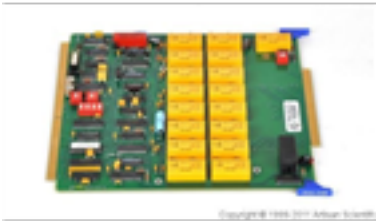
CDS 53A-336

High Voltage Scanner Card



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53A-336 HIGH VOLTAGE SCANNER CARD

OPERATION MANUAL

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53A-336 HIGH VOLTAGE SCANNER CARD

OPERATING MANUAL

DESCRIPTION

The 53A-336 High Voltage Scanner Card is a printed circuit board assembly used in the 53/63 Series Card Cage. The Scanner Card provides 16 two-wire channels of analog signal acquisition switching at a maximum rate of 40 channels per second. Up to 10 53A-336 High Voltage Scanner Cards can be plugged into a single Card Cage to provide scanning of up to 160 channels. As many as 10 Card Cages can be chained together to provide a system with up to 1,600 high voltage channels. If the user desires, 53A-331 (10 four-wire channels per card), 53A-332 Reed Relay Scanners (20 two-wire channels per card), and 53A-336 High Voltage Scanners can be mixed in the same card cage.

A 53A-336 channel can be randomly selected (closed) by transmitting ASCII characters from the system controller (calculator or computer), to the 53/63 Series system. The card contains built-in logic to insure that any previously closed channel on any card (53A-331, 53A-332, or 53A-336) is first opened before a new channel is closed.

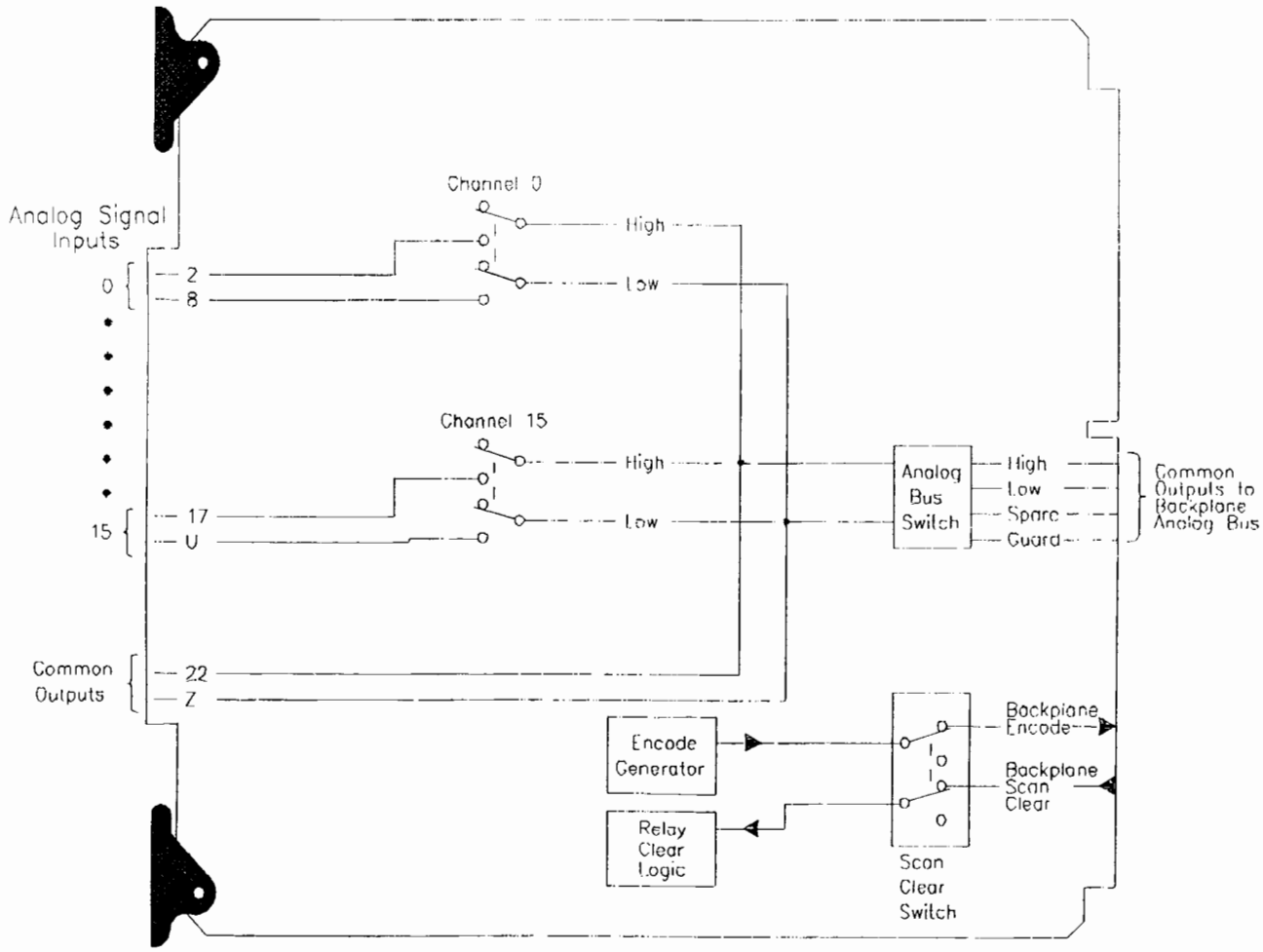

Figure 336-1: 53a-336 Block Diagram

The 53A-336 Card is manufactured using relays specifically designed to handle the high instantaneous inrush currents that can occur when switching a mixture of high and low voltage AC or DC signals. Due to the capacitance of the cable wiring between the unit under test (UUT) and the scanner card input, instantaneous currents in excess of 10 amperes can easily occur when switching from a low voltage channel (less than 10 to 15V) to a high voltage channel (over 100V). For example, a distributed cable capacitance of 300 pF can cause an instantaneous inrush current in excess of 2A, and an instantaneous power dissipation of over 60W across a relay contact when switching from a channel at 0V DC to a channel at 60V DC. Repeated inrush currents of these values may damage the typical 10-W contacts associated with reed relays. To overcome this problem, the 53A-336 Card uses relays with an inrush current capability of 35A.

CONTROLS AND INDICATORS

The following controls and indicators are provided to select and display the functions of the 53A-336 Card's operating environment.

Address-Select Switch

The 53A-336 Card has a miniature 10-position switch labeled "ADDRESS" that selects the 53A-336 Card's address (0-9) in the 53/63 Series System. The switch's cover opens to allow the address to be reselected. A screwdriver with a narrow, flat blade should be used to turn the cam-action wiper to the desired address position.

Power LED

The Power LED provides a valuable diagnostic tool by giving the system programmer a visual indication of the action which the system is currently taking. Whenever the 53A-336 Card is addressed by the system controller, the Power LED goes out. The LED remains out until another function card is addressed. Since only one function card can be addressed at a time, an unlit Power LED indicates the function card with which the system controller is currently communicating. The Power LED being lit not only indicates that the 53A-336 Card is unaddressed, but that all required dc power (5V dc) is being supplied.

Fuse

There is a fuse on the 5V DC power bus that protects the system from overload conditions. If the fuse blows, the power LED does not light.

Function LEDS and Switches

See the Switch Location Diagram for the physical location of the switches.

Channel LEDs

A column of 12 LEDs above the front-edge connector indicate the specific scanner channel closed. If the scanner channel closed is between 0 and 9, the 0X LED and one of the 0 through 9 LEDs is lit. If the closed canner channel is between 10 and 15, the 1X LED and one of the 0 through 5 LEDs is lit.

Analog Bus Switch

The 2-section rocker switch at the rear of the 53A-336 Card connects the scanner common output lines to the analog backplane bus of the 53/63 Series Card Cage.

CAUTION:

If the backplane analog bus is to be used, relay carry current should be limited to 3A or less. For carry currents up to 5A, the common output lines on the front-edge connector should be used to route signals from scanner card to scanner card and from the scanner card(s) to the user's external equipment.

Rocker Position	Action
C1, C3	Scanner Common High and Low connected to Backplane High and Low respectively.
C2, C4	Scanner Common High and Low connected to Backplane Guard and Spare respectively.
C2, C3	Scanner Common High and Low disconnected from Backplane Analog Bus.
C1, C4	Normally not used. Connects Scanner Common High to Backplane High and Guard, connects Scanner Common Low to Backplane Low and Spare.

Scan Clear Switch

Located at the rear of the 53A-336 Card is a 1-section rocker switch that determines if the card will automatically open all channels whenever a channel is closed on another scanner card.

Rocker Position	Action
C1	A closed channel on this card is opened when a channel is closed on any other scanner card (53A-331, 53A-332, or 53A-336). Closing a channel on this card sends a clear pulse to all other scanner cards.
C2	Closing channels on other scanner cards has no effect on this scanner card. When a channel is closed on this card, a clear pulse is not sent to other scanner cards.

System Bus Resistance Switch

Located at the rear of the 53A-336 Card is a 1-section rocker switch which may be used to connect two 1 megohm resistors to ground, one from the high side and one from the low side of the 53/63 Series backplane analog bus. This switch is used to discharge parasitic capacitance on the backplane analog bus when the Analog Bus switches
are in a position other than C2, C3. See Appendix B for application information on using this switch.

Rocker Position	Action
C1	Disconnect 1-megohm resistors from the Scanner Common bus.
C2	Connect a 1-megohm resistor between Scanner Common High and Ground, and a 1-megohm resistor between Scanner Common Low and Ground.

Card Bus Resistance Switch

Located at the front of the 53A-336 Card is a 1-section rocker switch , page 336-12) which may be used to connect two 1 megohm resistors to ground, on the Scanner Common Bus internal to the 53A-336. One resistor is from the High side to ground and the other is from the Low side to ground. These resistors are used to discharge internal parasitic capacitance on the 53A-336 Card. It should be set to the C2 position whenever the 53A-336 Card is used to switch voltages greater than 130V DC or AC RMS.

Rocker Position	Action
C1	Disconnect 1-megohm resistors from the analog bus.
C2	Connect a 1-megohm resistor between Analog Bus High and Ground, and a 1-megohm resistor between Analog Bus Low and Ground.

SPECIFICATIONS

Configuration: 16 relays, 2-pose, form A.
Common output bus, 2 lines.

Relay Manufacturer: Aromat. Model: ST2E-DC5V or equivalent.

Contacts: Maximum Switching Power (resistive): 2000 VA AC or 150W DC.
Maximum Switching Voltage: 230V DC or AC RMS, shielded.
(Shield tied to pins 24 or BB on front-edge connector of 53A-336 Card and to source chassis ground.)

Maximum Switching Current: 5A AC or 5A DC up to 35V DC, 1A DC up to 60V DC, 0.5A DC up to 150V DC, 0.4A DC up to 230V DC.
Inrush current: 35A AC or DC.

Relay Life: At least 10^5 operations per channel at rated resistive loads.

Duty: Continuous.

Scanning Rate: Random channel selection at greater than 40 channels per second.

Signal Path Specifications: These specifications include the effects of the card cage backplane and are valid at the backplane analog output connector.

