377C-1A

CHANGE NO. 1

TO

377C-1A

AUTOMATIC EXCITER CONTROL

INSTRUCTION MANUAL

The Instruction Manual for the 377C-1A Automatic Exciter Control is changed as follows. Remove the Old Pages and insert the New Pages. File this Change Notice just after the 377C-1 tab.

NEW PAGE		OLD PAGE	
4-3/4-4	-/C1	4-3/4-4	-/-
4-5/4-6	C1/C1	4-5/Blank	-/-
4-7/Blank	C1/-	Added	

24 September 1984

Continental Electronics Mfg. Co.
4212 South Buckner Blvd.
Dallas, Texas 75227-4299

LIST OF EFFECTIVE CHANGES

CHANGE NO.	DATE	SERIAL NO. AFFECTED
1	24 September 1984	All 377C-1A's

TABLE OF CONTENTS

Paragraph	Title	Page
	SECTION 1 - DESCRIPTION	
1-1.	Purpose of Equipment	1-1
1-2.	Equipment Description	1-1
1-2.1	Physical Description	1-1
1-2.2	Electrical Description	1-1
1-3.	Equipment Supplied	1-5
1-4.	Equipment Required But Not Supplied	1-5
	SECTION 2 - PRINCIPLES OF OPERATION	
2-1.	General	2-1
2-2.	Manual Exciter Selection	2-3
2-3.	Off-Frequency Transfer	2-3
2-4	External Inhibit Function	2-4
2-5.	Manual Override	2-4
2-6.	Exciter Muting Circuits	2-4
2-7.	Remote Control	2-6
2-8.	Outputs	2-6
	SECTION 3 - OPERATIONS	
3-1.	General	3-1
3-2.	Adjustments	3-1
	SECTION 4 - PARTS LIST	
4-1.	General	4-1
4-2.	Symbol	4-1
4-3.	Description	4-1
4-4.	CEC Part Number	4-1
	SECTION 5 - SCHEMATICS & LOCATION DRAWINGS	5-1/5-2

LIST OF ILLUSTRATIONS

1-1.	377C-1A Automatic Exciter Control	1-0
1-2.	377C-1A Automatics Exciter Control, Top View	1-2
1-3.	377C-1A Automatic Exciter Control, Front Inside	1-3
1-4.	Automatic Exciter Control, Inside Rear	1-4
2-1.	377C-1A Automatic Exciter Control, Block Diagram	2-2
2-2.	377C-1A Automatic Exciter Control, Rear View	2-5
2-3.	Simplified Block Diagram	2-9
3-1.	Logic Card	3-3

SECTION 1 - GENERAL DESCRIPTION

1-1. PURPOSE OF EQUIPMENT

The 377C-1A Automatic Exciter Control System provides control, monitoring, and automatic transfer for two 802A FM Broadcast Exciters or similar units. Automatic transfer to a standby exciter occurs in the event of failure of the on-air exciter. Switching action is bidirectional in that two exciters may be used interchangeably.

1-2. EQUIPMENT DESCRIPTION

1-2.1 PHYSICAL DESCRIPTION

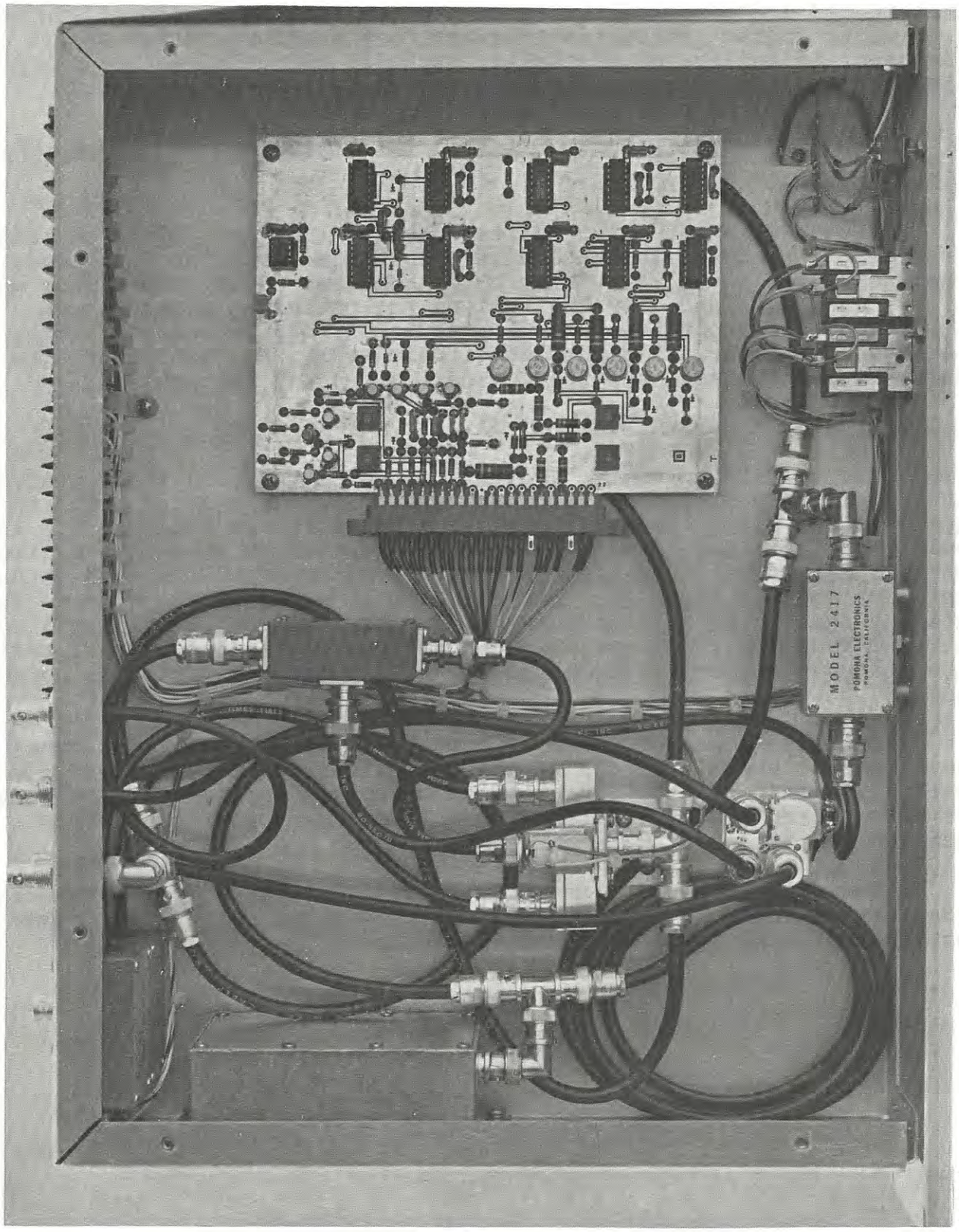
The 377C-1A Automatic Exciter Control (Figure 1-1) is contained in a single rack mounted enclosure with a removable top dust cover. The enclosure is two rack units high, measures 19.00 inches wide and 13.5 inches deep and 3.5 inches high. All operating controls are located on the front panel of the unit. Controls for initial setup are located on an internally mounted circuit board. All connections to the unit are made at the rear panel. See Figures 1-2 through 1-4.

1-2.2 ELECTRICAL DESCRIPTION

The 377C-1A Automatic Exciter Control is a solid-state control and switching system with standard 7400 series integrated circuits employed for all logic functions and coaxial relays employed for RF switching functions Inputs are provided for two FM broadcast exciters One exciter input feeds the RF output of the system, while the other (standby exciter input) is terminated in an external dummy load. The standby exciter is maintained at a low power output, typically 5 to 10 percent of normal. In the event of failure of the operational exciter, the standby exciter is automatically placed into operation at normal power.

The system provides one RF output or two RF outputs of equal amplitude to drive a single RF power amplifier or a pair of RF power amplifiers in parallel, depending on equipment application. An output is also present to provide an RF sample or dummy load output for station monitoring or maintenance purposes.

Power is obtained from a companion 377D-1 or 377D-2 Automatic Transmitter Control: or if one is not present in the system, power is obtained from an optional power supply.



