A E – D  B – C E – H  B – A E – F  B – C E – F
325TA01	Test and Alignment Panel	Internal Amplifier (1 kHz IN) Operational  Internal Amplifier (1 kHz IN) Bypassed	J – H N – M  J – K L – M
325TC01 (See Note)	Transmit Converter	Local Transmit Timing.  Slave transmit clock to received data. Required for No. 4 ESS and other electronic-type offices.	A – B  B – C
325VF01	Voice Frequency (No Signaling)	To be supplied.	

\*(D2) and (D3) reference denotes foreign exchange channel unit signaling format **NOT** channel bank type.

**Note:** Alarm and power unit (325AP01), transmit converter (325TC01), and receive converter (325RC01) contain a number of straps marked "test." These test straps are **not** option straps. **Strap clips should not be removed in the field.**

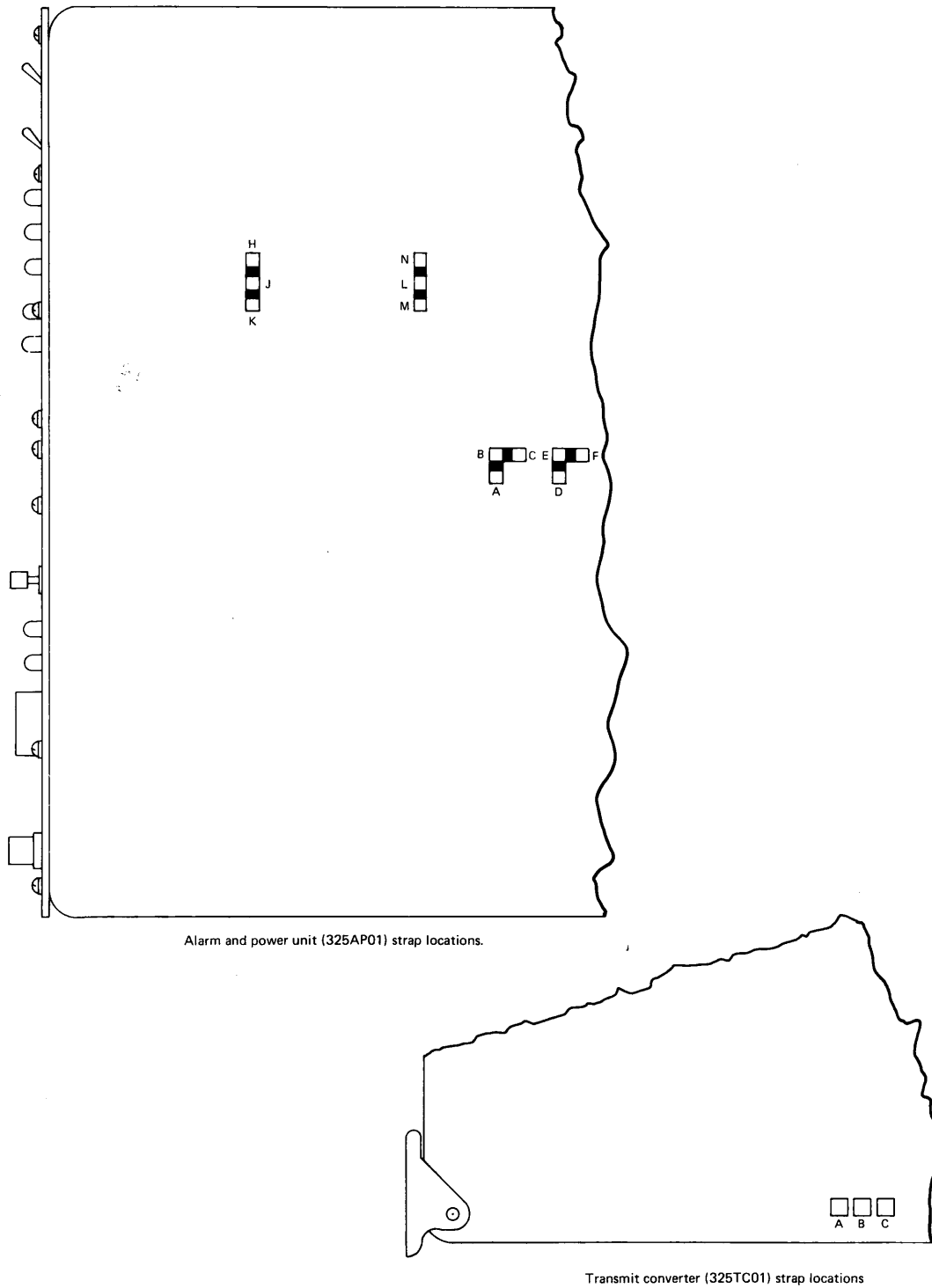


Fig. 3—Strapping Connections

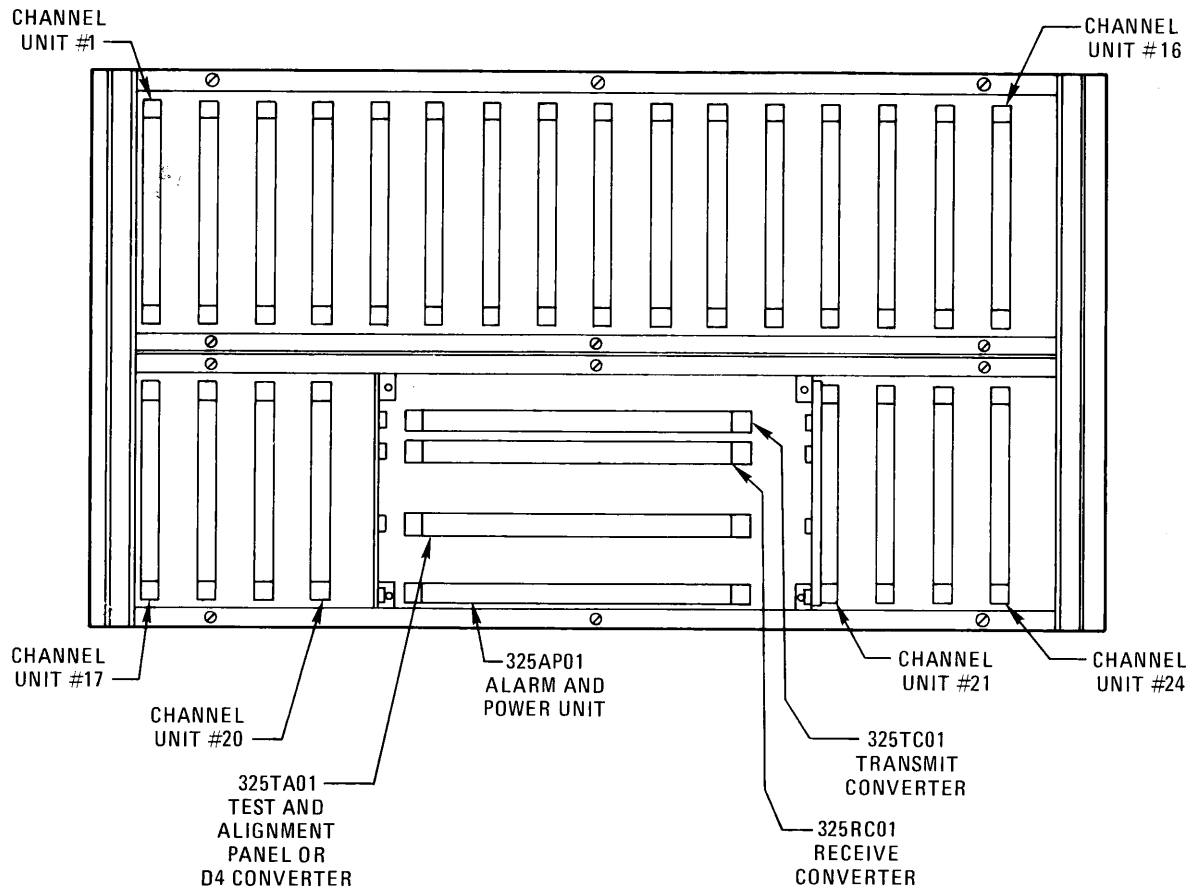


Fig. 4—Component Locations

(IN), and that DSG and SHIFT switches are in OFF position. Install fuses F1, F2, and F3.

**7.05** Apply electrical power to the channel bank and observe the following indications.

*Note:* There is a 4 to 5 second start-up delay built into the 325AP01. During this delay period, the FUSE/PWR FAIL indicator should be ON.

(a) Observe that FUSE/PWR FAIL indicator comes on for approximately 5 seconds when electrical power is applied.

(b) Alarm and power unit fuses F1, F2, and F3 do not fail. If any fuse fails, remove electrical power and make checks indicated below.

(1) If F1 (TB supply) fails, check channel unit connector wiring for shorts or improper talk battery jumper wire installation.