Differential thermal offset:	Less than 10 microvolts
Single-line thermal offset:	Less than 20 microvolts.
Initial signal path resistance:	Less than 900 milliohms.
Signal path resistance at end of contact life:	Less than 1.4 ohms.

Isolation Impedance:
System and Card Bus Resistance Switches Both Open (C1 Position):
Closed Channel:
>20 gigohms high side analog bus to ground
>20 gigohms low side analog bus to ground.
Open Channel:
>20 gigohms any open input to ground.

System or Card Bus Resistance Switch Closed:
Closed Channel:
1 megohm high side analog bus to ground,
1 megohm low side analog bus to ground.
Open Channel:
>20 gigohm any open input to ground.

System and Card Bus Resistance

Switches Both Closed: (Position C2)

Closed Channel:
500 k ohms high side analog bus to ground,
500 k ohms low side analog bus to ground.

Open Channel:
>20 gigohm any open input to ground.

Cross Talk Between Channels:

1 kHz	Less than -90 dB
10 kHz	Less than -76 dB
100 kHz	Less than -57 dB
1 MHz	Less than -45 dB

Cross talk measurements made at Scanner common output with closed channel terminated in 600 ohms and signal applied to unselected channels.

Power Up:

When power is turned on, the 53A-336 Card goes to the following known states:
Card unaddressed (Power LED - lit).
All channels open (Channel LEDs - out).

Power Down:

When power is turned off, the 53A-336 Card goes to the following known states:
All channels open.

Encode Pulse:

Issued 24 ms after card is instructed to close a channel; this allows time for the relays to settle. The encode pulse is typically used to trigger an external instrument such as a digital voltmeter.

Type Output: TTL level, negative-going pulse, 500 mA sink capability.
Pulse Width: 0.5 ms nominal.

Power Requirements:

5V dc power is provided by the internal Power Supply in the 53/63 Series Card Cage.

Voltage: 4.75V to 5.25V DC.
Current: 0.4 amperes, quiescent.
0.45 amperes, peak.

Cooling:

Provided by the fan in the 53/63 Card Cage.

Temperature:

-10°C to +65°C, operating (assumes ambient temperature of 55° and airflow to assure less than 10°C temperature rise).
-40°C to +85°C, storage.

Humidity:

Less than 95% R.H. non-condensing, -10C to +30°C.
Less than 75% R.H. non-condensing, +31°C to +40°C.
Less than 45% R.H. non-condensing, +41°C to +55°C.

Dimensions:

197 mm high, 220 mm deep, 13 mm wide
(7.75" x 8.66" x 0.5").

Dimensions, Shipping:	When ordered with a 53/63 Card Cage, the card is installed in one of the card cage's function-card slots. When ordered alone, the shipping dimensions are: 254 mm x 254 mm x 127 mm (10" x 10" x 5").
Weight:	0.45 Kg. (1.0 lbs.).
Weight, Shipping:	When ordered with a 53/63 Card Cage, the card is installed in one of the card cage's function-card slots. When ordered alone, the shipping weight is: 0.91 Kg. (2.0 lbs).
Mounting Position:	Any orientation.
Mounting Location:	Installs in any function-card slot of the 53/63 Series Card Cage.
Input Connection:	A 48-pin printed-circuit type hooded connector (53A-780) or 53A-736 Analog Cable provides a connection for all analog signal inputs.
Output Connection:	The analog output connection is through either the 48-pin front edge connector of the 53A-336 Card or the analog output connector on the 53A-002 or 63A-012 Card Cage backplane.
Required Equipment: (Not Supplied)	A 53A-736 Analog Cable or 53A-780 Hooded Connector is required with this card.
Equipment Supplied:	53A-336 High Voltage Scanner Card.

OPERATION

Overview

The 53A-336 Card is programmed by ASCII characters issued from the system controller to the 53/63 Series system communications card. The 53A-336 Card is connected to the communications card through the 53 Series or 63 Series Card Cage's backplane.

When a command is issued to close a channel on a 53A-336 Card, first all channels on all scanner cards in the system (53A-331, 53A-332, or 53A-336) are automatically opened. This feature prevents the accidental connection of more than one set of scanner input lines to the common output lines at the same time. A scanner channel, once closed, remains closed until another scanner channel is closed. Only one channel on a card may be closed at a time. If the user does not want to have all channels automatically open whenever a channel on another scanner card is closed, then the Scan Clear switch described in the Description Section should be set to position C2.

To address a function card for the first time, the system command @XY must be issued. X is the card cage address (0-9) selected on the 53A-171 Control Card in the addressed card cage; Y is the 53A-336 Card's address (0-9) within the addressed card cage. The 53A-336 Card's address is selected using the card's Address Select switch. Once a function card is addressed, it remains addressed until the system receives another @ character. Appendix A fully discusses the @XY command and the other 53/63 Series system commands. After the 53A-336 Card is addressed, the commands listed below may be issued until another function card is addressed.

Carriage-return <CR> or line-feed <LF> characters may optionally follow a card command. ASCII space characters must not follow a command.

Card Commands

Command	Description
Z	This command connects the two input lines of a channel to the two common output lines. Z is a 2-digit decimal integer from 00 to 15 and specifies the channel number to connected to the common scan bus. Leading 0's must not be omitted. A space character may optionally be substituted for a leading 0. Example: The command @0205 would open any closed channel then closed channel 5 of the Scanner Card with address 2 located in the card cage with address 0. Status: Power LED - out. Channel LEDs - 0X,5 lit, all others out.

R

The R command is used to RESET (Open) all channels of a given scanner. If the card's Scan Clear switch is in position C1, a clear signal will be sent to all other Scanner Cards (53A-331, 53A-332, or 53A-336) in the system.

The R in the command sequence instructs the card to open any closed channel.

Example:
The command @02R would open all channels on the Relay Scanner Card with address 2 located in the card cage with address 0. If the card's Scan Clear switch was in position C1, a clear signal would be sent to all other scanner cards (53A-331, 53A-332, and 53A-336).

Status:
Power LED - out.
Channel LEDs - out.

INSTALLATION

The 53A-336 Card is a function card; therefore, it may be installed in any blue card slot. Setting the Address Select switch defines the card's programming address. To avoid confusion, it is recommended that the slot number and the programming address be the same.

CAUTION:

To avoid plugging the card in backwards, observe the following:

a. Match the keyed slot on the card to the key in the backplane connector. The component side should be to the right for a 53 Series Chassis and to the top for a 63 Series Chassis.

b. There are two ejectors on the card. Make sure the ejector marked "53A-336" is at the top for a 53 Series Chassis and to the left for a 63 Series Chassis.

CAUTION:

The 53A-336 Card is a piece of electronic equipment and therefore has some susceptibility to electrostatic damage (ESD). ESD precautions must be taken whenever the module is handled.

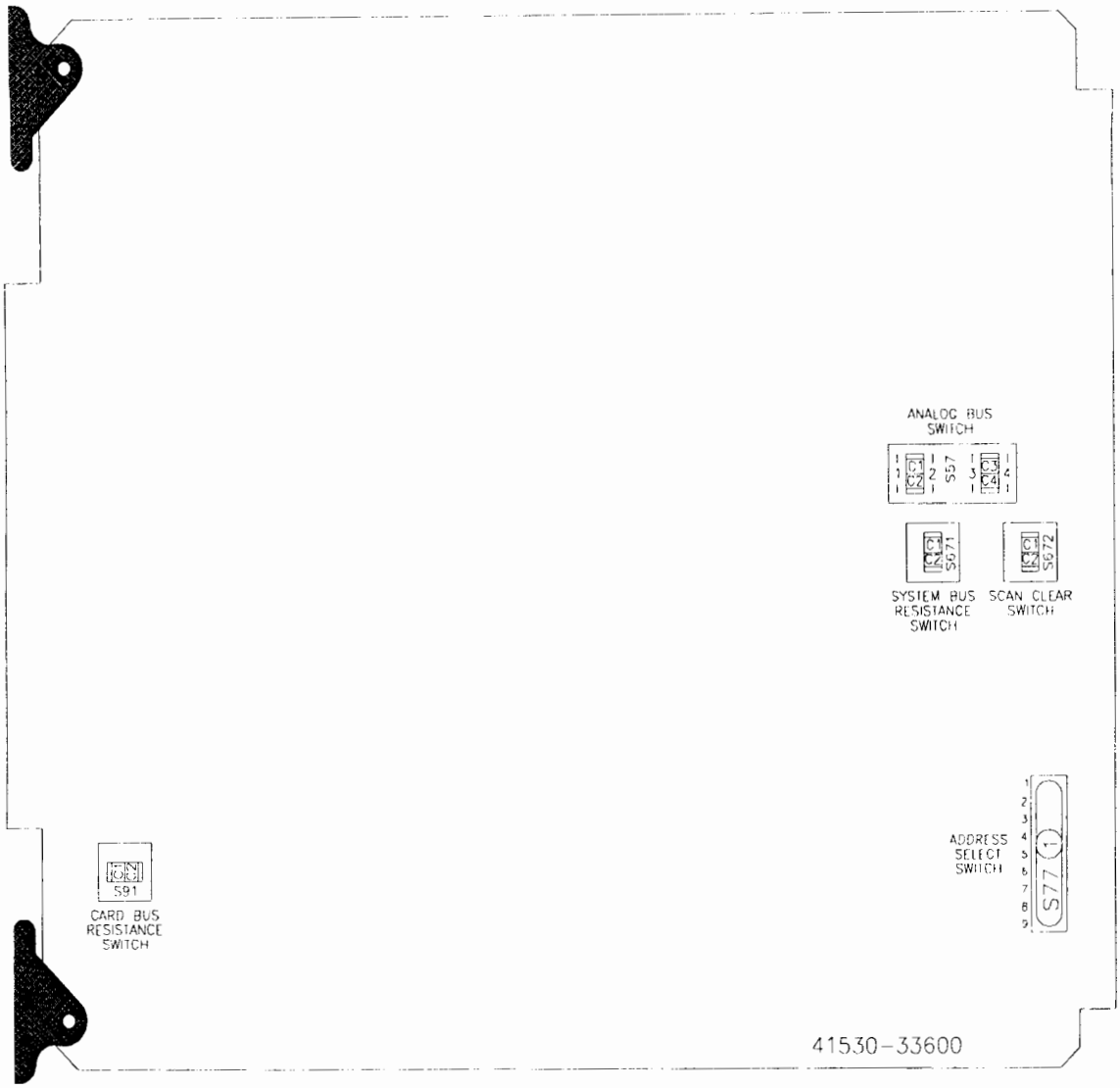

Figure 336-2: 53A-336 Switch Locations

53A-336 WIRE LIST

Chan	H L	Pin #	53A-736 Cable Wire Color	Termination Signal Name	Pin #
0	H	2	Brown of Brown/White		
	L	B	White of Brown/White		
1	H	3	Red of Red/White		
	L	C	White of Red/White		
2	H	4	Orange of Orange/White		
	L	D	White of Orange/White		
3	H	5	Yellow of Yellow/White		
	L	E	White of Yellow/White		
4	H	6	Green of Green/White		
	L	F	White of Green/White		
5	H	7	Blue of Blue/White		
	L	H	White of Blue/White		
6	H	8	Violet of Violet/White		
	L	J	White of Violet/White		
7	H	9	Gray of Gray/White		
	L	K	White of Gray/White		
8	H	10	Brown of /Black		
	L	L	Black of /Black		
9	H	11	Red of Red/Black		
	L	M	Black of Red/Black		
10	H	12	Orange of Orange/Black		
	L	N	Black of Orange/Black		
11	H	13	Yellow of Yellow/Black		
	L	P	Black of Yellow/Black		

