

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Aeroflex / Tektronix / CDS 53A-284* at our website: *Click HERE*

53A-284 HIGH VOLTAGE GAIN AMPLIFIER CARD

OPERATING MANUAL

© Copyright 1990 by
Colorado Data Systems, Inc.
A Subsidiary of Tektronix
Englewood, CO 80110
All rights reserved.

Printed in U.S.A.

10/24/90

8503-01-B
through
9005-01-D

WARRANTY

Colorado Data Systems, Inc. (CDS) products (hardware and firmware) are warranted against defects in materials and workmanship, and are warranted to meet the performance specifications as listed in the current catalog and/or data sheet for the specific product being warranted. This warranty applies for three (3) years following the date of shipment. CDS will, at its option, repair or replace, at no cost to the customer, products which prove to be defective during the warranty period, provided the defect or failure is not due to misuse or abuse of the product. The customer is responsible for shipment of the defective product to the CDS factory. Software products are supplied on a site license basis subject to the same performance warranty provisions; the materials and distribution provision applies to the distribution media only. NO OTHER WARRANTY IS EXPRESSED OR IMPLIED, INCLUDING WARRANTY FOR FITNESS OF PURPOSE. CDS SHALL, IN NO CASE, BE LIABLE FOR CONSEQUENTIAL DAMAGES.

53A-284 HIGH VOLTAGE GAIN AMPLIFIER CARD

OPERATING MANUAL

DESCRIPTION 1

CONTROLS AND INDICATORS 1

SPECIFICATIONS 3

OPERATION 6

OUTPUT CONNECTOR 9

INSTALLATION 10

CALIBRATION 11

53A-284 HIGH VOLTAGE GAIN AMPLIFIER CARD

DESCRIPTION

The 53A-284 High Voltage Amplifier Card is a printed circuit board assembly for use in the 53A System. The card provides six independently controllable, high-voltage amplifiers. Each amplifier can be programmed to have a gain of X0, X1, X2, X3, X4 or X5. The maximum output range is ±50V when a gain of X5 is selected. The card can provide up to 30 mA of current at ±50V. In addition, all outputs are short-circuit protected.

When the 53A-284 is used with the 53A-257 Hex D/A Card, each amplifier can have a programmable output level in the range of ±50V. The 53A-732 Analog Cable can be used to interconnect the two cards and the user's Unit Under Test.

CONTROLS AND INDICATORS

The following controls and indicators are provided to select and display the functions of the 53A-284 Card's operating environment.

Address-Select Switch

The 53A-284 Card has a miniature 10-position switch labeled "ADDRESS" that selects the 53A-284 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-284 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-284 Card is unaddressed, but that all required DC power (5V, -15V, +15V, +60V and -60V) is being supplied to the Card.

Fuses

There are five fuses (5V, -15V, +15V, +60V and -60V) which protect the 53A System from overload conditions. If any fuse has blown, the Power LED will not light.

Channel Select LEDs

One of six LEDs labeled CSA, CSB, CSC, CSD, CSE, and CSF will light to show the last channel addressed.

Gain Select LEDs

One of the six LEDs labeled GS0, GS1, GS2, GS3, GS4, and GS5 will light to show the last gain command sent to the card.

Halt Switch

The Halt switch is a single rocker switch used to select the state of the amplifier card after a Halt or STOP command is received by the 53A System.

a. Halt switch ON — All gains will become X0 after a HALT or STOP has been received.

b. Halt switch OFF — All gains will retain their previous setting after a HALT or STOP has been received.

SPECIFICATIONS

Configuration:	Six bipolar channels.
Programmable Gain (each channel):	X0, X1, X2, X3, X4, X5.
Type Input:	Single-ended, DC coupled.
Input Impedance:	>1M Ohm shunted by < 50pf.
Input Range:	±10V DC.
Maximum Input (without damage):	±50V DC.
Output Range:	±50V, single-ended.
Output Current:	30 mA at 50V DC, short circuit protected.
Accuracy (DC):	Gain Error: adjustable to <0.1% with potentiometer at selected gain. All other gains are <0.2% Output Drift with temp.: 200μv/°C Drift with time: 400μv/month
Frequency Response (Full load, 50V output):	±0.15dB, DC to 50 KHz 3dB point, >200 KHz
Slew Rate:	>20V/μs.
Settling Time (0.2%):	<25μs.
Power Requirements:	Required 5V power is provided by a 53A-060 power supply located in the 53A-002 Card Cage. Voltage: 4.75V to 5.25VDC Current: 0.26 amperes, maximum quiescent 0.30 amperes, peak Required ±15V power is provided by a 53A-062 power supply located in the 53A-002 Card Cage. +15V: 0.25 amperes, peak 0.20 amperes, quiescent -15V: 0.25 amperes, peak 0.20 amperes, quiescent The ±60V power is externally supplied to the card via the front edge connector. With all six outputs unloaded, the Card requires ±60V at ±60 mA. The total power consumption for a card can be calculated by adding the additional current required per output based on the output loading.