(2) If F2 (main power supply) fails or FUSE/PWR FAIL indicator remains on for more than 10 seconds, check connector wiring for shorts, then remove 325-TC01 and 325RC01, replace fuse and apply electrical power. If fault condition remains, replace alarm and power unit.

(3) If F3 (SB supply) fails, check channel unit connector wiring for shorts.

(c) Alarm and power unit LOOP and CGA/ALARM indicators are on. All other indicators are off.

(d) Visual and audible office alarms are energized.

**7.06** Momentarily press ACO switch. Observe that office alarms are de-energized and ACO indicator comes on.

**7.07** Connect voltmeter to 325TC01 transmit converter voltage monitor test jacks and check for voltage levels indicated below. If voltages are not correct, check office supply input (QB) for -44 to -56 volts.

TEST JACKS	VOLTAGE
Ground (BLK) and +5V (Yellow)	4.75V to 5.25V
Ground (BLK) and +12V (Red)	10V to 13V
Ground (BLK) and -12V (Blue)	-10V to -13V

**7.08** Externally loop the channel bank. If automatic span switching is employed, disable for this test. On the 325AP01 restore the loop switch to the normal position (OUT). The loop indicator should go out and the *RE*Mote indicator should come on for 10 to 12 seconds, at which time *all* indicators should extinguish. This indicates the system has completely restored and is in normal operation. Remove the external loop. The *LOC*al and CGA/ALARM indicator should come on.

*Caution: If foreign exchange channel units (325FX01 or 325FX02) are to be installed, ensure that channel unit test switch (located at rear of circuit board) is in NORMAL (UP) position.*

**7.09** Install 24 channel units into the slots provided. Match channel unit type to channel number, according to the work order. If necessary, see Fig. 4 for channel locations.

**7.10** Press in to latch all channel unit BUSY switches and observe that all channel unit BUSY indicators come on.

## 8. LOOPED MODE TESTS AND ADJUSTMENTS

**8.01** The following paragraphs provide instructions for testing and adjusting each channel unit transmit/receive levels, checking idle channel noise levels, checking individual channel unit signal distortion and measuring interchannel crosstalk with the channel bank in the looped mode. Test circuit connections and test instructions assume use of an external test oscillator and a HP 3555B transmission and noise measuring set. If a hard-wired office milliwatt is used as a tone signal source, disregard external test oscillator connection instructions. If a HP 3555B transmission and noise measuring set is not available, use alternate noise measuring test set for measurements.

**8.02** Channel unit BUSY switches perform several functions, one of which is to condition the channel unit for VF lineup. The procedures of this section require measurements to be made at channel unit test jacks with the BUSY switch latched in (BUSY). If any VF testing is to be performed at the jack field, the BUSY switch must be left out (NORMAL). This requires that loop signaling channel units (e.g., dial pulse originate) must be seized at the test point, in order to set up a VF path in the channel for testing.

**8.03** During initial installation, the procedures are performed "in sequence," as they are presented, with each test/adjustment result entered on the Certification Sheet shown in Fig. 5. During troubleshooting, any test may be performed individually to verify a particular channel unit integrity.

## TEST OSCILLATOR ADJUSTMENT

**8.04** All tests, excepting idle channel noise, require a distortion-free signal from a test oscillator. The following steps provide instructions for adjusting and testing an external test oscillator or hard-wired office milliwatt. One of these procedures must be performed prior to connecting the tone signal for the first test.

### A. External Test Oscillator

**8.05** The following steps provide instructions for adjusting the test oscillator frequency and amplitude, and for measuring the noise content of its output signal. Ensure that 325TA01 test and alignment panel is strapped **J** to **K** and **L** to **M** (internal amplifier bypassed), before performing the following steps. (Refer to Table B.)

- Arrange the test and alignment panel (325-TA01), oscillator and transmission and noise measuring set (TNMS) as shown in Fig. 6. Place test and alignment panel switches in positions indicated.
- Set controls of the TNMS for a 600-ohm terminated level measurement.
- Set the test oscillator frequency control at 1 kHz.
- Adjust level control of the test oscillator for a reading of 0 dBm on the level meter of the TNMS.

**Note 1:** Due to losses in the test and alignment panel, the oscillator may be required to supply as much as +1.5 dB, in order for the level meter of the noise measuring test set to read 0 dBm.

**Note 2:** Step (e) through (j) of this procedure determines whether the test oscillator is suitable to use in the signal distortion tests.

- Change test oscillator input to the RCV test jack on the test and alignment panel.
- Change TNMS connection to TEST OUT jack on the test and alignment panel.
- On test and alignment panel, place DISTORTION switch in the on position (UP).
- Adjust TNMS for a noise measurement through C-message weighting filters.
- Slightly tune the oscillator frequency, until a null (low dip) is produced in the noise reading.

**Note:** Null indicates that oscillator frequency corresponds to the stopband of the filter in the test and alignment panel.

**Caution:** If the meter reads more than 32 dBrnC, the oscillator is not suitable to perform the tests that follow.

- Observe meter on the TNMS. Meter should read less than 32 dBrnC.
- Disconnect test setup.

### B. Hard-Wired Office Milliwatt

**8.06** The following steps provide instructions for adjusting the tone generator amplitude and checking the noise content of its output signal. Ensure that 325TA01 test and alignment panel is strapped **J** to **H** and **N** to **M**, before performing the following steps. (Refer to Table B.)

- Connect a transmission and noise measuring set TNMS to the XMT jack of the test and alignment panel (325TA01).

LOOPED B325 CHANNEL TESTS																							
RECEIVED AT (OFFICE): _____												RECEIVED AT (OFFICE): _____											
CHAN NO.	CHANNEL TYPE	2W/4W	GAIN ADJUSTMENT		IDLE CHANNEL NOISE	DISTORTION				INTERCHANNEL CROSSTALK		CHAN NO.	CHANNEL TYPE	2W/4W	GAIN ADJUSTMENT		IDLE CHANNEL NOISE	DISTORTION				INTERCHANNEL CROSSTALK	
			RCV	XMT		0 dB	10 dB	20 dB	30 dB	INTER-FERING CHANNEL I	INTER-FERING CHANNEL II				RCV	XMT		0 dB	10 dB	20 dB	30 dB	INTER-FERING CHANNEL I	INTER-FERING CHANNEL II
1												1											
2												2											
3												3											
4												4											
5												5											
6												6											
7												7											
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23												23											
24												24											

Fig. 5—Certification Form

- (b) Place 325TA01 switches in positions indicated below.

CROSSTALK—OFF (down)

DISTORTION—ON (up)

ATTENUATION—All switches OUT

2TLP—OUT

RCV 900/600 ohms—600 ohms

XMT 900/600 ohms—600 ohms

XMT 4W/2W—2W

- (c) Set controls of TNMS for a 600-ohm terminated level measurement.
- (d) Adjust 325TA01 GAIN (screwdriver adjustment) for a reading of 0 dBm on the TNMS level meter.
- (e) Change TNMS connection from 325TA01 XMT jack to 325TA01 TEST OUT jack.
- (f) Connect a patch cord from 325TA01 XMT jack to 325TA01 RCV jack.
- (g) Adjust TNMS for a 600-ohm terminated noise measurement through C-message weighting filters.

**Caution:** If the meter indicates more than 32 dBrnC, the oscillator is not suitable to perform the tests that follow.

- (h) Observe that TNMS level indication is less than 32 dBrnC.
- (i) Disconnect test setup.

#### LOOPED CHANNEL RECEIVE/TRANSMIT LEVEL ADJUSTMENTS

**Note:** Channel bank must be operational (no alarm indications in looped mode) to perform following procedures.

- 8.07** In the following steps, each channel unit RCV potentiometer is adjusted using the channel bank internal digital signal generator as a

reference source. After all RCV adjustments have been made, the XMT potentiometers are adjusted using a 1-kHz 0-dBm external test signal as a reference source. Upon completion of this procedure, accuracy should be good enough to allow end-to-end turnup with Bell D3, without further adjustment.

#### **8.08** Perform receive adjustments as follows:

- (a) Ensure test oscillator output has been adjusted, according to the procedures of Paragraph 8.04.
- (b) At each channel unit, press BUSY switch in to latch. BUSY indicators will come on.
- (c) On 325AP01 alarm and power unit, press LOOP switch in to latch and place the SHIFT and DSG switches in the ON position.

**Note:** REM indicator will come on when DSG switch is placed to the ON position. This is a normal condition and does not indicate a malfunctioning system.