Chan.	H L	Pin #	53A-736 Cable Wire Color	Termination Signal Name	Pin #
12	H	14	Green of Green/Black		
	L	R	Black of Green/Black		
13	H	15	Blue of blue/Black		
	L	S	Black of Blue/Black		
14	H	16	Violet of Violet/Black		
	L	T	Black of Violet/Black		
15	H	17	Gray of Gray/Black		
	L	U	Black of Gray/Black		
Com.	H	22	Orange of Orange/Brown		
Com.	L	Z	Brown of Orange/Brown		
Shield		24	Red of Red/Brown		
			Brown of Red/Brown		
		BB	Black of Black/White		
			White of Black/White		
			Shield		

APPENDIX A

53/63 SERIES SYSTEM COMMANDS

Command	Description
@XY	The @XY (Address) command addresses a function card in the 53/63 Series System. @ is a delimiter used by the 53/63 Series System. X is a card cage address (0-9) defined by the Address Select switch on the 53A-171 Control Card in the addressed card cage. Y is a function-card address (0-9) defined by the Address Select switch on the function card. Once a card cage/function-card combination is addressed, it remains addressed until the 53/63 Series System detects a new @ character.
@XH	The @XH (Halt) command halts all function cards within the card cage defined by X. This command does not affect function cards in other card cages. How a function card reacts to the @XH command depends on the particular card. In all cases, an addressed function card (Power LED out) becomes unaddressed (Power LED lit).
STOP	The STOP command is not a string of ASCII characters. This command is hard-wired from the system controller to the 53/63 System's communications card in each card cage. When the system controller issues a STOP command, each function card (including the 53A-336 Card) reacts as if it had received the @XH command described above. How the system controller executes a STOP command depends on the communications card used. For example, when using the 53A-128 IEEE-488 Communications Card, a STOP command is executed whenever the system controller asserts the IEEE-488 bus line IFC (Interface Clear) true.

APPENDIX B

USING THE 53A-336 WITH DC VOLTAGES GREATER THAN 130V RMS

The relays used on the 53A-336 have switch contact ratings of 250V RMS. The peak voltage of a 250V RMS signal is 353.5V. The relay can switch from the peak level to level of 0V DC.

With a scanner system, a special situation exists: more than one relay can switch different voltages to a high impedance common bus. Since this common bus also has stray capacitance or cable capacitance associated with it, a residual voltage is left from the previous signal switched to the common bus. If two different 250V RMS signals are being measured, a residual voltage of -353.5V could be on the bus. Switching a +353.5V input to this bus is the same as switching 707V DC on the relay contact exceeding its rating by 2:1.

Two resistors can be installed on the front connector of any 53A-336 Card that place a 1-megohm load between each side of an active scanner input and ground. The System Bus Resistance switch, S671, places the 1-megohm load directly on the common 53/63 Series analog backplane (assuming the Analog Bus switch is closed). If more than one 53A-336 Card is installed in a scanner system, typically the switches on only one card in the system should be closed.

The Bus Resistance switch may need to be closed based on the following consideration. The 1-megohm impedance S671 places on the analog backplane bus, in parallel with any other impedance on the bus, such as S671 on another 53A-336 card or an AC voltmeter, is a discharge path for any parasitic capacitance on the bus. Using the value of the impedance and capacitance, the backplane discharge time constant can be determined. (For those systems with chained JcAIR Card Cages, the 53A-715 Analog Chaining Cable has a capacitance of approximately 14 pF per foot.) This discharge time is then compared to the minimum time interval between releasing a 53A-336 relay on the next scanner card. The minimum time intervals are:

53A-331	0.2 ms
53A-332	1.7 ms
53A-336 (next channel)	5 ms

If the residual voltage remaining by the time the next channel is closed is greater than 353 volts, another relay channel, not being used on the 53A-336 Card, should be closed in between. This allows another 24 ms for the bus to decay.

Example:

Input voltage on two successive 53A-336 channels	= 180V RMS or 254V P
Backplane Analog Bus Capacitance	= 1000 pF
Backplane Analog Bus Impedance	= 1M Ohm
Residual Voltage after 5 ms	= VR

$V_R = V \times e^{-(t/RC)}$

$= 254 \times e^{-(.005/1 \times 106.1000 \times 10\text{-}12)}$

$= 1.71V$

The next channel to be closed may be at -254V, therefore the voltage across the relay contacts could be as high as 1.71-(254), or 255.71V. Since 255.71V is less than 353V (the breakdown

voltage of the 53A-336 Card) successive channels of the 53A-336 can be closed without any additional delay.

The Card Bus Resistance switch, S91, discharges internal capacitance on the 53A-336 Card and should be closed whenever a card switches signals greater than 130V RMS. This impedance is not placed directly on the 53/63 System analog bus but is placed on the bus at a point internal to the 53A-336 Card. This switch should be closed on each card in a system that is scanning signals greater than 130V RMS.

To further improve the performance of the scanning system, a shield pin is provided at front-edge connector pins 24 and BB of the 53A-336 Card. For voltages greater than 130V DC or peak AC it is recommended that a shielded cable be used for scanner input signals. The shield provides a "back-to-ground" path for the switching energy of the contacts, keeping ground noise in the 53/63 Series System down to the minimum level.

Additional considerations exist when using the 53A-336 with a 53A-331 or 53A-332 Scanner Card. If a 53A-331 Card or a 53A-332 Card is the next channel to be switched (following a 53A-336 channel closure), the maximum switching power of the relay contacts on these cards (10W) needs to be considered. A substantial capacitive load can cause inrush currents that will seriously degrade the contacts. It is difficult to determine analytically if the amount of voltage and capacitance present will create an inrush current in excess of 10 watts for a long enough period of time to pit the 53A-331 or 53A-332 relay contacts. JcAIR has found the following rule-of-thumb to apply: if the switching voltage times the capacitance is greater than $1x10^{-8}$ volt-farads, a 53A-336 Card (150-W switching power) should be used instead of a 53A-331 Card or 53A-332 Card. For example, 10 volts may be switched into a 1000 pF capacitive load, or 100V into a 100 pF capacitive load. Above those levels, a 53A-336 Card should be used.

Another constraint on using the 53A-331 Card or the 53A-332 Card on the same scanner bus as a 53A-336 Card is the maximum contact breakdown voltage rating of the 53A-331 Card or the 53A-332 Card. The differential voltage between the scanner bus and any input to a 53A-331 Card or a 53A-332 Card open scanner channel cannot exceed this breakdown rating. The 53A-331 Card and the 53A-332 Card both have a maximum contact breakdown rating of 200V DC or peak AC. For example, if a 53A-336 Card is placing 110V DC on the scanner bus and a 53A-332 scanner card input has -100V DC on it, 210V DC is being placed across the 53A-332 contacts, exceeding the contact rating.

53A-336 HIGH VOLTAGE SCANNER CARD

SERVICE MANUAL

BFGoodrich
Aerospace

JcAIR Test Systems

WARRANTY

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1/28/00 8507-02-A
through
8607-02-F

JcAIR INC.

NAME: HI VOLTAGE SCANNER CARD 8607-02-F-01 ASSY NO: 53A-336

REVISION: 01 DATE: 04/08/1996

ITEM/ SYMBOL	JcAIR P/N	DESCRIPTION	U/M	QTY	MFG	MFG'S P/N
C27	20128-10004	CAP FXD CER .001UF 10% STABLE 100VDCW	EA	3.00	AVX/KYOCERA	CK05BX102K
					KEMET-UNION CAR	CK05BX102K
C34	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	29.00	AVX/KYOCERA	SR215E104MAA50VDCW
					KEMET-UNION CAR	C322C104M5U5CA
					SPRAGUE/VISHAY	1C20Z5U104M050B
C37	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C41	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C42	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C44	21018-15009	CAP FXD ELECT 150UF 75% -10% 16VDCW	EA	1.00	CORNELL-DUBILIE	NLW150-16
					MALLORY CAPACIT	TT16M150A
C46	22022-22007	CAP FXD TA 2.2UF 20% 16WVDC	EA	1.00	AVX/KYOCERA	TAP 225M016 SP
					KEMET-UNION CAR	T350A225M016AS
					SPRAGUE/VISHAY	199D225X0016AA1
C47	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C61	20128-15004	CAP FXD CER .0015UF 10% STABLE 100VDCW	EA	2.00	KEMET-UNION CAR	C322C152K1R5CA
					MEPCO/CENTRALAB	CW15C152K
C62	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C63	22022-10008	CAP FXD TA 10UF 10-20% 25VDC	EA	1.00	KEMET-UNION CAR	T350E106M025AS
					SPRAGUE/VISHAY	199D106X9025CA1
C64	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C67	20128-15004	CAP FXD CER .0015UF 10% STABLE 100VDCW	EA	-		
C71	20128-47006	CAP FXD CER .47UF 20% 50VDCW	EA	1.00	AVX/KYOCERA	SR301E474MAA
					AVX/KYOCERA	SR305E474MAA
					KEMET-UNION CAR	C322C474M5U5CA
					MALLORY CAPACIT	C303C474M5R5CA
C72	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C76	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C77	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C86	21528-50003	CAP FXD MICA 500PF 5% 500VDCW	EA	2.00	ARCO ELEC INC.	DM15-501J-500VDCW
					CORNELL-DUBILIE	CD15FD501J03
C241	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C242	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C243	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C361	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C362	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C541	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C542	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C641	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C642	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C661	20128-10004	CAP FXD CER .001UF 10% STABLE 100VDCW	EA	-		
C662	20128-10004	CAP FXD CER .001UF 10% STABLE 100VDCW	EA	-		
C663	21528-50003	CAP FXD MICA 500PF 5% 500VDCW	EA	-		
C841	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C842	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		