84-0238

KP1-5

Figure 1-2. 377C-1A Automatic Exciter Control, Top View

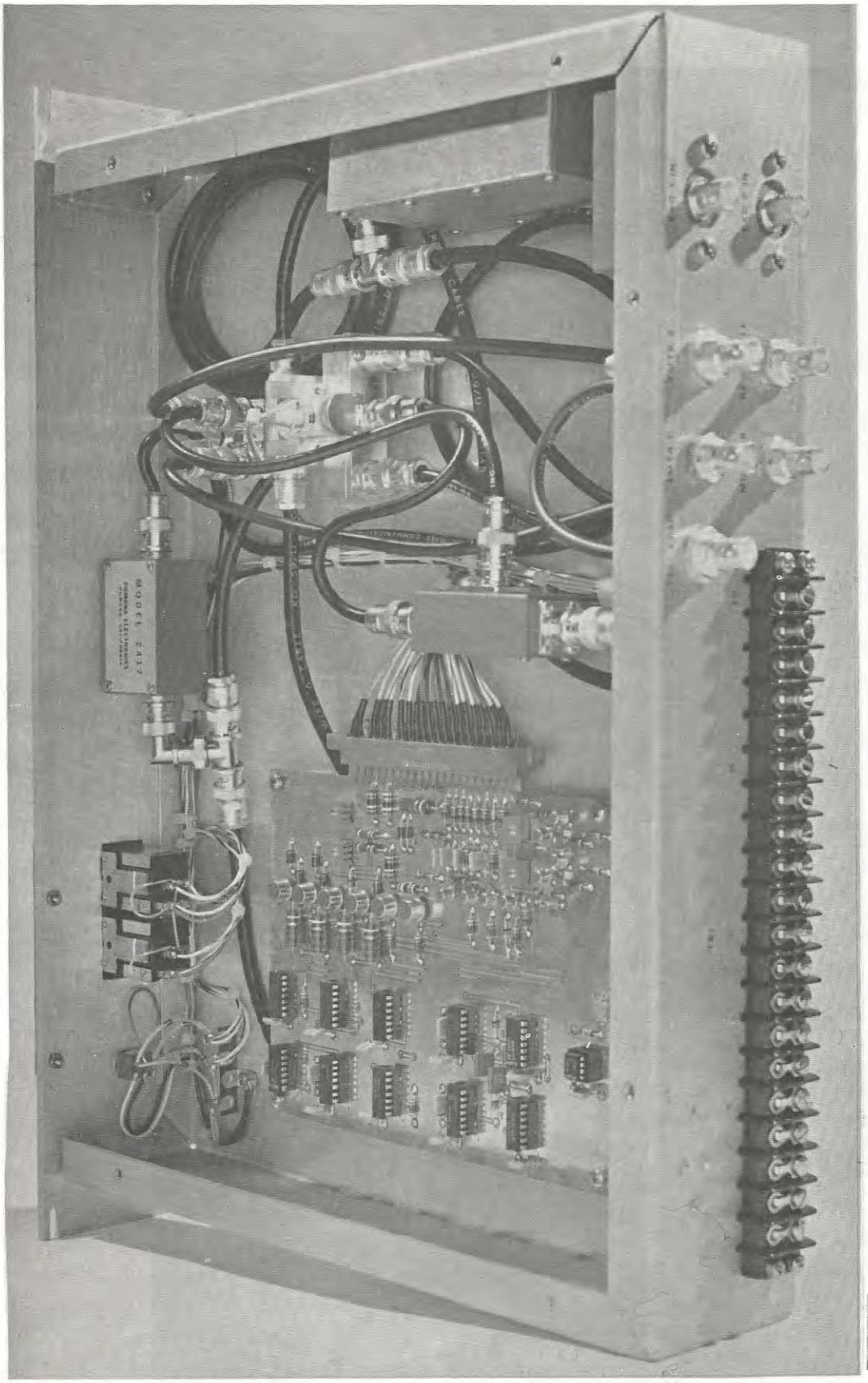
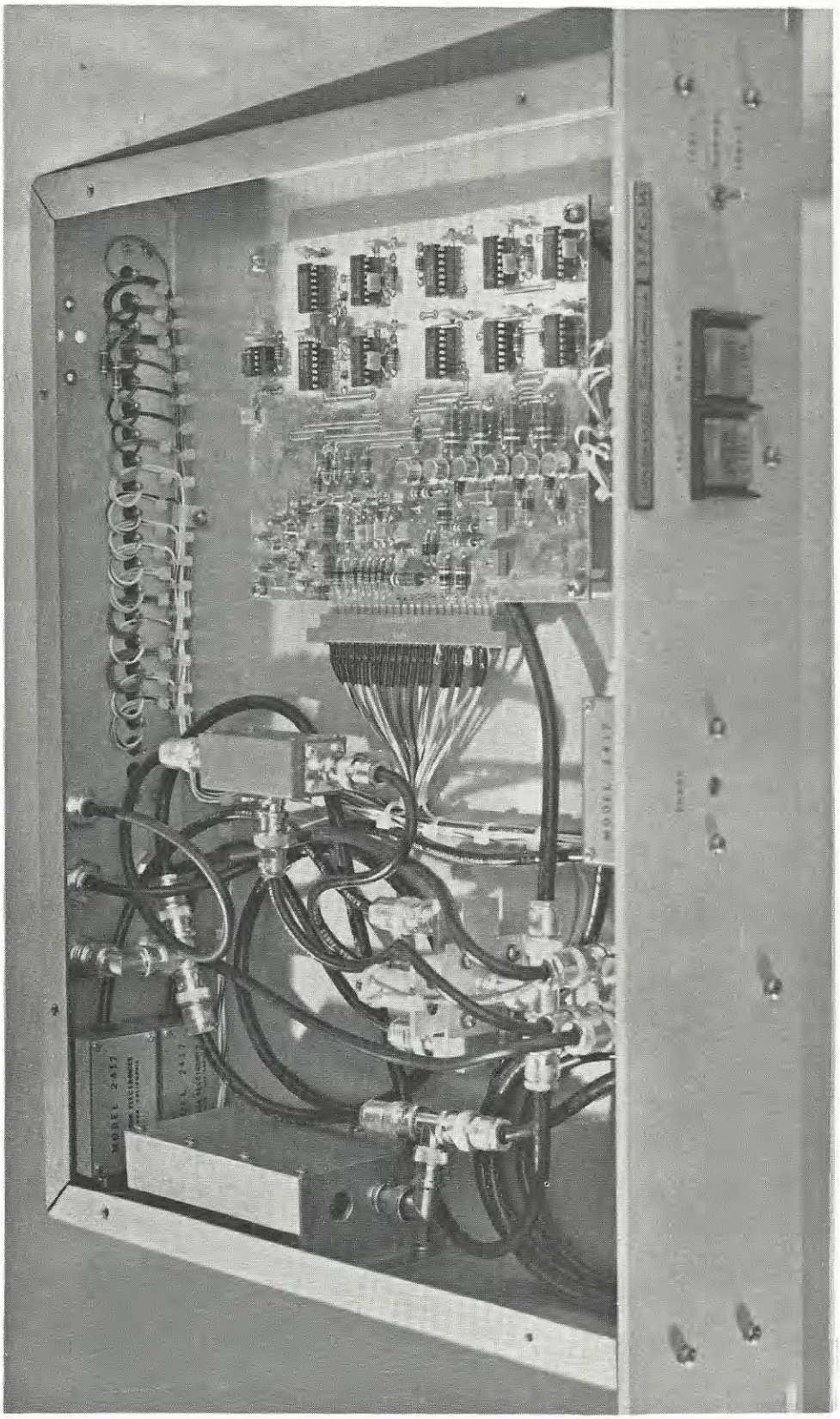


Figure 1-3. 377C-1A Automatic Exciter Control, Front Inside

KP1-4



84-0240

KP1-9

Figure 1-4. Automatic Exciter Control, Inside Rear

1-3. EQUIPMENT SUPPLIED

Table 1-1 lists equipment supplied as part of the 377C-1A Automatic Exciter Control.

1-4. EQUIPMENT REQUIRED BUT NOT SUPPLIED

Table 1-2 lists equipment required but not supplied when unit is purchased separately.

TABLE 1-1. EQUIPMENT SUPPLIED

EQUIPMENT	CEC PART NUMBER
377C-1A Automatic Exciter Control	622-1999-002
External Load	124-9012-010
Cable to Connect to Load	357-9292-000

TABLE 1-2. EQUIPMENT REQUIRED BUT NOT SUPPLIED

EQUIPMENT	QTY	CEC PART NUMBER
BNC Connector	6	
RG-223 Coaxial Cable	As Reqd	425-1002-000
22 AWG Stranded Wire	As Reqd	439-7031-000
Spade Lug	20	304-0414-000

SECTION 2 - PRINCIPLES OF OPERATION

2-1. GENERAL

Refer to Figure 2-1 and Schematic 643-7556-001

The 377C-1A Automatic Exciter Control consists of two RF detectors, a logic card, a dummy load, and a phase shift network. The exciter control provides functions for manual exciter selection, off-frequency transfer, external inhibit, manual override, exciter muting, and remote control. Depending on equipment application, the unit may be furnished with outputs to drive single or parallel transmitters.

The exciter control monitors the outputs of two FM broadcast exciters via DC outputs developed by RF detectors A1 and A2. The DC outputs of the detectors are applied to logic card A6.

Refer to Schematic 643-7556-001

The input from detector A1 is applied to transistor Q1, potentiometer, R3, and transistor Q2. The input from detector A2 is applied to transistor Q3, potentiometer R9, and transistor Q4. Q1 and Q3 serve as low-level sensors to indicate exciter availability. R3 and R9 are used to set the threshold level at which switching action will occur in the event of failure of the on-air exciter.

During normal operation exciter 1 is operating on the air, and exciter 2 is operating at 5 to 10 percent of normal output in the standby mode. Transistors Q1 and Q2 are conducting due to base current supplied by A1 (from exciter 1), and transistor Q3 is conducting due to the base current supplied by A2 (from exciter 2). Transistor Q4 will not conduct because exciter 2 is in the standby mode at reduced power. The outputs of gates U2A and U2D and inverters U3F, U3E, and U3D are high. The output of U3A is low. The outputs of gates U6A and U6B are high. The output of gate U7B is high: U10A is high: U10B is high. The output of gate U7A is low: U10D is high and U1OC is low. Transistor Q11 conducts causing EXC1 OPER lamp to illuminate. The output of gate U2B is high, which U3B inverts, and prevents conduction of transistor Q9. The output of gate U2C is low, which U3C inverts. Transistor Q10 conducts, causing EXC2 STBY lamp to illuminate.

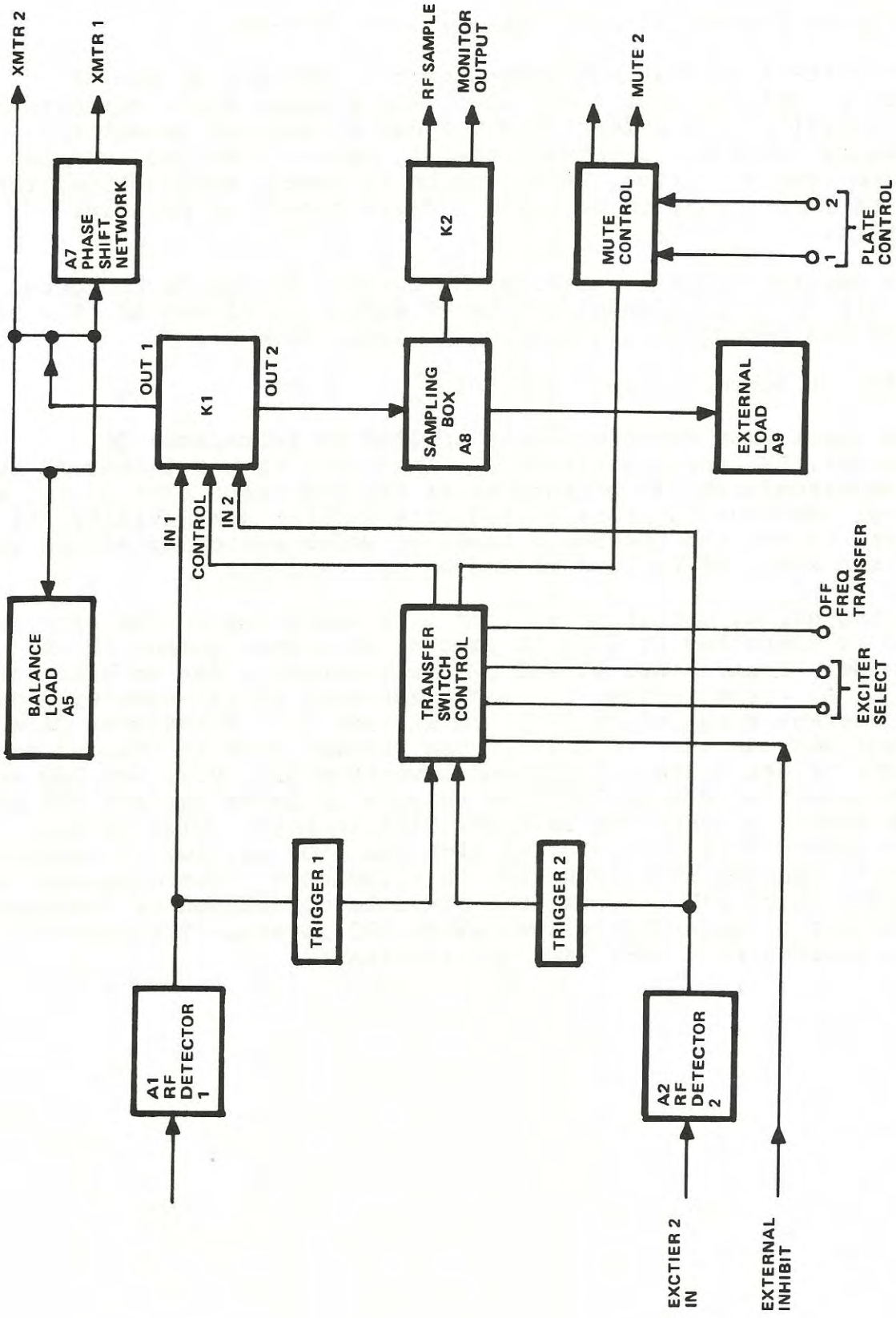


Figure 2-1. 377C-1A Automatic Exciter Control, Block Diagram

Assume a failure in exciter 1. Transistor Q2 drops out of conduction, causing one-shot multivibrator U4 to generate a narrow positive-going pulse. The positive-going pulse is coupled through gate U6B to a binary composed of gates U7A and U7B, causing the outputs of the gates to change states: U7B goes low and U7A goes high. The positive-going pulse is also coupled to one-shot U9 via gate U8A. U9 generates a narrow clock pulse that is applied to gates U10A and U10D. The momentary high at U10A and U10D changes the state of their outputs. U10B goes low, turning off transistor Q11 and the EXC1 OPER lamp goes out. U10C goes high, causing Q12 to conduct and energize relay K1 on the main assembly frame. Exciter 2 is placed on the air and exciter 1 is placed on the dummy load.

With exciter 1 failed, Q1 is no longer conducting, which presents a low input to gate U2A. The other input to U2A, from U1, alternately goes high and low, oscillating at a low rate. The output of U2A follows this oscillation and is coupled to U2B. The other input to U2B is the output from gate U10C, which is now high. The output of U2B follows the oscillating input, alternately energizing and de-energizing transistor Q9, causing the EXC1 STBY lamp to flash, indicating a failure of the exciter. Operation of the failure mode indicator for exciter 2 is similar, utilizing another path.

2-2. MANUAL EXCITER SELECTION

Manual selection of exciters is accomplished by pressing the appropriate EXC1 or EXC2 push-buttons. Pressing the EXC1 push-button activates transistor Q6 and exciter 1 is placed on the air and exciter 2 is placed on the dummy load. Pressing the EXC2 push-button activates Q7: exciter 2 is placed on the air, and exciter 1 is placed on the dummy load. When either push-button is pressed, gate U8A triggers one-shot U9 as described in the automatic mode of operation.

2-3. OFF-FREQUENCY TRANSFER

The exciter control will, if desired, transfer exciters upon receipt of a momentary contact closure from a frequency monitor. A momentary positive-going pulse generated by a contact closure is coupled to transistor Q8. Q8 turns on briefly causing the control input of gates U11A and U11B to go low, which enables a pass-through of the information at their inputs.

Assume exciter 1 is on the air when the off-frequency transfer command from the frequency monitor is received. The input to gate U11A is high, and the U11B input is low. Since U11 is a NOR gate when both inputs are in a low state, the output will be low. The state of U11A is then unchanged: however, the U11B output will go high due to the pressure of one low and one high input. Transistor Q7 is turned on briefly, and a transfer to exciter 2 is initiated.

2-4. EXTERNAL INHIBIT FUNCTION

The external inhibit function provides an external means of disabling operation of the automatic transfer features and muting the outputs of both exciters to a standby condition. A positive 28-volt signal must be applied to TB1-15 for this function. Removal of the voltage restores normal operation.