CAUTION: Voltages exceeding ±90V applied to the ±60V inputs will result in card damage.

Current requirement per channel		Output per channel	
+60V	-60V	Output Current	Load
Milliampere	Milliampere		
1	1	.6 mA	100K ohm
7	7	6 mA	10K ohm
15	15	12 mA	5K ohm
25	25	20 mA	3K ohm
35	35	30 mA	2K ohm

Cooling: Provided by the fan in the 53A-002 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, -10°C 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 53A-002 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: 0.38 Kg (0.9 lbs.)

Weight, Shipping: When ordered with a 53A-002 Card Cage, the card is installed in one of the card cage's function-card slots.

When ordered alone, the shipping weight is:
0.79 Kg (1.8 lbs.)

Mounting Position: Any orientation.
Mounting Location: Installs in any function-card slot of the 53/63 Series Card Cage.

Output Connections: A 48-pin printed circuit type hooded connector (53A-780), provides a connection for all inputs and outputs.

Required Equipment: A 53A-780 Hooded Connector or 53A-732 Analog Cable is required with this card.

Equipment Supplied:

53A-284 High Voltage Amplifier Card
Spare Fuse (Part #42202-52001)
Operating Manual (Part #00000-12840)
Service Manual (Part #00000-22840)

OPERATION

The High Voltage Amplifier Card is programmed by ASCII characters issued from the system controller to the 53/63 System's communications card. The 53A-284 Card is interfaced to the communications card through the 53 Series or 63 Series Card Cage's backplane.

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-284 Card's address (0-9) within the addressed card cage. The 53A-284 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-284 Card is addressed, the commands listed below may be issued until another function card is addressed.

Command	Description
Z	This command is used to set the output of a particular channel (A through F) to a particular gain (X0 through X5).

Syntax: @XYZ$_1$Z$_2$

Z_1 represents an integer number, 0 through 5, which is the desired gain.

Z_2 represents the amplifier channel, A through F, to which that gain applies.

Example:
The command sequence @053B will set a gain of X3 on Channel B. It is assumed that the 53A-284 Card has address 5 and is in a mainframe with address 0.

Status:
Power LED: out.
Channel Select LEDs: CSB On, all others out.
Gain Select LEDs: GS3 On, all others out.

Once the Amplifier Card is addressed, it will remain addressed until the system receives a new @ character.

Example:
The command sequence 1F, sent after the Card has been addressed, will result in a gain of X1 on channel F.

Status:
Power LED: out.
Channel Select LEDs: CSF on, all others out.
Gain Select LEDs: GS1 on, all others out.

Multiple channels may be set to the same gain by sending the gain setting only once.

Example:
The command sequence @054ABD will set the gains of channels A, B and D to X4.

Status:
Power LED: out.
Channel Select LEDs: CSD On, all others out.
Gain Select LEDs: GS4 On, all others out.

If multiple gains are sent in the same command, the gain immediately preceding the channel letter will be programmed.

Example:
The command sequence @05023E will set the gain of channel E to X3.

R

The R Command is used to set the gain of all channels to 0.

Example:
The command sequence @05R will set all channels to a gain of 0.

Status:
Power LED: out.
Channel Select LEDs: All out.
Gain Select LEDs: GS0 on, all others out

H

The HALT Command will result in one of two different actions, depending upon the position of the Halt Switch on the 53A-284 Card.

Halt Switch ON: All channel gains are set to 0.

Status:
Power LED - lit
Channel Select LEDs: Out

Halt Switch OFF: All channel gains remain in their previous state.

Status:
Power LED: lit.
Gain Select and Channel Select LEDs: remain in their previous condition.

STOP

The STOP Command is not a string of ASCII characters, but is a hard-wired command from the system controller (calculator or computer) to the 53A System Communications Card located in each Mainframe.

Consult individual Communications Card Manuals for an explanation of how the system controller initiates a STOP Command. For example, in the case of a 53A-127 IEEE-488 Communications Card, a STOP Command

is initiated when the system controller asserts the IEEE-488 Bus Line IFC (Interface Clear) True.

When a STOP command is initiated by the system controller, individual system cards will react as though they had received a HALT command as described above.

The STOP Command is used typically to clear a system that has hung-up from an illegal operation. For example, requesting input from a non-existent System Card.

OUTPUT CONNECTOR

The input and output signals of the 6 high voltage amplifiers may be accessed by either the 53A-780 Hooded Edge Connector or by the 53A-732 Analog Cable. The signal assignments are listed below.

Channel	Pin Number/Letter
A Output High	2
Output Low	B
Drain	C
Input	3
B Output High	4
Output Low	D
Drain	E
Input	6
C Output High	8
Output Low	J
Drain	K
Input	9
D Output High	13
Output Low	P
Drain	R
Input	15
E Output High	18
Output Low	V
Drain	W
Input	19
F Output High	20
Output Low	X
Drain	Y
Input	22
Common Input	24
High Voltage Common	Z
+60V	AA
-60V	BB

INSTALLATION

The 53A-284 Card is a function card; therefore, it may be plugged into 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-284" is at the top for a 53 Series Chassis and to the left for a 63 Series Chassis.