NAME: HI VOLTAGE SCANNER CARD 8607-02-F-01 ASSY NO: 53A-336

REVISION: 01 DATE: 04/08/1996

ITEM/ SYMBOL	JcAIR P/N	DESCRIPTION	U/M	QTY	MFG	MFG'S P/N
C871	20128-47005	CAP FXD CER .047UF 10% STABLE 100VDCW	EA	2.00	AVX/KYOCERA	CK06RX473KR
					KEMET-UNION CAR	CK06BX473K
					MURATA-ERIE COR	CKR06BX473KR
C872	20128-47005	CAP FXD CER .047UF 10% STABLE 100VDCW	EA	-		
C941	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C942	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C1011	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C1041	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C1042	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C1061	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C1151	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
C1161	21018-30008	CAP FXD ELECT 30UF 75% -10% 16VDCW	EA	1.00	BARKER MICROFAR	30D336M016BA2A
					CORNELL-DUBILIE	NLW30-16
C1171	20129-33004	CAP FXD CER .0033UF 20% STABLE 100VDCW	EA	1.00	AVX/KYOCERA	CK06BX332K
					KEMET-UNION CAR	CK06BX332K
					SPRAGUE/VISHAY	1C10X7R332M050B
C1172	20128-10006	CAP FXD CER .1UF 20% 50VDCW	EA	-		
CR26	32000-05260	DIODE ZENER 43V .5W 5%	EA	3.00	MOTOROLA SEMICO	1N5260B
					RCA CORP. (HARR	SK5087A
CR77	32000-04148	DIODE SILICON 75V 1A 5%	EA	8.00	NATIONAL SEMI /	1N4148
CR87	32000-04148	DIODE SILICON 75V 1A 5%	EA	-		
CR96	32000-05260	DIODE ZENER 43V .5W 5%	EA	-		
CR1011	32000-05260	DIODE ZENER 43V .5W 5%	EA	-		
CR1012	32000-04148	DIODE SILICON 75V 1A 5%	EA	-		
CR1061	32000-04148	DIODE SILICON 75V 1A 5%	EA	-		
CR1062	32000-04148	DIODE SILICON 75V 1A 5%	EA	-		
CR1161	32000-04148	DIODE SILICON 75V 1A 5%	EA	-		
CR1162	32000-04148	DIODE SILICON 75V 1A 5%	EA	-		
CR1171	32000-04148	DIODE SILICON 75V 1A 5%	EA	-		
DS1	32000-00103	DIODE LED RED 50MA	EA	1.00	DIALIGHT	550-0103
					DIALIGHT	550-0406
					QUALITY TECHNOL	MV60538.MP7
DS10	32000-02003	DIODE LED RED W/RES	EA	12.00	DIALIGHT	547-2003
					EATON CORPORATI	134LIC
					QUALITY TECHNOL	MR5010.MP1
DS11	32000-02003	DIODE LED RED W/RES	EA	-		
DS012	32000-02003	DIODE LED RED W/RES	EA	-		
DS013	32000-02003	DIODE LED RED W/RES	EA	-		
DS014	32000-02003	DIODE LED RED W/RES	EA	-		
DS110	32000-02003	DIODE LED RED W/RES	EA	-		
DS111	32000-02003	DIODE LED RED W/RES	EA	-		
DS112	32000-02003	DIODE LED RED W/RES	EA	-		
DS113	32000-02003	DIODE LED RED W/RES	EA	-		
DS114	32000-02003	DIODE LED RED W/RES	EA	-		
DS115	32000-02003	DIODE LED RED W/RES	EA	-		
DS116	32000-02003	DIODE LED RED W/RES	EA	-		

JcAIR INC.

NAME: HI VOLTAGE SCANNER CARD 8607-02-F-01 ASSY NO: 53A-336

REVISION: 01 DATE: 04/08/1996

ITEM/ SYMBOL	JcAIR P/N	DESCRIPTION	U/M	QTY	MFG	MFG'S P/N
E1	40401-00336	STAMP 53A-336 STYLE B BLUE	EA	1.00	STU PHILLIPS CO	53A-336
E2	40401-10015	STAMP SCANNER STYLE D BLUE	EA	1.00	STU PHILLIPS CO	SCANNER
E3	45050-03275	DCL REAR BLACK 20 POS -00514	EA	1.00	GOOD DECAL	45050-03275
E4	45050-03279	DCL LED 12POS BLK DRW 00000 -03279	EA	1.00	GOOD DECAL	45050-03279
F07	42202-52001	FUSE SUB-MIN 2AMP	EA	1.00	LITTLEFUSE INC.	251002
					SAN-O	SP5-2A
K02	83500-20008	RELAY DPST 100 OHMS 5V 8A CONTACTS	EA	16.00	AROMAT CORP.	ST2-DC5V
K03	83500-20008	RELAY DPST 100 OHMS 5V 8A CONTACTS	EA	-		
K12	83500-20008	RELAY DPST 100 OHMS 5V 8A CONTACTS	EA	-		
K13	83500-20008	RELAY DPST 100 OHMS 5V 8A CONTACTS	EA	-		
K32	83500-20008	RELAY DPST 100 OHMS 5V 8A CONTACTS	EA	-		
K33	83500-20008	RELAY DPST 100 OHMS 5V 8A CONTACTS	EA	-		
K42	83500-20008	RELAY DPST 100 OHMS 5V 8A CONTACTS	EA	-		
K43	83500-20008	RELAY DPST 100 OHMS 5V 8A CONTACTS	EA	-		
K62	83500-20008	RELAY DPST 100 OHMS 5V 8A CONTACTS	EA	-		
K63	83500-20008	RELAY DPST 100 OHMS 5V 8A CONTACTS	EA	-		
K72	83500-20008	RELAY DPST 100 OHMS 5V 8A CONTACTS	EA	-		
K73	83500-20008	RELAY DPST 100 OHMS 5V 8A CONTACTS	EA	-		
K92	83500-20008	RELAY DPST 100 OHMS 5V 8A CONTACTS	EA	-		
K93	83500-20008	RELAY DPST 100 OHMS 5V 8A CONTACTS	EA	-		
K101	83500-20010	RELAY DPST 100 OHMS 5V 8A CONTACTS 2MS R	EA	1.00	AROMAT CORP.	CDSTEST83500-20008
K102	83500-20008	RELAY DPST 100 OHMS 5V 8A CONTACTS	EA	-		
K103	83500-20008	RELAY DPST 100 OHMS 5V 8A CONTACTS	EA	-		
K116	83000-20006	RELAY REED SPDT 5000HMS 3.8V	EA	1.00	TRIRIDGE CORP.	220-001-5M
L91	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	35.00	AMPEREX/PHILLIP	VK20010-3B
L021	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L022	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L031	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L032	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L121	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L122	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L131	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L132	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L321	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L322	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L331	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L332	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L421	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L422	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L431	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L432	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L621	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L622	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L631	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L632	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L721	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L722	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L731	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		

NAME: HI VOLTAGE SCANNER CARD 8607-02-F-01 ASSY NO: 53A-336

REVISION: 01 DATE: 04/08/1996

ITEM/ SYMBOL	JcAIR P/N	DESCRIPTION	U/M	QTY	MFG	MFG'S P/N
L732	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L921	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L922	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L931	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L932	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L1011	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L1021	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L1022	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L1031	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L1032	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
L1151	27051-00200	INDUCTOR FERRITE CHOKE WIDEBAND	EA	-		
PCB1	41530-33600	P.C. BOARD VERSION 8L 8607	EA	1.00	HARMON	41530-33610 REV 8607
					SAE CIRCUITS CO	41530-33600
					TEKTRONIX INC.	41530-33600
					UNICIRCUITS	41530-33600
Q67	51100-04237	TRANSISTOR NPN SWITCHING	EA	2.00	MOTOROLA SEMICO	2N4238
Q77	51100-04237	TRANSISTOR NPN SWITCHING	EA	-		
Q871	51100-03646	TRANSISTOR NPN HIGH SPEED SWITCH	EA	5.00	MOTOROLA SEMICO	MPS3646
					NATIONAL SEMI /	MPS3646
					SEMICONDUCTORS,	MPS3646
Q872	51100-03646	TRANSISTOR NPN HIGH SPEED SWITCH	EA	-		
Q961	51100-03646	TRANSISTOR NPN HIGH SPEED SWITCH	EA	-		
Q962	51100-03646	TRANSISTOR NPN HIGH SPEED SWITCH	EA	-		
Q1161	51100-03646	TRANSISTOR NPN HIGH SPEED SWITCH	EA	-		
R01	10117-33003	RES COMP 330 1-4W 5%	EA	1.00	ALLEN-BRADLEY C	RC07GF331J
					NIC	NIC-NCF25-330
					ROHM CORP.	R25JE-330-5%
R07	12008-33004	RES NETWORK SIP 3.3K 5% 1.5W 9-PKG	EA	1.00	BOURNS INC.	4610X-101-332
					CTS OF BERNE, I	750-101-R3.3K
					DALE/VISHAY	CSC10A-01-332G
R36	10117-10004	RES COMP 1K 1-4W 5%	EA	4.00	ALLEN-BRADLEY C	RC07GF102J
					ROHM CORP.	R25JE-1K-5%
R56	10116-10005	RES COMP 10K 1-5W 5%	EA	1.00	ROHM CORP.	R20JE-10K-5%
R77	10117-22003	RES COMP 220 1-4W 5%	EA	2.00	ALLEN-BRADLEY C	RC07GF221J
					ROHM CORP.	R25JE-220-5%
R87	14024-33205	RES FILM 33.2K 1-4W 1% 100PPM	EA	2.00	DALE/VISHAY	RN55D3322F
					MEPCO/CENTRALAB	RN55D3322F
R91	10117-10007	RES COMP 1M 1-4W 5%	EA	4.00	ALLEN-BRADLEY C	RC07GF105J
					ROHM CORP.	R25JE-1M-5%
R95	10117-10004	RES COMP 1K 1-4W 5%	EA	-		
R061	10117-10004	RES COMP 1K 1-4W 5%	EA	-		
R062	10117-10004	RES COMP 1K 1-4W 5%	EA	-		
R671	10117-10007	RES COMP 1M 1-4W 5%	EA	-		
R672	10117-10007	RES COMP 1M 1-4W 5%	EA	-		
R673	10117-22003	RES COMP 220 1-4W 5%	EA	-		
R971	14024-33205	RES FILM 33.2K 1-4W 1% 100PPM	EA	-		