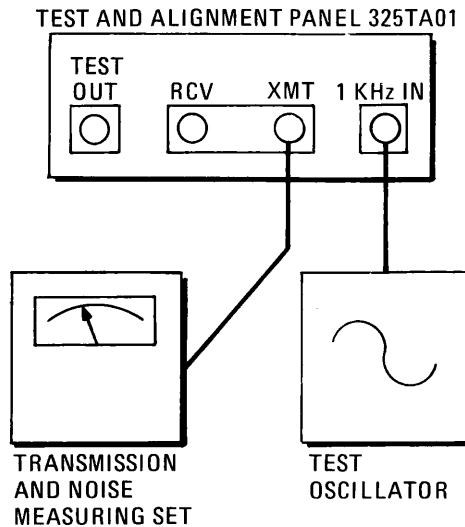
- (d) Connect test circuit as shown in Fig. 7 for channel unit (1 through 24) to be adjusted. See Fig. 8 for channel unit test jack and adjustment locations.
- (e) Adjust transmission and noise measuring set (TNMS) for a transmission level measurement at 600 or 900 ohms terminated, depending on channel unit type.

**Caution:** During RCV or XMT level adjustment, inadvertent shorting of channel unit circuitry could cause equipment damage. Use nonmetallic or insulated screwdriver to make adjustments.

- (f) Adjust channel unit RCV potentiometer until TNMS indicates nominal value in Table C. Record final indication on Certification Sheet (Fig. 5).

**Note:** Particular use requirements may dictate RCV level adjustment to other than nominal value.

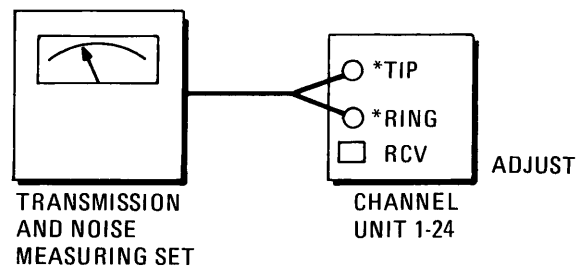
- (g) Repeat Step (c) through (f), until all channel units have been adjusted.
- (h) Disconnect test circuit.



#### 325TA01 INITAIL SWITCH SETTINGS

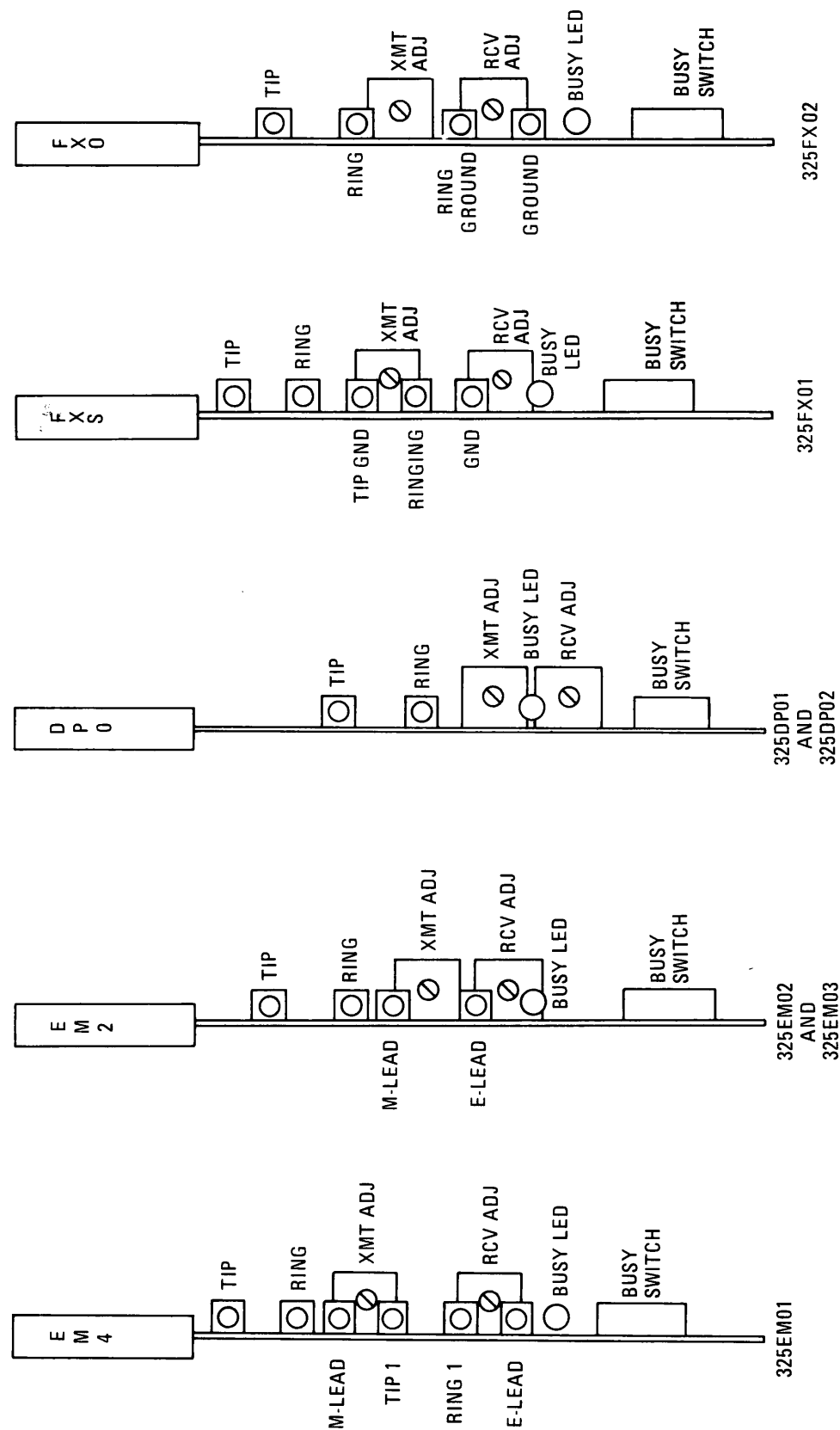
CROSSTALK—	OFF (DOWN)
DISTORTION—	OFF (DOWN)
ATTENUATION—	ALL SWITCHES OUT
2TLP—	OUT
RCV 900/600Ω —	600Ω
XMT 900/600Ω —	600Ω
XMT 4W/2W—	2W

Fig. 6—Test Oscillator Adjustment Test Hookup



\*Make connections to TIP-1 and RING-1 jacks on 4-wire channel units.

Fig. 7—Looped RCV Gain Adjust Test Hookup



NOTE 1: Tip and ring test jacks are colored red and E-lead and M-lead test jacks are colored green.  
NOTE 2: 325VF01 test jack and adjustment locations to be supplied.

Fig. 8—Test Jack and Adjustment Locations

**TABLE C**  
**CHANNEL UNIT GAIN ADJUSTMENT DATA**

CHANNEL UNIT TYPE	RECEIVE ADJUSTMENT		TRANSMIT ADJUSTMENT	
	RANGE	NOMINAL	RANGE	NOMINAL
2-WIRE UNITS 325EM02, 325EM03, 325DP01, 325DP02, 325FX01, 325FX02	0 dBm to -6.5 dBm	-2 dBm	-3 dBm to +3 dBm	0 dBm
4-WIRE UNITS 325EM01	+4 dBm to +10 dBm	+7 dBm	-13 dBm to -19 dBm	-16 dBm
325VF01	To be Supplied		To be Supplied	

**8.09** Perform transmit adjustments as follows:

(a) On 325AP01 alarm and power unit, place DSG switch to the OFF position and ensure SHIFT switch is in the ON position.

(b) Position switches on 325TA01 test and alignment panel and connect test circuit as shown in Fig. 9 for channel unit to be adjusted.

**Note:** In the shifted loop mode the receive VF is displaced by 8 positions such that signals applied to Channel 1 are received at Channel 9, and Channel 2 to Channel 10, etc. Make transmit and receive channel unit connections according to the table provided in Fig. 7.

(c) Adjust channel unit XMT potentiometer, until TNMS indicates same value as that recorded in Paragraph 8.08, Step (f). Record final indication on Certification Sheet (Fig. 5).

(d) Repeat Step (b) and (c) until all channel units have been adjusted.

**Note:** Do not disturb test oscillator adjustments if further tests are to be made.

(e) Disconnect test circuit.