CAUTION:

The 53A-284 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.

CALIBRATION

The 53A-284 Card must be calibrated every 12 months in order for the card to meet its published accuracy specifications. Calibrate the card in an environment where the temperature is between 21° and 25°C. If this is not feasible, or the card will be operating under a wide temperature variation, consult the temperature drift specifications. Allow a ten minute warm-up period before performing the calibration.

The High Voltage Amplifier Card consists of six separate amplifiers. Each amplifier must be calibrated individually. For ease of calibration, it is recommended that the card be extended from the 53A-002 Card Cage using a 53A-850 Extender Card and a 53A-780 Hooded Connector plugged onto the front edge of the High Voltage Amplifier Card.

Required Test Equipment

1. 4 Digit DVM
2. DC power supply capable of 10V DC
3. Dual DC power supply capable of outputting +60V at 100 mA and -60V at 100 mA.

Procedure

Each channel has an offset and a gain adjustment. The potentiometers used to adjust each channel are grouped in pairs with each pair identified by the channel letter, i.e., A, B, C..., etc. The potentiometers are further identified with a G (GAIN) or O (OFFSET).

1. Connect the 10V power supply low terminal and DVM low terminal to ground (Pin #24).

2. Connect the +60V output to Pin AA, the -60V output to Pin BB and the common output of the dual output power supply to Pin Z.

3. Turn on the 53A-002 Card Cage power.

4. Turn on power supply and adjust to 10.000VDC.

5. For channel A:
   a. Connect DVM high terminal to Channel A output.
   b. Short Channel A input to Pin #24.
   c. Program Channel A to a gain of 5, i.e., @XY5A, where X and Y are the control card and amplifier card addresses respectively.
   d. Adjust the offset potentiometer until the DVM reads less than ± .001 volts.
   e. Remove the short from the input and hookup the 10VDC supply to the Channel A input.
   f. Adjust the gain potentiometer until the DVM reads 50.00 volts ± .02 VDC.

6. Repeat Step 5 for Channels B, C, D, E, and F.

SERVICE MANUAL

53A-284

PROGRAMMABLE HIGH VOLTAGE AMPLIFIER

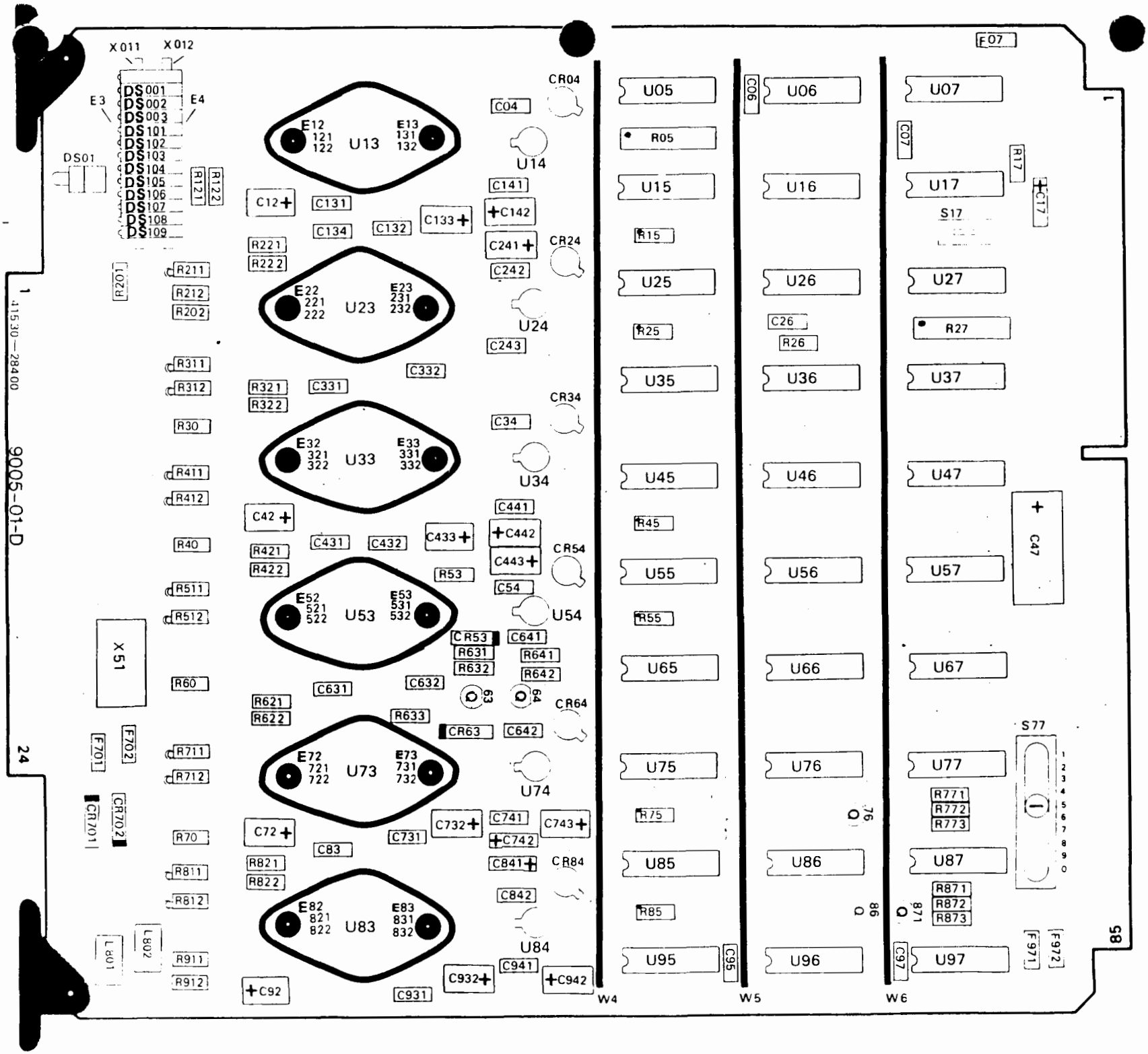
Copyright 1989 Colorado Data Systems, Inc. All rights reserved.
Contents of this publication may not be reproduced in any
form without the written permission of Colorado Data Systems, Inc.