NAME: HI VOLTAGE SCANNER CARD 8607-02-F-01 ASSY NO: 53A-336

REVISION: 01 DATE: 04/08/1996

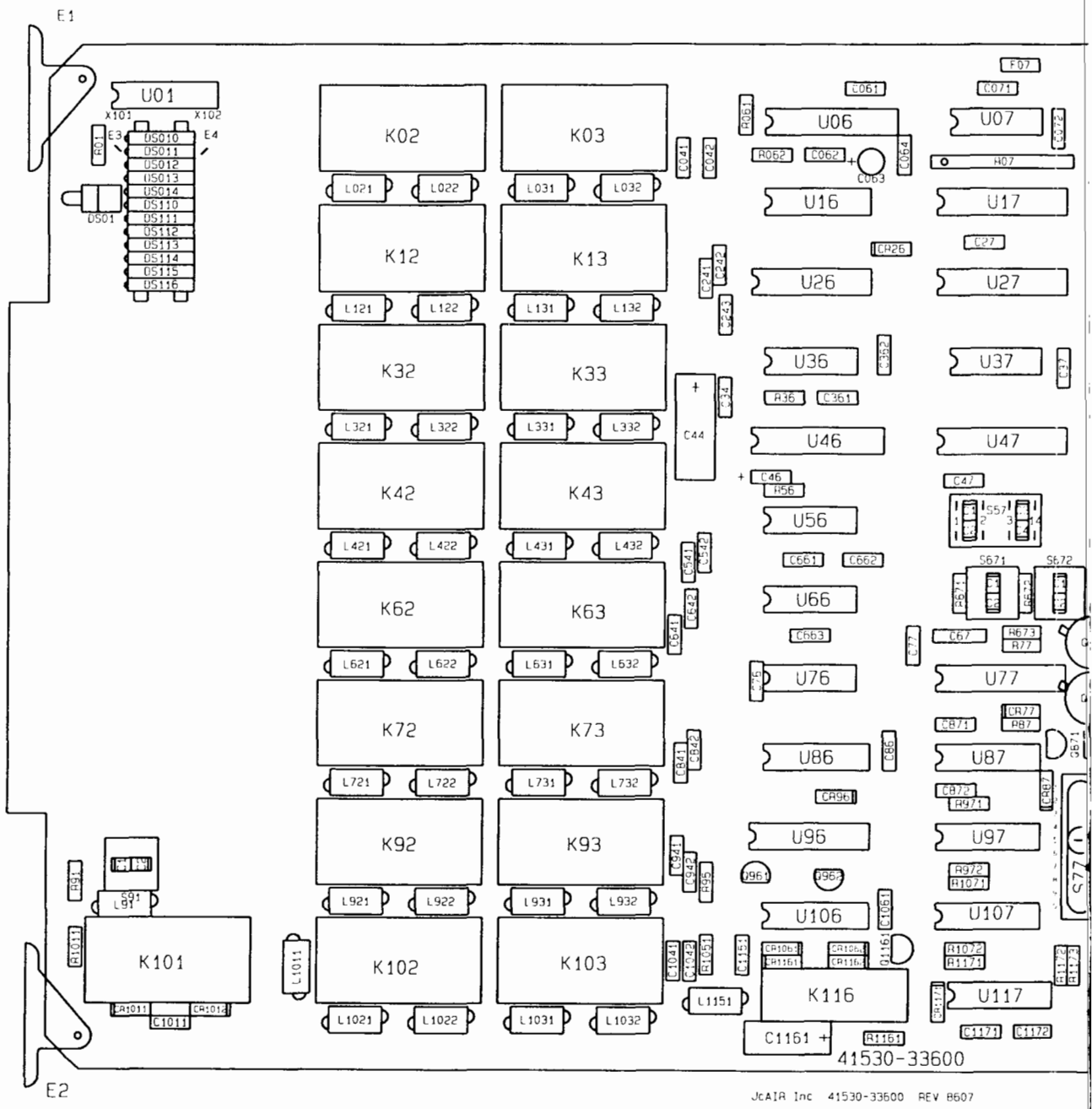
ITEM/ SYMBOL	JcAIR P/N	DESCRIPTION	U/M	QTY	MFG	MFG'S P/N
R972	10117-10003	RES COMP 100 1-4W 5%	EA	2.00	ALLEN-BRADLEY C	RC07GF101J
					NIC	NIC-NCF25-100
					ROHM CORP.	R25JE-100-5%
R1011	10117-10007	RES COMP 1M 1-4W 5%	EA	-		
R1051	10117-33004	RES COMP 3.3K 1-4W 5%	EA	1.00	ALLEN-BRADLEY C	RC07GF332J
					ROHM CORP.	R25JE-3.3K-5%
R1071	10117-12004	RES COMP 1.2K 1-4W 5%	EA	2.00	ALLEN-BRADLEY C	RC07GF122J
					ROHM CORP.	R25JE-1.2K-5%
R1072	10117-10003	RES COMP 100 1-4W 5%	EA	-		
R1161	10117-22004	RES COMP 2.2K 1-4W 5%	EA	1.00	ALLEN-BRADLEY C	RC07GF222J
					ROHM CORP.	R25JE-2.2K-5%
R1171	10117-12004	RES COMP 1.2K 1-4W 5%	EA	-		
R1172	10117-15003	RES COMP 150 1-4W 5%	EA	2.00	ALLEN-BRADLEY C	RC07GF151J
					ROHM CORP.	R25JE-150-5%
R1173	10117-15003	RES COMP 150 1-4W 5%	EA	-		
S57	42050-10122	SWITCH DIP 2POS DPDT	EA	1.00	GRAYHILL INC.	76SD02S
S77	42050-10010	SWITCH 10POS.(SUB ASSY.)	EA	1.00	JcAIR	42050-10010
S91	42050-10121	SWITCH DIP 1POS DPDT	EA	3.00	GRAYHILL INC.	76SD01S
S671	42050-10121	SWITCH DIP 1POS DPDT	EA	-		
S672	42050-10121	SWITCH DIP 1POS DPDT	EA	-		
U01	79000-07442	IC TTL BCD-TO-DECIMAL DECODER	EA	1.00	NATIONAL SEMI /	DM7442
					TEXAS INSTR. IN	7442
U06	73310-74240	IC TTL LS OCTAL BUFFER	EA	3.00	MOTOROLA SEMICO	SN74LS240
					NATIONAL SEMI /	DM74LS240
					TEXAS INSTR. IN	74LS240
U07	76601-07438	IC TTL QUAD 2-INPUT NAND BUFFER W-OC	EA	1.00	NATIONAL SEMI /	DM7438
					TEXAS INSTR. IN	7438
U16	79008-74238	IC HCT 3-TO-8 LINE DECDR DEMULTIPLEXER	EA	3.00	HARRIS SEMICOND	CD74HCT238
					TEXAS INSTR. IN	74HCT238
U17	73310-74244	IC TTL LS OCTAL BUFFER NON-INVERTING	EA	1.00	NATIONAL SEMI /	DM74LS244N
					TEXAS INSTR. IN	74LS244N
U26	73405-02803	IC HIGH-VLT-CUR DARLINGTON TRANS ARRAY	EA	2.00	ALLEGRO	ULN2803A
					MOTOROLA SEMICO	ULN2803A
					SGS/THOMPSON MO	ULN2803A
U27	79814-00044	PAL PROGRAMMED 16L8 REV A 53A-336	EA	1.00	JcAIR	79814-00044
U36	77200-07408	IC TTL QUAD 2-INPUT AND GATE	EA	1.00	NATIONAL SEMI /	DM7408
					TEXAS INSTR. IN	7408
U37	76900-07427	IC TTL TRIPLE 3-INPUT NOR GATE	EA	2.00	NATIONAL SEMI /	DM7427
					TEXAS INSTR. IN	7427
U46	73001-74273	IC TTL LS OCTAL D-TYPE FLIP-FLOP	EA	1.00	NATIONAL SEMI /	DM74LS273
					TEXAS INSTR. IN	74LS273
U47	73310-74240	IC TTL LS OCTAL BUFFER	EA	-		
U56	78400-74132	IC TTL QUAD 2-INPUT NAND SCHMITT TRIGGER	EA	2.00	NATIONAL SEMI /	DM74132
					TEXAS INSTR. IN	74132
U66	78400-74132	IC TTL QUAD 2-INPUT NAND SCHMITT TRIGGER	EA	-		
U76	76900-07427	IC TTL TRIPLE 3-INPUT NOR GATE	EA	-		
U77	73310-74240	IC TTL LS OCTAL BUFFER	EA	-		
U86	79008-74238	IC HCT 3-TO-8 LINE DECDR DEMULTIPLEXER	EA	-		

JcAIR INC.

NAME: HI VOLTAGE SCANNER CARD 8607-02-F-01 ASSY NO: 53A-336

REVISION: 01 DATE: 04/08/1996

ITEM/ SYMBOL	JcAIR P/N	DESCRIPTION	U/M	QTY	MFG	MFG'S P/N
U87	74200-09602	IC TTL DUAL RETRIGGERABLE MONOSTABLE	EA	1.00	FAIRCHILD	DM9602N
					NATIONAL SEMI /	DM8602N
					NATIONAL SEMI /	DM9602
U96	73405-02803	IC HIGH-VLT-CUR DARLINGTON TRANS ARRAY	EA	-		
U97	73200-74279	IC TTL QUAD R-S LATCH	EA	1.00	NATIONAL SEMI /	DM74279
					TEXAS INSTR. IN	74279
U106	79008-74238	IC HCT 3-TO-8 LINE DECDR DEMULTIPLEXER	EA	-		
U107	71208-74390	IC HCMOS DECADE COUNTER DUAL 4-BIT	EA	2.00	MOTOROLA SEMICO	MC74HC390
					NATIONAL SEMI /	DM74HC390
					TEXAS INSTR. IN	74HC390
U117	71208-74390	IC HCMOS DECADE COUNTER DUAL 4-BIT	EA	-		
X27	45012-20095	SOCKET 20 PIN FOR PALS EXTRA LOW PROFILE	EA	1.00	ANDON	104-320-835-P29
					ROBINSON NUGENT	ICT-203-SP95-TG
X101	45001-12100	CONNECTOR SIP 12 PIN	EA	2.00	CIRCUIT ASSEMBL	CAS-12VSC-12B
					STANFORD APPLIE	CSA3000-12BC
X102	45001-12100	CONNECTOR SIP 12 PIN	EA	-		
REF0	53A-336	HI VOLTAGE SCANNER CARD 8607-02-F-01	EA	-		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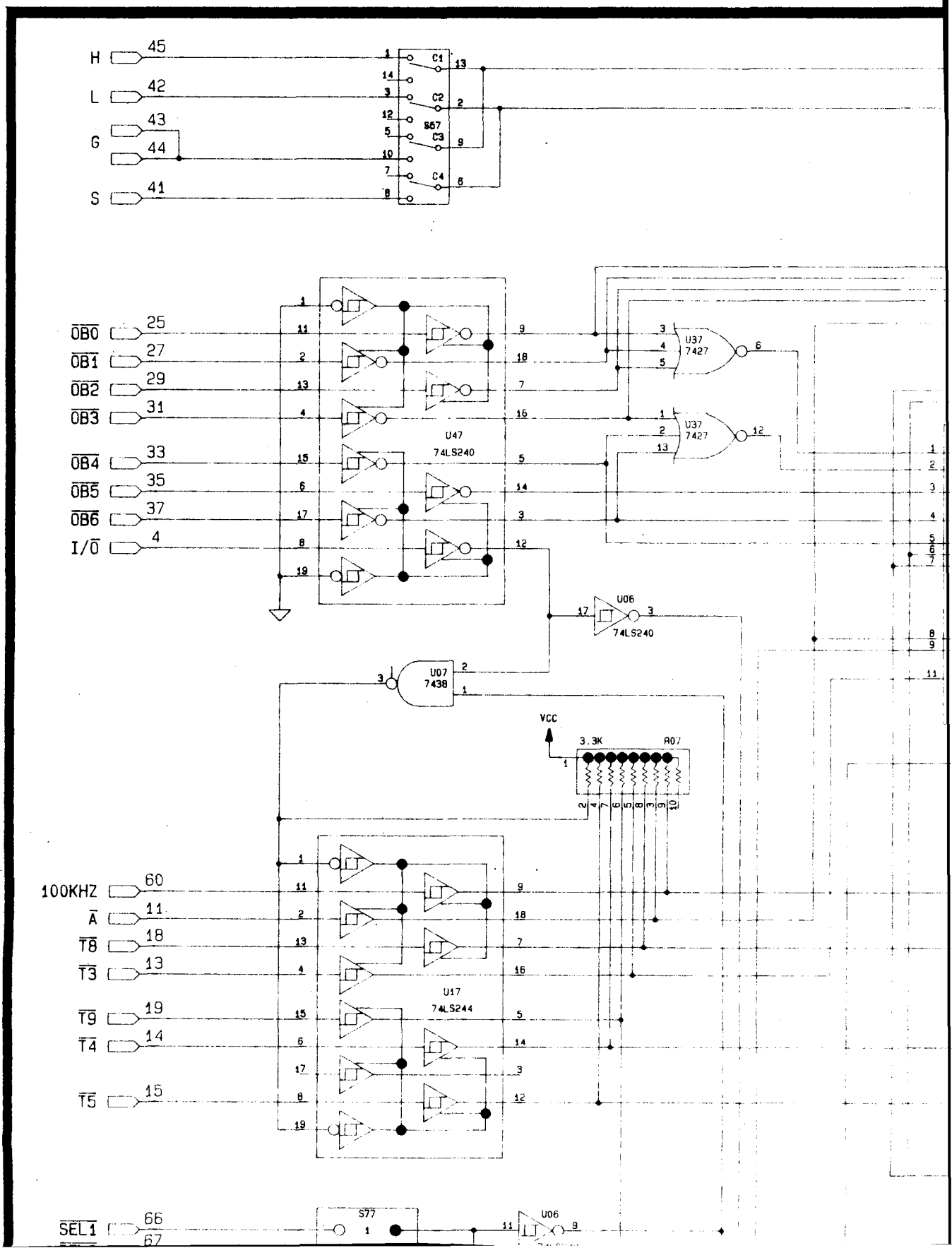
41530-33600
JcAIR Inc 41530-33600 REV B607