**LOOPED CHANNEL IDLE NOISE TESTS**

**8.10** In the following steps, each channel unit output is checked for noise content with no input signal applied.

**Note:** BUSY switch does not open TIP and RING lines on 325EM01 channel units.

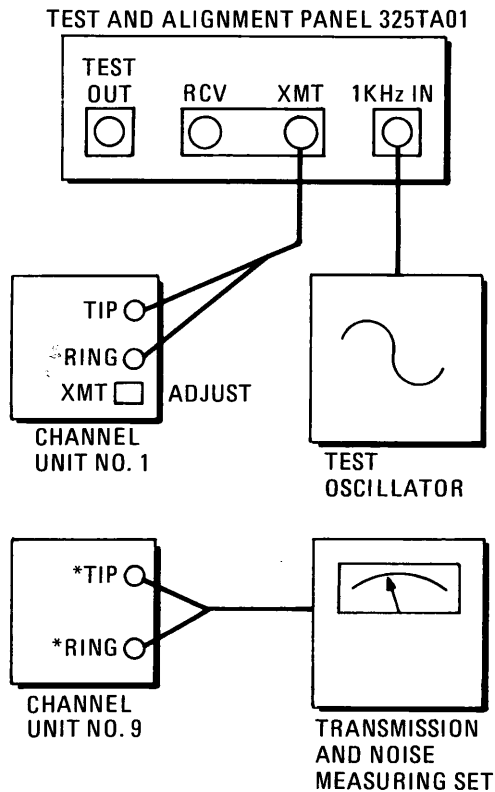
(a) Ensure all channel unit BUSY switches are in (latched) and all BUSY indicators are on. The transmit VF path must be opened for 325-EM01 channel units. This can be done at the jack field.

(b) On the 325AP01 alarm and power unit, ensure that LOOP switch is latched in (loop indicator on), SHIFT switch is ON, and the DSG switch is OFF.

(c) Position switches on 325TA01 test and alignment panel and connect test circuit shown on Fig. 10 for channel unit under test.

**Note:** It may be necessary to place a termination on a 2-wire channel unit at the XMT end of the test channel. Shifted mode XMT mate channel units are shown in the provided table.

(d) Adjust transmission and noise measuring set (TNMS) for a 600-ohm terminated noise measurement through C-message weighting filters.



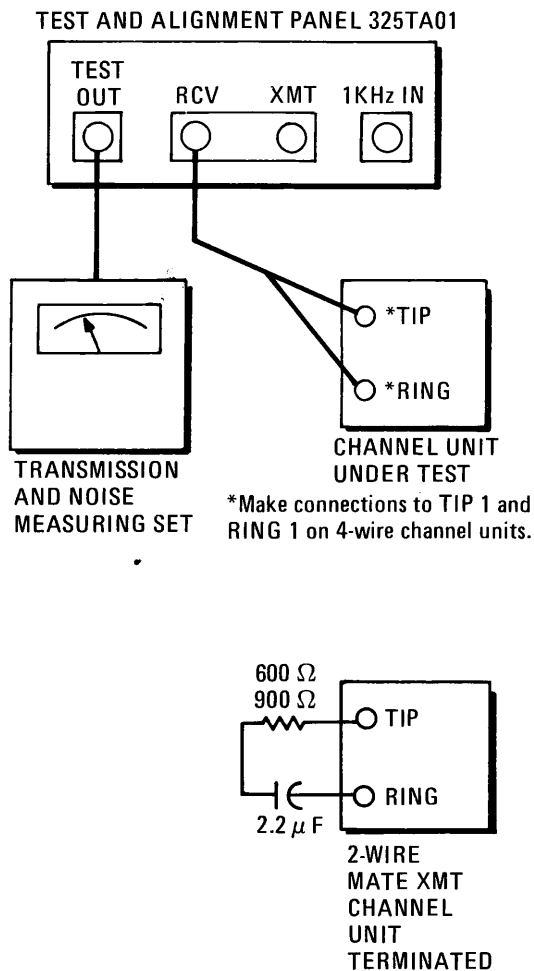
\*Make connections to TIP 1 and RING 1 jacks on 4-wire channel units.

MATE CHANNEL UNITS IN SHIFTED LOOP MODE	
XMT	RCV
1	9
2	10
3	11
4	12
5	13
6	14
7	15
8	16
9	17
10	18
11	19
12	20
13	21
14	22
15	23
16	24
17	1
18	2
19	3
20	4
21	5
22	6
23	7
24	8

**325TA01 INITIAL SWITCH SETTINGS**

CROSSTALK—	N/A (Not part of test circuit)
DISTORTION—	N/A (Not part of test circuit)
ATTENUATION—	All switches OUT
2TLP—	IN for 2TLP offices
RCV 900/600Ω —	N/A (Not part of test circuit)
XMT 900/600Ω —	600Ω for 325EM01, 325EM02, and 325VF01 channel units; 900Ω for 325EM03, 325DP01, 325DP02, 325FX01, and 325FX02 channel units.
XMT 4W/2W—	4W for 325EM01 and 325VF01 channel units. All others 2W.

Fig. 9—Looped XMT Gain Adjust Test Hookup



MATE CHANNEL UNITS IN SHIFTED LOOP MODE	
XMT	RCV
1	9
2	10
3	11
4	12
5	13
6	14
7	15
8	16
9	17
10	18
11	19
12	20
13	21
14	22
15	23
16	24
17	1
18	2
19	3
20	4
21	5
22	6
23	7
24	8

325TA01 INITIAL SWITCH SETTINGS

CROSSTALK—	OFF (DOWN)
DISTORTIONS—	OFF (DOWN)
ATTENUATION—	N/A (Not part of test circuit)
2TLP—	OUT
RCV 900/600Ω —	600Ω for 325EM01, 325EM02, and 325VF01 channel units; 900Ω for 325EM03, 325DP01, 325DP02, 325FX01, and 325FX02 channel units.
XMT 900/600Ω —	N/A (Not part of test circuit)
XMT 4W/2W—	N/A (Not part of test circuit)

Fig. 10—Looped Idle Channel Noise Test Hookup

- (e) Indication on TNMS *must not* exceed applicable idle noise limit of Table D. Record indication on Certification Sheet (Fig. 5).
- (f) Repeat Step (c) through (e) for each remaining channel unit.
- (g) Disconnect test circuit.

**Note:** BUSY switch does not open TIP and RING lines on 325EM01 channel units.

- (a) Ensure all channel unit BUSY switches are in (latched) and all BUSY indicators are on. The transmit VF path must be opened on 325-EM01 channel units. This can be done at the jack field.

## LOOPED CHANNEL DISTORTION TESTS

**8.11** In the following steps, each channel unit is checked for excessive distortion by transmitting a 1-kHz fundamental frequency through the transmit and receive sections of the channel bank. The product is then applied to a blocking filter in the test and alignment panel, which removes the original tone, leaving only distortion (noise) quantities to be read on the transmission and noise measurement set.

- (b) On the 325AP01 alarm and power unit, ensure that LOOP switch is latched in (loop indicator on). Place DSG switch to the OFF position, and SHIFT switch to the ON position.

- (c) Ensure test oscillator output has been adjusted, according to the procedures of Paragraph 8.04.

**TABLE D**  
**MAXIMUM TEST LIMITS**

CHANNEL UNIT TYPE*	IDLE NOISE	DISTORTION				CROSSTALK	
		0 dB	10 dB	20 dB	30 dB	I	II
2-Wire Units  325DP01 325DP02 325EM02 325EM03 325FX01 325FX02	19.7 dBrnC	46 dBrnC	36 dBrnC	26 dBrnC	16 dBrnC	18.4 dBrnC	14.4 dBrnC
4-Wire Units  325EM01 325VF01	28.7 dBrnC	55 dBrnC	45 dBrnC	35 dBrnC	25 dBrnC	27.4 dBrnC	23.4 dBrnC

\*Refers to receive channel unit (connected to RCV jack on test and alignment unit).

**Note:**

- (1) If 2-wire units are aligned for receive levels other than -2 TLP, the noise reading shown above must be corrected. For example, a -3 channel must meet noise levels 1 dB lower than shown in this table.
- (2) Values listed in this table are corrected for insertion loss in test and alignment unit.

- (d) Position switches on 325TA01 test and alignment panel and connect test circuit as shown in Fig. 11 for channel unit to be tested. See Fig. 8 for channel unit test jack locations.

**Note:** In the shifted loop mode, the receive VF is displaced 8 positions such that signals applied to Channel 1 are received at Channel 9, and Channel 2 at Channel 10, etc. Make transmit and receive channel connections according to the table provided in Fig. 11.

- (e) Adjust transmission and noise measuring set (TNMS) for a 600-ohm terminated noise measurement, through C-message weighting filters.
- (f) On 325TA01 test and alignment panel, place DISTORTION switch to the ON position. TNMS indication must not exceed applicable 0-dB distortion limit of Table D. Record indication on Certification Sheet (Fig. 5).
- (g) Press in to latch 10-dB ATTENUATION switch. TNMS indication must not exceed applicable 10-dB distortion limit of Table D. Record indication on Certification Sheet (Fig. 5).
- (h) Release 10-dB ATTENUATION switch and press in to latch 20-dB ATTENUATION switch. TNMS indication must not exceed applicable 20-dB distortion limit of Table D. Record indication on Certification Sheet (Fig. 5).
- (i) Release 20-dB ATTENUATION switch and press in to latch 30-dB ATTENUATION switch. TNMS indication must not exceed applicable 30-dB distortion limit of Table D. Record indication on Certification Sheet (Fig. 5).
- (j) Repeat Step (d) through (i) for each remaining channel unit.
- (k) Disconnect test circuit.