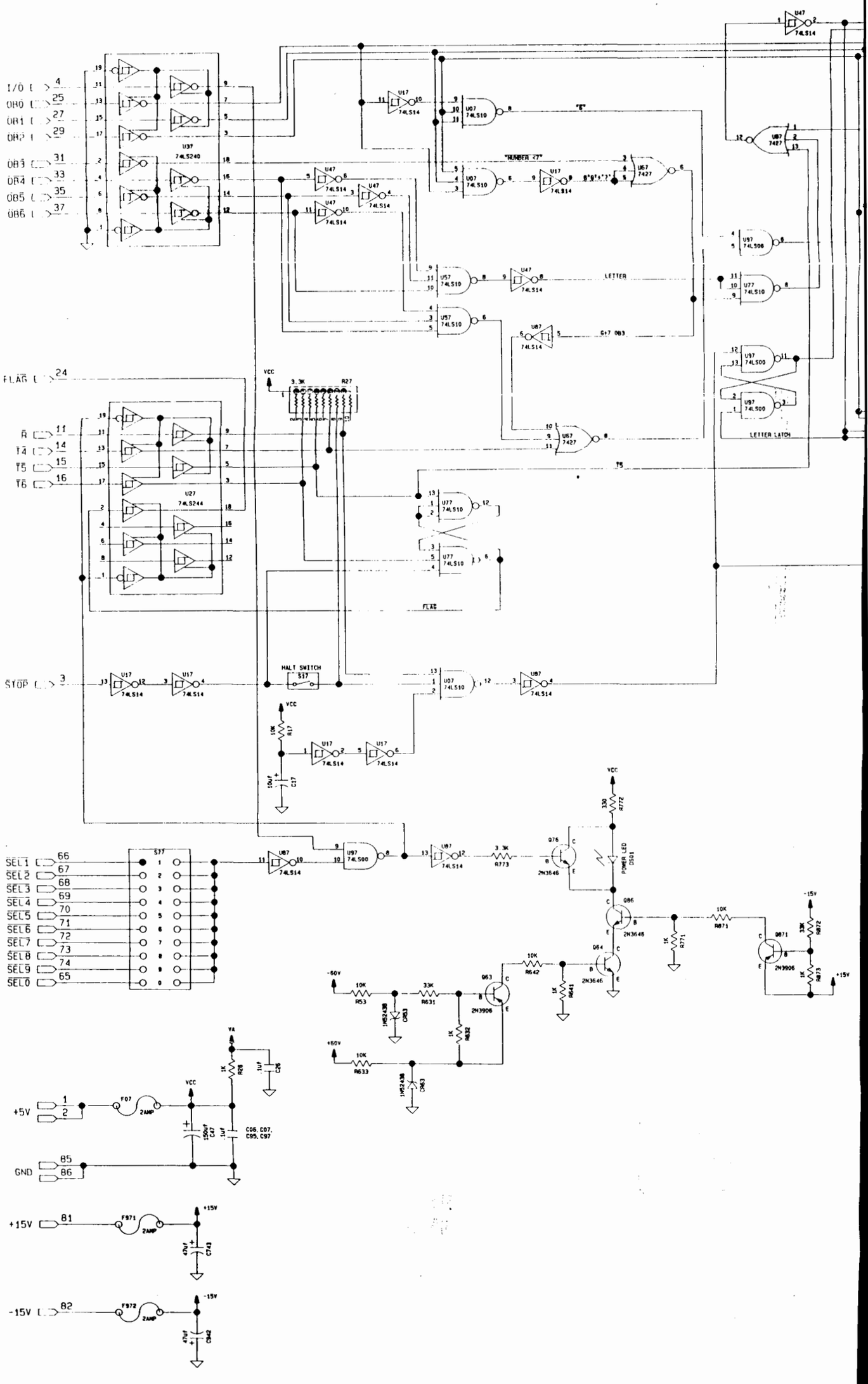
REV 9005-01-D

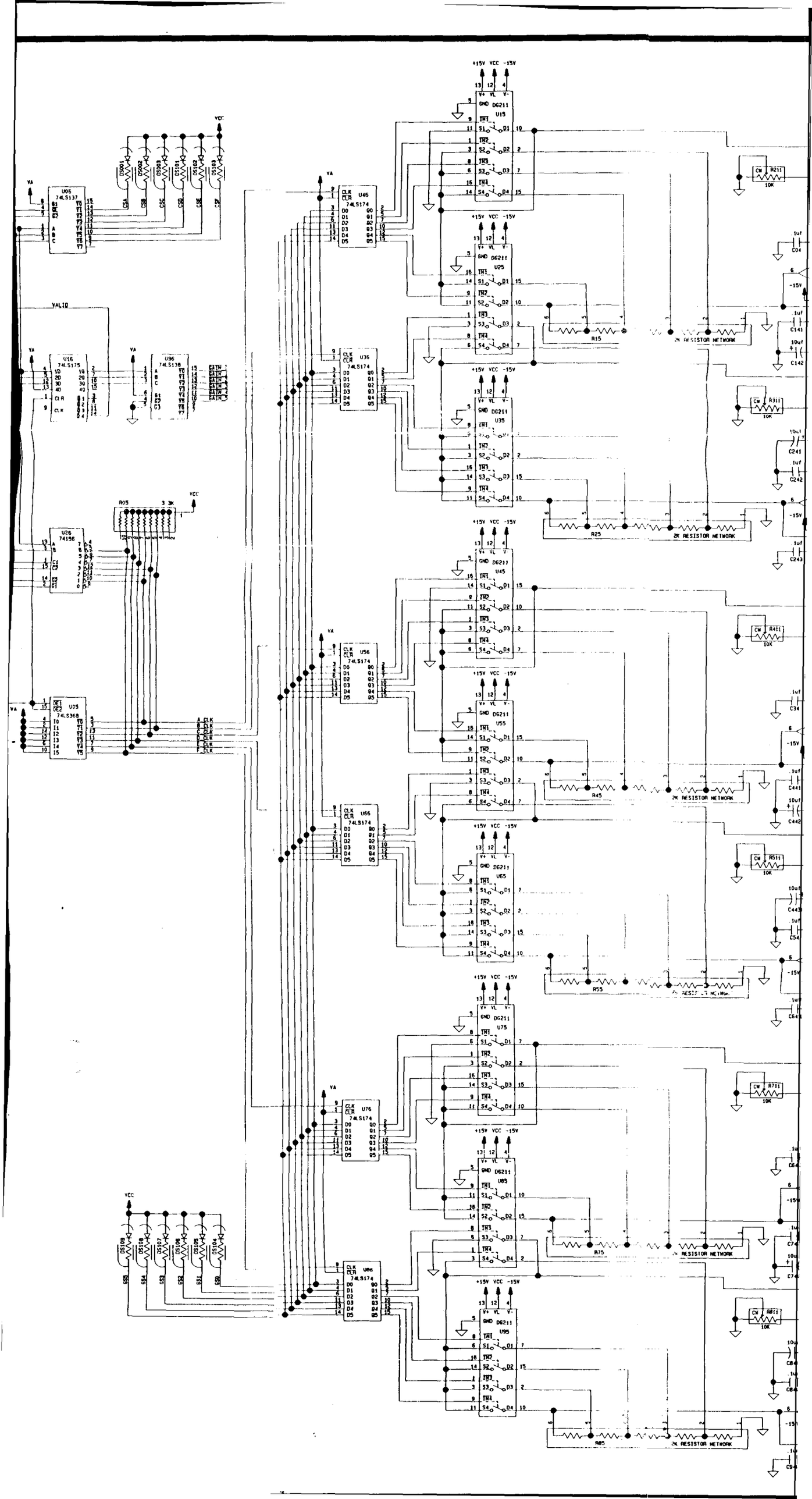
REFERENCE DESIGNATOR	CDS PART NUMBER	QTY.	PART DESCRIPTION	MFG. NUM.	MFG. PART NUMBER
C04,06,07,141,242,243,26,34,441 54,641,642,741,842,941,95,97	20128-10006	17	CAP FXD CER .1UF 20% 50VDCW	0058	C322C104M5U5CA
C12,133,42,433,72,732	21019-10003	6	CAP FXD ELECT 10UF 30% -10% 100VDCW	0152	VTL10S100
C132,134,331,332,431,432,631,632 731,83,931	20129-10006	11	CAP FXD CER .1UF 10% STABLE 100VDCW	0058	CK068X104K
C142,17,241,442,443,742,841	22022-10008	7	CAP FXD TA 10UF 10-20% 20-25VDCW	0106	199D106X9025CA1
C47	21018-15009	1	CAP FXD ELECT 150UF 75% -10% 16VDCW	0025	NLW150-16
C743,942	22022-47008	2	CAP FXD TA 47UF 20% 20WVDC	0106	199D476X0025EE2
C92,932	21018-47003	2	CAP FXD ELECT 47UF 30% -10% 100VDCW	0025	241-E-47-P-100
CR04,24,34,54,64,84	32000-00010	6	DIODE DUAL 10PA LKG 35V 50MA	0102	DPAD10