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED

		DIMENSIONS ARE IN INCHES TOLERANCES ARE: DECIMALS: XX ± .01, XXX ± .005 FRACTIONS ± 1/64 ANGLES ± 1/2 DEG	BFGOODRICH AEROSPACE PROPRIETARY INFORMATION	BFGoodrich Aerospace JCAIR Test Systems	400 NEW CENTURY PARKWAY NEW CENTURY, KS 66031-0009 USA PHONE (913) 764-2452 FAX (913) 782-5104
			APPROVALS / DATE		
		MATERIAL FR4 .062 THK 1 OZ CU	DRAWN NRH 17JUN97	ASSEMBLY HIGH VOLTAGE SCANNER CARD	
			CHECKED		
20-XXXX-00	01-XXXX-00	FINISH NA	ISSUED	SIZE B / CAGE NO 41364 / DWG NO 41530-33600 ASSY / REV B607-02 G	
NEXT ASS'Y	USED ON		FILE NAME FILENAME PCB		SHEET 1 OF 1
UNIT UNIT NAME					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C3
C4
OB0
OB1
OB2
OB3
OB4
OB5
OB6
I/O
25
27
29
31
33
35
37
4
U47
74LS240
U37
7427
U06
74LS240
U07
7438
VCC
3.3K
R07
100KHZ
A
T8
T3
T9
T4
T5
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11
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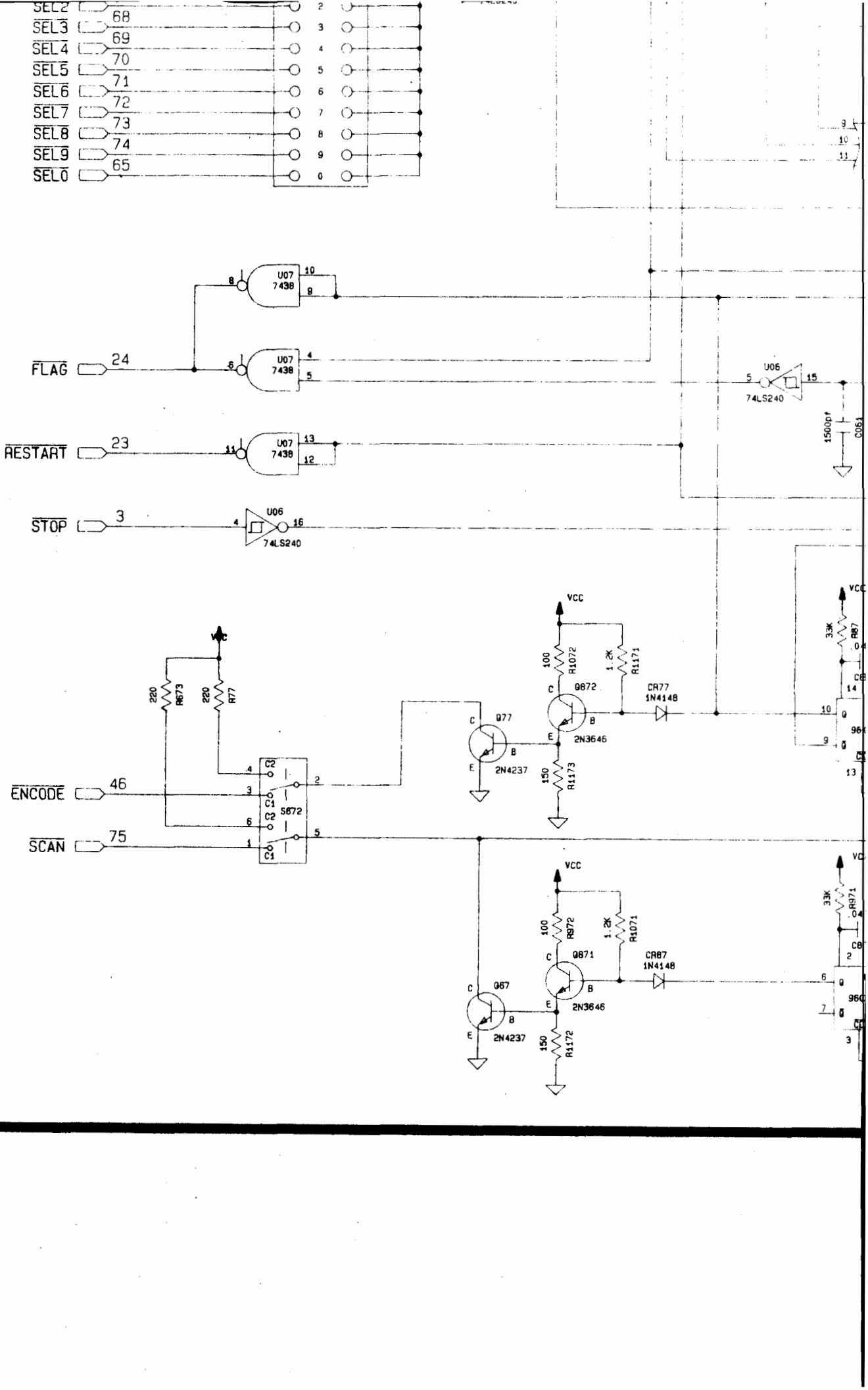
19
14
15
U17
74LS244
SEL1
66
67
S77
U06


SEL2
SEL3
68
SEL4
69
SEL5
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SEL6
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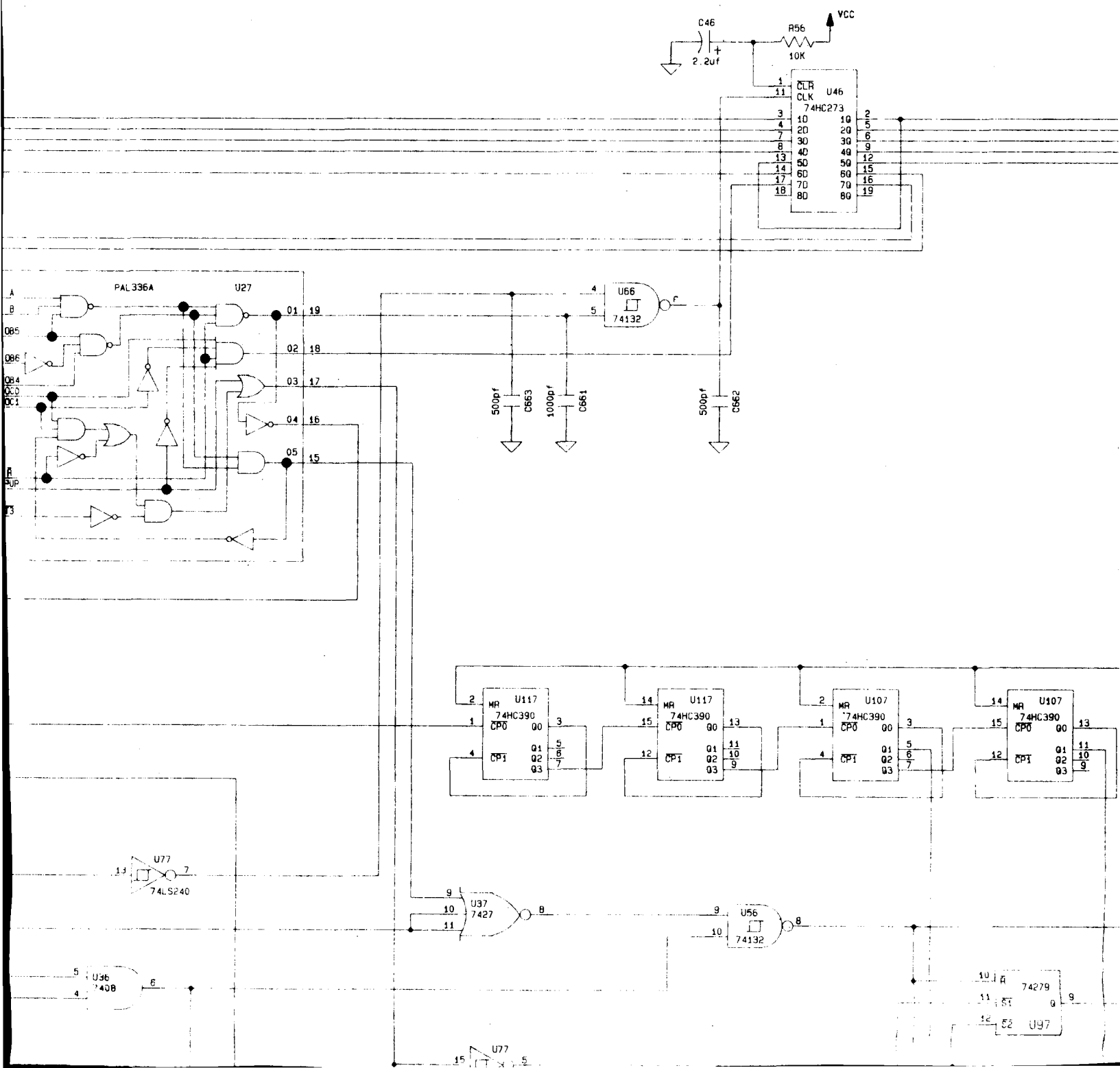
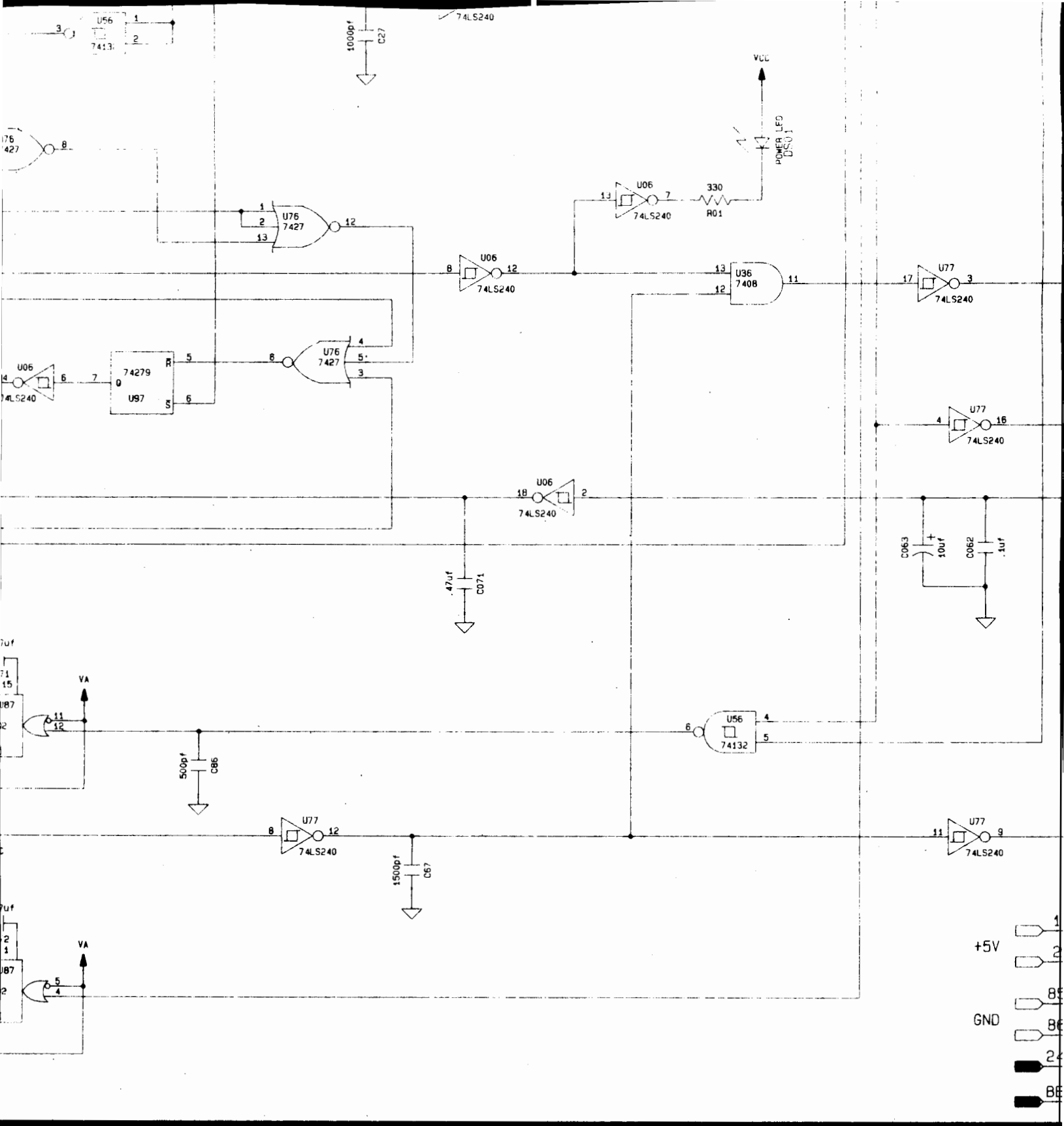
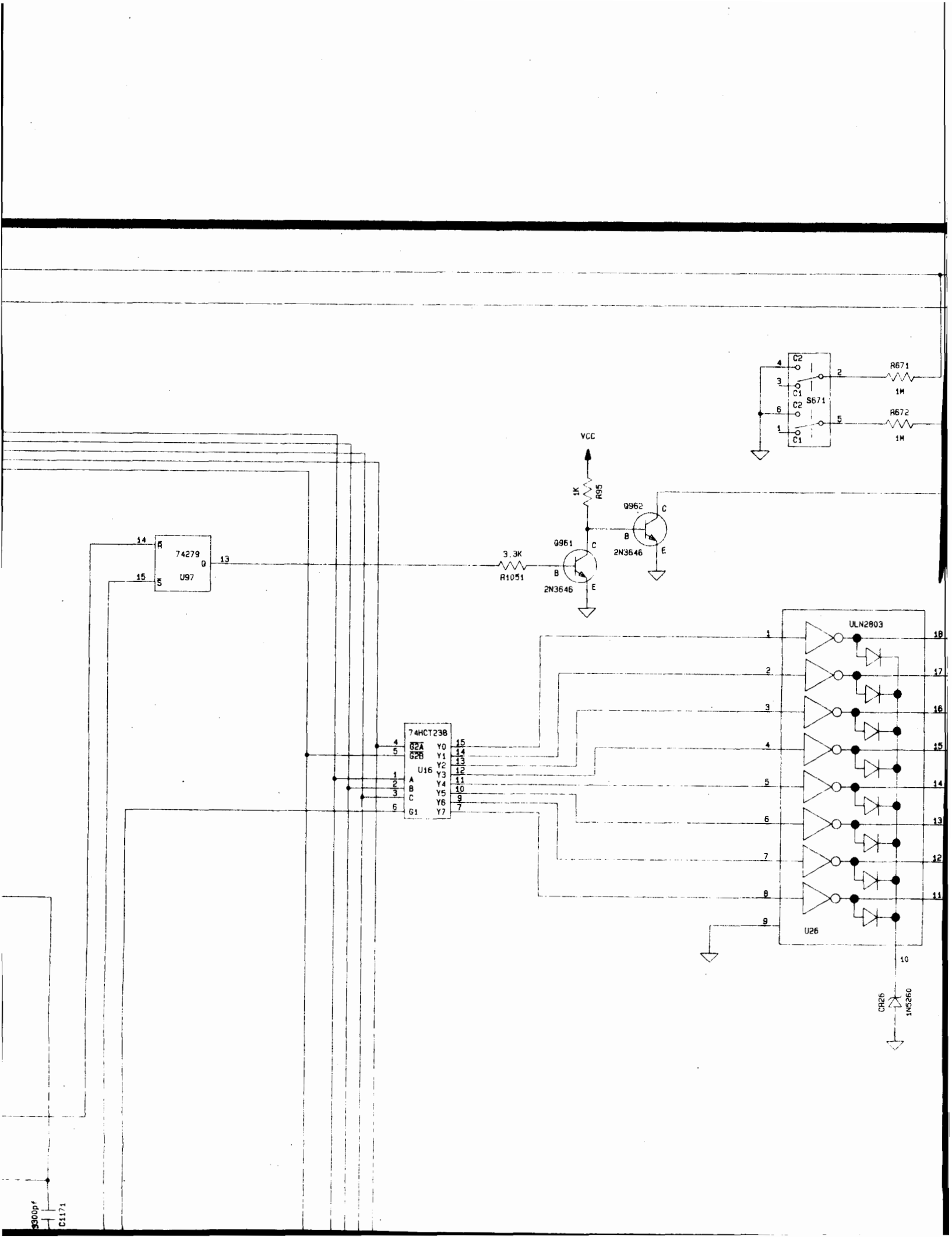
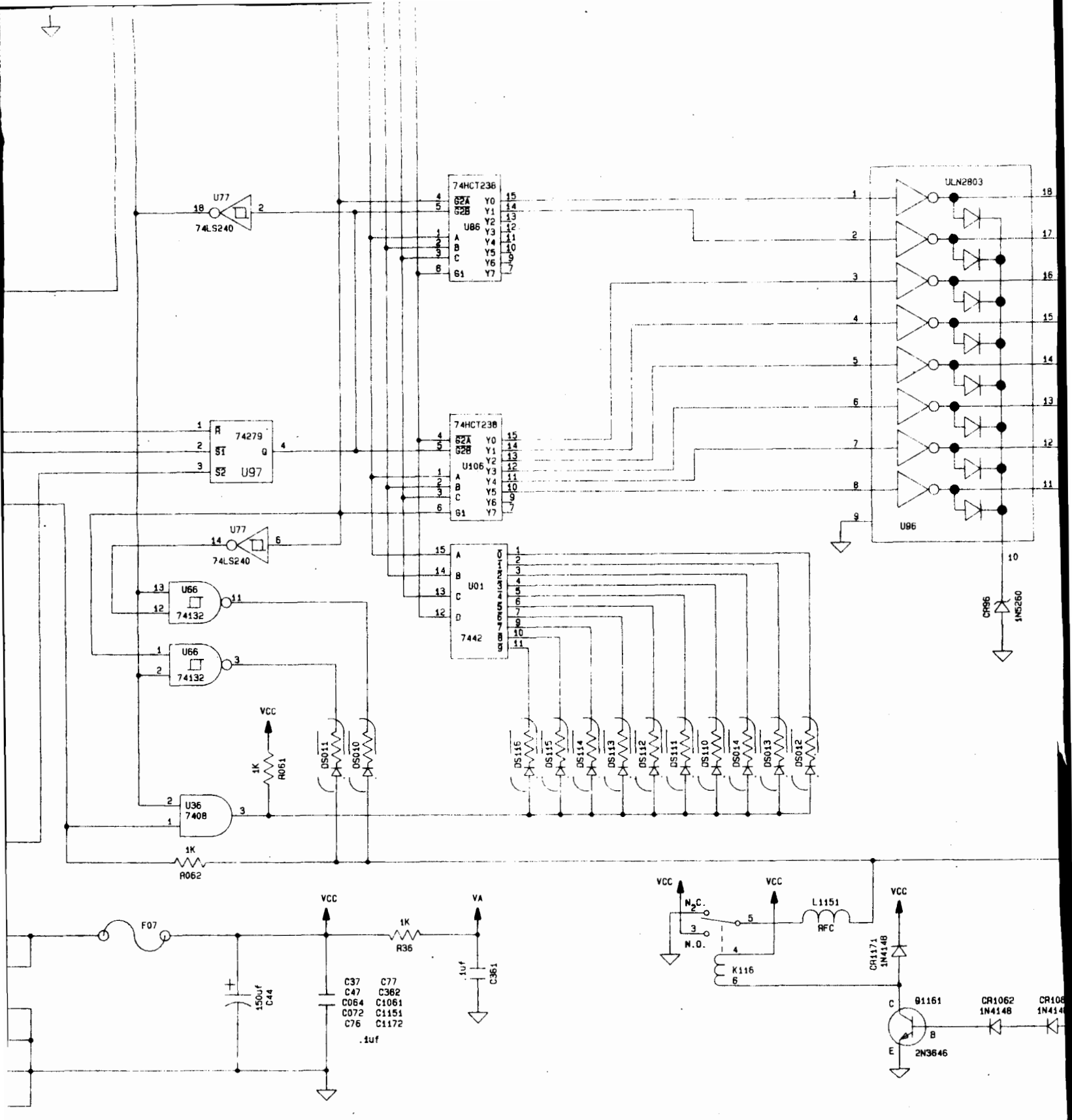
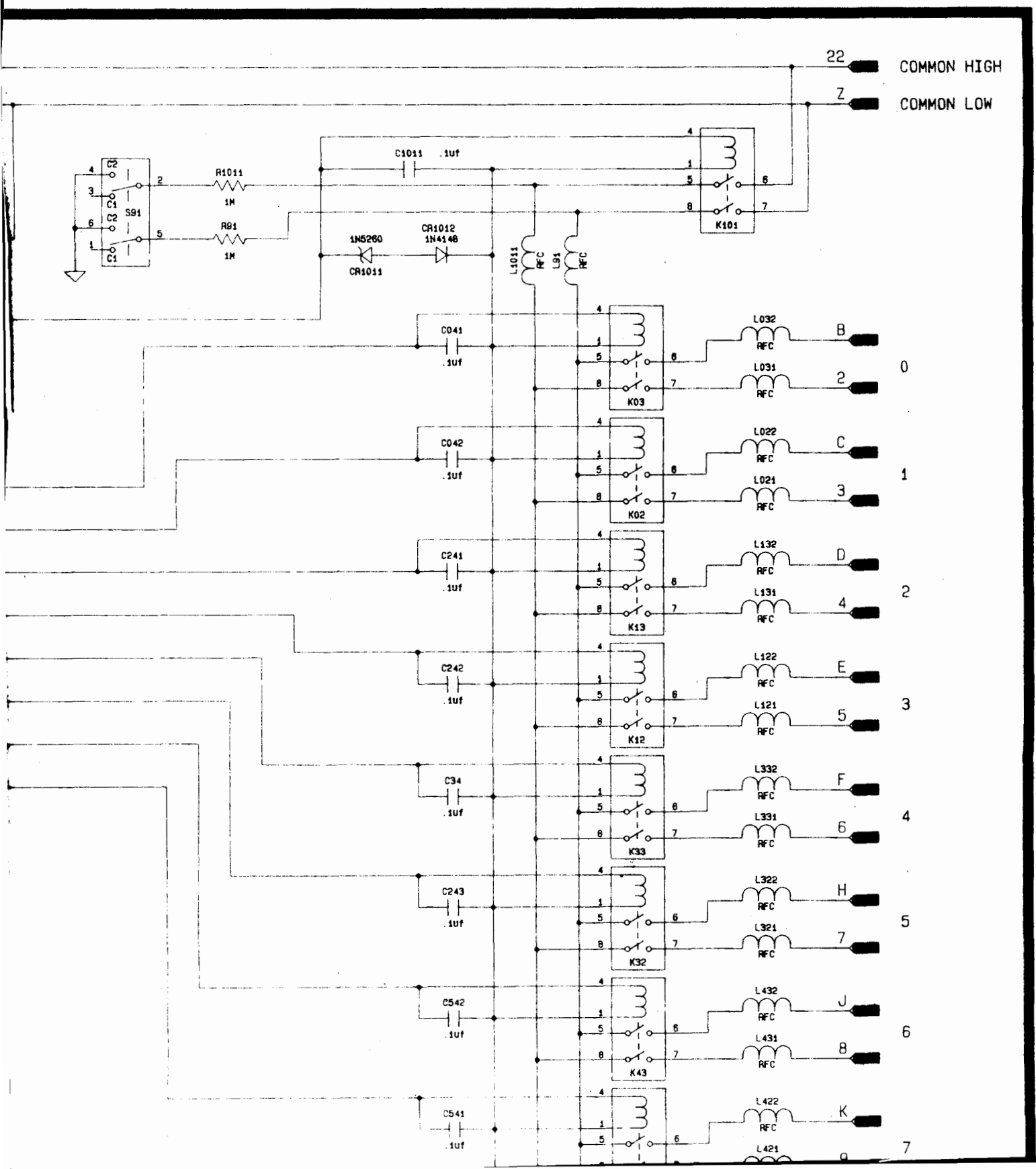
SEL7
72
SEL8
73
SEL9
74
SEL0
65
U07
7438
FLAG
24
RESTART
23
STOP
3
U06
74LS240
1500pf
C051
ENCODE
46
SCAN
75
220
R673
220
R77
S672
VCC
100
R1072
1.2K
R1171
Q872
2N3646
CR77
1N4148
Q77
2N4237
150
R1173
33K
R87
R971
R972
R1071
Q871
CR87
Q67
R1172