2-5. MANUAL OVERRIDE

The manual override function is used to disable the automatic transfer circuits while an exciter is in the test mode. Manual override is accomplished with DPDT switch, S3, located on the front panel of the control unit. When S3 is in the TEST 1 position, exciter 1 is selected for test and exciter 2 is selected for on-the-air operation. When S3 is in the TEST 2 position, the reverse is true. When W3 is in either the TEST 1 or TEST 2 position, transistor Q5 on the logic card is turned on, disabling the automatic transfer circuits at U6A and U6B.

2-6. EXCITER MUTING CIRCUITS

The exciter muting outputs provide fixed voltages to control the power output of the associated exciters when the standby mode.

One exciter is normally in the standby mode, and its mute voltage is supplied by potentiometers R46 (exciter 1) or R47 (exciter 2). The operational mute voltage for the standby exciter is derived from the opposite OPER lamp control transistor and its associated collector load resistor. When the transmitter system is in the off or standby mode, transistor Q14 is in a nonconducting state and the mute voltage is supplied to both exciters via resistor R45 for the 28-volt supply. The inputs to transistor Q14 are derived from the plate control circuit of the associated transmitter or transmitters. If two transmitters are used, the control circuit is arranged to supply a ground to both plate control inputs. If only one transmitter is used, then one plate control input is used and the other is externally strapped to ground.

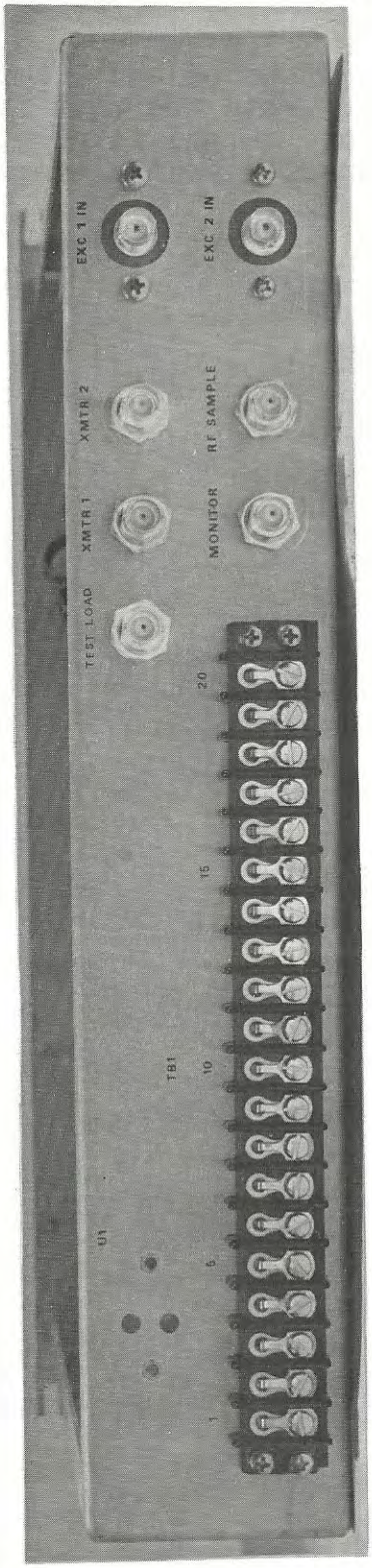


Figure 2-2. 377C-1A Automatic Exciter Control, Rear View

KP1-8

2-7. REMOTE CONTROL

All control functions and indicators are brought out to barrier strip TB1 for remote control. Refer to Table 2-1 for connections.

2-8. OUTPUTS

One output or two outputs of equal amplitude are provided, as determined by application. When the unit is furnished to drive a single transmitter, only one output is provided When the unit is furnished to drive two parallel transmitters, two outputs of equal power are provided.

TABLE 2-1. REMOTE CONTROL CONNECTIONS

TB1 CONNECTlON	FUNCTION
1	+5-volt DC input from associated 377D.
2.	Common ground
3.	+28-volt DC input from associated 377D or +28-volt DC input if an associated 377D is not used.
4.	Common ground
5.	External inhibit (apply +28-volts DC to place in standby mode).
6.	Plate control, transmitter 1 (apply ground when transmitter is on air)
7.	Plate control, transmitter 2 (apply ground when transmitter is on air)
8.	Exciter mute output 1 (connect to TB1-16 of exciter 1)
9.	Exciter mute output 2 (connect to TB1-16 of exciter 2)
10.	Exciter select 1 (apply momentary +28-volts DC to select exciter 1)
11.	Exciter select 2 (apply momentary +28-volts DC to select exciter 2)
12.	Exciter 1 operate tally (referenced to +28-volts DC)
13.	Exciter 2 operate tally (referenced to +18-volts DC)
14.	+28-volts DC
15.	Off-frequency transfer (momentary closure to +28-volts DC for transfer.

TABLE 2-1. REMOTE CONTROL CONNECTIONS (Continued)

TB1 CONNECTION	FUNCTION
16.	+28-volts DC
17.	Exciter 1 standby tally (referenced to +28-volts DC)
18.	Exciter 2 standby tally (referenced to +28-volts DC)

The two outputs are obtained from the output of exciter transfer relay K1, applied to a Ring Hybrid for transmitter isolation which maintains a good (low VSWR) exciter load impedance. The Ring Hybrid is made up of one /4 , one 3 /4 coax 75 ohm line section, plus two /4 75 ohm sections. A dummy load, A5, with capacitor tuning is employed as a reject load. The transformer sections are factory adjusted for the system operating frequency. The output for transmitter 2 is present at J4. The output for transmitter 1 is applied to the phase shifter network, A7. The phase shift network provides phase delay and is adjustable to provide proper phasing of the associated transmitters. Course adjustment is obtained by cutting the associated interconnecting cables to the power amplifier. PHASE adjustment control C1, available at the center of the unit front panel, provides a fine adjustment of +15 degrees. A dummy load located externally is used for the off line exciter.