CR53,63	32000-05243	2	DIODE ZENER 13V .5W 5%	0074	1N5243B
CR701,702	32000-04001	2	DIODE SILICON 50V 1A 5%	0107	1N4001
DS001,002,003,101,102,103,104 105,106,107,108,109	32000-02003	12	DIODE LIGHT EMITTING RED WITH RESISTOR 0	0039	547-2003
DS01	32000-00103	1	DIODE LIGHT EMITTING RED 50MA	0039	550-0103
E 1	40401-00284	1	EJECTOR STAMP 53A-284 STYLE B BLUE	0026	40401-00284
E 2	40401-10055	1	EJECTOR STAMP PRG AMP STYLE D BLUE	0026	40401-10055
E 3	45050-03286	1	DCL LED 12POS DRW 00000-00541	0026	45050-03286
E 4	45050-03279	1	DCL LED 12POS BLK DRW 00000 -03279	0026	45050-03279
E12,13,22,23,32,33,52,53,72,73 82,83	92200-01632	12	STAND-OFF 3-16 SWAGE 6-32 THREAD	0059	1612-2
E121,131,221,231,321,331,521,531 721,731,821,831	92302-00632	12	WASHER INTERNAL STAR NUMBER 6 ZINC	0290	6 IN STAR WASH ZIN
E122,132,222,232,322,332,522,532 722,732,822,832	92301-00632	12	SCREW PHIL PNHD 6-32 X .375	0137	6-32X3-8 PHIL PNHD