C46
2.2uf
R56
10K
VCC
U46
74HC273
PAL336A
U27
U66
74132
500pf
C663
1000pf
C661
500pf
C662
U117
74HC390
U107
74HC390
U77
74LS240
U37
7427
U56
74132
U36
7408
74279
U97
U77


U56
7413
1000pf
C27
74LS240
VCC
POWER LED
DS01
330
R01
U06
74LS240
U76
7427
U36
7408
U77
74LS240
74279
U97
.47uf
C071
C063
10uf
C062
.1uf
VA
500pf
C86
U56
74132
1500pf
C67
+5V
GND


S671
C2
C1
R671
1M
R672
1M
VCC
1K
R95
Q962
2N3646
Q961
2N3646
3.3K
R1051
74279
U97
74HCT238
U16
ULN2803
U26
CR26
1N5260
C1171
330pf


U77
74LS240
74HCT238
U86
U106
74279
U97
U01
7442
ULN2803
U96
CR86
1N5260
U66
74132
U36
7408
1K
R061
R062
DS011
DS010
DS016
DS015
DS014
DS013
DS012
VCC
F07
R36
150uf
C44
C37
C47
C064
C072
C76
C77
C362
C1061
C1151
C1172
.1uf
C361
VA
N.C.
N.O.
K116
L1151
RFC
CR1171
1N4148
Q1161
2N3646
CR1062
CR106


22
COMMON HIGH
Z
COMMON LOW
S91
C2
C1
R1011
1M
R91
1M
C1011 .1uf
1N5260
CR1011
CR1012
1N4148
L1011
RFC
L91
RFC
K101
C041
.1uf
K03
L032
RFC
B
L031
RFC
2
0
C042
.1uf
K02
L022
RFC
C
L021
RFC
3
1
C241
.1uf
K13
L132
RFC
D
L131
RFC
4
2
C242
.1uf
K12
L122
RFC
E
L121
RFC
5
3
C34
.1uf
K33
L332
RFC
F
L331
RFC
6
4
C243
.1uf
K32
L322
RFC
H
L321
RFC
7
5
C542
.1uf
K43
L432
RFC
J
L431
RFC
8
6
C541
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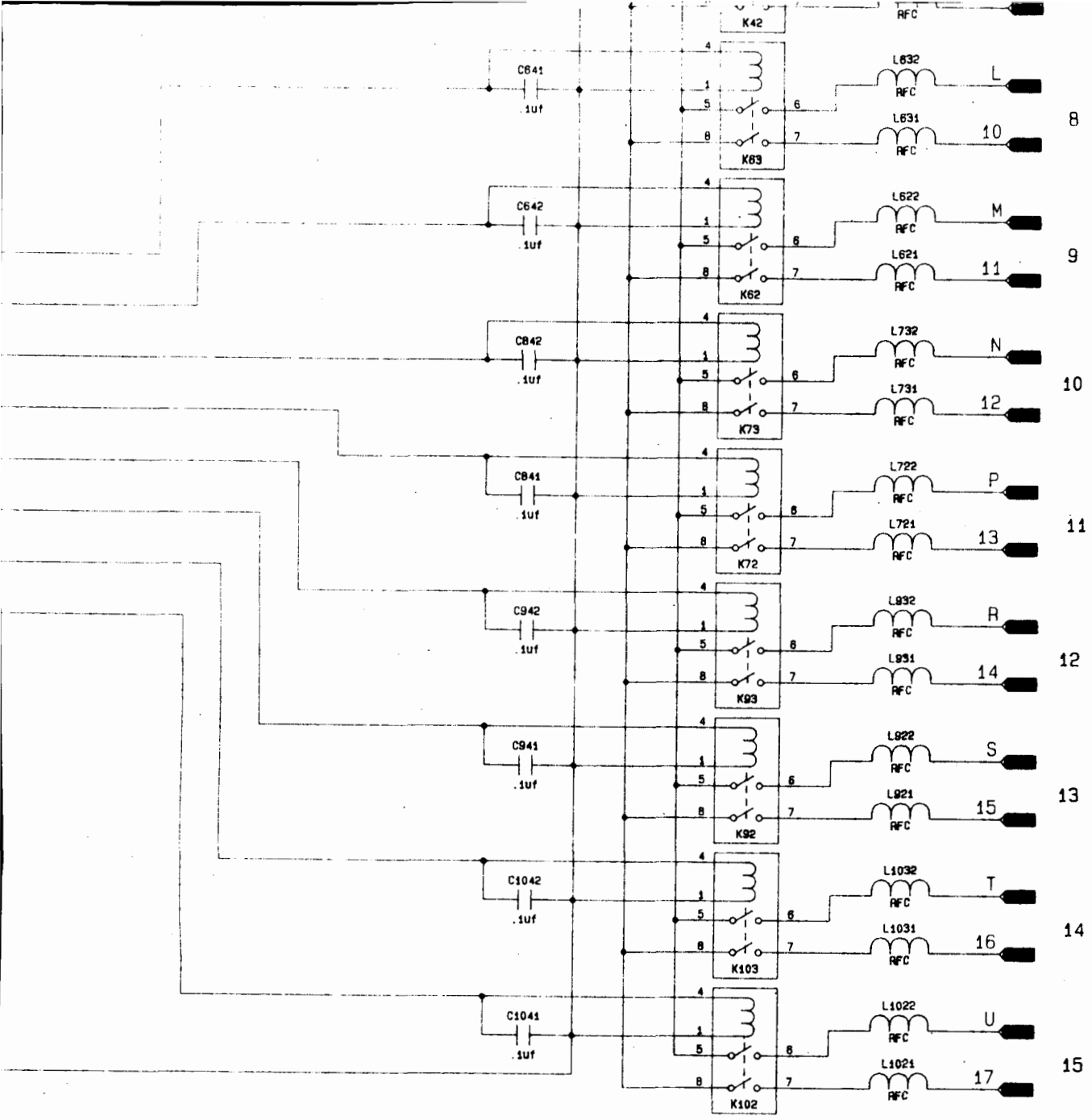
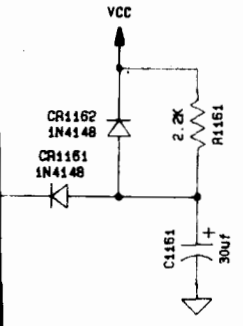
L422
RFC
K
L421
7





8607-02-F-00

REVISION LEVEL	ECO #

JcAIR Inc.

400 INDUSTRIAL PKWY
INDUSTRIAL AIRPORT
KANSAS 66031

PART NO.: 53A-336

DESCRIPTION: HIGH VOLTAGE SCANNER CARD

P.C.B. NUMBER: 41530-33600