## LOOPED INTERCHANNEL CROSSTALK TESTS

**8.12** Interchannel crosstalk (adjacent channel interference) noise is measured by transmitting a standard test signal sequentially to the two channels which operate immediately before the channel under test. The test channel is monitored through a bandpass filter during each of these transmissions to detect stray components of the test signal.

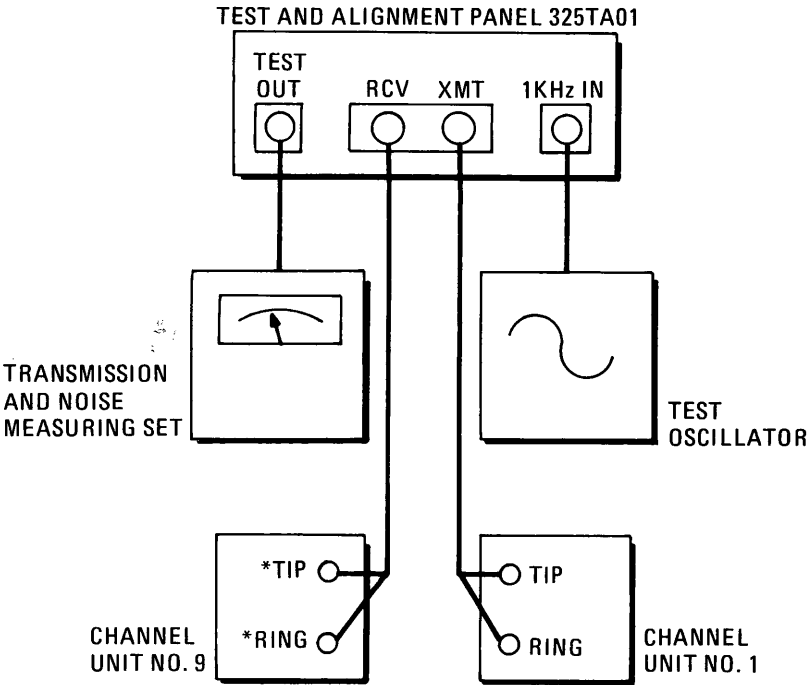
**8.13** The crosstalk test for each channel unit is composed of two separate checks. As an example: to test Channel 1 for crosstalk interference, a test signal is first transmitted from channel unit 16 to channel unit 24 while channel unit 1 is monitored for noise. This is the first (I) sequentially adjacent interfering channel test, and the highest noise level should be expected. In the following check, a test signal is transmitted from channel unit 15 to channel unit 23 while channel unit 1 is monitored for noise from its second (II) adjacent interfering channel. A lower noise level should be expected here.

**8.14** In each test configuration (see Fig. 12), there are two test related channel units which may cause erroneous test results if they are 2-wire types and not properly terminated. In the looped and shifted mode, channel unit 17 becomes the normal XMT source for channel unit 1 and any noise generated at the drop side (due to an unterminated condition) is transmitted through the channel bank and applied to the TNMS causing an erroneous indication. Channel unit 24 is the shifted mode RCV channel for the test signal applied to channel unit 16. An unterminated condition at this channel unit may also cause an erroneous TNMS indication. Channel units which are listed in the RELATED CHANNEL UNITS (I or II) columns of the table in Fig. 13 should be terminated to their characteristic impedance if they are 2-wire units.

**8.15** To test interchannel crosstalk, perform the following steps:

**Note:** BUSY switch does not open TIP and RING lines on 325EM01 channel units.

- (a) Ensure that all channel BUSY switches are in (latched) and all BUSY indicators are on. The transmit VF path must be opened on 325-EM01 channel units. This can be done at the jack field.
- (b) On the 325AP01 alarm and power unit, ensure that LOOP switch is latched in (LOOP indicator ON), SHIFT switch is ON, and DSG switch is OFF.
- (c) Ensure that test oscillator output has been adjusted according to the procedures described in 8.04.
- (d) Position switches on 325TA01 test and alignment panel as shown in Fig. 13.



\*Make connections to TIP 1 and RING 1 on 4-wire channel units.

MATE CHANNEL UNITS IN SHIFTED LOOP MODE	
XMT	RCV
1	9
2	10
3	11
4	12
5	13
6	14
7	15
8	16
9	17
10	18
11	19
12	20
13	21
14	22
15	23
16	24
17	1
18	2
19	3
20	4
21	5
22	6
23	7
24	8

**325TA01 INITIAL SWITCH SETTINGS**

CROSSTALK—	OFF (DOWN)
DISTORTION—	OFF (DOWN)
ATTENUATION—	ALL SWITCHES OUT
2TLP—	OUT
RCV 900/600Ω —	600Ω for EM01, EM02, and VF01 CHANNEL UNITS. 900Ω for EM03, DP01, DP02, FX01, and FX02 CHANNEL UNITS. 4W for EM01 and VF01 CHANNEL UNITS: ALL OTHERS 2W.
XMT 900/600Ω —	
XMT 4W/2W—	

Fig. 11—Looped Distortion Test Hookup

- (e) Connect TEST CHANNEL unit (shown in table provided) to RCV jack of test and alignment panel.
- (f) Connect INTERFERING CHANNEL unit for TEST I (shown in table provided) to XMT jack of test and alignment panel.
- (g) Terminate channel units listed in the RELATED CHANNEL UNITS I column of the table if they are 2-wire units.
- (h) Adjust transmission and noise measuring set (TNMS) for a 600-ohm terminated noise measurement, through C-message weighting filters. TNMS indication must not exceed applicable CROSSTALK I limit of Table D. Record indication on Certification Sheet (Fig. 5).
- (i) Change termination from 2-wire channel units listed in the RELATED CHANNEL UNITS I column to channel units in the RELATED CHANNEL UNITS II column of the provided table.
- (j) Change XMT patch cable to INTERFERING CHANNEL UNIT II shown in the table. TNMS indication must not exceed applicable CROSSTALK II limit of Table D. Record indication on Certification Sheet (Fig. 5).
- (k) Repeat steps (d) through (i) for each channel unit listed in the TEST CHANNEL column of the table.

## 9. ENGINEERING DRAWINGS

**9.01** The engineering drawings listed in Table E are located at the end of this section in the sequence indicated.

**TABLE E**  
**APPLICABLE DRAWINGS**

DRAWING NUMBER	ISSUE	SHEET(S)	DRAWING TITLE
E335-01	2	1	B325 Wired Bay Details
E335-02	1	1	B325 With Jackfield-Wired Bay Details
E335-03	1	3	B325 With 1 x 5 Span Switching Wired Bay Details
7A3366-01	2	1	Cable Assembly
7A3370-01	2	1	Cable, Conn S. E. F. 25 Pair Assembly (B325)

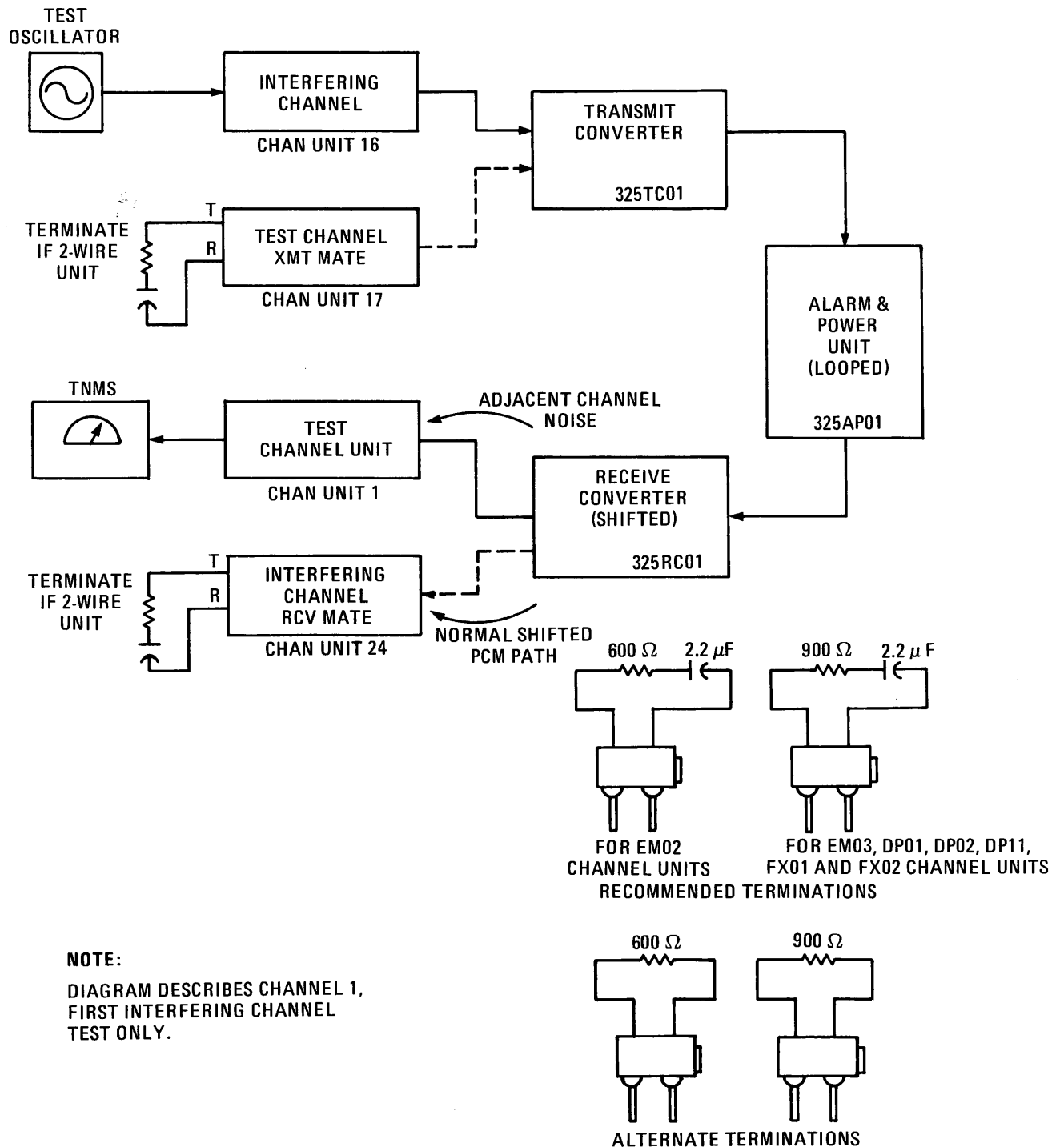
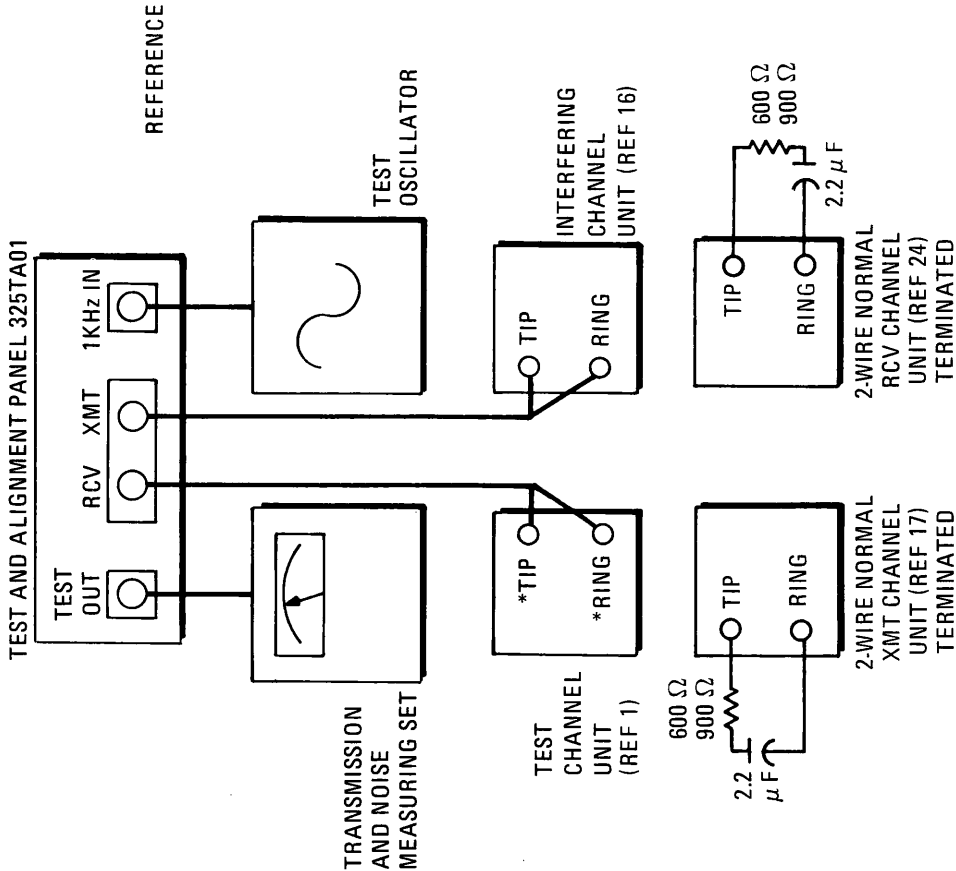


Fig. 12—Crosstalk Test Analysis Block Diagram

TEST CHANNEL (RCV Jack)	INTERFERING CHANNEL (XMT Jack)		RELATED CHANNEL UNITS (Terminate If 2-Wire)
	I	II	
1	16	15	17, 23
2	17	16	18, 1
3	18	17	19, 2
4	19	18	20, 3
5	20	19	21, 4
6	21	20	22, 5
7	22	21	23, 6
8	23	22	24, 7
9	24	23	1, 8
10	1	24	2, 9
11	2	1	3, 10
12	3	2	4, 11
13	4	3	5, 12
14	5	4	13
15	6	5	7, 14
16	7	6	8, 15
17	8	7	9, 16
18	9	8	10, 17
19	10	9	11, 18
20	11	10	12, 19
21	12	11	13, 20
22	13	12	14, 21
23	14	13	15, 22
24	15	14	16, 23

\*Make connections to TIP I and RING I jacks on 4-wire channel units.

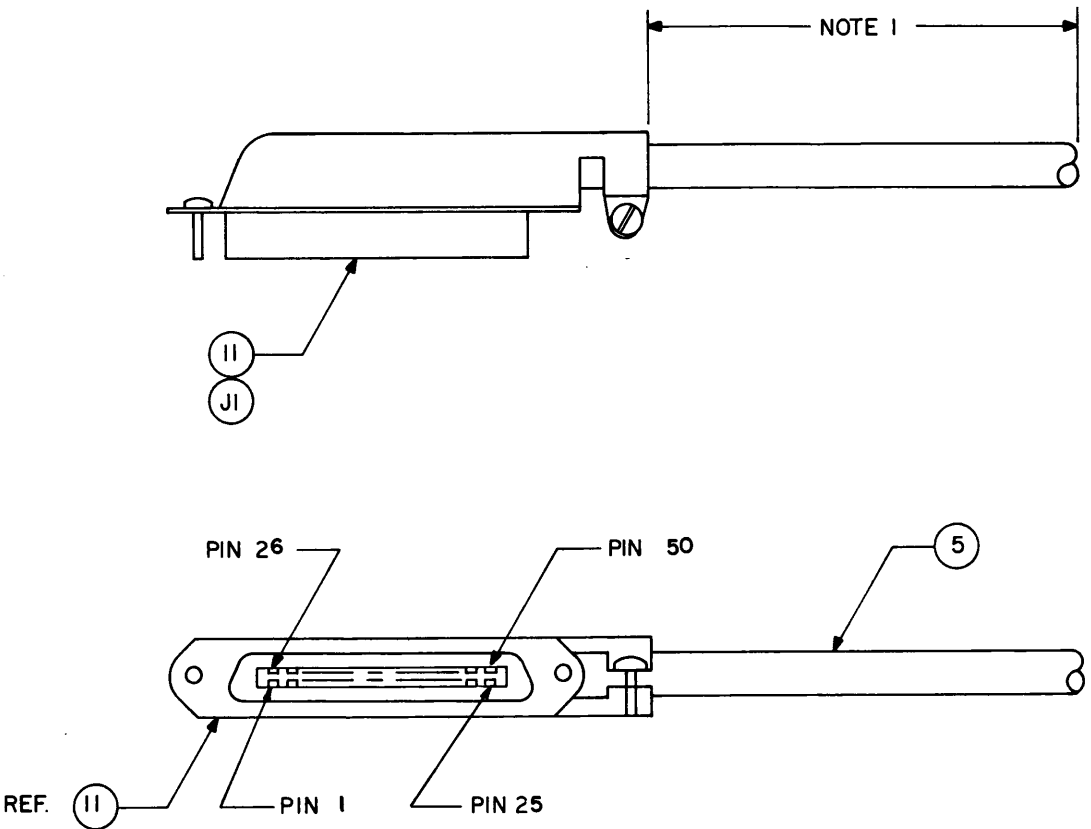


325TA01 INITIAL SWITCH SETTINGS

- CROSSTALK- ON (UP)
- DISTORTION- OFF (DOWN)
- ATTENUATION- ALL SWITCHES OUT
- 2TLP- OUT
- RCV 900/600Ω- 600Ω for EM01, EM02, and VF01 CHANNEL UNITS.
- XMT 900/600Ω- 900Ω for EM03, DP01, DP02, FX01 and FX02 CHANNEL UNITS.
- XMT 4W/2W- 4W for EM01 and VF01 CHANNEL UNITS: ALL OTHERS 2W.

Fig. 13--Looped Interchannel Crosstalk Test Hookup

REVISIONS					
ISSUE	EN NO.	CHG. BY	DESCRIPTION	DATE	APPROVED
1	2004		FINAL RELEASE	3-7-78	WPA
2	21900		REVERSED PIN NUMBERS	2-21-80	WPA



WIRE LIST (NOTE 3 )	
WIRE COLOR CODE	TO
WHT/BLU	PI - 26/1
WHT/ORN	PI - 27/2
WHT/GRN	PI - 28/3
WHT/BRN	PI - 29/4
WHT/SLT	PI - 30/5
RED/BLU	PI - 31/6
RED/ORN	PI - 32/7
RED/GRN	PI - 33/8
RED/BRN	PI - 34/9
RED/SLT	PI - 35/10
BLK/BLU	PI - 36/11
BLK/ORN	PI - 37/12
BLK/GRN	PI - 38/13
BLK/BRN	PI - 39/14
BLK/SLT	PI - 40/15
YEL/BLU	PI - 41/16
YEL/ORN	PI - 42/17
YEL/GRN	PI - 43/18
YEL/BRN	PI - 44/19
YEL/SLT	PI - 45/20
VIO/BLU	PI - 46/21
VIO/ORN	PI - 47/22
VIO/GRN	PI - 48/23
VIO/BRN	PI - 49/24
VIO/SLT	PI - 50/25

- NOTES:
1. LENGTH OF CABLE TO BE SPECIFIED ON SALES ORDER BY CUSTOMER.
  2. THESE CABLE ASSEMBLIES MAY BE USED ON THE 325MA01 ISSUE 2 CABINET FOR EXTENDING VF AND SIGNALING LEADS.
  3. J1= RECEPTAL 26/1 = RECEPTAL PIN NO. 26 AND 1.

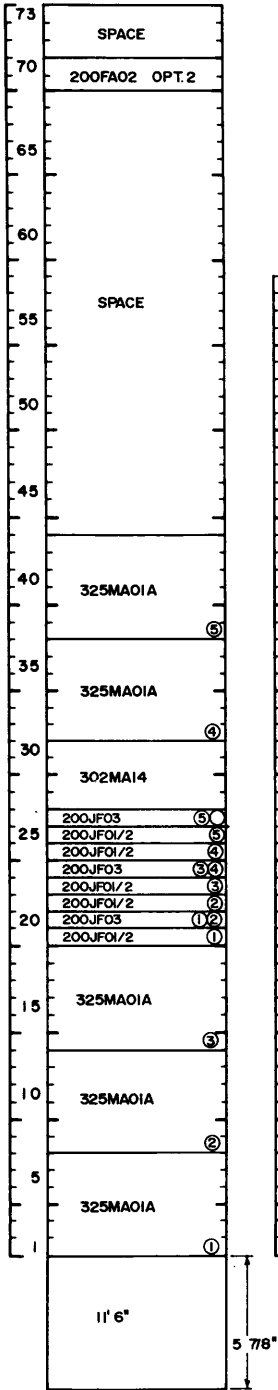
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES IN DECIMALS: X XX XXX ± .010 ± .005 ANGLES: FRACTIONS: ± 1/20 ± 1/64	ORIGINAL DATE OF DRAWING 3-2-78	Lynch COMMUNICATION SYSTEMS INC. 204 Edison Way, Reno, Nevada 89502 (702) 786 4020			
NEXT ASSY	USED ON	DRAWN BY: A.A.	DATE: 3-2-78	TITLE CABLE, CONN S.E.F 25 PR, ASSY. (B325)	
		CHECK BY: WPA	DATE: 3-2-78		
		APPROVED			
MATERIAL 7A3370MLP		DESIGN ACTIVITY APPROVAL:		size C DRAWING NO. 7A3370-01	
FINISH		FINAL APPROVAL: WPA	DATE: 3-2-78	SCALE: NONE P/N 7A3370	
APPLICATIONS		SHEET 1 OF 1		ISSUE 2	



REVISIONS				
ISSUE	EN NO.	DESCRIPTION	DATE	APPROVED
1	22850	FINAL RELEASE	8-8-80	WT

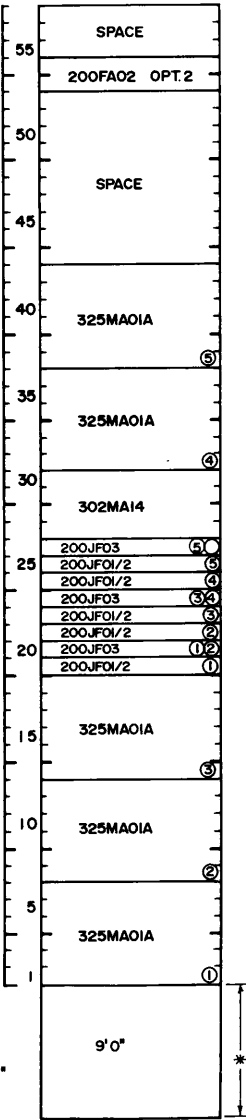
RACK PROFILES

FIG. I.1



5975-0032

FIG. I.2



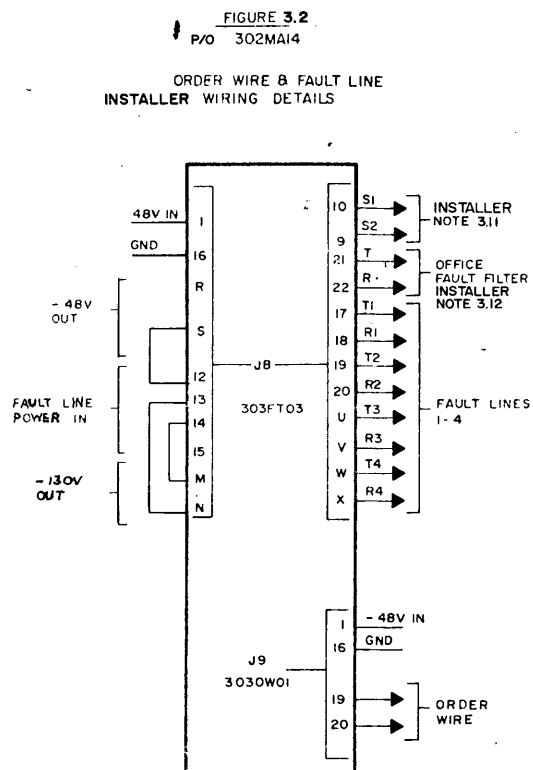
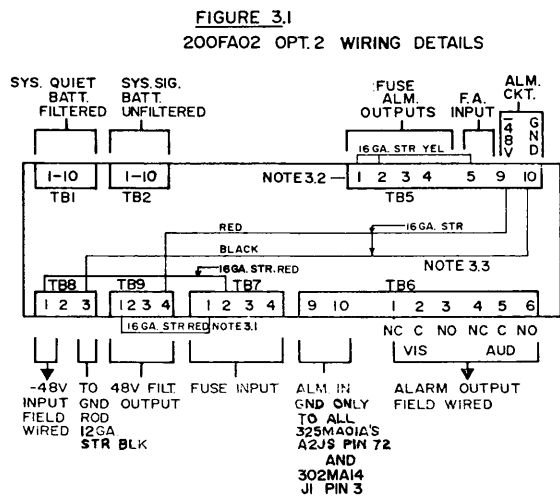
5975-0025 \* 5 7/8"  
5975-0028 \* 6 3/4"

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES IN DECIMALS: X XX XXX ± .010 ± .005 ANGLES 1/2° ± 1/64° FRACTIONS: 1/2 1/4		ORIGINAL DATE OF DRAWING: 7-18-80 DRAWN BY: NORM 7-18-80 CHECKED BY: 7-18-80 APPROVED BY: WT 7/31/80 DESIGN ACTIVITY APPROVAL: FINAL APPROVAL:	LIST OF MATERIALS B325 WITH 1x5 SPAN SWITCHING WIRED BAY DETAILS		
NEXT ASSY USED ON APPLICATIONS		MATERIAL FINISH		SCALE: P/N SHEET 1 OF 3	

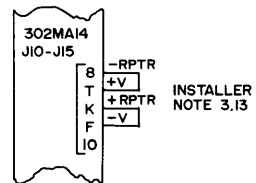
Lynch LYNCH COMMUNICATION SYSTEMS  
204 EDISON WAY, RENO, NEVADA

TITLE: B325 WITH 1x5 SPAN SWITCHING  
WIRED BAY DETAILS  
SIZE: D DRAWING NO.: E335-03  
SHEET 1 OF 3





**FIG. 3.3**  
SPAN POWERING OF OFFICE REPEATERS  
INSTALLER WIRING DETAILS



REVISIONS				
ISSUE	EN NO	DESCRIPTION	DATE	APPROVED

#### NOTES

- 3.1 STRAP TB9 PIN 1 TO TB7 PIN 1 FOR FILTERED BATTERY ON FUSE STRIP A. STRAP TB8 PIN 1 TO TB7 PIN 2 FOR UNFILTERED BATTERY ON FUSE STRIP B.
- 3.2 STRAP TB5 PINS 1,2, & 5 TOGETHER.
- 3.3 STRAP TB5 PIN 9 TO TB9 PIN 4 & STRAP TB8 PIN 3 TO TB5 PIN 10 TO POWER ALARM CKT IN 200FA02.

#### INSTALLER NOTES

- 3.11 PIN 10 OF 303ST...S ARE MULTIPLIED TOGETHER. CONNECT MULTIPLE TO J8 PIN 9 FOR SIDE 2 OR TO J8 PIN 10 FOR SIDE 1. IF NO FAULT FILTER IS USED, GROUND PIN 10 OF OFFICE REPEATERS.
- 3.12 STRAP J8 PIN 21 TO 17, AND 22 TO 18. THIS CONNECTS THE OFFICE FAULT FILTER TO FAULT PAIR # 1.
- 3.13 STRAP 8 TO T AND K TO F ON ALL 303ST10 SLOTS. THIS WILL PUT ALL 303ST10'S IN THE SIMPLEX LOOP POWERED FROM OTHER OFFICE.
- 3.14 FILTERED BATTERY(QB) MAY HAVE TO BE PROVIDED FOR SPAN LINE POWER IN SOME STEP OFFICES WHICH HAVE EXTREMELY HIGH NOISE ON THE CENTRAL OFFICE BATTERIES.

QTY	UNIT OF MEAS.	PART OR IDENTIFYING NO.	DESCRIPTION	REF. DESIG.	NOTES	ITEM NO.

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES IN DECIMALS		ORIGINAL DATE OF DRAWING 7-18-80	LYNCH COMMUNICATION SYSTEMS 204 EDISON WAY, RENO, NEVADA
X XX XXX + .010 ±.005 ANGLES: 1/2° ± 1/64 FRACTIONS:		DRAWN BY: NORM CHECKED BY: [Signature] APPROVED BY: [Signature] DESIGN ACTIVITY APPROVAL:	
MATERIAL		TITLE: B325 WITH 1x5 SPAN SWITCHING WIRED BAY DETAILS	SIZE: D DRAWING NO.: E335-03
NEXT ASSY USED ON		SCALE: P/N SHEET 3 OF 3	ISSUE: 1



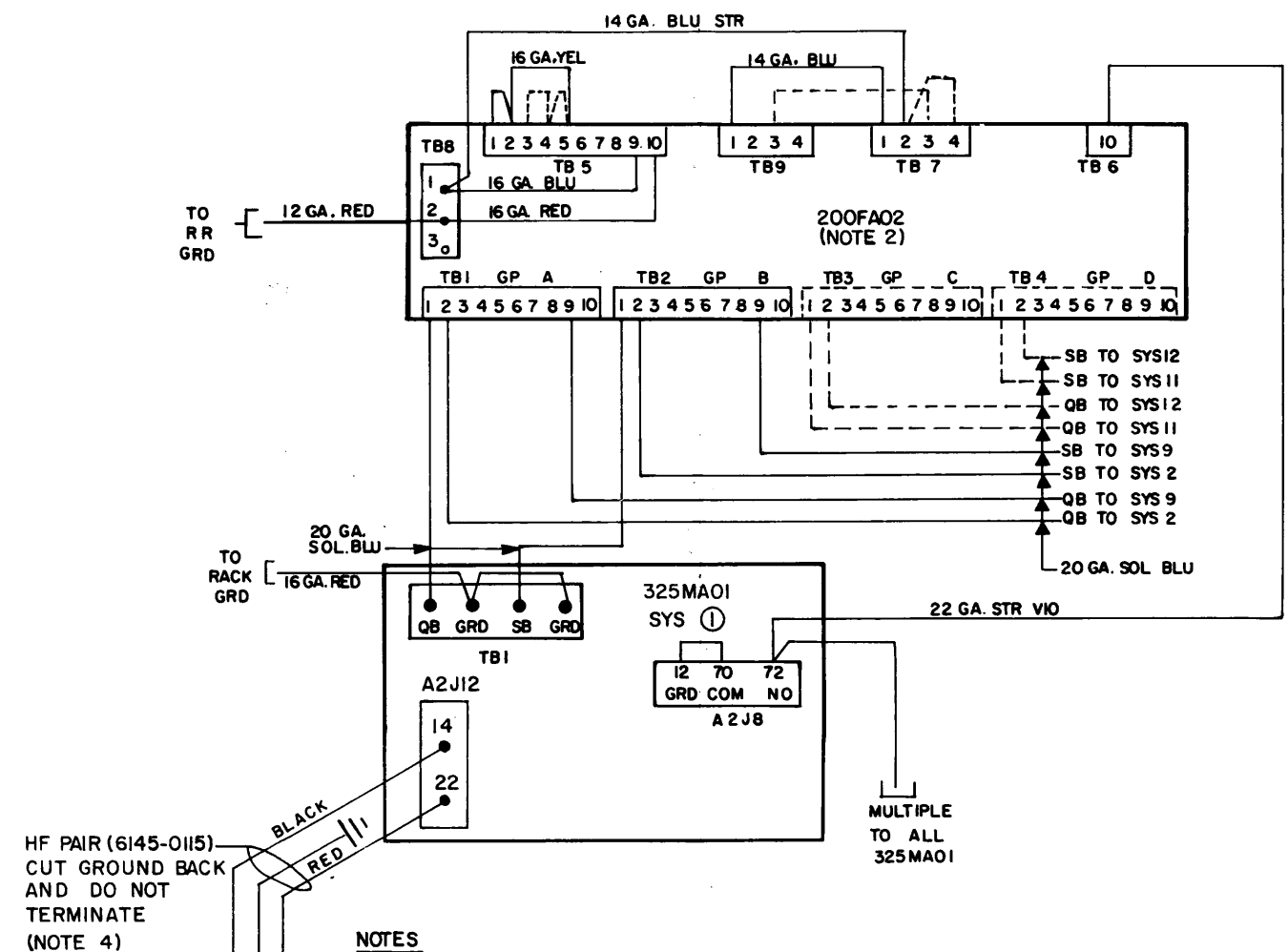
200FA02 OPT. 4

(NOTE 3)  
325MAOI

73  
70  
65  
60  
55  
50  
45  
40  
35  
30  
25  
20  
15  
10  
5  
1

⑫  
⑪  
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⑧  
⑦  
⑥  
⑤  
④  
③  
②  
①

## POWER & ALARM WIRING



1. IN FIG. 1-O, RACK EQUIPMENT STARTING AT TOP MOUNTING SPACE ;  
THE 325MA01 ① CABINET WILL BE MOUNTED WITH ONLY THE TOP  
THREE MOUNTING HOLES BEING USED.
2. OPT. 4 WIRING SHOWN BY DOTTED LINES.
3. OMIT SYS. ② ON 11'-4" RACK AND MOUNT 200FA02 DIRECTLY ABOVE SYS. ①.
4. 20 HZ. RINGING SUPPLY: PIN 14- 20 HZ GROUND, PIN 22- (-48V) 20 HZ RINGING GENERATOR.

		UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES IN DECIMALS: X XX XXX ± .010 ± .005 ANGLES: FRACTIONS: ± 1/20 ± 1/64		ORIGINAL DATE OF DRAWING 1-29-80		<div>Lynch COMMUNICATION SYSTEMS INC. 204 Edison Way, Reno, Nevada 89502 (702) 786-4020</div>				
				DRAWN BY: sjw 1/29/80		TITLE A B 325 WIRED BAY DETAILS				
				CHECK BY: [Signature] 1-29-80						
				APPROVED						
NEXT ASSY	USED ON	MATERIAL	DESIGN ACTIVITY APPROVAL:			size	C	DRAWING NO.	E 335 - 01	ISSUE
APPLICATIONS		FINISH	FINAL APPROVAL:	[Signature] 1-29-80		SCALE:	P/N		2	
						NONE	-		SHEET 1 OF 1	