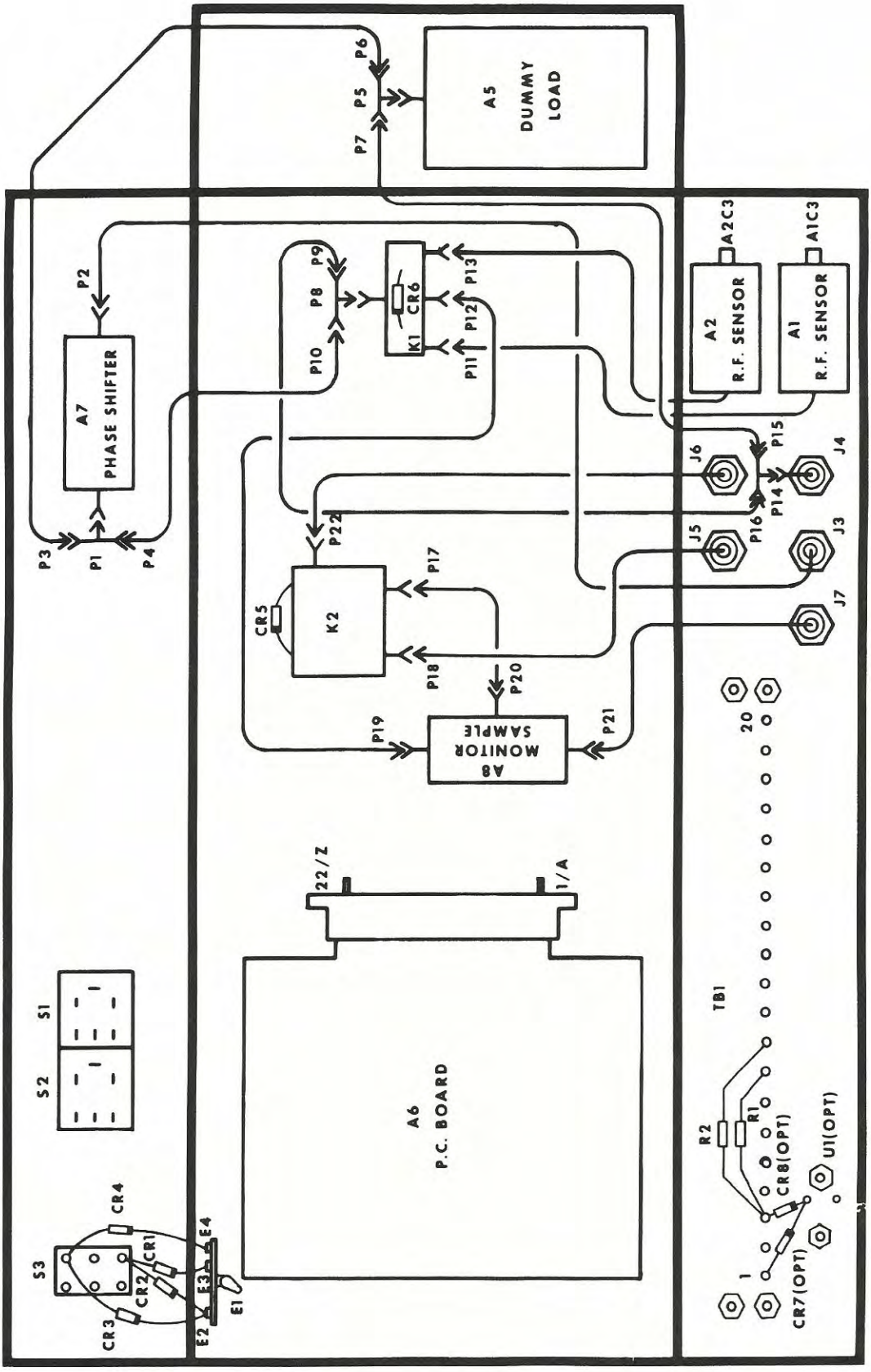


Figure 2-3. Simplified Block Diagram

SECTlON 3 - MAINTENANCE

3-1. GENERAL

Routine maintenance should be limited to periodic inspection and dust removal.

3-2. ADJUSTMENTS

Four controls, located on the logic card, are adjusted for initial setup of the unit.

Remove the top cover and apply power to the system. Perform the following adjustments to place the system into initial operation.

a. Set the TEST switch on the front panel to position TEST 1.
   Exciter #1 - TEST (Standby)
   Exciter #2 - ON AIR

b. On logic card A6, adjust potentiometers R46 and R47 fully counterclockwise.

3. Adjust the associated exciter 2 to provide normal drive to the associated transmitter(s).

d. Set the TEST switch to TEST 2.
   Exciter #1 - ON AIR
   Exciter #2 - Test (Standby)

e. Adjust the associated exciter 1 to provide normal drive to the associated Transmitter(s).

f. Return the TEST switch to NORMAL (Center position).

g. Press the EXC 1 push-button on the front panel.

h. Adjust R47 clockwise until the exciter 2 PA output drops to approximately one-half to one-third of normal indication.

i. Press the EXC 2 push-button.

j. Adjust R46 clockwise until the exciter 1 PA OUTPUT drops to approximately one-half to one-third of normal indication.

k. Adjust power Control knob located on EXC 2 to approximately 50% output (EXC 2 PA OUTPUT METER). This will establish a desired transfer level.

l. Adjust R9 until transfer occurs, EXC 2 should go to Standby and EXC 1 should be in OPERATE.

m. Repeat steps K. and L. several times until adjustment is satisfactory. The EXC 2 push-button must be pressed prior to each repeat of the steps, to restore operation of exciter 2.

n. Press EXC 1 push-button.

o. Adjust POWER ADJUST knob, located on EXC 2, clockwise and reduce the exciter 1 output to approximately the same level established for exciter 2 (step k).

p. Adjust R3 until transfer occurs, EXC 1 should go to STANDBY, and EXC 2 should be in OPERATE.

q. Repeat steps o. and p. several times until adjustment is satisfactory. The EXC 1 push-button must be pressed prior to each repeat of the steps, to restore exciter 1.

r. Replace the top cover and install the unit in the equipment rack.

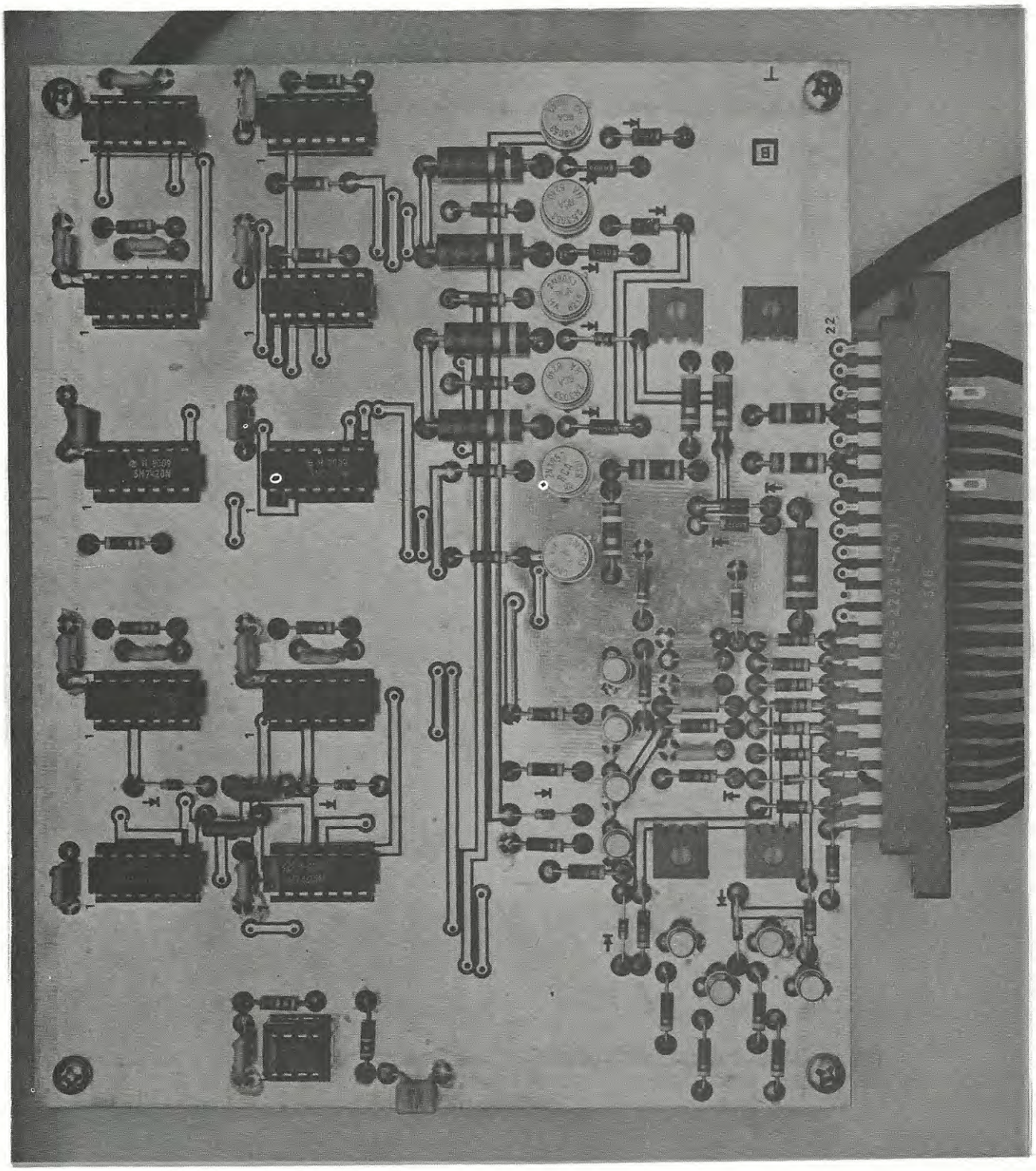


Figure 3-1. Logic Card

84-0241

KP1-6

SECTION 4 - PARTS LIST

4-1. GENERAL

This section contains a list of all repairable/replaceable electrical, electronic, and critical mechanical parts for the 377C-1A Automatic Exciter Control.

4-2. SYMBOL

This column contains the electrical symbols of all parts that have been assigned to schematics or wiring diagrams, and/or index numbers for all parts for which symbols have not been assigned. When a symbol, within a series of symbols, has not been assigned a part number, the unassigned symbol will be reflected as "NOT USED" in the DESCRIPTION column.

4-3. DESCRIPTION

This column contains the identifying noun or item name followed by a brief description. The description for electrical/electronic parts includes the applicable rating and tolerances. For consecutively listed and identical parts within an assembly, "SAME AS---" is reflected in the description of subsequent listings, referencing to the first listing within the assembly.

4-4. CEC PART NUMBER

The CEC Specification or drawing number, for each item in the parts list, is reflected in this column.

SYMBOL	DESCRIPTION	CEC PART NUMBER
	CEC 377C-1A AUTOMATIC EXCITER CONTROL 622-1999-002	
	RF DETECTOR ASSEMBLY	627-5171-001
	SEE BREAKDOWN ON PAGE 4-3	
A2	SAME AS A1	
A5	DUMMY LOAD	627-5167-002
	SEE BREAKDOWN ON PAGE 4-3	
A6	LOGIC CARD	627-6654-001
	SEE BREAKDOWN ON PAGE 4-3	
A7	PHASE SHIFT NETWORK	627-5198-001
A8	MONITOR SAMPLE	643-7555-001
	SEE BREAKDOWN ON PAGE 4-3	
A9	LOAD, 100 WATT, RESISTIVE	124-9012-010
CR1	DIODE, 1N4003	353-6442-030
CR2 THRU CR6	SAME AS CR1	
J1 THRU J6	NOT USED	
J7	CONNECTOR	357-9332-000
J8	CONNECTOR	372-7502-200
K1	RELAY	410-0442-040
K2	RELAY	410-6139-010
P1	ADAPTER, BNC TEE	357-9314-000
P5	SAME AS P1	
P8	SAME AS P1	
P14	SAME AS P1	
R1	RESISTOR, 4.7 K-OHMS, 1 WATT	RCR20G472JS
R2	SAME AS R1	
S1	SWITCH, PUSH-BUTTON	266-7509-010
S2	SAME AS S1	
S3	SWITCH	266-5321-070
TB1	TERMINAL BOARD	367-0118-000
	MISCELLANEOUS PARTS	
	LAMP -QTY 4-	262-0179-010
	BUTTON, PUSH -QTY 2-	266-7509-210

SYMBOL	DESCRIPTION	CEC PART NUMBER
	377C-1A AUTOMATIC EXCITER CONTROL - Cont.	622-1999-002
W1	CABLE ASSEMBLY	627-5174-001
	INCLUDES	
	CONNECTOR, BNC	357-9292-000
		357-9248-010
W2	SAME AS W1	
W3	CABLE ASSEMBLY	627-5174-003
	INCLUDES	
	CONNECTOR, BNC -QTY 2 -	357-9292-000
W4	CABLE ASSEMBLY	627-5174-004
	INCLUDES	
	CONNECTOR, BNC -QTY 2-	357-9292-000
W5	CABLE ASSEMBLY	627-5174-012
	INCLUDES	
	CONNECTOR, BNC -QTY 2-	357-9341-000
W6	SAME AS W5	
W7	SAME AS W5	
W8	CABLE ASSEMBLY	627-5174-013
	INCLUDES	
	CONNECTOR, BNC -QTY 2-	357-9341-000
W9	CABLER ASSEMBLY	627-5174-014
	INCLUDES	
	CONNECTOR, BNC	357-9292-000
	CONNECTOR, B-HEAD	357-9248-000
W10	CABLE ASSEMBLY	627-5174-015
	INCLUDES	
	CONNECTOR, BNC	357-9292-000
	RF DETECTOR ASSEMBLY, A1, A2	627-5171-000
C1	CAPACITOR, 5 PF	912-2751-000
C2	CAPACITOR, 1000 PF	CM06FD102J03
C3	CAPACITOR, 1000 PF	913-1292-000
C4	CAPACITOR, 15 PF	M39003/01-2378
CR1	DIODE, 1N4148	353-3763-000
CR2	SAME AS CR1	
J1	CONNECTOR, BNC	M39012 21-0001
P1	CONNECTOR, PLUG, BNC	M39012/16-0101
R1	RESISTOR, 1000 OHMS, 1/4 WATT	RCR07G102JS

SYMBOL	DESCRIPTION	CEC PART NUMBER
	DUMMY LOAD, A5	627-5167-002
C1	CAPACITOR, 18 PF	912-2762-000
J1	CONNECTOR, BNC	357-9670-000
R1	RESISTOR, 50 OHMS, 30 WATTS	712-0071-000
	LOGIC CARD, A6	627-6654-001
C1	CAPACITOR, 1 UF	913-3810-000
C2	SAME AS C1	
C3	SAME AS C1	
C4	SAME AS C1	
C5	CAPACITOR, 2.2 UF	913-3812-000
C6	SAME AS C1	
C7	SAME AS C1	
C8	SAME AS C5	
C9 THRU C19	SAME AS C1	
C20	CAPACITOR, 0.1 UF	913-3813-000
C21	CAPACITOR, 0.1 UF	913-3813-000
CR1	DIODE, 1N4148	353-3763-000
CR2	SAME AS CR1	
CR3	SAME AS CR1	
CR4	DIODE, 1N4003	353-6442-030
CR5 THRU CR11	SAME AS CR4	
CR12	SAME AS CR1	
CR13,CR14	SAME AS CR1	
Q1	TRANSISTOR, 2N2222	352-0661-020
Q2 THRU Q8	SAME AS Q1	
Q9	TRANSISTOR, 2N3053	352-0613-010
Q10 THRU Q14	SAME AS Q9	

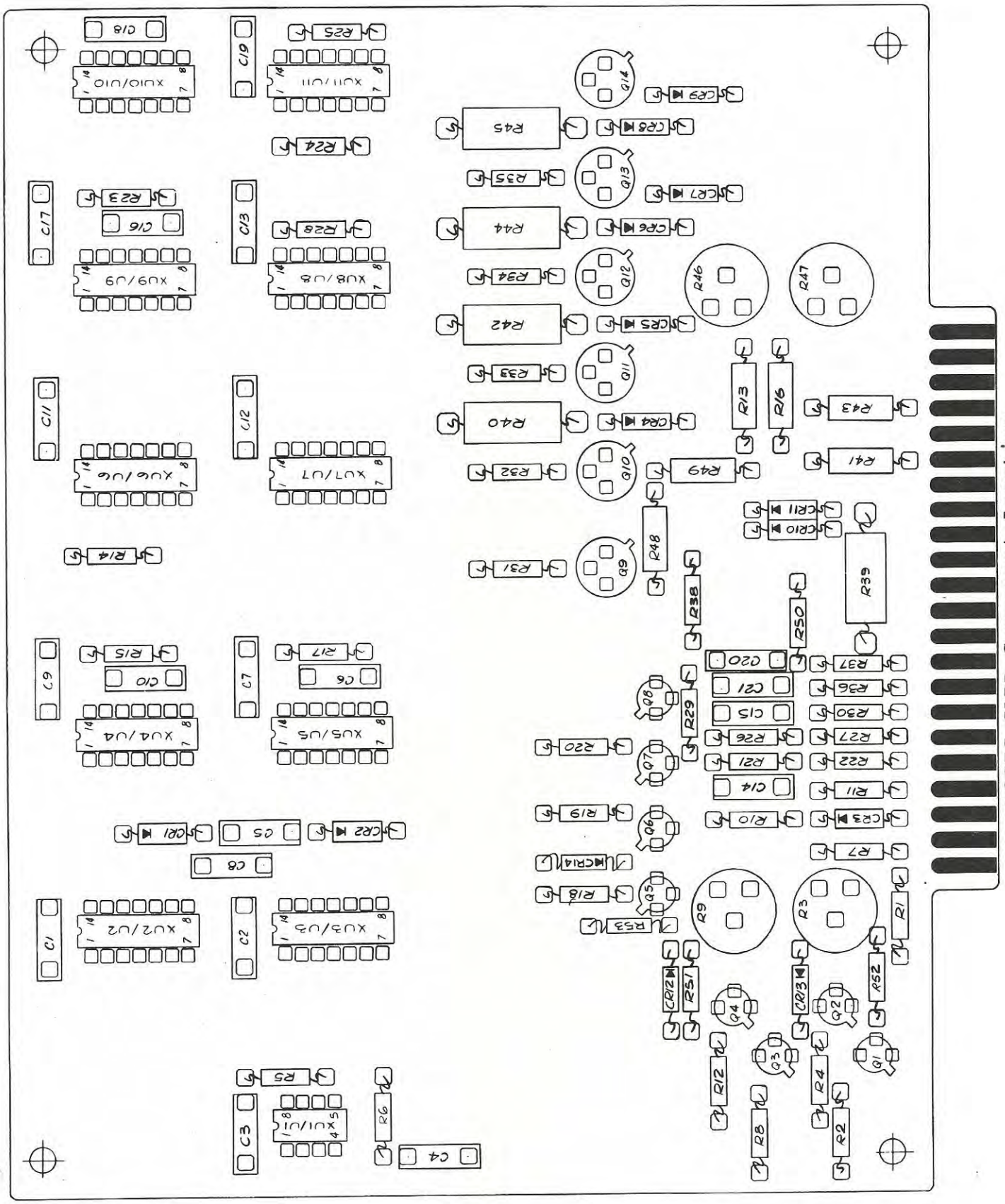
SYMBOL	DESCRIPTION	CEC PART NUMBER
	LOGIC CARD, A6 - Cont.	627-6654-001
R1	RESISTOR, 1000 OHMS, 1/4 WATT	RCR07G102JS
R2	RESISTOR, 2200 OHMS , 1/4 WATT	RCR07G222JS
R3	RESISTOR, VAR, 10 KILOHMS	380-3761-220
R4	SAME AS R2	
R5	RESISTOR, 330 KILOHMS, 1/4 WATT	RCR07G334JS
R6	RESISTOR, 680 KILOHMS 1/4 WATT	RCR07G684JS
R7	SAME AS R1	
R8	SAME AS R2	
R9	SAME AS R3	
R10	RESISTOR, 10 KILOHMS, 1/4 WATT	RCR07G103JS
R12	SAME AS R10	
R12	SAME AS R2	
R13	RESISTOR, 4700 OHMS 1/2 WATT	RCR20G472JS
R14	RESISTOR, 4700 OHMS 1/4 WATT	RCR07G472JS
R15	RESISTOR, 15 KILOHMS, 1/4 WATT	RCR07G153JS
R16	SAME AS R13	
R17	SAME AS R15	
R18	SAME AS R1	
R19	SAME AS R14	
R20	SAME AS R14	
R21	SAME AS R1	
R22	SAME AS R10	
R23	SAME AS R15	
R24	SAME AS R1	
R25	SAME AS R1	
R26	SAME AS R1	
R27	SAME AS R10	
R28	SAME AS R14	
R29	SAME AS R1	
R30	SAME AS R10	
R31	SAME AS R2	
R32	SAME AS R2	
R33	SAME AS R1	
R34	SAME AS R1	
R35	SAME AS R1	
R36	SAME AS R10	

SYMBOL	DESCRIPTION	CEC PART NUMBER
	LOGIC CARD, A6 - Cont.	627-6654-001
R37	SAME AS R10	
R38	SAME AS R1	
R39	RESISTOR, 2200 OHMS, 1 WATT	RCR32G222JS
R40	SAME AS R39	
R41	RESISTOR, 39 OHMS, 1/2 WATT	RCR20G390JS
R42	SAME AS R39	
R43	SAME AS R41	
R44	SAME AS R39	
R45	SAME AS R39	
R46	SAME AS R3	
R47	SAME AS R3	
R48	SAME AS R41	
R49	SAME AS R41	
R50	SAME AS R14	
R51	SAME AS R10	
R52, R53	SAME AS R10	
U1	INTEGRATED CIRCUIT, NE555V	351-1137-020
U2	INTEGRATED CIRCUIT, SN7400N	351-7629-010
U3	INTEGRATED CIRCUIT, SN7404N	351-7630-010
U4	INTEGRATED CIRCUIT, SN74121N	
U5	SAME AS U4	351-7645-010
U6	INTEGRATED CIRCUIT, SN7420N	351-1548-090
U7	SAME AS U6	
U8	SAME AS U6	
U9	SAME AS U4	
U10	SAME AS U2	
U11	INTEGRATED CIRCUIT, SN7402N	351-7628-010
XU1	SOCKET, INTEGRATED CIRCUIT	220-0001-060
XU2	SOCKET, INTEGRATED CIRCUIT	220-0049-010
XU3 THRU XU11	SAME AS XU2	

SYMBOL	DESCRIPTION	CEC PART NUMBER
	PHASE SHIFT NETWORK, A7	627-5198-001
C1	CAPACITOR, VAR, 3 TO 9.8 PF	922-0046-000
J1, J2	CONNECTOR	357-9307-000
L1	COIL	627-5197-001
	MONITOR SAMPLE, A8	643-7555-001
J1,J2,J3	CONNECTOR BOX	141-0894-030
	OPTIONAL 5V SUPPLY	627-3861-000
C2	SAME AS C1	913-3861-000
R1	RESISTOR, 10 OHM, 2W	745-5568-000
U1	INT CKT, 7805,KC	351-1120-080
XU1	SOCKET, IC	220-0968-010

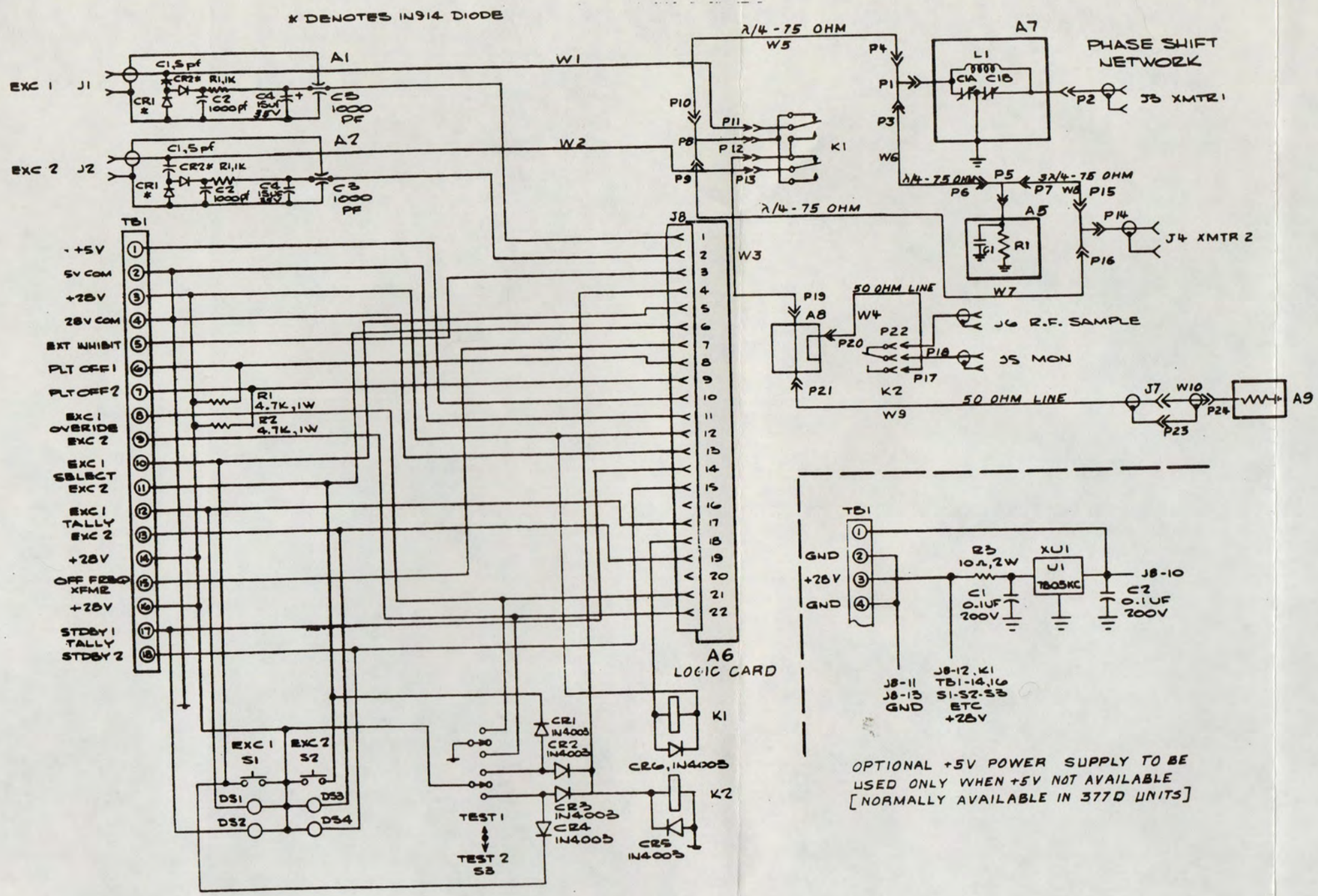
SECTION 5 - SCHEMATICS & LOCATION DRAWINGS

	Logic Card Component Locations
643-7556	Automatic Exciter Switches Schematic
D147062	Logic Circuit Board Schematic
C147064	Interconnect Diagram - Single Transmitter



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

* DENOTES IN914 DIODE



OPTIONAL +5V POWER SUPPLY TO BE USED ONLY WHEN +5V NOT AVAILABLE [NORMALLY AVAILABLE IN 377D UNITS]

ITEM	ZONE	PART OR IDENTIFYING NO	CHG SIZE	NOMENCLATURE OR DESCRIPTION	CODE IDENT
QTY REQD PER DASH NO				LIST OF MATERIAL OR PARTS LIST	