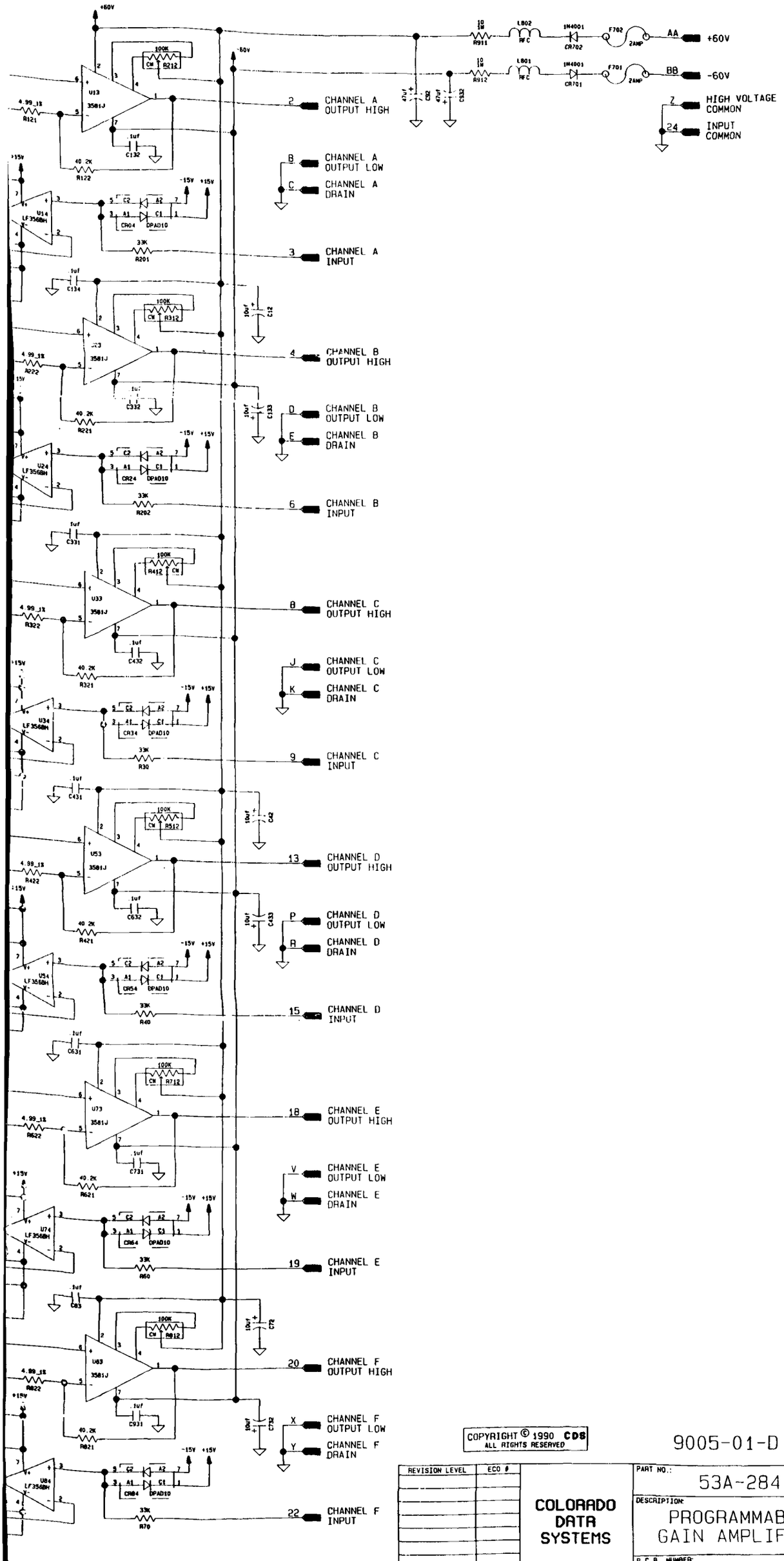
REFERENCE DESIGNATOR	CDS PART NUMBER	QTY.	PART DESCRIPTION	MFG. NUM.	MFG. PART NUMBER
F07,701,702,971,972	42202-52001	5	FUSE SUB-MIN 2AMP	0061	251002
L801,802	27051-00200	2	INDUCTOR WIDE-BAND FERRITE CHOKE	0042	VK 200 10-3B
PCB	41530-28400	1	P.C. BOARD VERSION 2S 9005	0026	41530-28400
Q63,871	51100-03906	2	TRANSISTOR PNP SWITCHING	0107	2N3906
Q64,76,86	51100-03646	3	TRANSISTOR NPN HIGH SPEED SWITCH	0074	MPS3646
R05,27	12008-33004	2	3.3K RES NETWORK SIP 5% 1.5W 9-PKG	0027	750-101-R3.3K
R121,222,322,422,622,822	14024-49904	6	4.99K RES FILM 1-4W 1% 100PPM	0035	RN55D4991F
R122,221,321,421,621,821	14024-40205	6	40.2K RES FILM 1-4W 1% 100PPM	0035	RN55D4022F
R15,25,45,55,75,85	12018-20004	6	2K RES NETWORK SIP .01% 5-PKG CUSTOM 0-	0040	12018-20004
R17,53,633,642,871	10117-10005	5	10K RES COMP 1-4W 5%	0087	R25J-10K-5%
R201,202,30,40,60,631,70,872	10117-33005	8	33K RES COMP 1-4W 5%	0087	R25J-33K-5%
R211,311,411,511,711,811	15140-10005	6	10K RES VAR CER 20TRN 1-2W SIDE ADJ.	0016	68XR10K
R212,312,412,512,712,812	15140-10006	6	100K RES VAR CER 20TRN 1-2W SIDE ADJ.	0016	68XR100K
R26,632,641,771,873	10117-10004	5	1K RES COMP 1-4W 5%	0087	R25J-1K-5%
R772	10117-33003	1	330 OHM RES COMP 1-4W 5%	0087	R25J-330-5%
R773	10117-33004	1	3.3K RES COMP 1-4W 5%	0087	R25J-3.3K-5%
R911,912	10130-10002	2	10 OHM RES COMP 1W 5%	0008	RC32GF100J
S17	42050-10101	1	SWITCH DIP 1POS SPST	0093	JS-8794-01
S77	42050-10010	1	SWITCH 10POS.	0101	C42315-A61-A11
U05	73312-74368	1	IC TTL LS HEX BUS DRIVER INVERTING	0107	74LS368
U06	79006-74137	1	IC TTL LS QUAD EXCLUSIVE OR GATE	0107	74LS137