UNLESS OTHERWISE SPECIFIED
TOLERANCE ON FRAC
2 PLACE DEC 3 PLACE DEC ANGLES
MACHINED SURFACE FINISH 125
ALL DIMENSIONS ARE IN AND INCLUDE APPLIED FINISH
REMOVE ALL BURRS AND SHARP EDGES

DRAWN Charles Abby 1/20/81
CHECKED
TECH DSGN
ELEC ENGR
APPROVED

Continental Electronics MFG CO
DALLAS TEXAS

SCHEMATIC - 377C-1A
AUTOMATIC EXCITER SWITCHER

SIZE	CODE IDENT NO	643-7556-001
D	52161	

SCALE WT SHEET 1 OF 1

NEXT ASSY | CHG SIZE | USED ON

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

SAMPLE 1 1
SAMPLE 2 2
TRANSFER 1
TRANSFER 2
R1 1K Q1 2N2222
R2 2.2K
R3 10K
R4 2.2K Q2 2N2222
R5 330K
R6 680K
C4 1mf
U1 NE555V FLASHER
C1 1uf
C2 1uf
U3 SN7404N
U2A SN7400N
R7 1K Q3 2N2222
R8 2.2K
U2D SN7400N
U3 SN7404N
R9 10K Q4 2N2222
R10 10K
R11 10K
R12 2.2K
R51 10K
CR12 IN914
CR13 IN914
CR14 IN914
CR23 IN914
R52 10K
R53 10K
R18 1K Q5 2N2222
INHIBIT
EXT INHIBIT 3
MAN OVERIDE 4
CR1 IN914
C9 1uf
C8 2.2uf
C10 1uf
SN74121N
CR2 IN914
C7 1uf
C5 2.2uf
C6 1uf
SN74121N
R14 4.7K
R15 15K
R17 15K
C11 1uf
U6B SN7420N
U6A SN7420N
R19 4.7K
R20 4.7K
C12 1mf
U7B SN7420N
U7A SN7420N
U8A SN7420N
C13 1uf
C17 1uf
R23, 15K
C16 1uf
U9 SN74121N
C18 1mf
U10A U10B U10C U10D SN7400N
R24, 1K
U11A
R25 1K
U11B SN7402N
R21 1K Q6 2N2222
R22 10K
R26 1K Q7 2N2222
C14 1uf
C15, 1uf
R27 10K
C21, 0.1uf
R50 4.7K
R30 10K
R29 1K Q8 2N2222
C20 0.1uf
R28 4.7K
U8B
C19, 1uf
5 EXC 1 MAN SELECT
6 EXC 2 MAN SELECT
7 OFF FREQ XFR
U2B U2C SN7400N
U3 SN7404N
R31 2.2K
R32 2.2K
R48 39 1/2W
R49 39, 1/2W
Q9 2N3053
Q10 2N3053
R33 1K
R34 1K
R35 1K
Q11 2N3053
Q12 2N3053
Q13 2N3053
MUTE
CR4 IN4003
CR5 IN4003
CR6 IN4003
CR7 IN4003
R40 2.2K, 1W
R41 39, 1/2W
R42 2.2K, 1W
R43 39, 1/2W
R44 2.2K, 1W
R45 2.2K 1W
Q14 2N3053
CR8 IN4003
CR9 IN4003
CR10 IN4003
CR11 IN4003
R13 4.7K 1/2W
R16 4.7K 1/2W
R46 10K STANDBY ADJ 1
R47 10K STANDBY ADJ 2
R36 10K
R37 10K
R38 1K
R39 2.2K, 1W
8 PLT CNTRL 1
9 PLT CNTRL 2

10 +5V
11 5V COM
13 28V COM
14 1 SBY TALLY
15 2 SBY TALLY
16 1 ON
17 1 ON LAMP
18 2 ON
19 2 ON LAMP
12 +28V
21 MUTE 1
22 MUTE 2

QTY REQD PER DASH NO	ITEM	ZONE	PART OR IDENTIFYING NO	DWG SIZE	NOMENCLATURE OR DESCRIPTION	CODE IDENT
			LIST OF MATERIAL OR PARTS LIST			

UNLESS OTHERWISE SPECIFIED
TOLERANCE ON: FRAC
2 PLACE DEC 3 PLACE DEC ANGLES
MACHINED SURFACE FINISH 125
ALL DIMENSIONS ARE IN AND INCLUDE APPLIED FINISH
REMOVE ALL BURRS AND SHARP EDGES

	DRAWN	DATE
	CHECKED	
	MECH DSGN	
	ELEC ENGR	
	APPROVED	

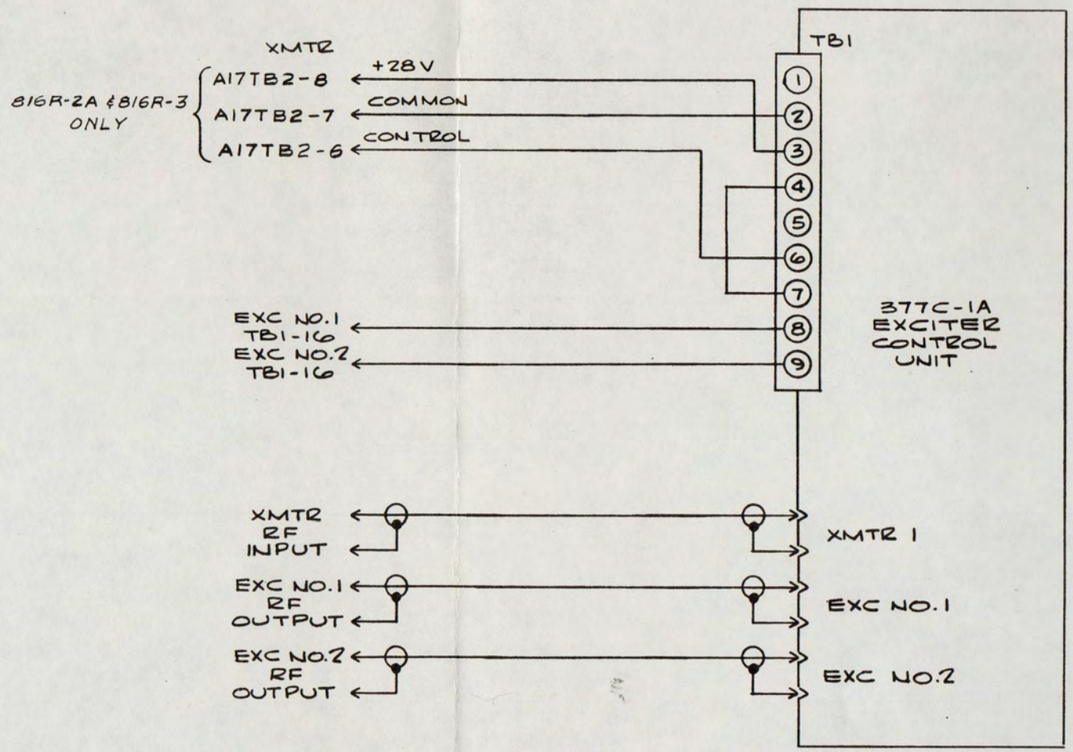
Continental Electronics MFG. CO. DALLAS TEXAS

SCHEMATIC, LOGIC CKT BD 377C-1

NEXT ASSY	DWG SIZE	USED ON

SIZE	CODE IDENT NO	
D	52151	147062
SCALE	WT	SHEET OF

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED
	A	CHG NOMENCLATURE OF 377C-1 AND 816R-2A	5/2/84	CJA



ITEM	ZONE	PART OR IDENTIFYING NO.	DWG SIZE	NOMENCLATURE OR DESCRIPTION	CODE IDENT
QTY REQD PER DASH NO.				LIST OF MATERIAL OR PARTS LIST	

NEXT ASSY	DWG SIZE	USED ON

UNLESS OTHERWISE SPECIFIED
TOLERANCE ON: FRAC ±
2 PLACE DEC ± 3 PLACE DEC ± ANGLES ±
MACHINED SURFACE FINISH 125
ALL DIMENSIONS ARE IN AND INCLUDE APPLIED FINISH.
REMOVE ALL BURRS AND SHARP EDGES.

DRAWN	Chas. Alley	DATE 1/20/81
CHECKED		
MECH DSGN		
ELEC ENGR		
APPROVED		

Continental Electronics MFG. CO.
DALLAS, TEXAS

INTERCONNECT DIAGRAM
SINGLE TRANSMITTER

SIZE	CODE IDENT NO.	
C	52151	147064
SCALE:	WT	SHEET 1 OF 1

CEMC FORM 3868