REFERENCE DESIGNATOR	CDS PART NUMBER	QTY.	PART DESCRIPTION	MFG. NUM.	MFG. PART NUMBER
U07,57,77	76500-07410	3	IC TTL LS TRIPLE 3-INPUT NAND GATE	0107	74LS10
U13,23,33,53,73,83	61000-03581	6	OP AMP HIGH VOLTAGE O-	0023	3581J
U14,24,34,54,74,84	61000-00356	6	OP AMP JFET	0078	LF356BH
U15,25,35,45,55,65,75,85,95	81001-00211	9	IC CMOS ANALOG SWITCH SPST QUAD	0102	DG211CJ
U16	73001-74175	1	IC TTL LS QUAD D-TYPE FLIP-FLOP	0107	74LS175
U17,47,87	78402-07414	3	IC TTL LS HEX SCHMITT INVERTING BUFFER	0107	74LS14
U26	79006-74156	1	IC TTL LS DUAL DECODER W-OC	0107	74LS156
U27	73310-74244	1	IC TTL LS OCTAL BUFFER NON-INVERTING	0107	74LS244N
U36,46,56,66,76,86	73001-74174	6	IC TTL LS HEX D-TYPE FLIP-FLOP	0107	74LS174
U37	73310-74240	1	IC TTL LS OCTAL BUFFER	0107	74LS240
U67	76900-07427	1	IC TTL TRIPLE 3-INPUT NOR GATE	0107	7427
U96	79006-74138	1	IC TTL LS 3-TO-8 LINE DECODER-MUX	0107	74LS138
U97	76500-07400	1	IC TTL LS QUAD 2-INPUT NAND GATE	0107	74LS00
W04,05,06	93517-75397	3	BUS BAR P.75 F.3 X9 L7.2	0090	M-833 9.75.3
X011,012	45001-12100	2	CONNECTOR SIP 12 PIN	0026	45001-12100
X51	95010-00057	1	DANGER HIGH VOLTAGE TAG SMALL	0026	95010-00057


9005-01-D
415 30—28400
X011
X012
DS001
DS002
DS003
DS101
DS102
DS103
DS104
DS105
DS106
DS107
DS108
DS109
E3
E4
DS01
R121
R122
R201
R211
R212
R202
R311
R312
R30
R411
R412
R40
R511
R512
X51
R60
F701
F702
R711
R712
CR701
CR702
R70
R811
R812
L801
L802
R911
R912
E12 121 122 U13 E13 131 132
E22 221 222 U23 E23 231 232
E32 321 322 U33 E33 331 332
E52 521 522 U53 E53 531 532
E72 721 722 U73 E73 731 732
E82 821 822 U83 E83 831 832
C12+
C131
C134
C132
C133+
R221
R222
C332
R321
R322
C331
C42+
C431
C432
C433+
R421
R422
R53
C631
C632
R621
R622
R633
C72+
C731
C732+
C83
R821
R822
+C92
C931
C932+
C941
+C942
C04
U14
C141
+C142
C241+
C242
U24
C243
C34
U34
C441
+C442
C443+
C54
U54
CR53
C641
R631
R632
R641
R642
CR63
C642
U74
C741
+C742
C743+
C841+
C842
U84
CR04
CR24
CR34
CR54
CR64
CR84
U05
R05
U15
R15
U25
R25
U35
U45
R45
U55
R55
U65
U75
R75
U85
R85
U95
C95
W4
U06
C06
U16
U26
C26
R26
U36
U46
U56
U66
U76
U86
U96
W5
F07
U07
C07
R17
U17
C17
S17
R27
U27
U37
U47
C47
U57
U67
S77
R771
R772
R773
U77
R871
R872
R873
U87
C97
U97
F971
F972
W6
1
24
95
98


I/O
OB0
OB1
OB2
OB3
OB4
OB5
OB6
U37
74LS240
FLAG
A
T4
T5
T6
U27
74LS244
STOP
SEL1
SEL2
SEL3
SEL4
SEL5
SEL6
SEL7
SEL8
SEL9
SEL0
S77
"E"
"NUMBER 27"
LETTER
G47 OB3
LETTER LATCH
FLAG
HALT SWITCH
S17
VCC
R27
3.3K
R17
10K
C17
10uf
R772
330
POWER LED
CR91
Q76
2N3646
Q86
Q64
Q63
Q71
2N3906
R771
R773
R871
R872
R873
R642
R641
R53
R631
R632
R633
CR63
CR62
CR63
-60V
+60V
-15V
+15V
+5V
GND
F07
2AMP
F971
F972
C26
C06, C07, C95, C97
C743
C742


VCC
VA
VALID
U05
74LS138
U16
74LS175
U26
74156
U96
74LS138
R05
3.3K
DS01
DS02
DS03
DS04
DS05
DS06
DS07
DS08
DS09
DS10
DS11
DS12
+15V VCC -15V
GND DG211
U15
U25
U35
U45
U55
U65
U75
U85
U95
CLK
CLR
74LS174
U46
U36
U56
U66
U76
U86
R15
R25
R45
R55
R75
R85
2K RESISTOR NETWORK
CW R211
CW R311
CW R411
CW R511
CW R711
CW R811
10K
1uf
10uf
C04
C141
C142
C241
C242
C243
C34
C441
C442
C443
C54
C641
C642
C643
C74
C841
C842
C843
C94



COPYRIGHT © 1990 CDS
ALL RIGHTS RESERVED

9005-01-D

REVISION LEVEL	ECO #

COLORADO DATA SYSTEMS

PART NO.: 53A-284

DESCRIPTION: PROGRAMMABLE GAIN AMPLIFIER

P.C.B. NUMBER: 41530-28400

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP