

**NEC**

***NEC Information Systems, Inc.***

**spinwriter<sup>TM</sup>**  
**MAINTENANCE**  
**MANUAL**

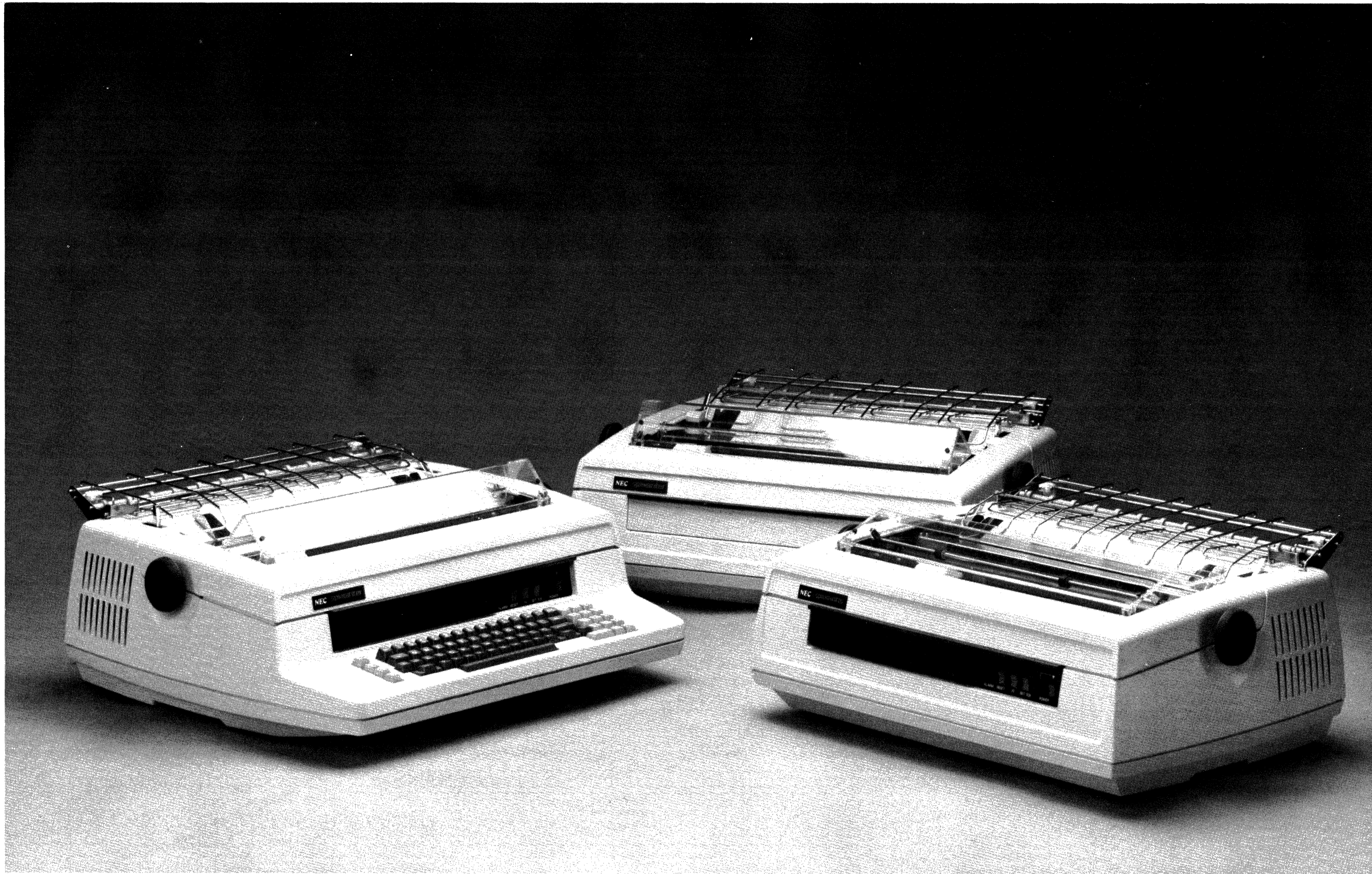
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## CHAPTER 1

### GENERAL INFORMATION

#### 1.1 INTRODUCTION

The SPINWRITER Maintenance Manual provides detailed maintenance and repair procedures for servicing the NEC SPINWRITER. Preventive maintenance includes scheduled cleaning, checking procedures, lubrication, and parts replacement. Repair procedures include field troubleshooting, mechanical adjustments, and disassembly/assembly instructions. The manual also includes a complete illustrated parts list and a complete set of logic schematics and wiring diagrams.

#### 1.2 SPINWRITER DESCRIPTION

The SPINWRITER (Figure 1-1) is a serial, impact printer and is offered in the following models:

- 5500D Diablo 1345 Type Printer
- 5500B 8-Bit Naked Interface Printer
- 5500Q Qume-Type Printer
- 5500N Ontel-Type Printer
- 5510 Receive Only ANSI Terminal
- 5515 Receive-Only Diablo 1610 Replacement Printer
- 5520 Keyboard Send/Receive ANSI Terminal
- 5525 Keyboard Send/Receive Diablo 1620 Replacement Printer
- 5530 Receive-Only Centronics-Type Printer
- 5540 Keyboard Send/Receive APL-ASCII Terminal

The Receive-Only (RO) models contain an operator control panel while the Keyboard Send/Receive (KSR) models contain an operator control panel and a typewriter-like keyboard.

All three units share the same basic mechanisms and control electronics. The printer mechanisms, paper feed system, character selection, character printing, print carriage motion, ribbon feed and ribbon lift operations are discussed. Next, the overall functional operation of the printer is discussed showing the logical interaction among the printer major subassemblies. The SPINWRITER printers do not require any complicated adjustments. Field Service maintenance is designed to be at the subassembly replacement level. All replaceable subassemblies are pre-adjusted and aligned and are totally compatible with all SPINWRITER printers.

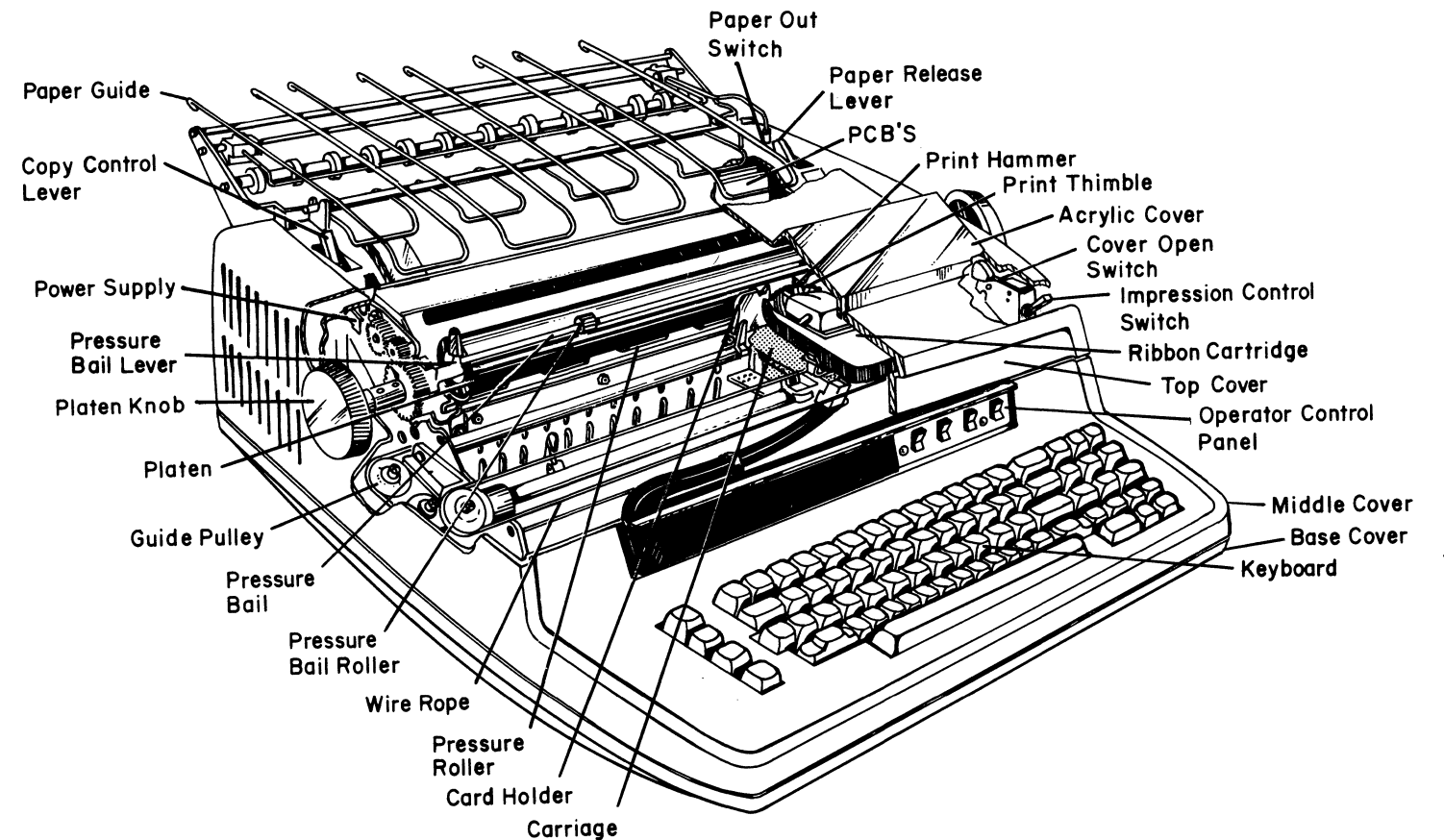


Figure 1-1 SPINWRITER Showing Major Components

#### 1.3 PRINTER MECHANICAL OPERATION

The mechanical operation of the SPINWRITER printers is similar to the office typewriter. A character font is pushed by a hammer against an inked ribbon. The ribbon, in turn, contacts the paper, transferring the image to the paper. The used portion of ribbon is advanced prior to the printing of the next character to insure a clear image. On completion of a line of printing, the paper advances to a new line position as determined by commands sent to the printer electronics.

##### 1.3.1 Paper Feed Mechanisms

A typewriter style platen (refer to Figure 1-2) is used to feed paper and position the copy vertically. Paper is held in place by the pressure of spring loaded pinch rollers mounted beneath the platen. This mechanism is known as friction feed. Pin feed and tractor feed are also available. These methods of moving paper provide a more positive control of paper movement. These optional paper feed systems are available when very precise

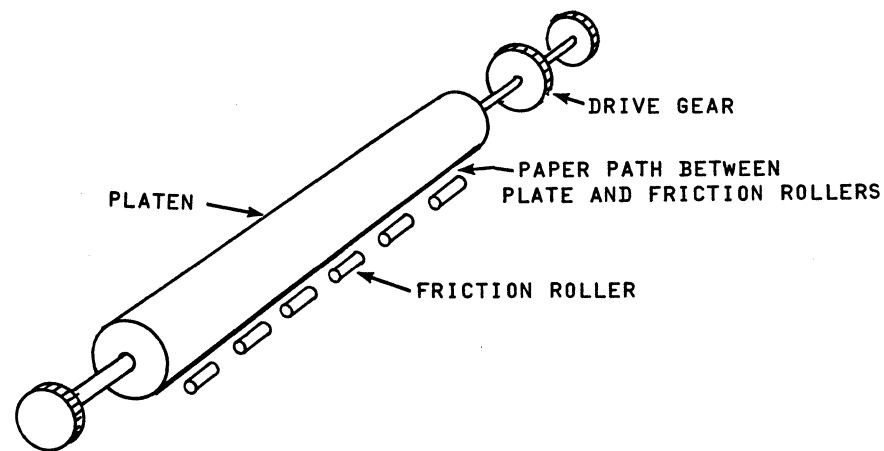


Figure 1-2 Friction Feed Mechanism

control of continuous fed forms is desired. A stepping motor, mounted on the right side of the printer mechanism is used to drive the platen axial shaft. External commands, operating through the printer control electronics, control the stepping motor to move paper in increments of 1/48th inch. Paper can be moved up or down upon command from an external source.

### 1.3.2. Printing Mechanisms

The fonts used to print the characters are molded into a light-weight plastic print thimble. The print thimble (refer to Figure 1-3) contains 64 fingers. Each finger contains two characters one above the other. Thus, each thimble can contain up to 128 different characters. The print thimble rotates in a horizontal plane up to 180 degrees in either direction, parallel to the axis of the platen. A rotary solenoid, the vertical lift coil, is used to select which of the two characters on a finger will be printed by moving the thimble in a vertical direction (up or down). A servo motor is used to rotate the print thimble in its horizontal plane. The motor has a feedback circuit which is used by the printer electronics to keep track of the thimble velocity and direction of rotation. A solenoid operated print hammer is positioned in the center of the thimble at a 90 degree angle to the platen axial shaft. When the proper character is aligned for printing, a current pulse is applied to the hammer which then strikes the plastic finger of the print thimble, driving the finger against the ribbon and paper.

### 1.3.3 Carriage Mechanisms

The print thimble, print hammer, rotate servo motor and vertical lift coil are mounted on a mechanical assembly known as the

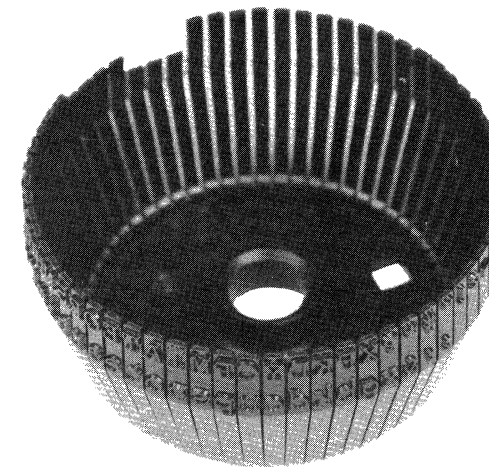


Figure 1-3 Print Thimble

print carriage assembly (refer to Figure 1-4). Also mounted on the print carriage are the ribbon cartridge, a stepping motor to drive the ribbon feed, a magnet to lift the ribbon for color change and an end of ribbon sensor. The carriage assembly travels the width of the printer chassis on two guide rails, which are parallel to the axis of the platen. A flexible cable is used to transmit commands from the control electronics to the print carriage motors and solenoids. A magnetic sensor mounted underneath the print carriage is used to sense the extreme left or right position. The left sensor is also used to detect print position zero. The carriage is moved column by column or a specified number of columns entirely by the rotation of a pulley

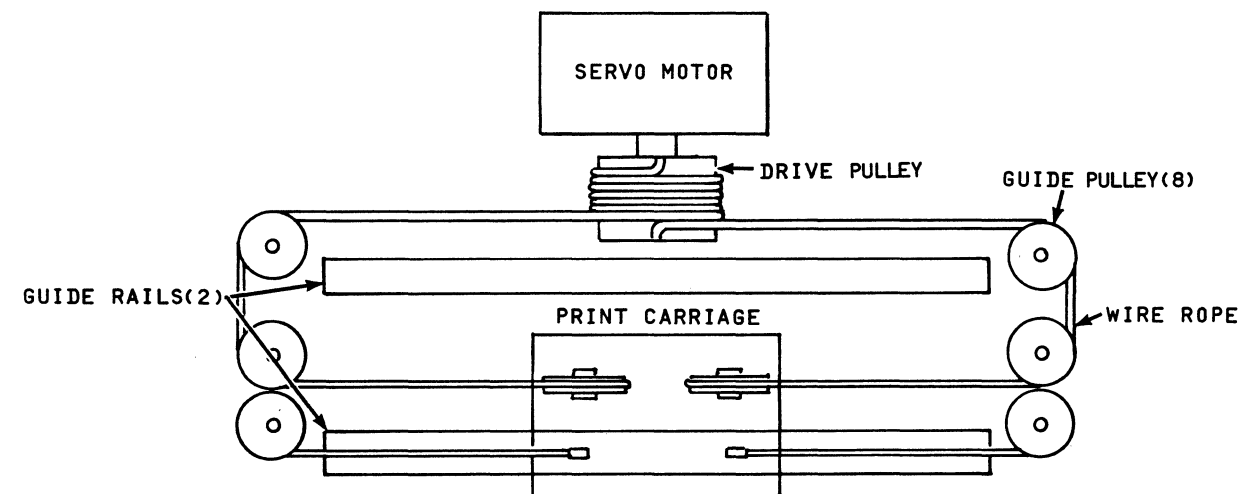


Figure 1-4 Print Carriage



driven by a servo motor. Control signals from the electronics drive the servo motor in response to external commands. The angle of motor rotation is precisely detected by a position transducer mounted on the servo motor shaft. This transducer is designed to allow for print carriage movement increments of 1/120-inch.

#### 1.3.4 Ribbon Mechanisms

Ribbon feed and ribbon lift are controlled by individual subsystems. A solenoid is used to lift the ribbon cartridge platform into the desired color position, (up or down). A stepper motor is used to move the ribbon prior to printing a character.

### 1.4 SYSTEM BLOCK DIAGRAM DISCUSSION (Refer to Figure 1-5)

#### 1.4.1 Microprocessor Control System

The Microprocessor Control System (MCS) is the primary printer control unit. All control, and data signals pass through the MCS. Received data is interpreted as print characters or control commands. Print characters are stored in the MCS memory for printing. Control commands are executed by the MCS as they are received.

##### a. Control and Status

Examples of control commands include paper feed and print carriage motion. In addition, the MCS monitors various printer functions to ensure proper operation. For example; if the print carriage exceeds its left or right-most limit of travel or if the print carriage fails to respond to a motion command, a Drive Lock command is issued which shuts off power to the servo mechanisms. Other printer status checks include paper out, cover open, ribbon end, rotate home and spacing home.

##### b. Data Bus, Address Lines and Interlock

The internal data path of the printer is an 8-bit bi-directional data bus. This data bus is common to the printer control and drive units. Separate address select lines generated by the MCS determine access to the data bus. The data bus is used to carry control commands from the MCS to the printer control and drive circuits, to carry status information from the control and drive circuits to the MCS, and also to carry input/output data from the MCS to the I/O interface.

The MCS controls the address select circuits to activate and inhibit specific printer functions. For example, during printing, the paper feed, print thimble, and ribbon feed address select lines are inactive and their associated mechanical functions cannot occur. During paper feed, the print hammer control mechanism is inhibited. This logical interlock controlled by the MCS prevents damage to the printer mechanisms and allows for optimum printing, spacing, paper feed, and ribbon feed operations.

#### 1.4.2 Servo Control Circuits

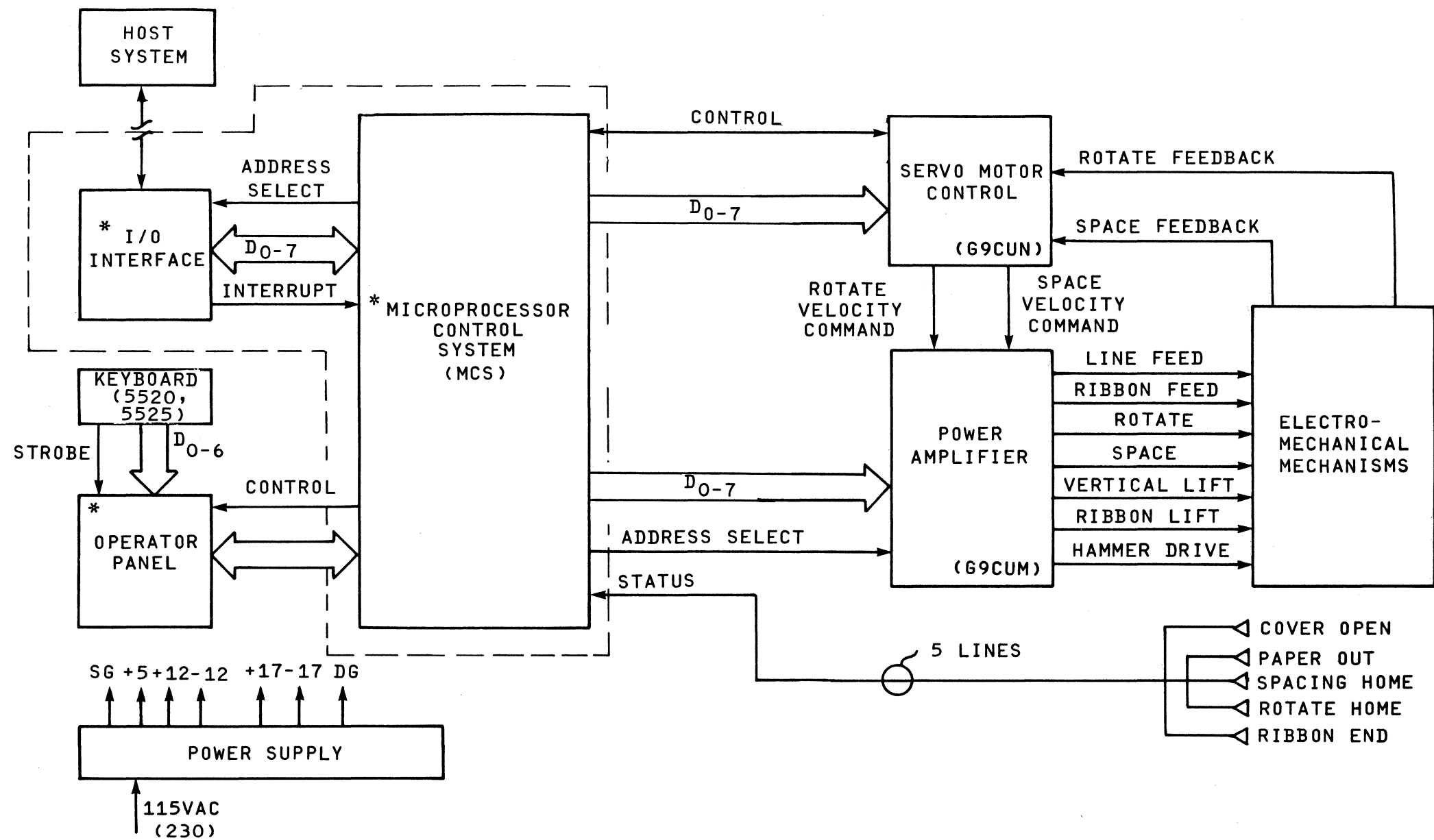
The Servo Motor Control circuit is used to convert MCS digital commands into analog drive voltages. The servo motor control has two sections; print thimble rotation and print carriage spacing. Since both sections are functionally alike only the rotate circuits are described in detail. The digital data from the MCS to the rotate circuit contains print thimble velocity and directional information. The circuit operates in two modes; velocity and position. As the print thimble rotates, a count pulse is generated for each character position of rotation. As the print thimble approaches the print position, a MCS command is sent to hold the present position while the servo system enters the position mode. In the position mode, the thimbles position is maintained by monitoring the feedback signal from the rotate servo motor without MCS intervention. The power amplifier is used to provide sufficient voltage and current to operate the printer's various motors and solenoids. The rotate and space velocity command inputs to the power amplifier are analog voltages. The remainder of the inputs are from the data bus and are logic levels which turn amplifier circuits on or off.

#### 1.4.3 Power Supply Circuit

The power supply provides the required dc voltages for the printer electronics. The power supply consists of an inverter/control unit with permanently mounted circuit boards, and a separate plug-in regulator PCB. The inverter/control unit provides a source of unregulated dc voltages by rectifying the ac input voltage. The voltage regulator provides highly stabilized dc voltages for use by the printer electronics. The preceding information is common to all of the SPINWRITER printer models with the power supply installed.

#### 1.4.4 Operator Control Panel Logic

Refer to Figure 1-5. The operator control panel logic accesses the bi-directional data bus and allows the operator to select



\*REFER TO TABLE 2-1 FOR A LIST OF BOARDS USED IN THE VARIOUS MODELS.

Figure 1-5 System Block Diagram

various printer functions; i.e. number of lines per inch, number of characters per inch, forms length in lines, and setting the self-test mode. The Models 5520, 5525 and 5540 send/receive (KSR) also include a keyboard. Keyboard data is buffered by the control panel logic and sent to the MCS for processing and character generation.

## 1.5 MAINTENANCE PHILOSOPHY

The SPINWRITER is designed for long life and trouble-free operation. Careful performance of the preventive maintenance procedures is the best assurance of a minimum of operational faults or failures. The troubleshooting procedures described in Section 3-1 assist in fast isolating of faults to a particular unit or assembly. Field repair is best achieved at the modular level. For this reason, only assemblies and easily replaceable parts are listed as field maintenance items. Replacement and/or repair of defective items that are not included in the list of replacement parts should be performed at the factory or at an equivalent service facility.

### 1.5.1 General Rules

The following general rules must always be adhered to when performing replacement, assembly, adjustment, and preventive maintenance.

- Never remove or install any circuit board or disconnect any plug while power is on.
- Disconnect the power cord prior to part replacement.
- When disassembling or assembling units, use great care to avoid dropping any parts or hardware inside the housing. If this occurs, immediate removal is imperative; otherwise unnecessary malfunctions may occur.
- When removing connectors, do not grasp the wire bundle to exert pressure. Hold the connector firmly by its sides to pull it out.
- Because wire ropes are easily damaged, use caution when handling them. Particular care must be taken whenever disassembling or assembling the carriage assembly.
- Do not remove any parts which are not specified in the replacement procedures.
- After completion of assembly, lubricate the specified items following the proper procedure(s).

- Printed circuit boards marked MOSIC USE or MOSIC must be packaged in a special electrostatic-free envelope whenever they are transported.

### 1.5.2 Required Maintenance Tools

The tools required for conducting the maintenance procedures of this manual are listed on Table 1-1.

Table 1-1 Maintenance Tools

Common Tools			
ITEM	PART NUMBER	DESCRIPTION	CLASS
1	---	Screw Driver 5/32 Tip	*
2	---	Phillips No. 1	*
3	---	Phillips No. 2	*
4	---	Phillips Long Shaft	*
5	---	Feeler Gauges (Metric)	*
6	---	Connector Puller (3M#3438)	*
7	---	Spring Hook	*
8	999-000002	Tension Gauge (680g/2 lb)	* +
9	---	12" Ruler	*
Metric Tools			
1	999-000003-1	Box Driver 5.5 mm	* +
2	999-000003-2	Wrench 5.5 mm	* +
3	999-000003-3	Wrench 7 mm	* +
4	999-000003-4	Wrench 8 mm	* +

\* - Obtainable through local vendors

+ - Included in Metric Tool Kit

Table 1-1 Maintenance Tools (cont'd)

Metric Tools (cont'd)			
ITEM	PART NUMBER	DESCRIPTION	CLASS
5	999-000003-5	Wrench 10 mm	* +
6	999-000003-6	Wrench 12 mm	* +
7	999-000003-7	Wrench 14 mm	* +
8	999-000003-8	Hex Key 1.5 mm	* +
Special Tools			
1	911-311552-2	Hammer Position Jig	R
2	911-311551	Wire Rope Winding Tool	O
3	911-317608	Left Margin Position Jig	O
4	19-22833	PCB Puller	O
5	DU-7466	Narrow Extender Board (For Regulator & Current Loop PCB)	O
6	DU-7467	Wide Extender Board (For Driver, Servo & Processor PCB)	O
7	999-000001	Lub Kit	R
8	999-000003-0	Metric Tool Kit	R

\* - Obtainable through local vendors

+ - Included in Metric Tool Kit

R - Required

O - Optional

NOTE

Special tools classified as optional are not required. Their associated adjustment or repairs can be made by alternate means.

1.6 RELATED DOCUMENTS

The following SPINWRITER documents are available from NEC Information Systems, Inc.

- SPINWRITER Theory of Operation Manual, Doc. No. 10001
- Model 5500 Series SPINWRITER Printer Operator's Guide, Doc. No. 10002
- SPINWRITER Terminals Operator's Guide, Doc. No. 10003-01
- SPINWRITER Model 5500 Series Product Description, Doc. No. 10004
- SPINWRITER Terminals Product Description, Doc. No. 10005
- SPINWRITER Service Guide, Doc. No. 10008

## CHAPTER 2

### PREVENTIVE MAINTENANCE

#### 2.1 INTRODUCTION

Preventive maintenance (PM) is performed once a year to clean, check, and lubricate the SPINWRITER. It is recommended that a print sample generated in self-test mode be made prior to the beginning of every PM procedure. Upon completion of the PM procedure another print sample should be made for you and the customer to see the overall improvement in print quality.

#### 2.2 CLEANING

Inspect the complete SPINWRITER for any accumulations of foreign material such as bits of paper and clips prior to the specific cleaning procedures below.

- a. Using a soft cloth, clean and remove dust from the carriage rails and rollers.
- b. Clean the base frame under the carriage.
- c. Remove the PCBs and clean the mother board.
- d. Use a hand cleaner to remove stains on the cover. Clean the cover with a mild detergent only.
- e. Using a soft cloth, clean the platen with Fedron.

#### CAUTION

Do not use Fedron to clean any plastic items or surfaces.

Do not use alcohol to clean the cover.

- f. Remove any pieces of paper attached to the tractor assembly and pressure bail.
- g. Reassemble printer without cover.

#### 2.3 CHECKING

Make a short print sample in self-test to ascertain that the SPINWRITER is functioning properly. Check the following for proper adjustment and if adjustment is required, refer to the adjustment procedure indicated in parentheses.

- Hammer cover assembly firmly fixed in locking lever (5.2).
- Use hammer jig (911-311552-2) to check hammer position (5.2).
- Ensure last small figure at print thimble is centered on hammer with power on (5.2).
- Ensure platen is firmly seated and check clamp lever gap which should be 0.2 to 0.5 mm (0.008 to 0.020 inch) (5.6).
- Ensure character density is even from top to bottom of character along the print line (5.9).
- Check line feed gears for smooth motion without any backlash (5.7).
- Visually check for any distortion on the platen and print thimble.
- Check the ribbon change function (5.3).
- Check ribbon feed gear for backlash and free movement (5.4).
- Check tractors for wear and proper adjustment (5.12 and 5.13).
- Check the paper out and cover open switches (5.16 and 5.17).
- Ensure wire rope tension is 350 gr (12.35 oz) for a lift of 8 to 10 mm (0.31 to 0.39 inch). Also check wire rope and the associated pulleys for damage or wear (5.15).
- With bail rollers at far extremes of ends of platen, insure gap between platen and bail shaft is 1 to 1.5 mm (0.04 to 0.06 inch) (5.14).
- Check for loose connectors and terminals.
- Insure all PCBs are firmly seated.
- Check pressure rollers for proper tension on platen (5.11).



## 2.4 LUBRICATION

The points shown in Figures 2-1 through 2-4 must be lubricated during an annual check. Any equivalent lubricants not mentioned in this manual must be approved prior to their use.

	LUBRICANT	AMOUNT	LUB CODE
1.	Nye Synthetic Oil 132G	1 to 2 drops	O
2.	Nye Rheolube 368	Light Brush Coat	G

### 2.4.1 Frame Unit

Figures 2-1, 2-2, and 2-3 indicate the location and the associated tables describe the lubricating requirements for the frame unit.

### 2.4.2 Carriage Assembly

Figure 2-4 indicates the location and the associated table describes the lubrication requirements for the carriage assembly.

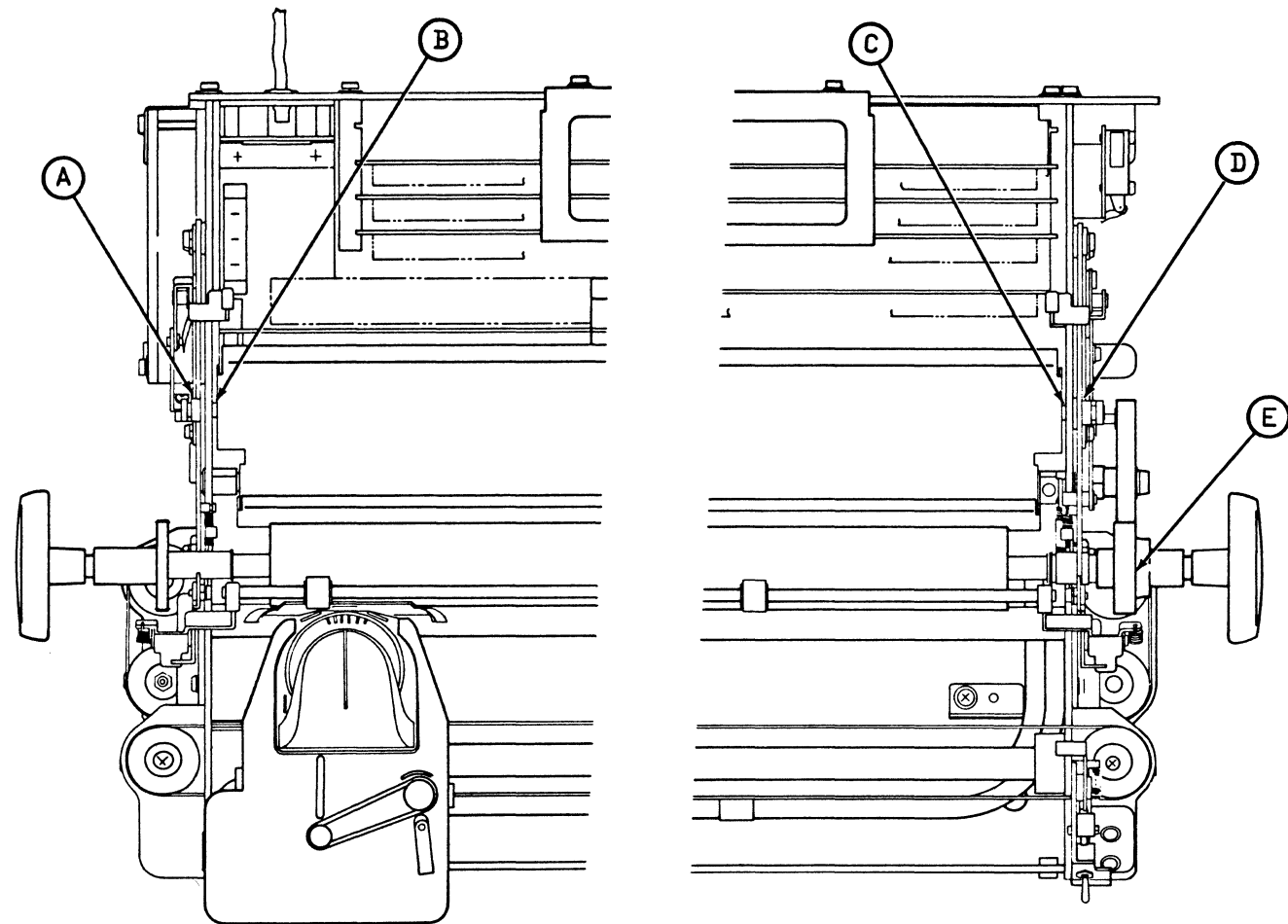
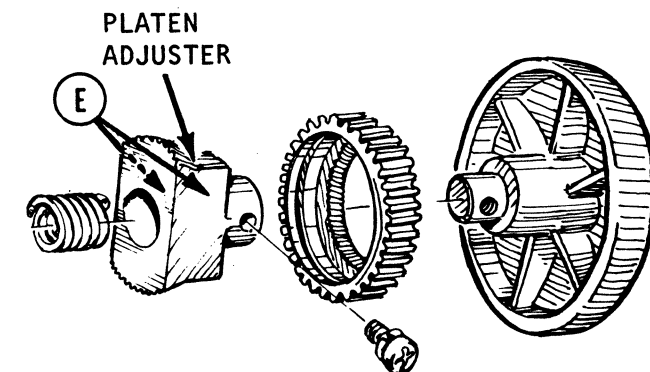
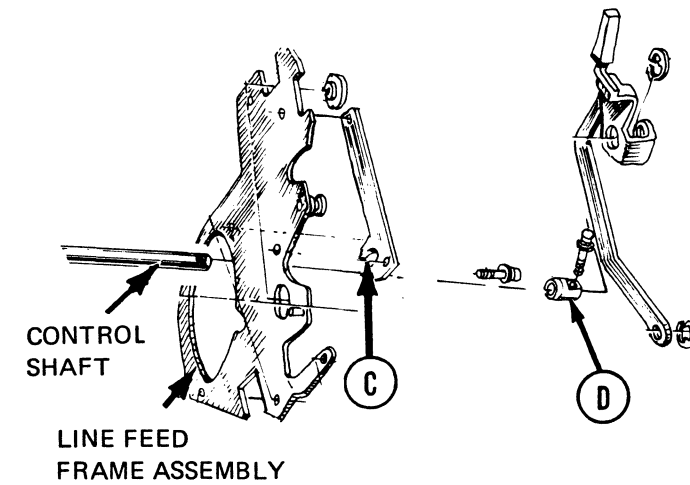
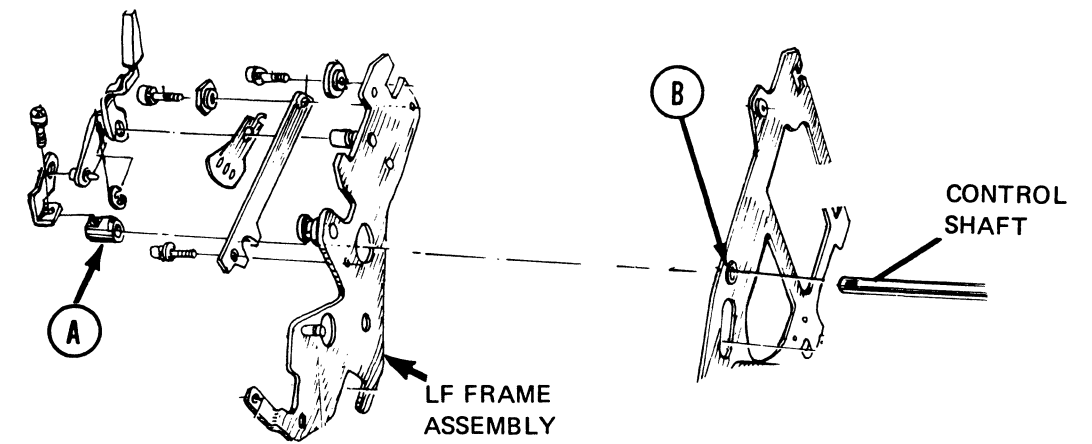


Figure 2-1 SPINWRITER Lubricating Points (Top View)

SYMBOLS	AREAS TO BE LUBRICATED	LUB CODE
A	Outside of the fitting between the control shaft and line feed frame assembly.	G
B	Inside of the fitting between the control shaft and line feed frame assembly.	G
C	Inside of the fitting between the control shaft and line feed frame assembly.	G
D	Outside of the fitting between the control shaft and line feed frame assembly.	G
E	Platen adjuster.	O



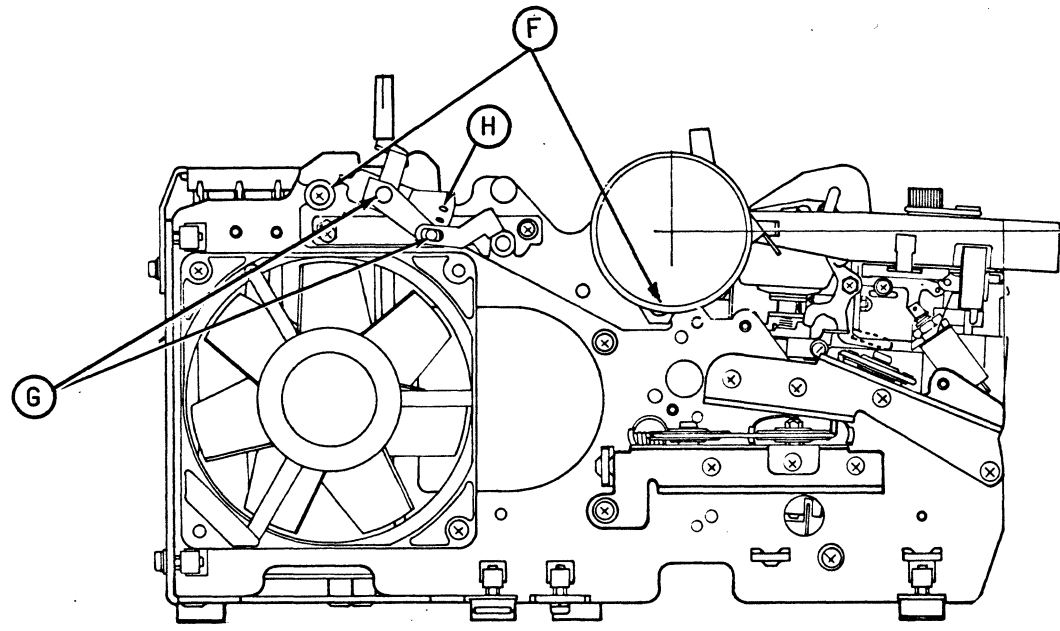
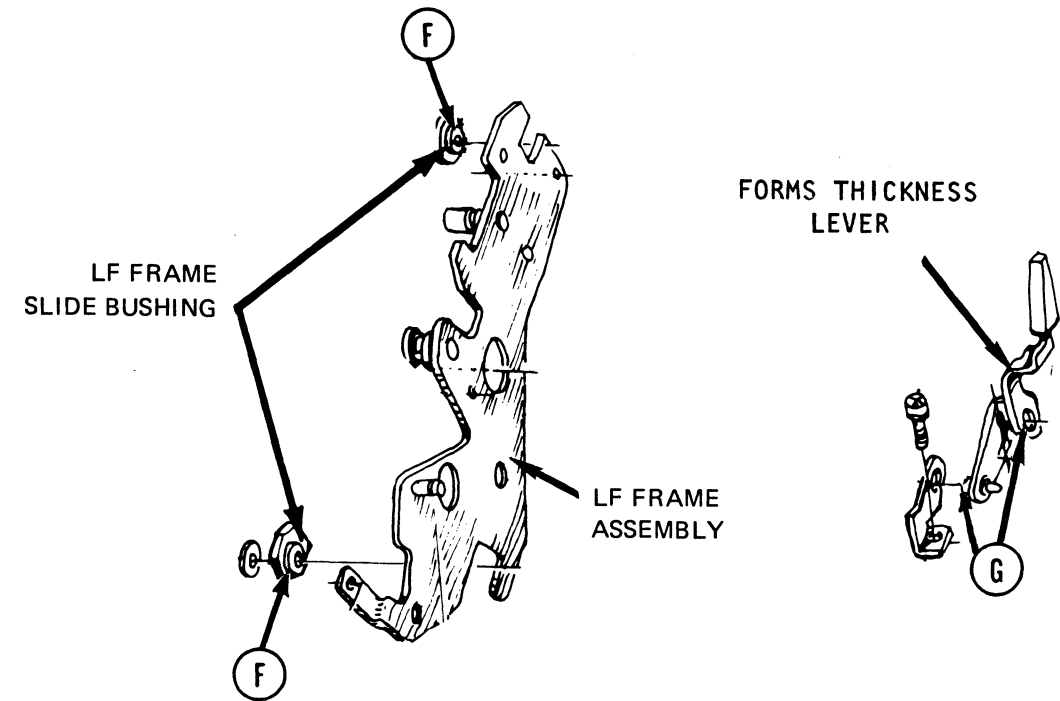
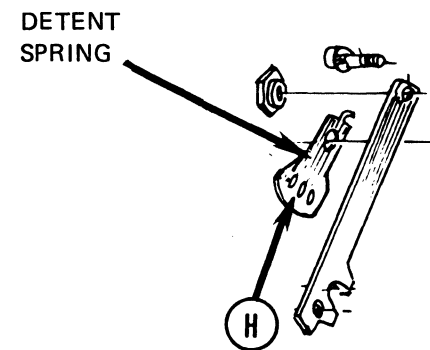


Figure 2-2 SPINWRITER Lubricating Points (Left Side View)



SYMBOLS	AREAS TO BE LUBRICATED	LUB CODE
F	Line feed frame slide bushing	G
G	Control lever assembly fittings	G
H	Detent spring	G



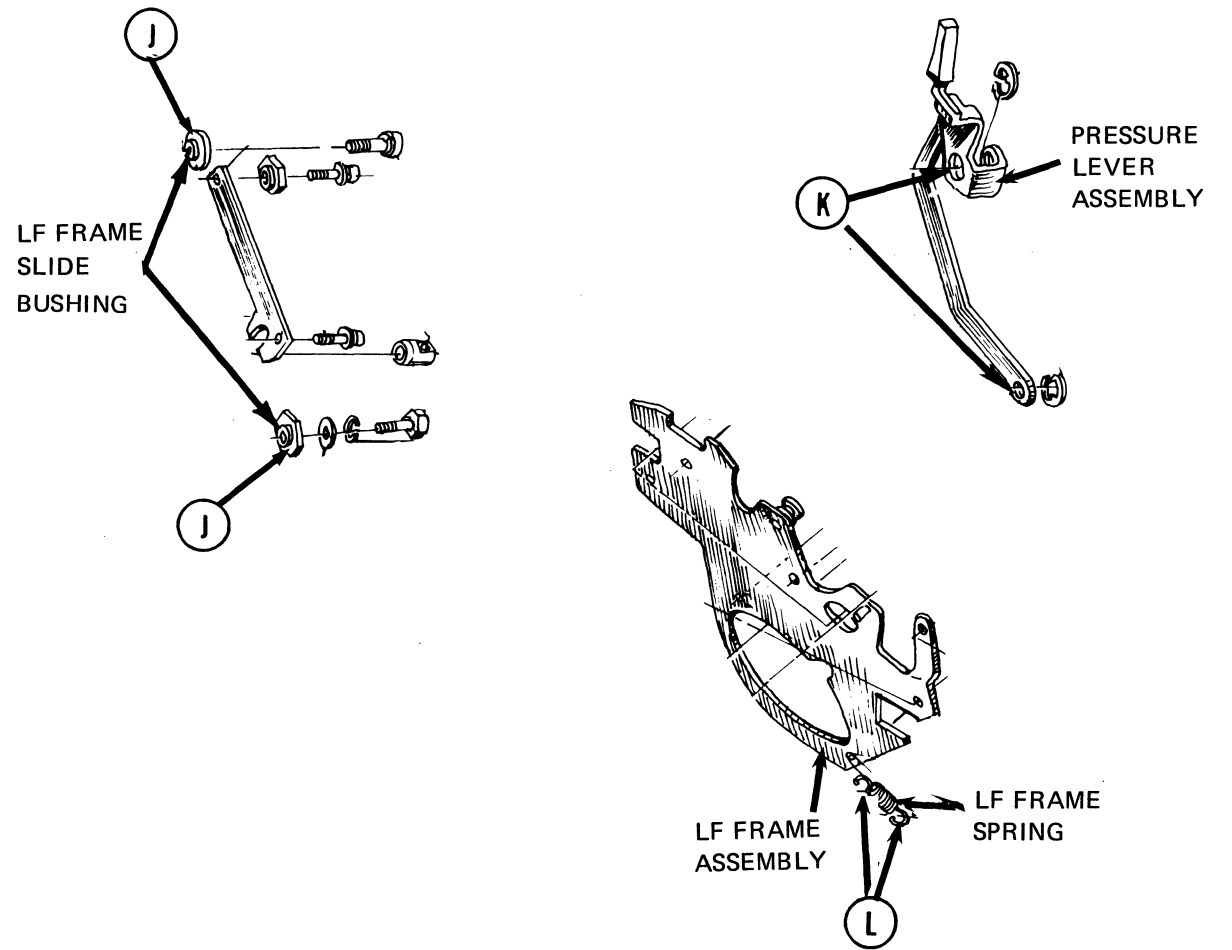
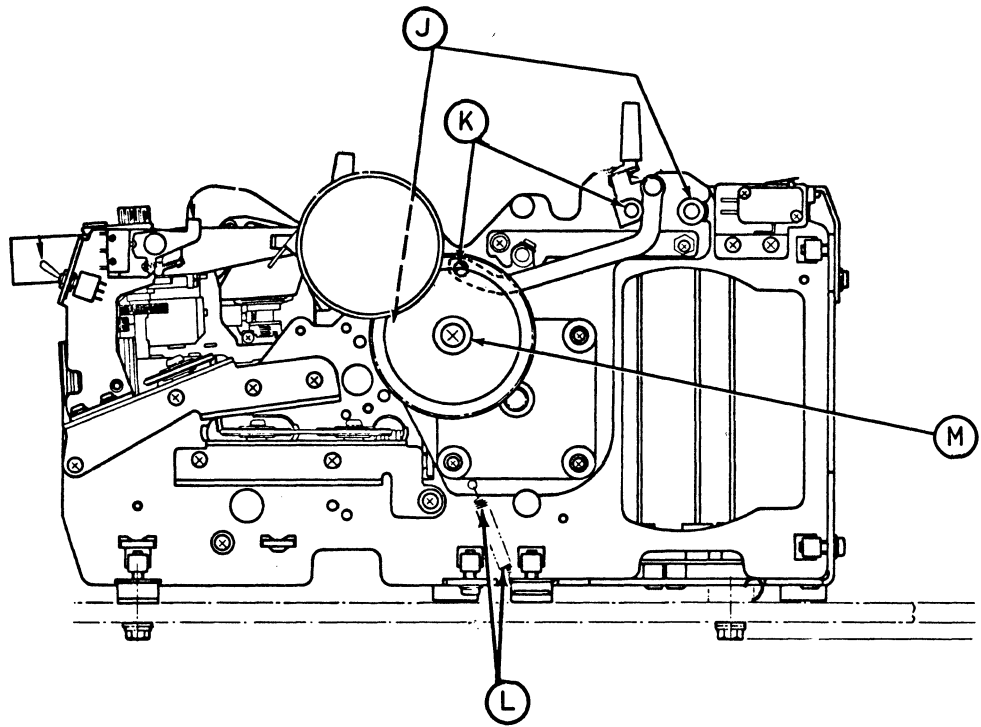
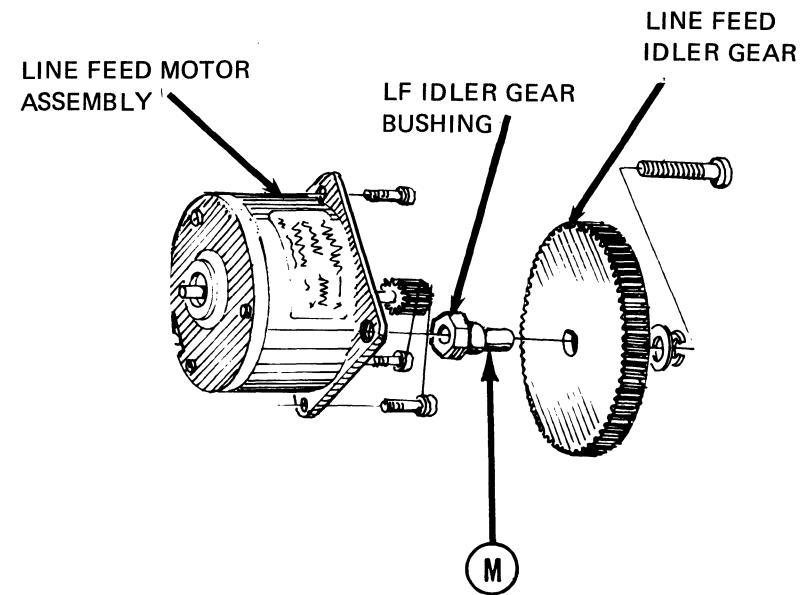


Figure 2-3 SPINWRITER Lubricating Points (Right Side View)

SYMBOLS	AREAS TO BE LUBRICATED	LUB CODE
J	LF frame slide bushing	G
K	Pressure lever fittings	G
L	Line feed frame spring	G
M	Line feed idle gear bushing	G



(2) CARRIAGE

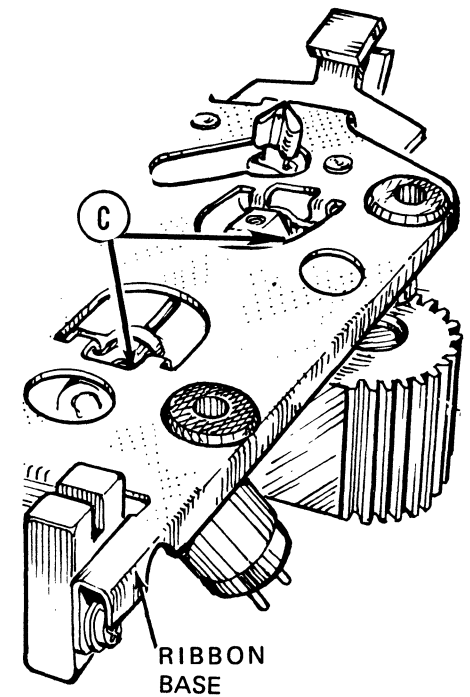
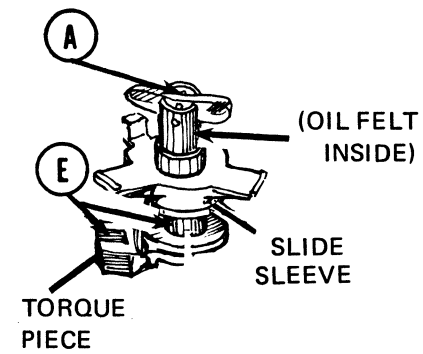
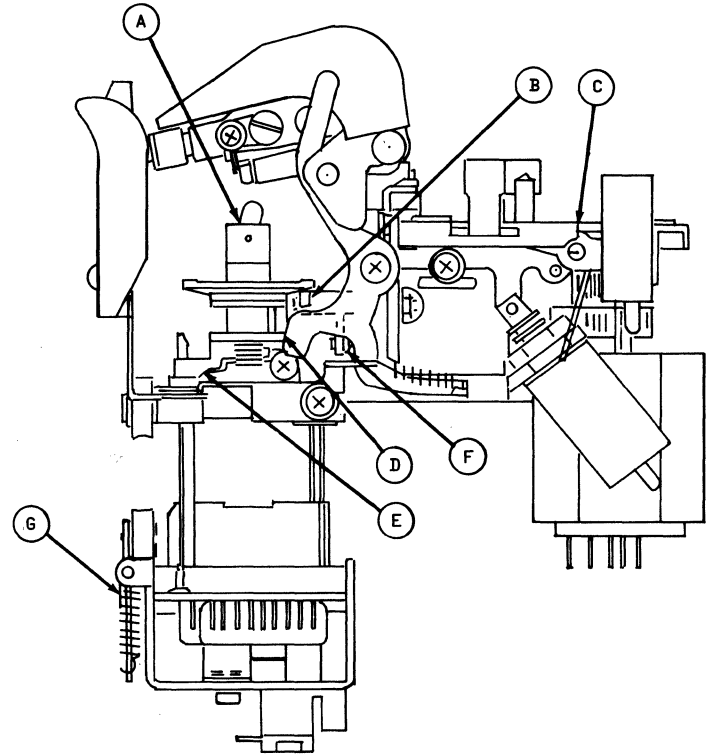
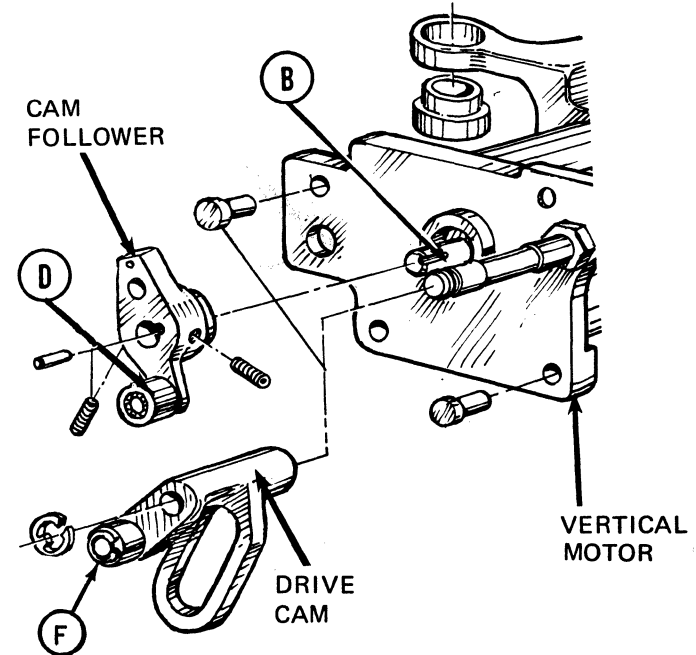


Figure 2-4 Carriage Assembly Lubrication Points (Side View)

SYMBOLS	AREAS TO BE LUBRICATED	LUB CODE
A	Rotate motor oil felt	0
B	Vertical motor cam follower rotating pivot	0
C	Ribbon base and ribbon change arm rotating pivot	0
D	Vertical motor cam follower bearing	0
E	Slide sleeve and torque piece sliders	0
F	Drive cam follower bearing	0
G	Bearing holder rotating pivot	0





2.5 SPARE PARTS

Table 2-1 is the SPINWRITER recommended spare parts list.

Table 2-1 Spare Parts List

ITEM	PART NUMBER	DESCRIPTION	5 5 0 0 D	5 5 0 0 B	5 5 0 0 Q	5 5 0 0 N	5 5 1 1 0	5 5 1 1 5	5 5 2 2 0	5 5 2 2 5	5 5 3 3 0	5 5 4 4 0	Req QTY *
1	136-031572-002A	Carriage Unit	X	X	X	X	X	X	X	X	X	X	1
2	136-031583-A	Spacing Motor Assembly	X	X	X	X	X	X	X	X	X	X	1
3	136-031585-A	LF Motor Assembly	X	X	X	X	X	X	X	X	X	X	1
4	804-020198-002-B	Power Supply (115 Vac)	X	X	X	X	X	X	X	X	X	X	1
4A	804-020198-003-B	Power Supply (230 Vac)	X	X	X	X	X	X	X	X	X	X	1
5	136-430570-A	G9BMT (Regulator Board)	X	X	X	X	X	X	X	X	X	X	1
6	136-430873-A	G9CUM (Driver Board)	X	X	X	X	X	X	X	X	X	X	1
7	136-430874-A	G9CUN (Servo Board)	X	X	X	X	X	X	X	X	X	X	1
8	136-430872-001-A	G9CUL (Mother Board)	X	X	X	X	X	X	X	X	X	X	1
9	136-430578-A	G9BNB (Centronics-Type Board)									X		1
10	136-430875-A	G9CUP (Diablo-Type Board)	X			X				X			1
11	136-430876-A	G9CUQ (8080 8-Bit Naked Interface Board)		X									1
12	136-430877-A	G9CUR (RS-232-C)					X		X				1
13	136-430990-B	G9DWJ (RS-232-C Interface Board)										X	1

\*Based on a volume of 1 to 10 printers.

Table 2-1 Spare Parts List (Continued)

ITEM	PART NUMBER	DESCRIPTION	5 5 0 0 D	5 5 0 0 B	5 5 0 0 Q	5 5 0 0 N	5 5 1 1 0	5 5 1 1 5	5 5 2 2 0	5 5 2 2 5	5 5 3 3 0	5 5 4 4 0	Req QTY *
14	136-430989-B	G9DWH (RS-232-C Interface Board)						X		X			1
15	136-430879-A	G9CUT (Qume-Type Interface Board)			X								1
16	136-430575-A**	G9BMY (Current Loop Interface Board)					X	X	X	X		X	1
17	136-430577-A	G9BNA (Centronics-Type Interface Board)									X		1
18	158000401A	G9ONT (Ontel-Type Interface Board)				X							1
19	136-430590-A	G9BND (Operator Control Panel Board)									X		1
20	136-430592-A	G9BNF (Operator Control Panel Board)						X	X				1
21	136-430935-A	G9DGD (Operator Control Panel Board)				X	X						1
22	136-431097-A	G9EYQ (Operator Control Panel Board)										X	1
23	804-020242-001-A	Keyboard (ASCII Standard)						X	X				1
24	804-020242-002-A	Keyboard (APL)										X	1
25	136-031586-GRP-A	Friction Platen	X	X	X	X	X	X	X	X	X	X	1
26	136-031591-GRP-1	Pin Feed Platen	X	X	X	X	X	X	X	X	X	X	1
27	136-032022-B	Print Hammer Assembly	X	X	X	X	X	X	X	X	X	X	1
28	136-031584A	Wire Rope Assembly	X	X	X	X	X	X	X	X	X	X	2

\* Based on a volume of 1 to 10 printers.

\*\* Optional

Table 2-1 Spare Parts List (Continued)

ITEM	PART NUMBER	DESCRIPTION	5	5	5	5	5	5	5	5	5	5	Req QTY *
			0	0	0	0	1	1	2	2	3	4	
			D	B	Q	N		5	0	5	0	0	
29	804-020247-002-A	Fan (115 Vac)	X	X	X	X	X	X	X	X	X	X	1
29A	804-020247-003-A	Fan (230 Vac)	X	X	X	X	X	X	X	X	X	X	1
30	803-020001-A	Guide Pulley	X	X	X	X	X	X	X	X	X	X	3
31.	808-960301-002-A	Fuse	X	X	X	X	X	X	X	X	X	X	2

\* Based on a volume of 1 to 10 printers.

## CHAPTER 3 TROUBLESHOOTING

### 3.1 INTRODUCTION

This section describes the suggested approach for troubleshooting the SPINWRITER. Each SPINWRITER model incorporates a self-test feature which should be helpful in localizing faults. With the exception of power failures, most faults can be isolated by examining the print-out itself. Table 3-1, Troubleshooting Chart is a suggested logical approach for localizing troubles to the suspected faulty subassembly.

Table 3-1 Troubleshooting Chart

TROUBLE	CONDITION	PROBABLE CAUSES	CORRECTIVE ACTIONS	SEE SECTION
No initial operation.				
Entire failure of operation (no fan)	1. No dc output	No ac power	Verify ac power is present	*
		Fuse (power supply)	Replace fuse	*
	2. Abnormal	Inverter dc output	Replace inverter block (power supply)	4.5 inverter block
Only fan operates	1. Abnormal dc output  †2. ALARM indicator illuminated	G9BMT	Replace PCB	4.4
		1. Carriage in the emergency area	Move the carriage from the emergency area	
		2. Ribbon end detected	Replace the ribbon	*
		3. Cover open or cover open switch incorrect	Adjust	5.18
		4. No paper, or the paper out switch incorrectly installed	Adjust	5.17

\* See Operator's Guide

† Only for those models with an operator control panel (Models 5510, 5515, 5520, 5525, 5530, and 5540)

### 3.2 TROUBLESHOOTING PROCEDURES

Troubleshooting malfunctions that may occur in the operation of the SPINWRITER is limited to replacement of the assembly or part level listed in the Recommended Parts List of Chapter 2. Table 3-1 contains procedures for isolating malfunctions and the corrective actions to be performed. It is assumed that the internal power supply is installed.

Table 3-1 Troubleshooting Chart (cont'd)

TROUBLE	CONDITION	PROBABLE CAUSES	CORRECTIVE ACTIONS	SEE SECTION	
	3. Miscellaneous	1. G9BNB, G9CUP, G9CUQ, G9CUR, or G9CUT  2. G9CUN  3. G9CUM	Replace PCBs	4.4	
No returning to the home positions. Spacing, Vertical, Rotate	1. No carriage restore	Carriage in emergency area	Move carriage from emergency area		
	2. No spacing return	Home sensor defective	Replace carriage	4.8	
	3. No vertical return	Vertical magnet defective	Replace carriage	4.8	
	4. No rotate return	Home position out of phase	Adjust	5.3	
	5. Miscellaneous	1. G9BNB, G9CUP, G9CUQ, G9CUR or G9CUT  2. G9CUN  3. G9CUM	Replace PCBs	4.4	
Print Thimble does not stop rotation		1. G9BNB, G9CUP, G9CUQ, G9CUR or G9CUT  2. G9CUN  3. RT Home Sensor	Replace PCBs  Replace carriage	4.4  5.8	
	Impossible to start the printing operation, or the printing operation is stopped	1. Only the operation started	Interface circuit trouble (G9BNA, G9BMY, G9CUP, G9CUQ, G9CUR or G9CUT)	Replace PCBs	4.4

Table 3-1 Troubleshooting Chart (cont'd)

TROUBLE	CONDITION	PROBABLE CAUSES	CORRECTIVE ACTIONS	SEE SECTION
Misprinting	†2. Impossible to test printing	1. Operator control circuit problem. (G9BNE or G9BNF)	Replace PCB. Verify interface voltage levels on proper pins.	4.4
		2. Operator control panel problem	Replace operator control panel	4.6
	†3. ALARM indicator problem	1. Cover open, or cover open switch incorrect	Adjust	5.16
		2. No paper, or paper out switch incorrect	Adjust	5.16
		3. Ribbon end sensor	Replace ribbon end sensor or the carriage	4.8
	1. Misprinting during the initial operation with normal execution of the vertical and rotate home positions	1. G9BNB, G9CUP, G9CUQ, G9CUR or G9CUT	Replace PCB	4.4
		2. G9CUN	Replace PCB	4.4
	2. Misprinting during the initial operation with an unstable rotate position	1. Rotate home position mis-adjusted	Adjust	5.3

\* See Operator's Guide

† Only for those models with an operator control panel (Models 5510, 5515, 5520, 5525, 5530, and 5540)

Table 3-1 Troubleshooting Chart (cont'd)

TROUBLE	CONDITION	PROBABLE CAUSES	CORRECTIVE ACTIONS	SEE SECTION
Uneven Print Density on Sides of Character	3. Vertical thimble position mis-selected	Vertical magnet malfunction	Replace carriage	4.8
		1. Incorrect rotate home position	Adjust	5.3
Uneven print density top to bottom of character	2. Side print in the vertical direction	1. Incorrect hammer position	Adjust	5.2
		2. Print thimble defective	Replace print thimble	*
		3. Improper platen height	Adjust	5.11
Improper printing of character array.	1. Improper vertical array	1. Improper print thimble installation	Install properly	*
		2. Damper cap peeled off	Adhere Cap	
		3. G9BNB, G9CUP, G9CUQ, G9CUR or G9CUT	Replace PCB	4.4
		4. G9CUN	Replace PCB	4.4
		5. G9CUM	Replace PCB	4.4
		6. Vertical magnet defective	Replace carriage	4.8
		7. Damper cap worn out	Replace carriage	4.8

\* See Operator's Guide

Table 3-1 Troubleshooting Chart (cont'd)

TROUBLE	CONDITION	PROBABLE CAUSES	CORRECTIVE ACTIONS	SEE SECTION
Unacceptable Print Quality Other Than Listed Above	2. Improper horizontal array	1. Spacing wire tension out of out of adjustment	Adjust	5.16
		2. G9BNB, G9CUP, G9CUQ, G9CUR or G9CUT	Replace PCB	4.4
		3. G9CUN	Replace PCB	4.4
		4. G9CUM	Replace PCB	4.4
		5. Spacing Motor Defective	Replace spacing motor	4.11
		6. Rotate Motor Defective	Replace carriage	4.8
	3. Improper paper feed	1. Improper gear adjust	Adjust	5.8
		2. Improper platen clamp lever adjustment	Adjust	5.7
		3. Adjuster malfunction	Lubricate and clean	Fig. 2-1
		1. Dirty or worn out print thimble characters	Replace print thimble	*
		2. Worn out ribbon	Replace ribbon.	*
		3. Ribbon feed gear backlash	Adjust	5.5
		4. Inadequate copy control lever adjustment	Adjust	5.9

\* See Operator's Guide

Table 3-1 Troubleshooting Chart (cont'd)

TROUBLE	CONDITION	PROBABLE CAUSES	CORRECTIVE ACTIONS	SEE SECTION
Truncation of of printed letters (incomplete)	Black truncation or red truncation	5. Platen Gear out of adjustment	Adjust	5.7
		6. Platen flawed	Replace platen	4.1
		7. G9BNB, G9CUP, G9CUQ, G9CUR or G9CUT	Replace PCB	4.4
		8. G9CUN	Replace PCB	4.4
		9. G9CUM,	Replace PCB	4.4
		10. Defective print hammer	Replace print hammer	4.9
		11. Improper ribbon feed	Replace carriage	4.8
		1. Ribbon mode switch incorrect	Adjust	5.4.1
		2. Ribbon change mechanism not adjusted	Adjust	5.4.2
		3. Print thimble damaged	Replace print thimble	*
		4. Platen flawed	Replace platen	4.1
Mingled Colors	Black and red intermingled	1. Ribbon change mechanism not adjusted	Adjust	5.4

\* See Operator's Guide



Table 3-1 Troubleshooting Chart (cont'd)

TROUBLE	CONDITION	PROBABLE CAUSES	CORRECTIVE ACTIONS	SEE SECTION
Improper visibility	Insufficient ribbon retraction	1. Ribbon change mechanism not adjusted	Adjust	5.4
Color turning	Red is turned black, or black turned red	1. G9BNB, G9CUP G9CUQ, G9CUR or G9CUT	Replace PCB	4.4
		2. G9CUM	Replace PCB	4.4
		3. Ribbon magnet defective	Replace carriage	4.8
Hammer impression control not functioning		1. G9BNB, G9CUP G9CUQ, G9CUR or G9CUT	Replace PCB	4.4
		2. G9CUM	Replace PCB	4.4
		3. Hammer impression control switch defective	Replace switch	4.6
		4. Print hammer defective	Replace print hammer	4.9
Character missing		1. Ribbon mode switch incorrect adjustment	Adjust	5.3
		2. Print thimble thimble damaged	Replace print thimble	*
		3. G9BNB, G9CUP G9CUQ, G9CUR or G9CUT	Replace the PCB	4.4
		4. G9CUM	Replace PCB	4.4

\* See Operator's Guide

Table 3-1 Troubleshooting Chart (cont'd)

TROUBLE	CONDITION	PROBABLE CAUSES	CORRECTIVE ACTIONS	SEE SECTION
No paper feed		5. Ribbon magnet defective	Replace carriage	4.8
		6. Vertical magnet is defective	Replace carriage	4.8
		7. Print hammer defective	Replace print hammer	4.9
		1. Inadequate line feed adjustment	Adjust	5.7
		2. G9BNB, G9CUP G9CUQ, G9CUR or G9CUT	Replace PCB	4.4
		3. G9CUM	Replace PCB	4.4
		Paper Skew	1. Using Tractor Feed	1. Tractor shaft bent
2. Incorrect phasing of right and left tractor pins	Replace tractor feeder			4.12
2. Using Friction Feed	1. Pressure roller not contacted against the platen			Adjust
Ribbon End not detected	Using Friction Feed	2. Incorrect positioning of print paper	Set print paper container in parallel with or just behind platen	*
		†1. ALARM indicator illuminated	Replace carriage	4.8

† Only for those models with an operator control panel (Models 5510, 5515, 5520, 5525, 5530, and 5540)

Table 3-1 Troubleshooting Chart (cont'd)

TROUBLE	CONDITION	PROBABLE CAUSES	CORRECTIVE ACTIONS	SEE SECTION
Cover Open not detected	2. Miscellaneous	G9BNB, G9CUP G9CUQ, G9CUR or C9CUT	Replace PCBs	4.4
	†1. ALARM indicator is illuminated	1. Cover open switch defective	Replace switch and adjust	5.19
		2. Incorrect adjustment of cover open switch	Adjust	5.19
	2. Miscellaneous	G9BNB, G9CUP, G9CUQ, G9CUR or C9CUT	Replace PCBs	4.4

† Only for those models with an operator control panel  
(Models 5510, 5515, 5520, 5525, 5530, and 5540)

### 3.3 5530 FAILURE ANALYSIS

- a. After a failure, set FORM LENGTH switch on front of the operator control panel to "00" and LOCAL/REMOTE switch to "LOCAL".
- b. Push and hold SET TOF. The LEDs will indicate the nature of the failure as indicated in Table 3-2.

Table 3-2 5530 Failure Analysis

LED		ALARM	PAPER	READY
SWITCHES				
6 LPI	Single	Spacing Servo	Print Thimble Shift	Rotate Servo
8 LPI	Single	-	MPU	EM Plate Space Home
6 LPI	Double	-	-	Data Parity
8 LPI	Double	-	-	-



## CHAPTER 4

### DISASSEMBLY, ASSEMBLY, AND REPAIR

#### 4.1 INTRODUCTION

The procedures described in this chapter are presented in proper sequence for performing the required maintenance. In general, details are provided only for those items which:

- a. Have difficult locations for attaching hardware
- b. Must be removed or assembled in a prescribed order
- c. Require specific techniques for removal or assembly

Procedures are omitted for items that can be disassembled and assembled using standard practices. To identify and locate items not listed, refer to the SPINWRITER Illustrated Parts Breakdown section of this manual.

#### 4.2 MIDDLE COVER

##### 4.2.1 Disassembly

- a. Open the top cover (Figure 4-1).
- b. Pull the paper bail lever forward.
- c. Unlock and remove the left and right lock levers of the tractor feed or friction attachment assembly (Option).
- d. Simultaneously push both left and right platen clamp lever arms and remove the platen.
- e. Remove the ribbon cartridge.
- f. Hold the cover sides with both palms, and, using the thumb, move the middle cover release levers in arrow direction A (Figure 4-2) and disengage from the lever plate.
- g. Lift the cover off vertically and use care to prevent the cover from contacting any interior mechanism.

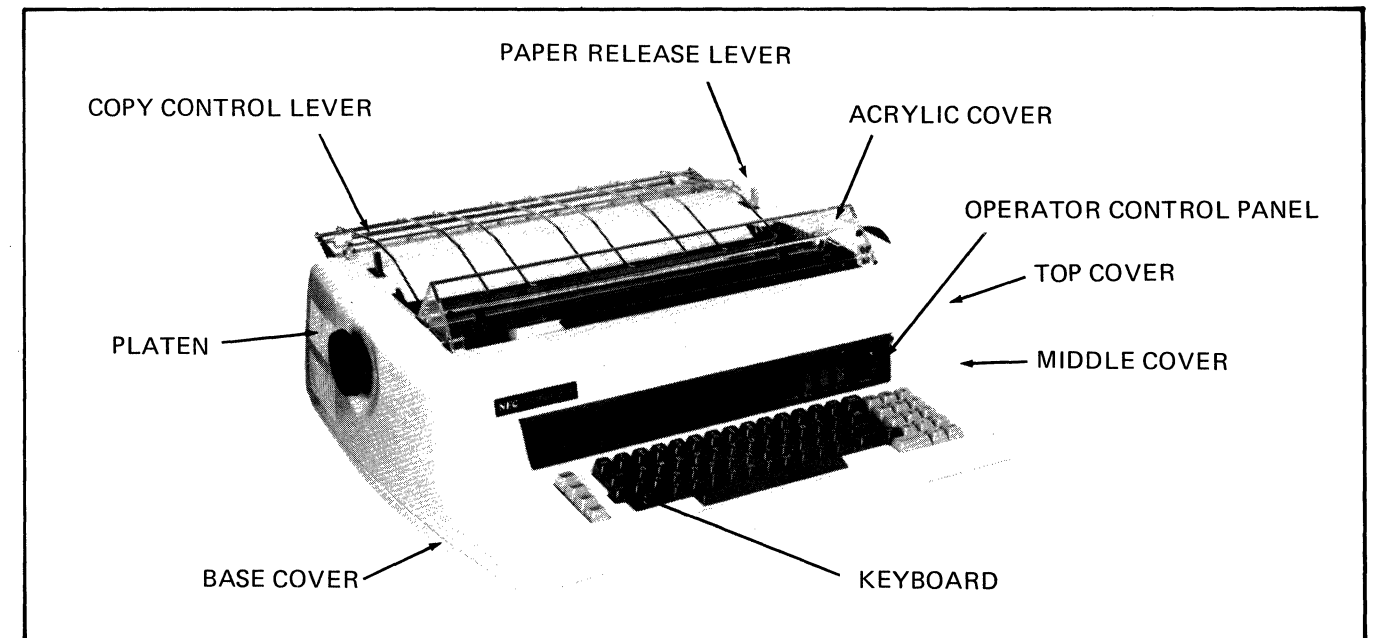


Figure 4-1 SPINWRITER Showing KSR Cover

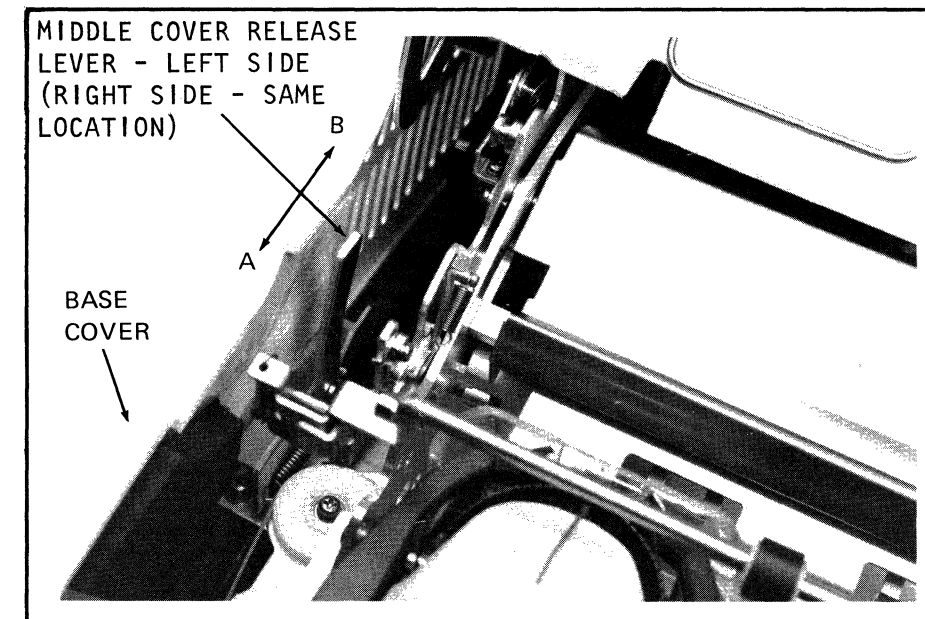


Figure 4-2 Middle Cover Release Lever

#### 4.2.2 Assembly

- a. Reverse the cover removal procedure, i.e., lift the top cover and holding the lever in the A direction with your thumb, lower the KSR cover into position.

#### NOTE

Ensure that the lever is firmly engaged in the B direction with the lever plate.

- b. Install the platen assembly. Ensure that it is properly seated by the platen clamp levers.
- c. Install the tractor feed or friction attachment assembly (Option).
- d. Check that the copy control lever and paper release lever function without contacting the cover.
- e. Ensure that the paper out switch (Section 5.16) and cover open switch (Section 5.17) are adjusted properly (Figure 4-3).

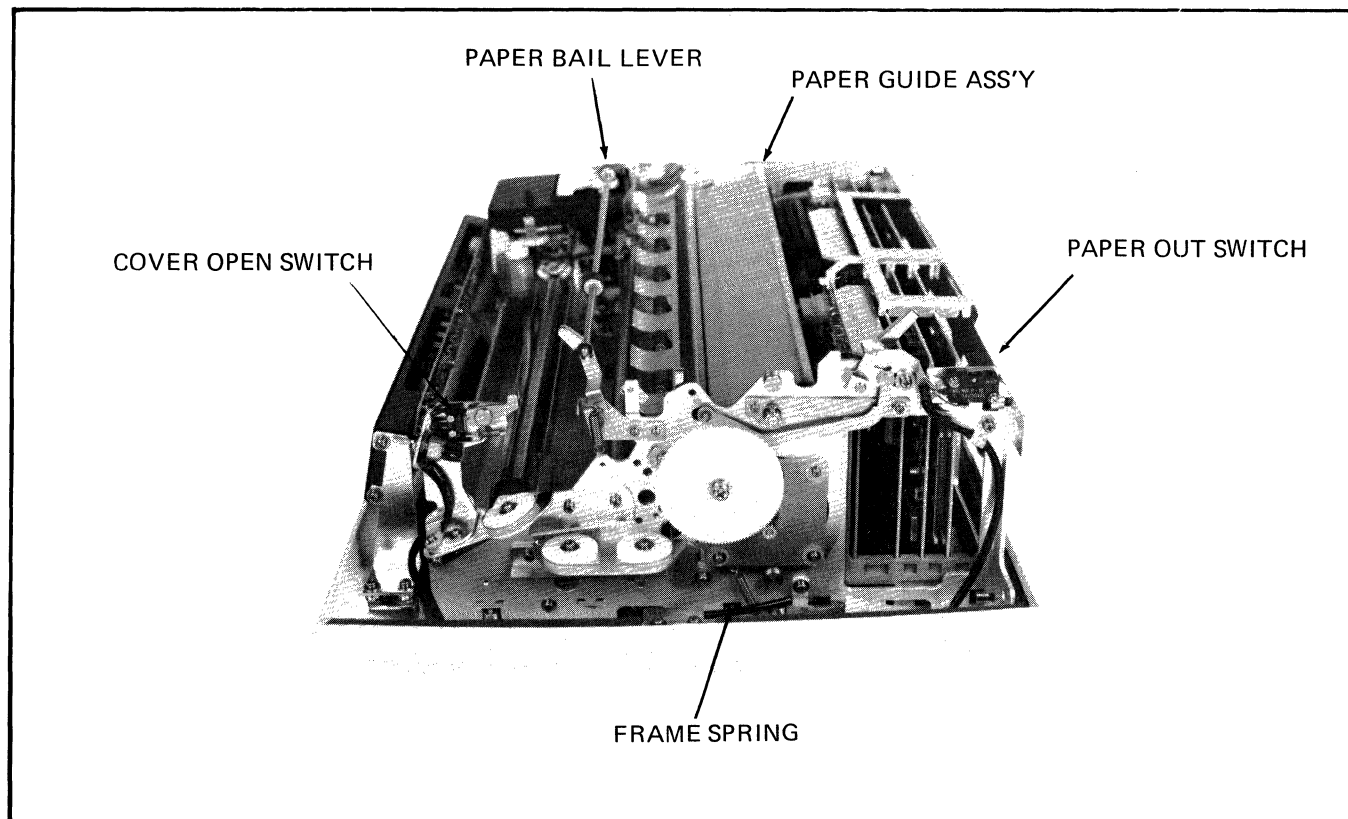


Figure 4-3 SPINWRITER With Cover Removed (Side View)

#### 4.3 CIRCUIT BOARDS

##### 4.3.1 Disassembly

- a. Turn off power.
- b. Disconnect the power cord.

#### CAUTION

Never remove or install a PCB when power is on.

- c. Remove the middle cover (refer to Section 4.2).
- d. Lift and remove the paper guide assembly (Figure 4-3).
- e. Disconnect the cable connector(s) attached to the PCB (Figure 4-4).
- f. Loosen the screws securing the PCB holder. Remove the holder.
- g. Pull out the PCB using extraction tool number 19-22833 as shown in Figure 4-5.

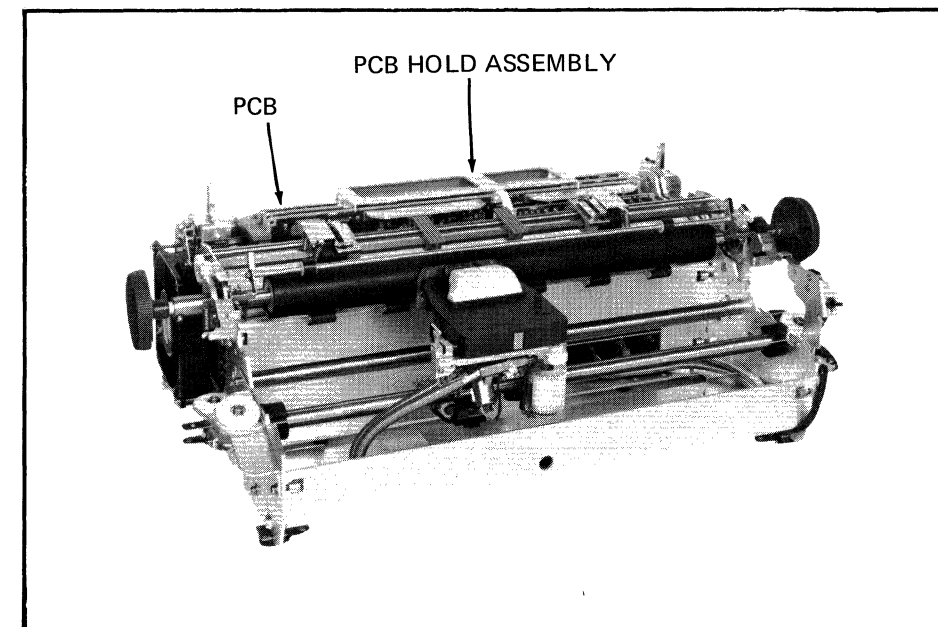


Figure 4-4 Circuit Board Assembly Location

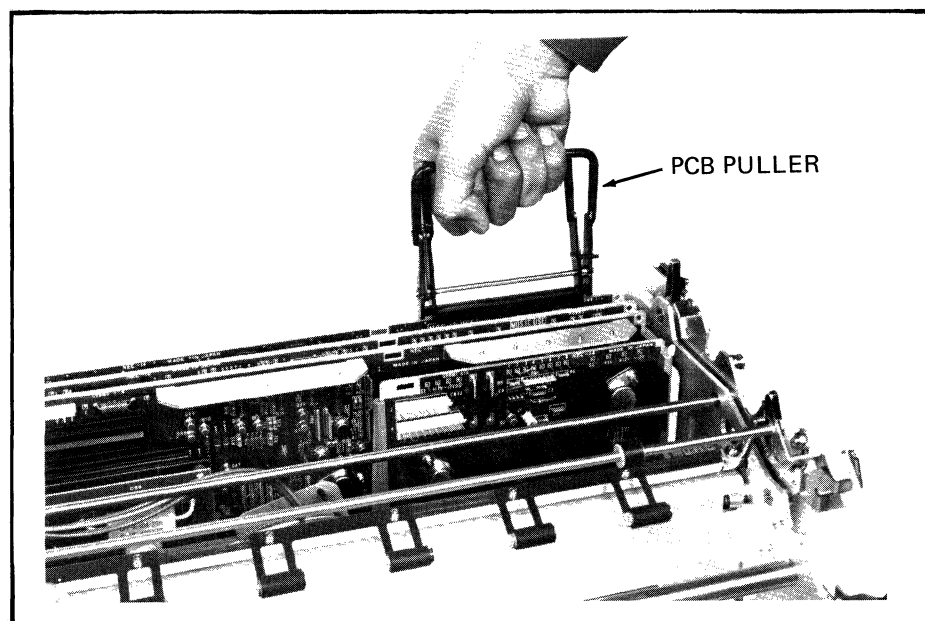


Figure 4-5 PCB Removal

#### 4.3.2 Assembly

Reverse the removal procedures described in the disassembly.

#### 4.4 POWER SUPPLY

##### WARNING

Ac power is present inside the printer with the ac switch in the OFF position. Unplug the power cord before removing the power supply.

##### 4.4.1 Disassembly (Figure 4-6)

- a. Turn off power and unplug ac power cord from outlet.
- b. Remove the middle cover (refer to Section 4.2).
- c. Remove the paper guide assembly.
- d. Remove the circuit boards as instructed in Section 4.3, steps e thru g.
- e. For models with a keyboard, remove the keyboard ground straps.

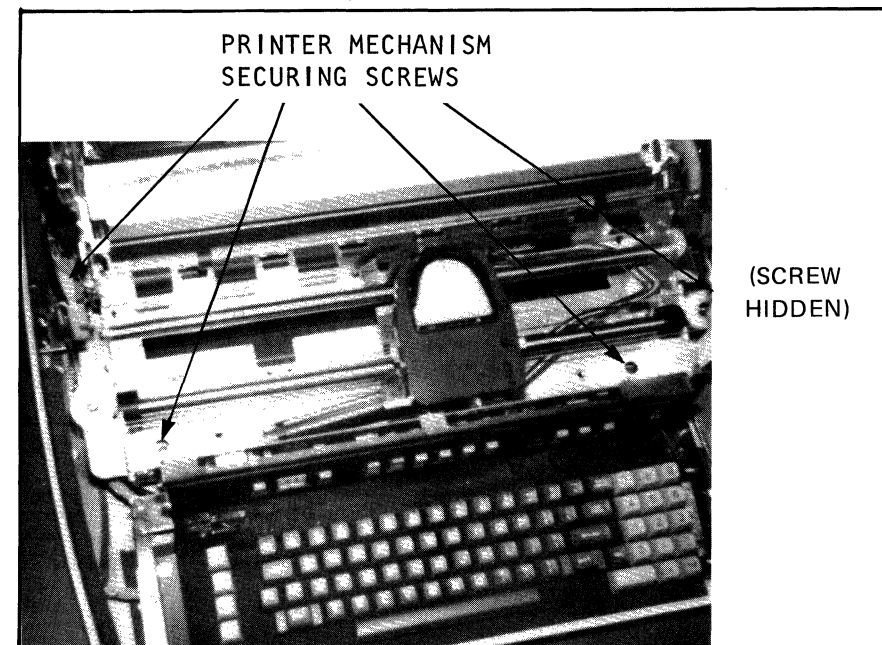


Figure 4-6 Printer Mechanism Base Retaining Screws

- f. Remove the plug and green ground wire to the fan.
- g. Unplug all connectors from the mother board (CN1 thru CN5).
- h. Refer to Figure 4-6. Remove four screws securing the printer mechanism to the base and lift the mechanism out of the base.
- i. Remove rear of chassis from base by removal of seven screws shown in Figures 4-7 and 4-8.
- j. Remove power supply mounting screws (Figure 4-9) and lift power supply out the rear.

##### 4.4.2 Assembly

Reverse the disassembly procedure described in Section 4.4.1.

##### CAUTION

Use special care when handling the connecting cord and fan cord to avoid any damage to these when performing the assembly procedures.

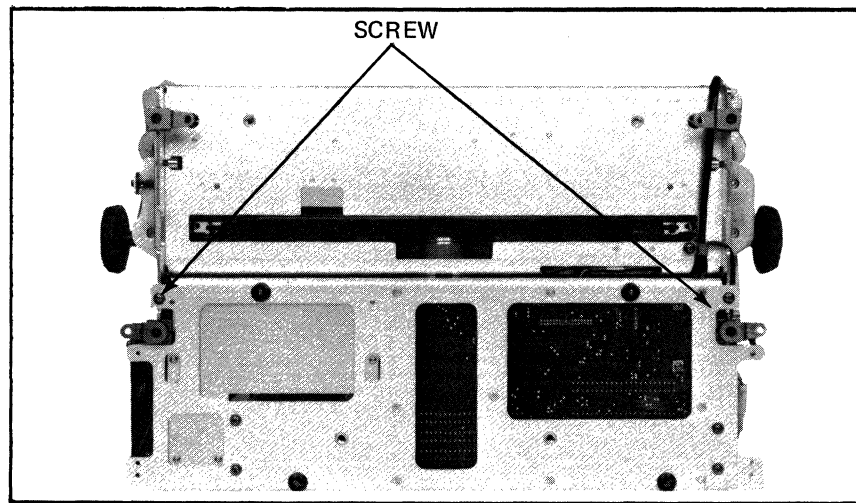


Figure 4-7 Base Chassis (Bottom View)

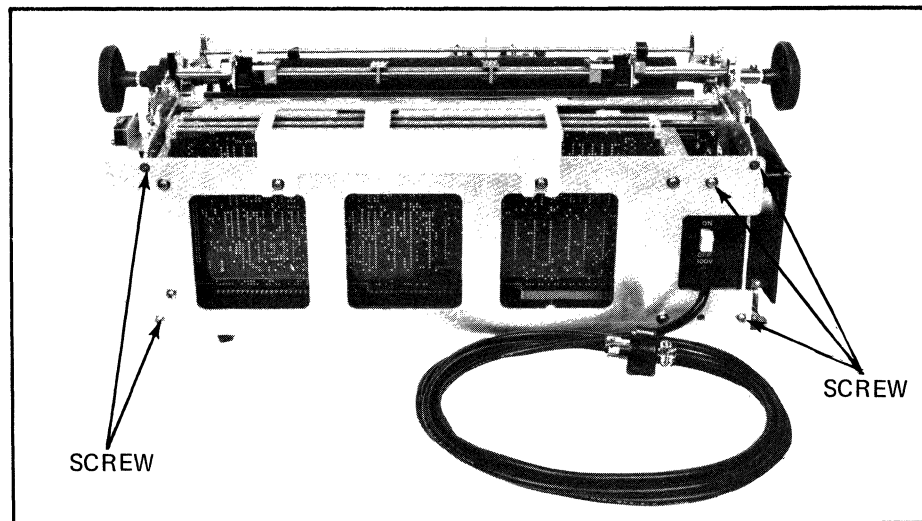


Figure 4-8 Base Chassis (Rear View)

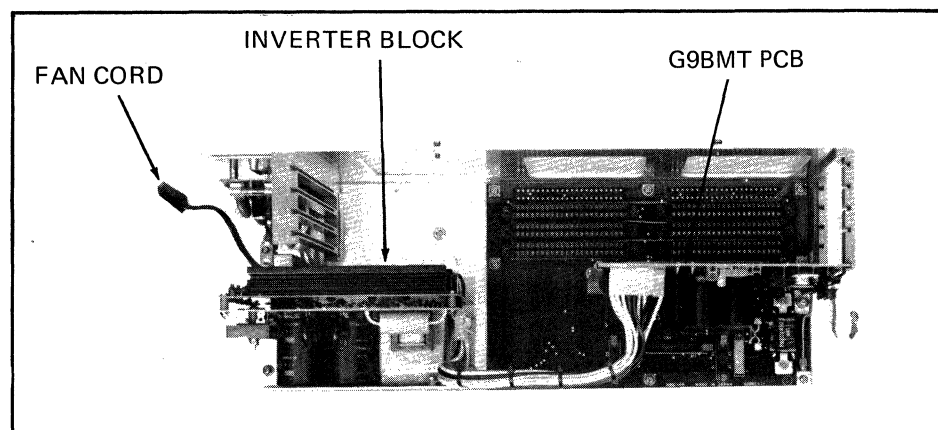


Figure 4-9 Power Supply (Top View)

#### 4.5 OPERATOR CONTROL PANEL

##### 4.5.1 Disassembly (Figure 4-10)

- a. Turn off power and unplug power cord from outlet.
- b. Remove the platen and middle cover (refer to Section 4.2).
- c. Disconnect ribbon cable(s) (Items 1 & 2) from bottom of panel.
- d. Disconnect power connector (Item 3).
- e. Remove control panel assembly by removing four screws (Item 4) that secure brackets to base (refer to Figure 4-10).

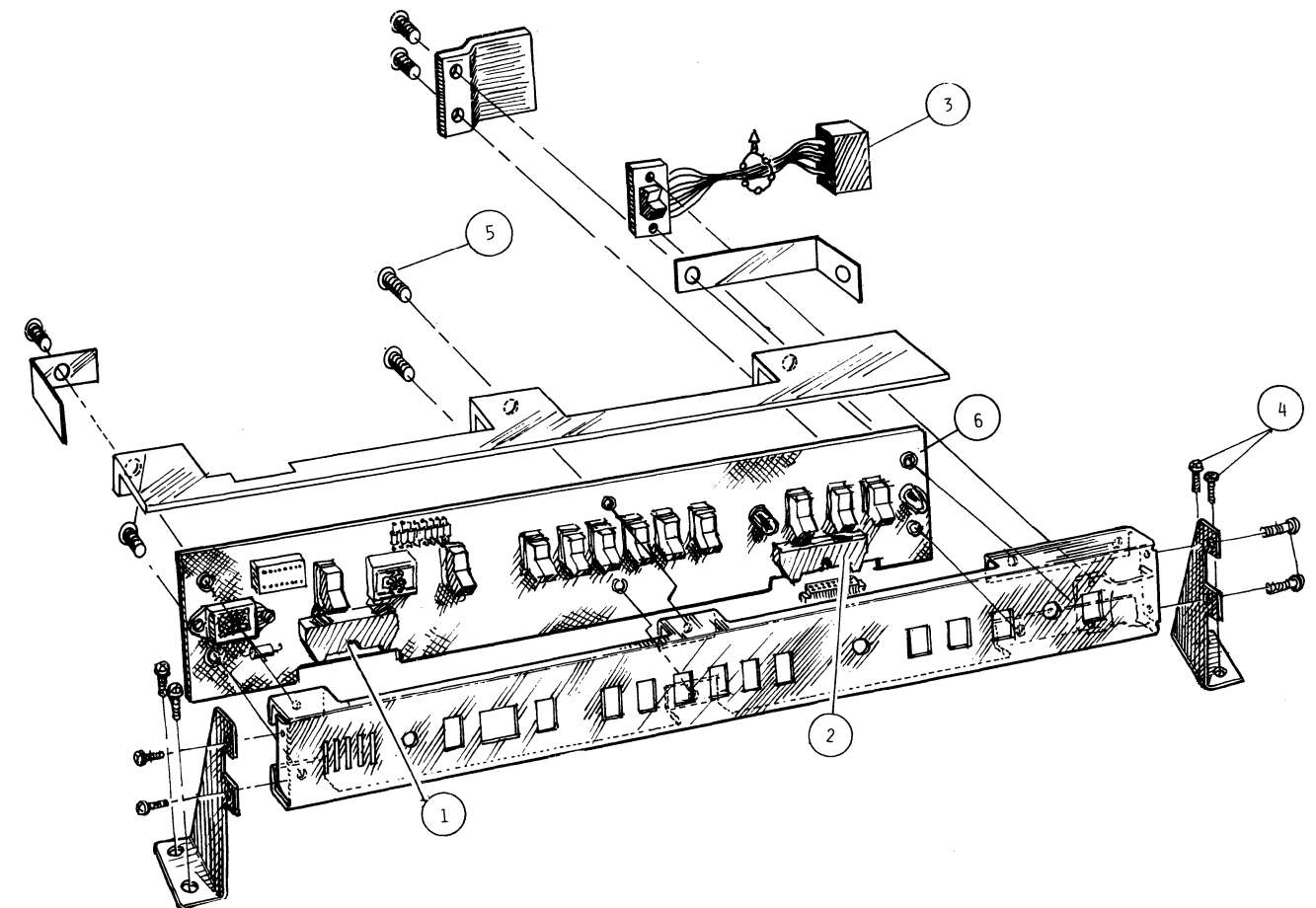


Figure 4-10 Operator Control Panel

- f. Remove six screws (Item 5) to detach control panel PCB (Item 6) from bracket assembly.

#### 4.5.2 Assembly

Reverse the disassembly procedure described in Section 4.5.1.

### 4.6 KEYBOARD

#### 4.6.1 Disassembly (Figure 4-11)

- a. Turn off power and unplug power cord from outlet.
- b. Remove the platen and middle cover (refer to Section 4.2).
- c. Disconnect the keyboard connector (CN33) from the control panel PCB.
- d. Remove four screws (1) securing keyboard to the base and remove the keyboard (refer to Figure 4-11).

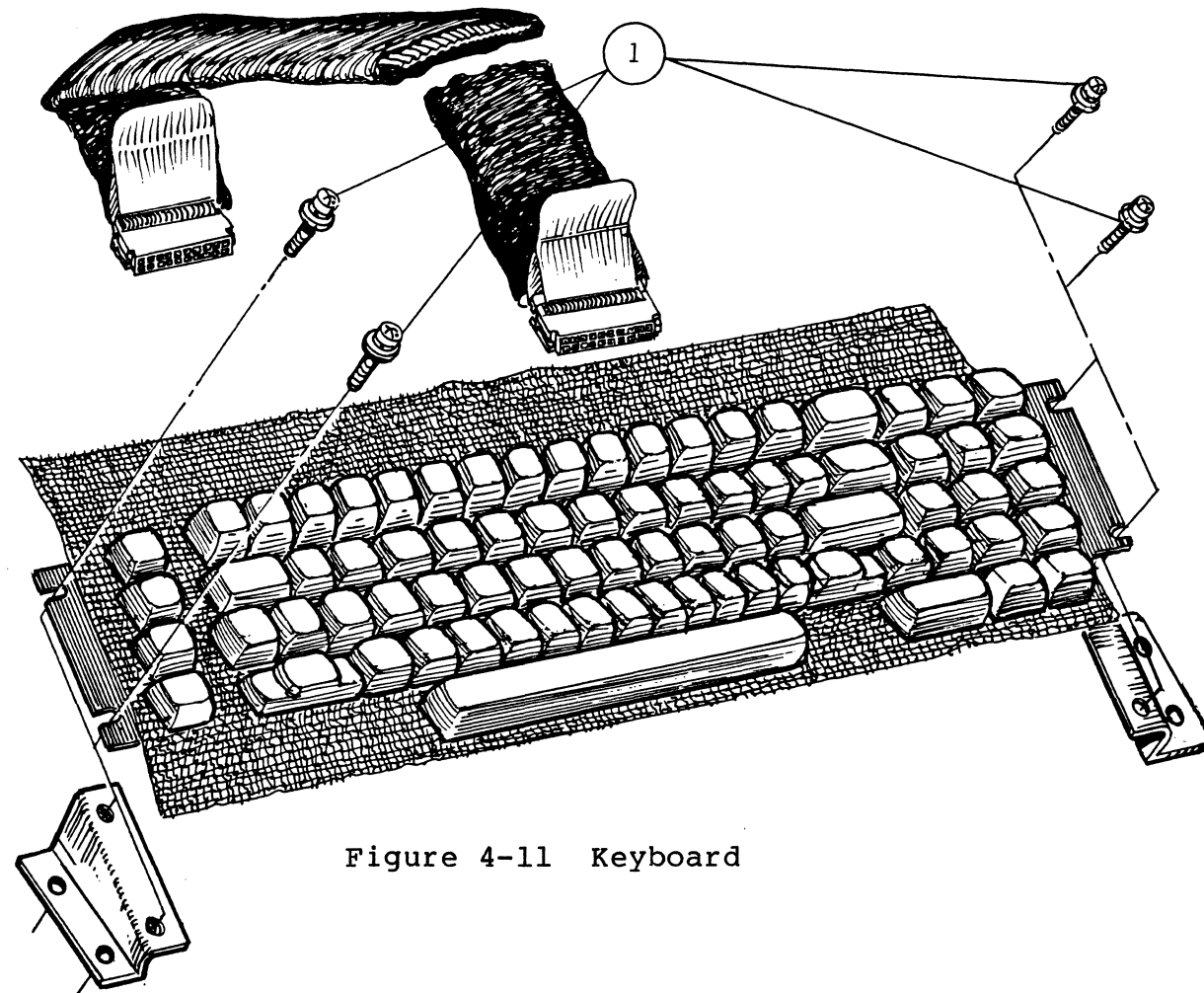


Figure 4-11 Keyboard

#### 4.6.2 Assembly

Reverse the disassembly procedures (Figure 4-11) described in Section 4.6.1.

### 4.7 CARRIAGE

#### 4.7.1 Disassembly (Figure 4-12)

- a. Turn off power and unplug power cord from outlet.
- b. Remove the platen and middle cover (refer to Section 4.2).
- c. Remove the paper guide assembly.
- d. Remove the ribbon cartridge and print thimble.
- e. Disconnect the carriage assembly connector (CN4) from the mother board. (Refer to Figure 4-12.)
- f. Disengage the carriage cable assembly from the cable clamps.
- g. Remove three screws securing the carriage to the lower guide assembly (Figure 4-13).

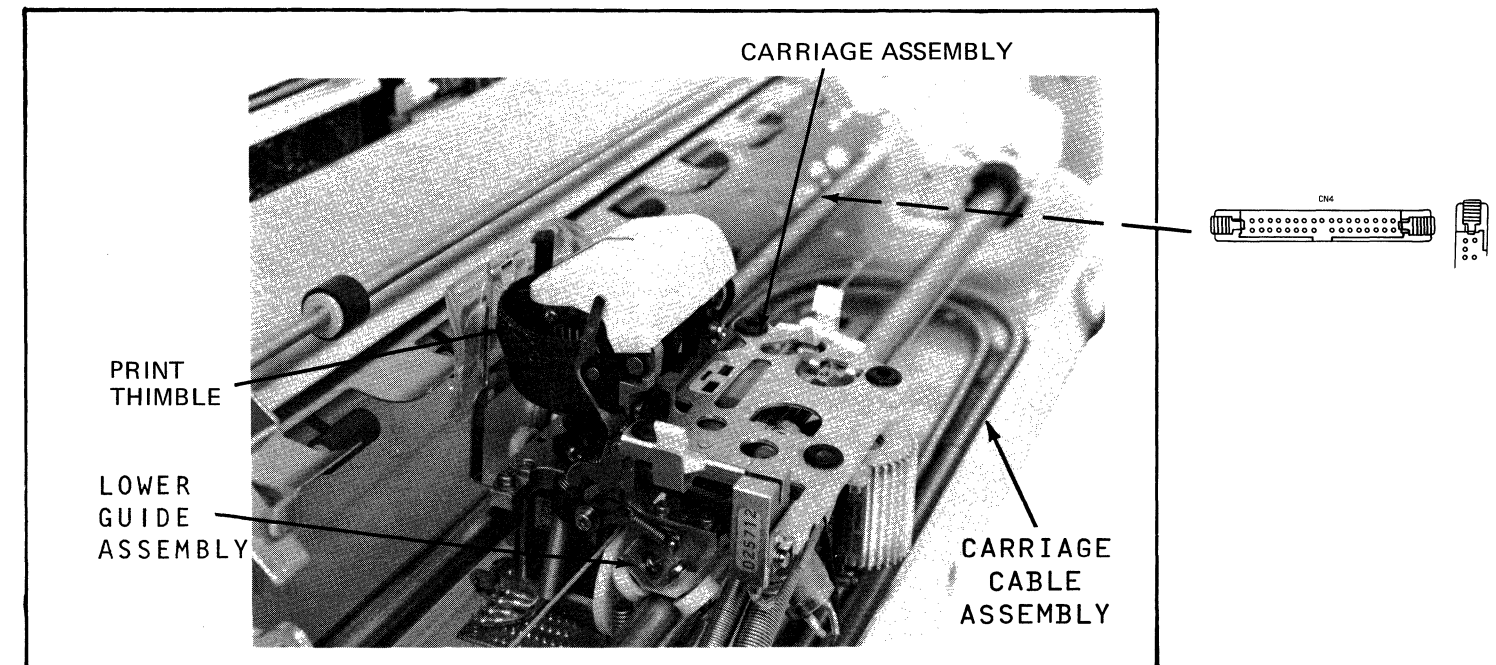


Figure 4-12 Carriage Location



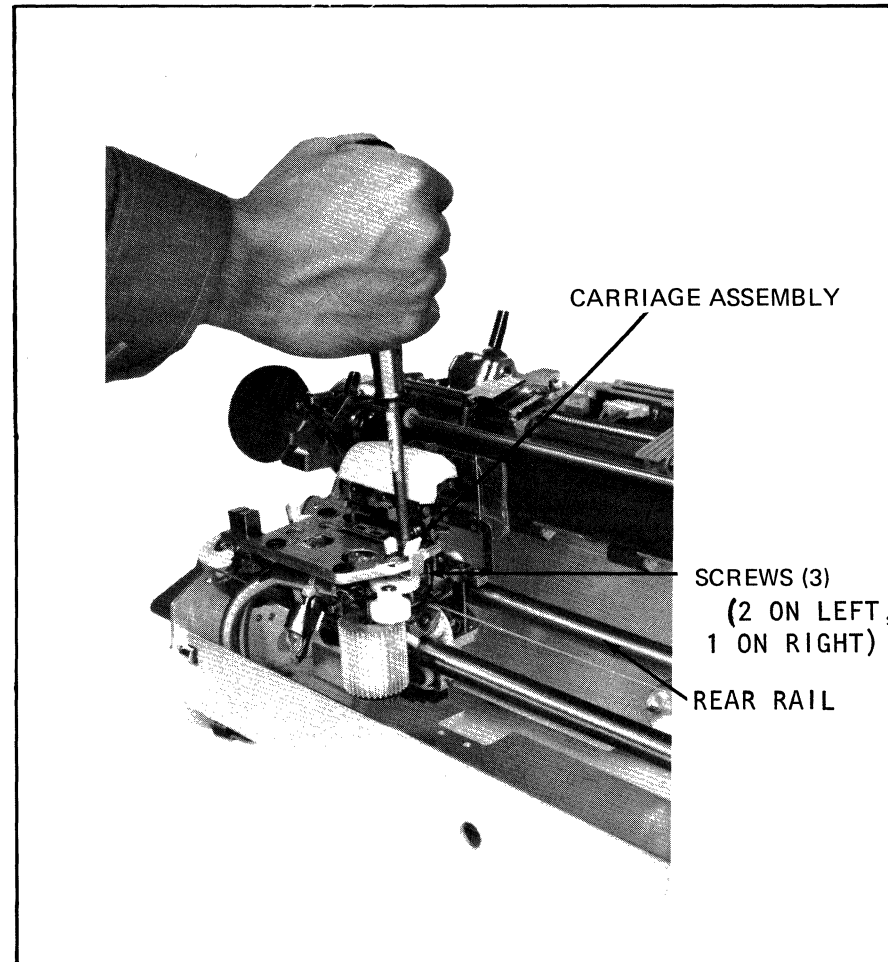


Figure 4-13 Carriage Removal

- h. Slightly lift and tilt the carriage assembly to the rear (DO NOT LIFT OUT YET). Slide the lower guide assembly to the extreme right while holding the carriage assembly in place.
- i. Hold the wire rope back with one hand to keep the carriage free of the wire. Pull the carriage slightly forward to disengage the rear bearing and gently lift the carriage out of the unit.

#### 4.7.2 Assembly

- a. Move the lower guide assembly to extreme right.
- b. Hold the wire rope back with one hand and lower the carriage assembly between the rails at the center of carriage travel

#### NOTE

Ensure rear bearing sits on rear rail illustrated in Figure 4-13.

- c. Slide the lower guide assembly under the carriage assembly and line up the screw holes. Ensure that alignment pins between the guide assembly and carriage are firmly seated.
- d. Secure the carriage to the lower guide assembly with three screws (Figure 4-13).
- e. Move the carriage assembly to the extreme left. Engage the carriage cables in the clamps (small and large clamp).

#### NOTE

Ensure that cable does not touch left side frame.

- f. Secure connector CN4 to the mother board. This connector is keyed to assure proper pin alignment.
- g. Perform the following checks and/or adjustments.
  - 1. Section 5.2, hammer adjustments.
  - 2. Section 5.2, rotate home position setting.
  - 3. Section 5.3, ribbon change adjustments.
  - 4. Section 5.5, card holder setting
  - 5. Section 5.9, platen height.
  - 6. Section 5.10, first print position.
- h. Reinstall the ribbon cartridge, print thimble, paper guide assembly and cover.

#### 4.8 PRINT HAMMER

##### 4.8.1 Disassembly

- a. Turn off power and unplug power cord from outlet.
- b. Open the top cover.

- c. Remove the ribbon cartridge and print thimble.
- d. Raise the hammer cover assembly (Figure 4-14).
- e. Remove four screws (Items 1 & 2) which secure the hammer to the hammer cover (Figure 4-14).
- f. Remove two terminal head screws (Item 3) illustrated in Figure 4-14.
- g. Remove the print hammer (Figure 4-15).

#### 4.8.2 Assembly

- a. Reverse the removal procedures.
- b. Perform the hammer assembly adjustments (Section 5.2).

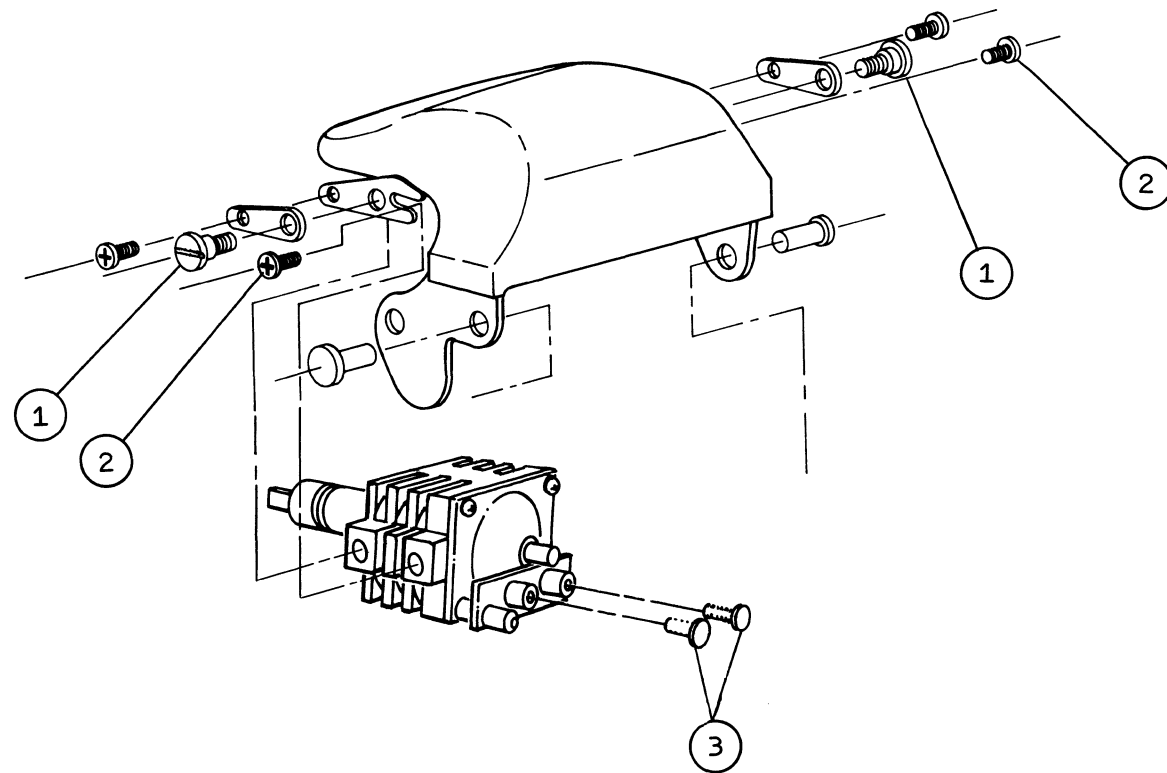


Figure 4-14 Print Hammer Disassembly

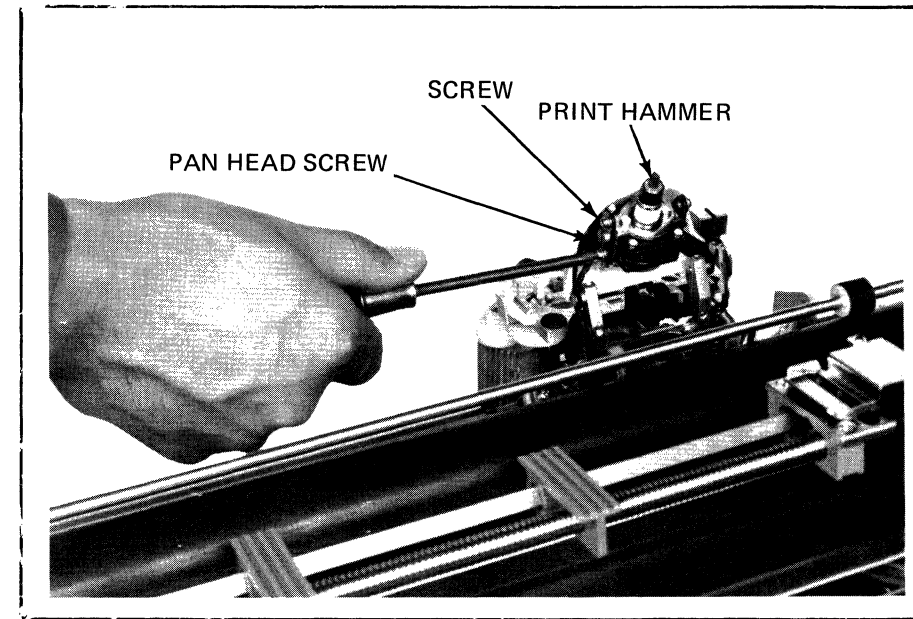
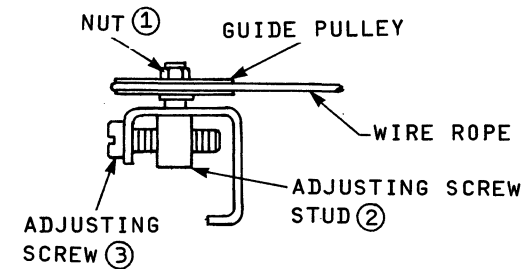
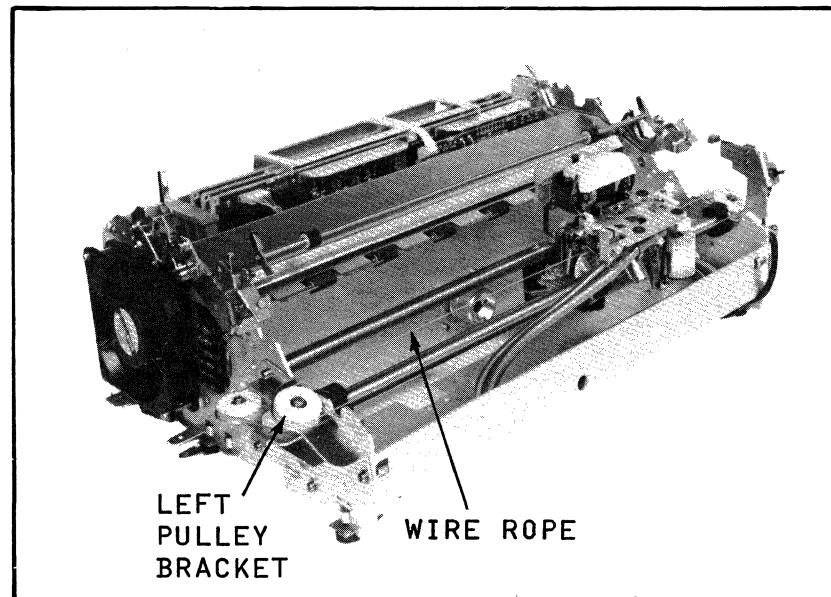


Figure 4-15 Print Hammer Removal and Assembly

#### 4.9 WIRE ROPE

##### 4.9.1 Disassembly (Figures 4-16 and 4-17)

- a. Turn power off and unplug the power cord from outlet.
- b. Remove the platen and middle cover.
- c. Remove the paper guide assembly.
- d. On models with bottom feed option, remove the bottom paper guide assembly.
- e. Refer to Figure 4-16B. Loosen the nut (Item 1) that locks the adjusting screw stud (Item 2) on the left pulley bracket.
- f. Loosen the wire rope tension by turning the adjusting screw (Item 3) counterclockwise.
- g. Refer to Figure 4-17A. Disconnect the right side wire at point A of the carrier assembly. Disengage the wire rope from right guide pulleys 4, 3, 2 and 1, and leave the wire on the drive pulley.
- h. Do the same with the left side wire disconnecting it at point B, and disengaging it from the left guide pulleys.



A

B

Figure 4-16 Wire Rope and Adjustment Screw Location

- i. Gently pull the right side wire so it unwinds naturally from the drive pulley.
- j. Do the same with the left side pulley.

4.9.2 Assembly

- a. Insert the knot in left side wire rope into the rear slot of the drive pulley (see Figure 4-17B).

NOTE

Both left and right side wires are identical.

- b. Rotate the pulley clockwise and wind the wire starting in the second groove and around the pulley to the point illustrated in Figure 4-17C.
- c. Insert the knot in right side wire rope into the front slot and put one complete turn on the drive pulley (Figure 4-17D).
- d. Apply tension to the right wire rope and pull the left side wire rope until both wire ropes are centered on the drive pulley as illustrated in Figure 4-17C.

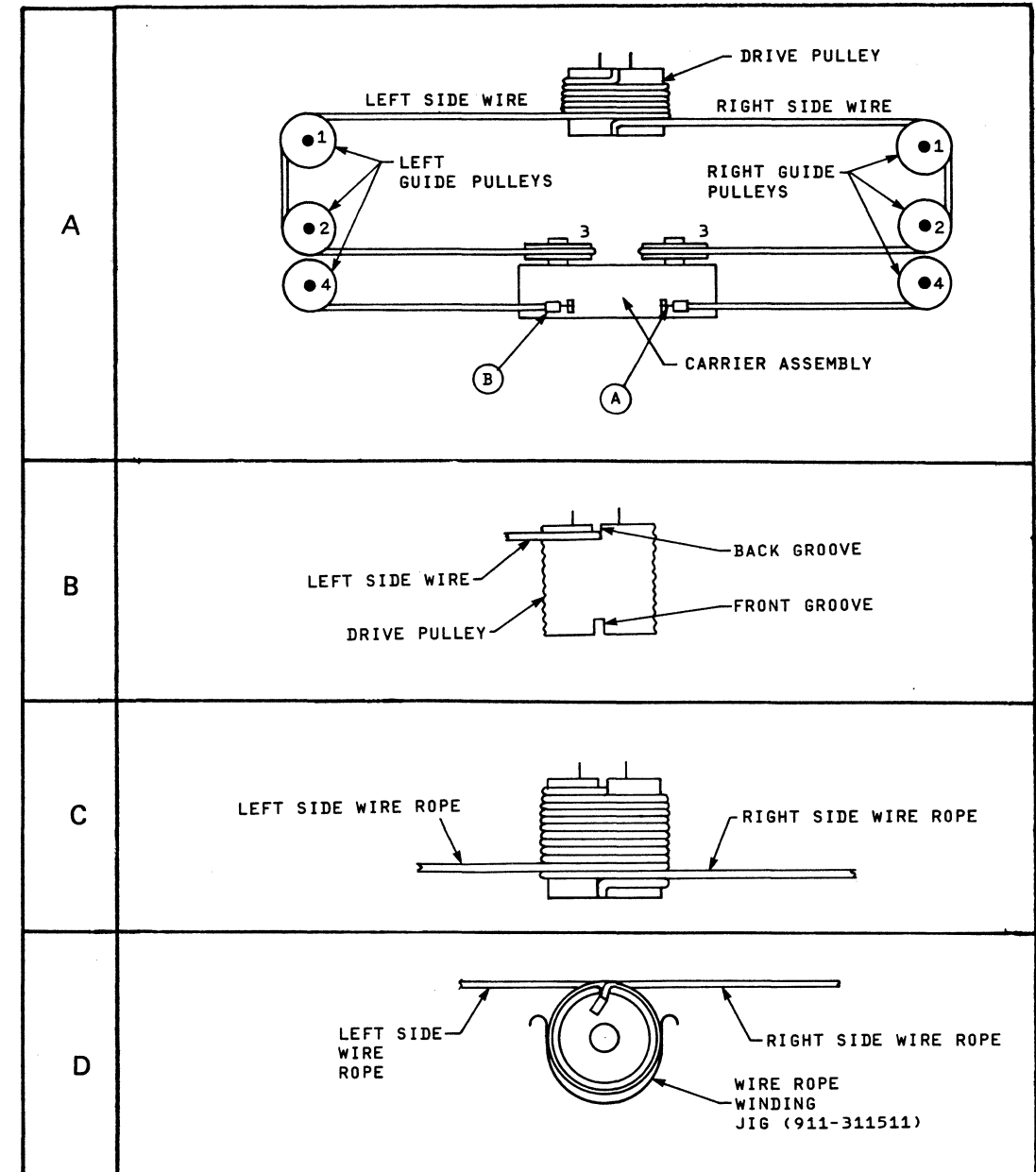


Figure 4-17 Wire Rope Assembled and Disassembled

- e. Set the winding jig on the drive pulley (see Figure 4-17D).
- f. Check that the adjusting screw on the left pulley bracket is fully loosened as indicated in step e of the disassembly procedure.
- g. Place the left side wire rope onto the four guide pulleys 1, 2, 3, 4, respectively and then attach the end loop of the wire to point B (refer to Figure 4-17A).

- h. Place the right side wire rope onto the four guide pulleys 1, 2, 3, 4, respectively and then attach end loop of the wire to point A (refer to Figure 4-17A).
- i. Turn the adjusting screw clockwise to tension the wire rope.
- j. Perform the wire rope tension adjustment as described in Section 5.15.
- k. Install the middle cover.

#### 4.10 SPACING MOTOR

##### 4.10.1 Disassembly (Power Off)

- a. Turn off power and unplug power cord from outlet.
- b. Remove the platen and middle cover (refer to Section 4.2).
- c. Remove the paper guide assembly.
- d. On models with bottom feed option, remove the bottom paper guide assembly.
- e. Remove the operator control panel, if installed (refer to Section 4.5).
- f. Remove the wire ropes (refer to Section 4.9).
- g. Remove the PCB card guide by loosening two screws.
- h. Remove the PCBs from the mother board using PCB puller (part number 19-22833).
- i. Disconnect the spacing motor cable connector CN13 from the mother board.
- j. Refer to Figure 4-6. Remove four screws securing the printer mechanism to the base and lift the mechanism out of the base.
- k. Remove the spacing motor assembly by removing two screws illustrated in Figure 4-18.

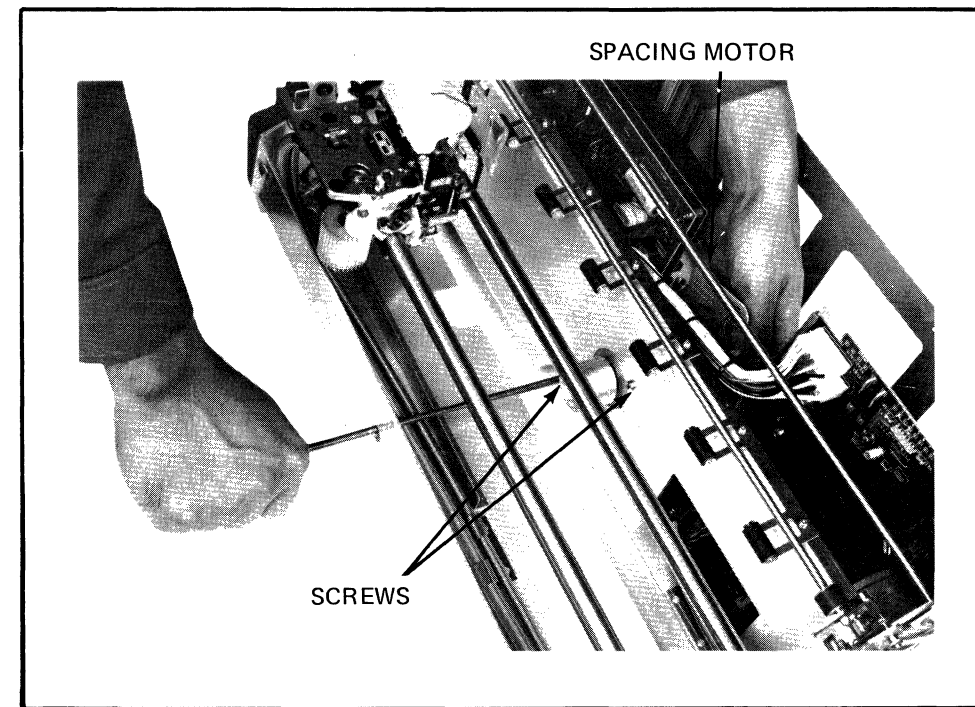


Figure 4-18 Spacing Motor Removal

##### 4.10.2 Assembly

- a. Reverse the removal procedures.
- b. Perform the wire rope tension adjustment as described in Section 4.9.



## CHAPTER 5 ADJUSTMENTS

### 5.1 INTRODUCTION

The adjustment procedures described in this section are all essential for field maintenance of the SPINWRITER. The adjustment standards must be adhered to at all times.

### 5.2 HAMMER ASSEMBLY

#### 5.2.1 Lock Lever Adjustment

- a. Refer to Figure 5-1. Loosen the screw securing eccentric stud A.
- b. Turn eccentric stud A until the lock lever secures the hammer cover assembly firmly in place.

#### 5.2.2 Hammer Position Adjustment (Figure 5-1).

- a. Remove the print thimble and set the hammer position jig (part number 911-311552-2) in its place.
- b. Loosen the holding screws B and C on both sides of hammer (Figure 5-1).
- c. Align top and end of the hammer in the jig as illustrated in Figure 5-2, and then tighten screw C (both sides).
- d. Verify that alignment is still correct before tightening screw B (both sides).

#### 5.2.3 Rotate Home Position Adjustment

- a. With print thimble in printer, turn power on.
- b. Check to see if hammer is centered on last short finger of the print thimble.

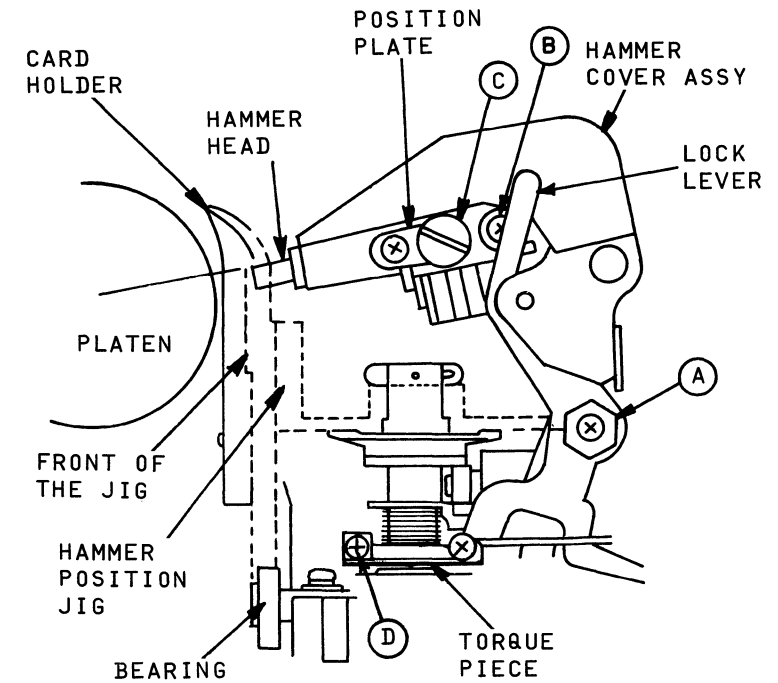


Figure 5-1 Print Hammer Adjustment

- c. To adjust, loosen screw D (Figure 5-1) of the torque piece and rotate the torque piece for proper alignment.
- d. Power unit off and on to verify alignment.

#### NOTE

An added check can be made by replacing the print thimble with the hammer position jig while power is on. Hammer should align in jig slot. Remove jig before powering off (see Figure 5-2).

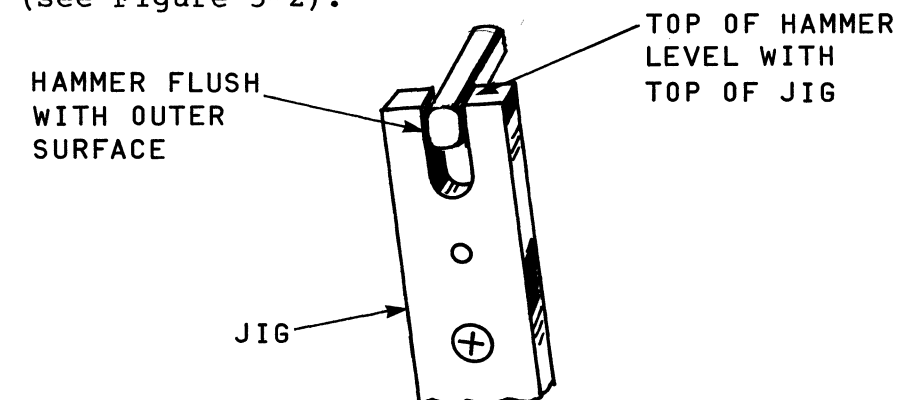


Figure 5-2 Hammer Head to Jig Slot Alignment

### 5.3 RIBBON COLOR CHANGE ADJUSTMENT

Use a red/black ink ribbon to perform the following adjustments.

#### 5.3.1 Ribbon Color (Black)

- Refer to Figure 5-3. Slide the ribbon mode switch to the red/black position.
- Adjust the ribbon base stopper using screw A (Figure 5-3) so that the gap between the ribbon top edge and the top projection of the card holder bracket (Figure 5-4) is within the range of  $0 \text{ mm} \pm 0.1 \text{ mm}$  ( $0\text{-inch} \pm 0.004\text{-inch}$ ).

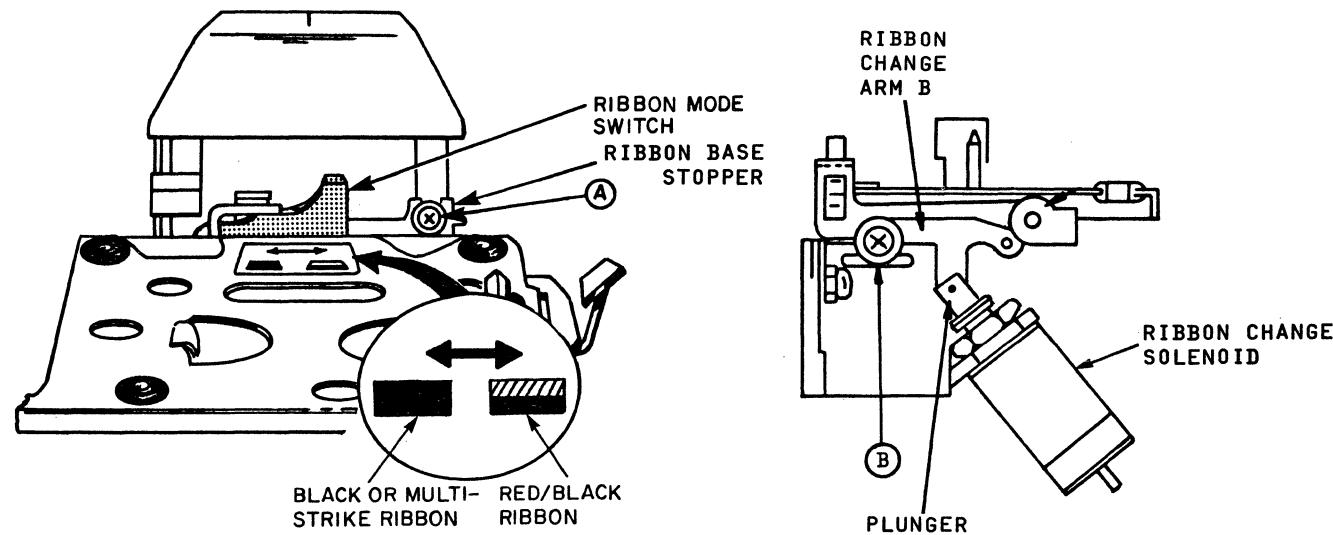


Figure 5-3 Ribbon Color Change Adjustment Location

#### 5.3.2 Ribbon Color (Red)

- Slide the ribbon mode switch to the red/black position.
- Loosen adjusting screw B shown in Figure 5-3.
- Depress the plunger on the ribbon change solenoid so that the ribbon platform is down.
- Move ribbon change arm B up or down so that the gap between the ribbon top edge and the print thimble long finger top edge  $1.0 \pm 0.2 \text{ mm}$  ( $0.04 \pm 0.008\text{-inch}$ ) as shown in Figure 5-5.
- Tighten adjusting screw B.

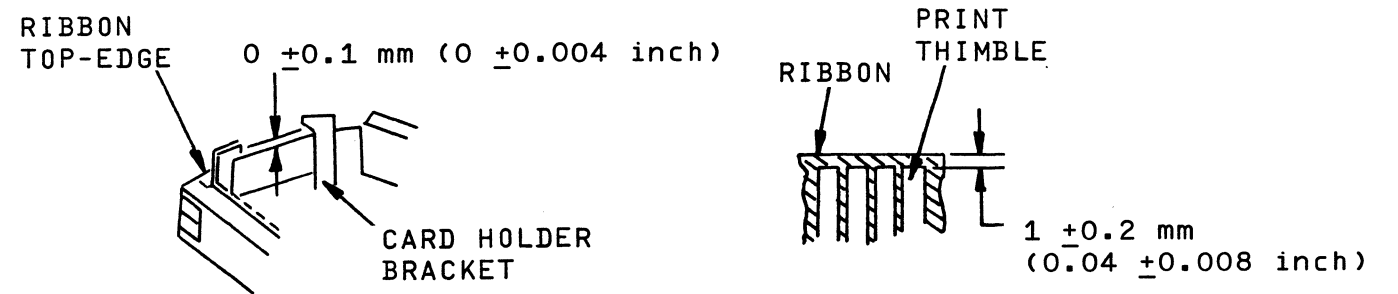


Figure 5-4 Ribbon Color Black Adjustment

Figure 5-5 Ribbon Cover Red Adjustment

#### 5.3.3 Visible Position

- Slide the ribbon mode switch to the red/black position.
- Take up ribbon slack.
- Rotate the thimble so that the short fingers are in front of the hammer assembly.

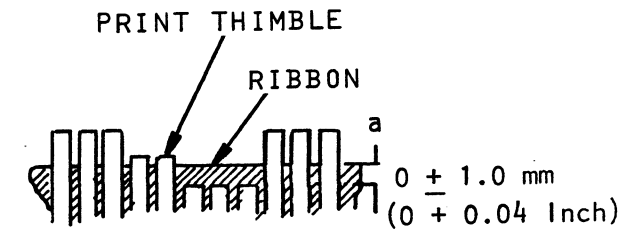


Figure 5-6 Visible Position Adjustment

- Depress the plunger on the ribbon change solenoid so that the ribbon platform is down.
- Refer to Figure 5-6. Verify that the gap between the ribbon top edge and the print thimble top edge is  $0 \text{ mm} \pm 1.0 \text{ mm}$  ( $0\text{-inch} \pm 0.04\text{-inch}$ ). This check may be done visually.

### 5.4 RIBBON FEED GEAR ADJUSTMENT

- Refer to Figure 5-7. Check backlash between idle gear and ribbon feed gear for tolerance of  $0.05 \text{ mm}$  to  $0.2 \text{ mm}$  ( $0.002 \text{ inch}$  to  $0.008 \text{ inch}$ ).

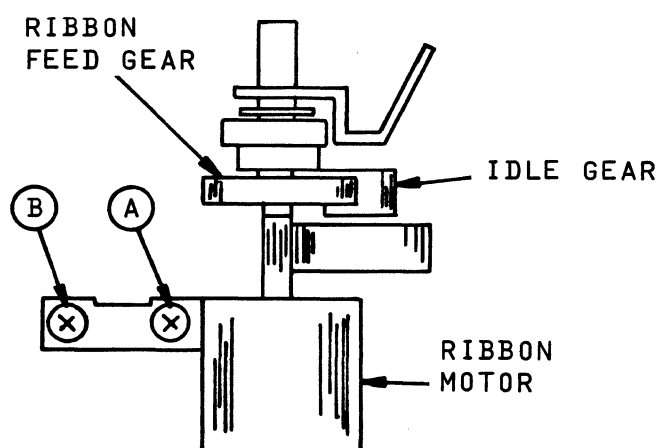


Figure 5-7 Ribbon Feed Gear Adjustment

- b. Adjust backlash by turning screws A and B (Figure 5-7).
- c. Rotate idle gear manually following adjustment to ensure that gear rotates freely.

#### 5.5 CARD HOLDER ADJUSTMENT

- a. Push forms thickness lever toward arrow direction B (Figure 5-8).
- b. Loosen screw A in Figure 5-8.
- c. Adjust the card holder position for a clearance of 0.6 - 0.8 mm (0.024 - 0.032 inch) between the card holder and the platen.
- d. Tighten screw A.

#### 5.6 PLATEN CLAMP LEVER ADJUSTMENT

- a. With the platen mounted in place, bring the bottom A (Figure 5-9) of the platen clamp lever to a level position by turning the eccentric bushing B.
- b. After this adjustment, maintain a clearance of 0.4 mm (0.016 inch) to 0.7 mm (0.027 inch) between the stop lever C and the left side frame.
- c. Confirm that there is no play of the platen.

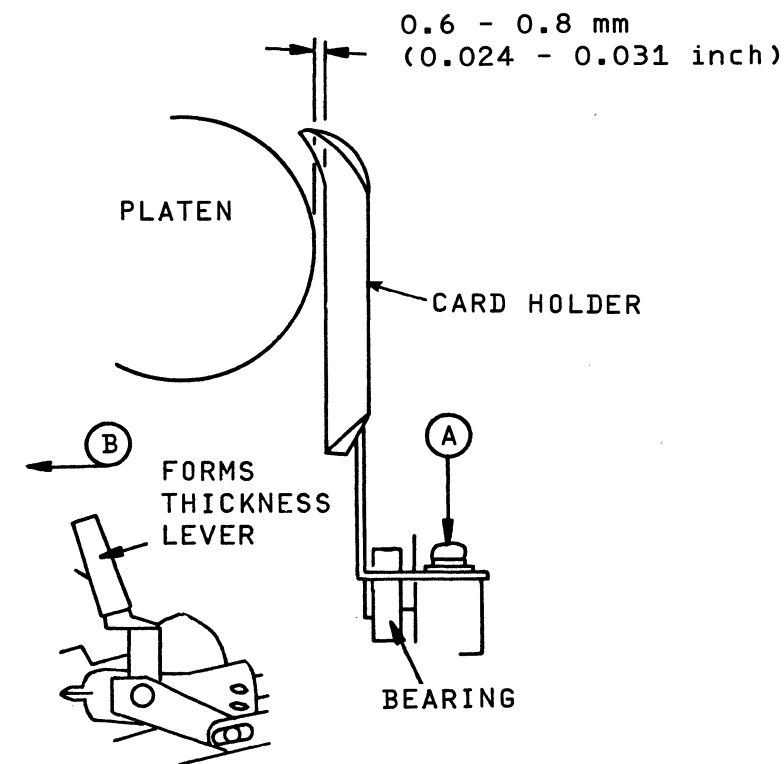


Figure 5-8 Card Holder Adjustment

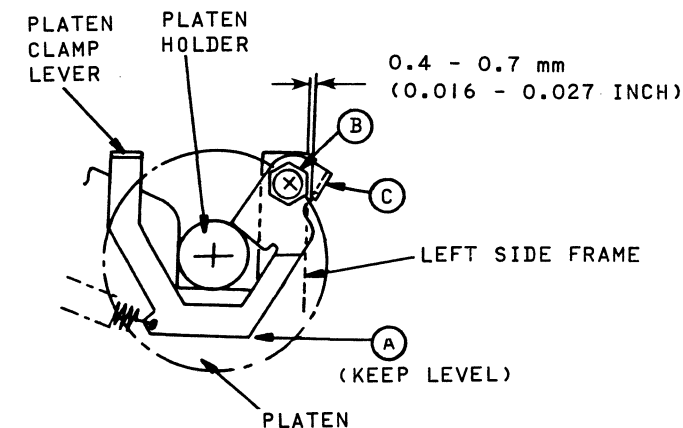


Figure 5-9 Platen Clamp Lever Adjustment

#### 5.7 PLATEN GEAR ADJUSTMENT

- a. Refer to Figure 5-10. Remove the platen assembly.
- b. Loosen three screws B on the line feed motor.



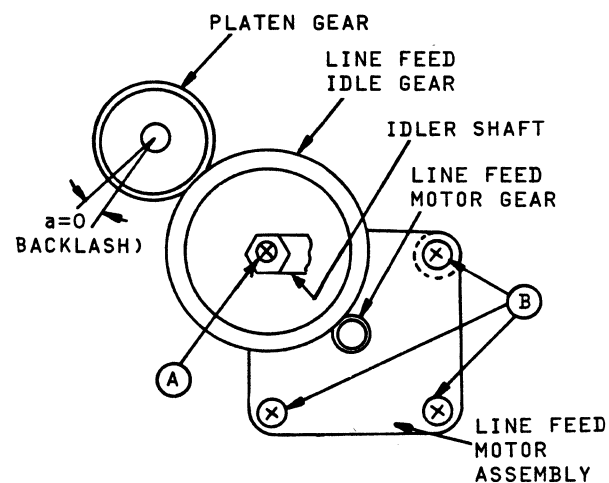


Figure 5-10 Platen Gear Adjustment

- c. Loosen screw A and adjust the eccentric idler shaft for zero backlash between the line feed idle gear and motor gear.
- d. Retighten screw A and check for smooth rotation, feeling only the inherent friction of the motor.
- e. Attach the platen assembly.
- f. Position the line feed motor for zero backlash between the line feed idle gear and the platen gear. Retighten three screws B.
- g. Check for smooth rotation of the gears in both clockwise and counterclockwise directions, feeling only the inherent friction of the line feed motor.

#### 5.8 PLATEN HEIGHT

THIS ADJUSTMENT IS MADE IN THE FACTORY WITH SPECIAL JIGS. DO NOT ATTEMPT ADJUSTMENT IN THE FIELD UNLESS COPY QUALITY IS ILLEGIBLE.

#### NOTE

Reverse platen assembly to ensure that the problem is not caused by a worn platen. Replace the platen in its correct position when completed. Also check for a worn ribbon or print thimble.

- a. Refer to Figure 5-11. If print density varies from top to bottom of the character, platen height can be adjusted by screw A. There is one on either side.
- b. If print density varies from left to right of the print line, install a worn ribbon and set the forms thickness lever for the lightest print possible on the acceptable side. (With a worn ribbon, it is easier to adjust the print line for equal print density throughout without overshooting the correct position of the platen.)
- c. Loosen screw B on the unacceptable end of the print line and adjust screw C until print density is uniform.

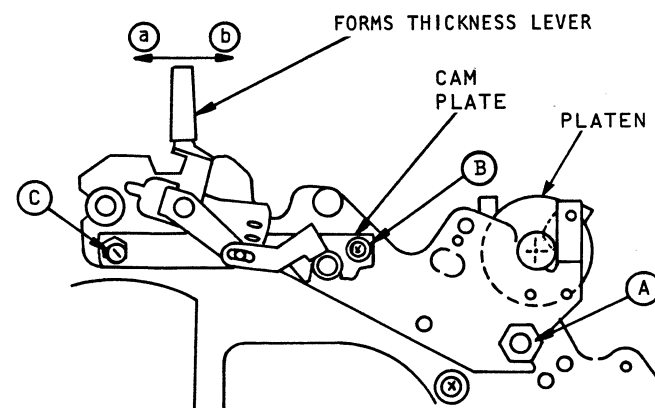


Figure 5-11 Platen Height Adjustment

#### 5.9 FIRST PRINT POSITION AND RIGHT EMERGENCY (EM) PLATE ADJUSTMENTS

##### 5.9.1 First Print Position (Figure 5-12)

- a. The first print position (the extreme left position) should be 58 mm, +0.3 mm (2.28 inch, +0.012) from the left side frame. To adjust to this position, slide the left side EM plate on the base frame in the required direction (along the arrows).
- b. Confirm that the EM plate does not interfere with the sensor on the bottom of the carriage.
- c. Confirm that the setting is correct by powering up the printer and measuring with the carriage position jig (part number 911-317608) or suitable measuring device.

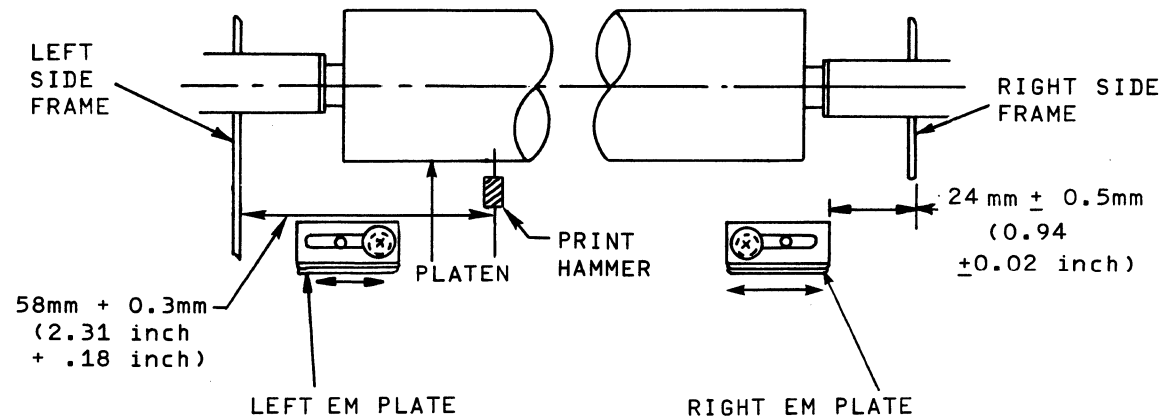


Figure 5-12 First Print Position and Right EM Plate Adjustment

### 5.9.2 Position of Right EM Plate.

- Position the right side EM plate  $24\text{ mm} \pm 0.5\text{ mm}$  ( $0.94 \pm 0.02\text{ inch}$ ) from the outside of the right side frame as shown in Figure 5-12.
- Confirm that there is no interference between the EM plate and the sensor on the bottom of the carriage.

### 5.10 PRESSURE ROLLER ADJUSTMENT

- With the platen installed, pull the paper release lever toward arrow direction A (Figure 5-13) to release the pressure rollers from the platen.

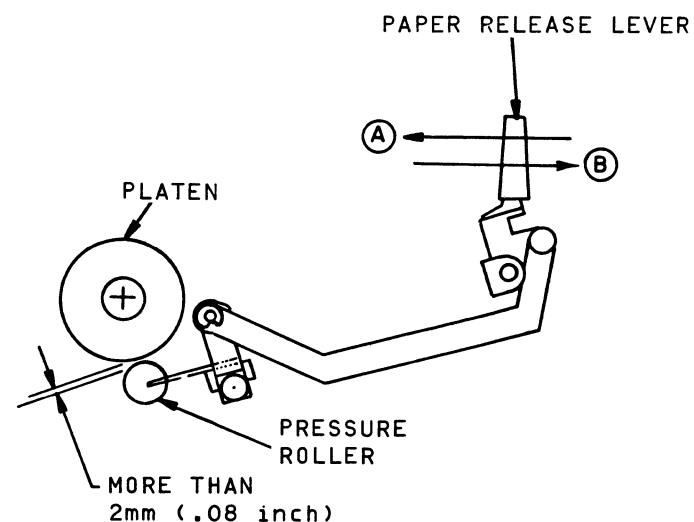


Figure 5-13 Pressure Roller Adjustment

- Confirm visually that the clearance between the platen and the pressure roller is more than  $2\text{ mm}$  ( $0.08\text{ in.}$ ).
- Push the paper release lever toward arrow direction B.
- Confirm that all rollers apply pressure against the surface of the platen.

### 5.11 TRACTOR ASSEMBLY ADJUSTMENT (OPTION) (Figure 5-14)

(To Be Supplied)

Figure 5-14 Tractor Assembly Adjustment  
(To Be Supplied)

### 5.12 TRACTOR ASSEMBLY MOUNTING ADJUSTMENT (OPTION) (Figure 5-15)

(To Be Supplied)

Figure 5-15 Tractor Assembly Mounting Adjustment  
(To Be Supplied)

### 5.13 PRESSURE BAIL ROLLER ADJUSTMENT (Figure 5-16)

- Slide the bail rollers (Figure 5-16) until they are outside the rubber part of the platen.

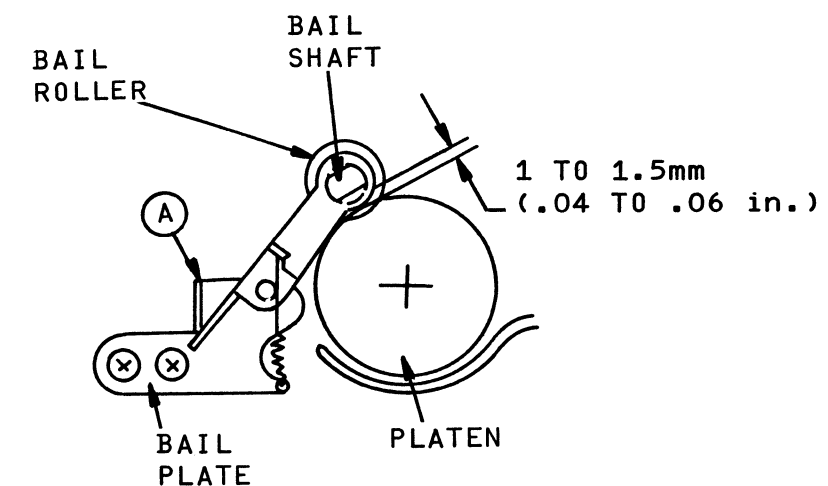


Figure 5-16 Pressure Bail Roller Adjustment

- b. Confirm that the gap between the bail shaft and the platen is within a range of 1 to 1.5 mm (0.04 to 0.06 inch).
- c. Re-form the stopper A of the bail plate as required.

5.14 WIRE ROPE TENSION ADJUSTMENT (Figure 5-17)

- a. Loosen nut B (Figure 5-17) on the left side guide pulley.
- b. Position the carriage at the far right margin.
- c. Pull up on the wire rope at a point (C) 185 mm (7.28 in) from the left side frame with a spring force of 350 grams (12 1/4 oz.).
- d. Adjust screw A to meet a wire rope distortion of 8 to 10 mm (0.32 - 0.4 in). (Use a spring tension gauge with maximum range of 700 grams.)

- e. Move the carriage unit to right and left about ten times and then place it at the right end.
- f. Re-confirm step d. If the wire rope distortion is out of range, repeat steps c through e.
- g. Position the carriage at the far left margin.
- h. Pull up on the wire rope at a point (d) 185 mm (7.28 inch) from the right side frame with the spring force of 350 grams (12-1/4 oz).
- i. Confirm a wire distortion of 6 to 10 mm. If the wire rope distortion is within range, tighten nut B. If the wire rope distortion is out of range, repeat steps b through h. That is, if a wire distortion is 8 to 10 mm, another distortion is allowed from 6 to 10 mm (refer to Table 5-1).

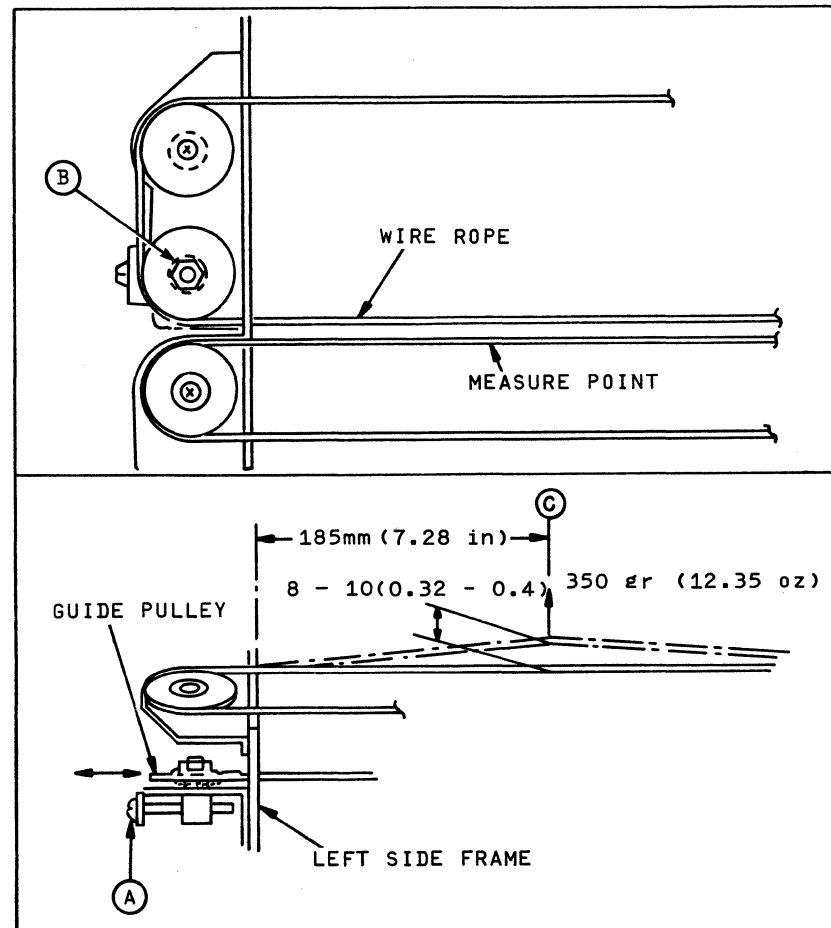


Figure 5-17 Wire Rope Adjustment

Table 5-1 Wire Rope Adjustment Specifications

DISTORTION (MM)		ACCEPTABLE
LEFT SIDE	RIGHT SIDE	
8-10	8-10	Yes
6-8	8-10	Yes
8-10	6-8	Yes
6-8	6-8	No

5.15 PAPER OUT SWITCH (RO, KSR) (Figure 5-18)

- a. With the paper properly set, the paper end detector must not contact actuator A in Figure 5-18 of the paper out switch.
- b. When the paper is out, the paper out switch is activated by the paper end detector dropping to the paper out switch.
- c. If steps a and b are not satisfied, re-form the paper end detector so that it will operate the switch properly.

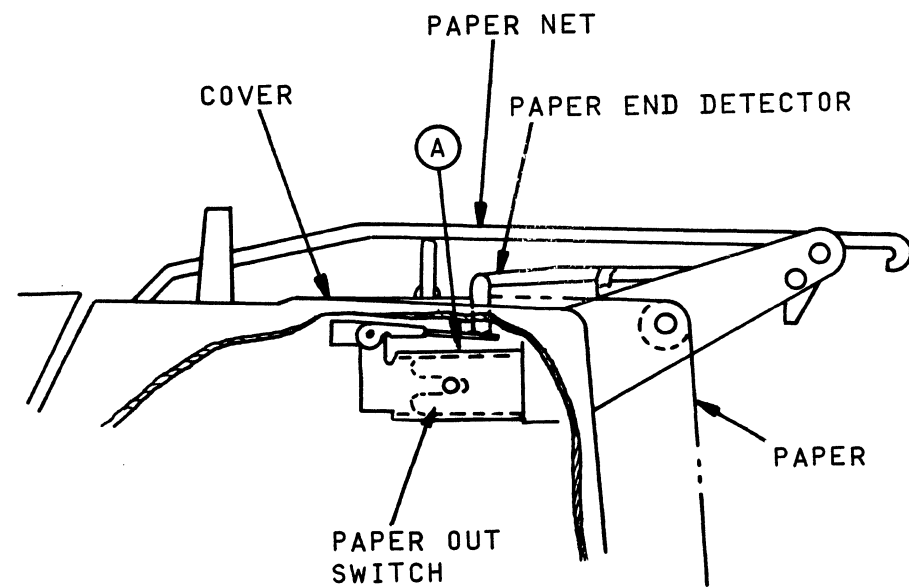


Figure 5-18 Paper Out Switch Adjustment

5.16 COVER OPEN SWITCH (Figure 5-19)

- a. Raise the top cover.
- b. Adjust the cover open switch assembly so that the high point of the switch feeler engages the switch actuator with the cover closed.

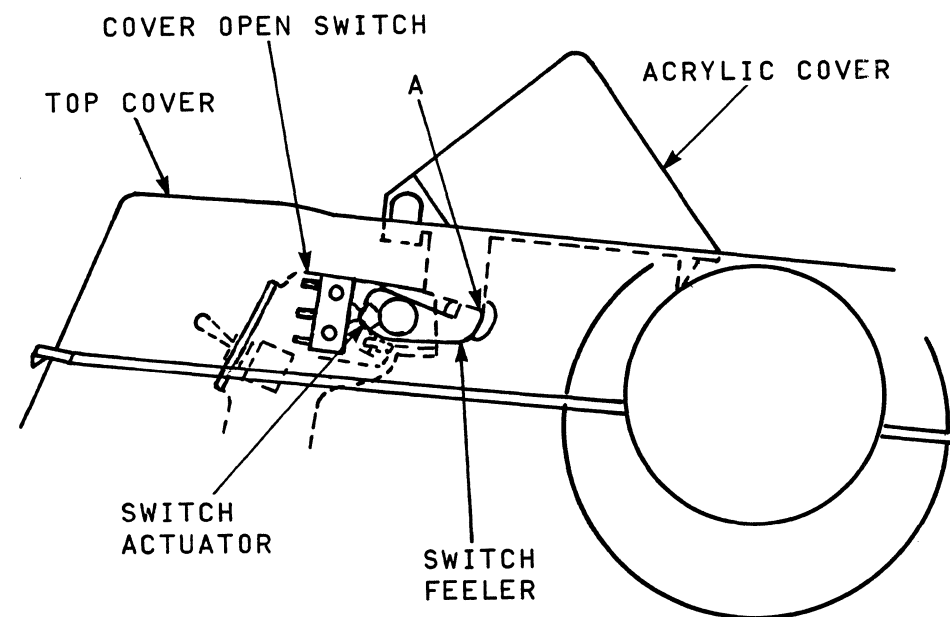


Figure 5-19 Cover Open Switch Adjustment

## 5.17 DIP SWITCH SETTINGS

The functions controlled by setting of the DIP switches located on various PCB's are indicated in Figures 5-20.

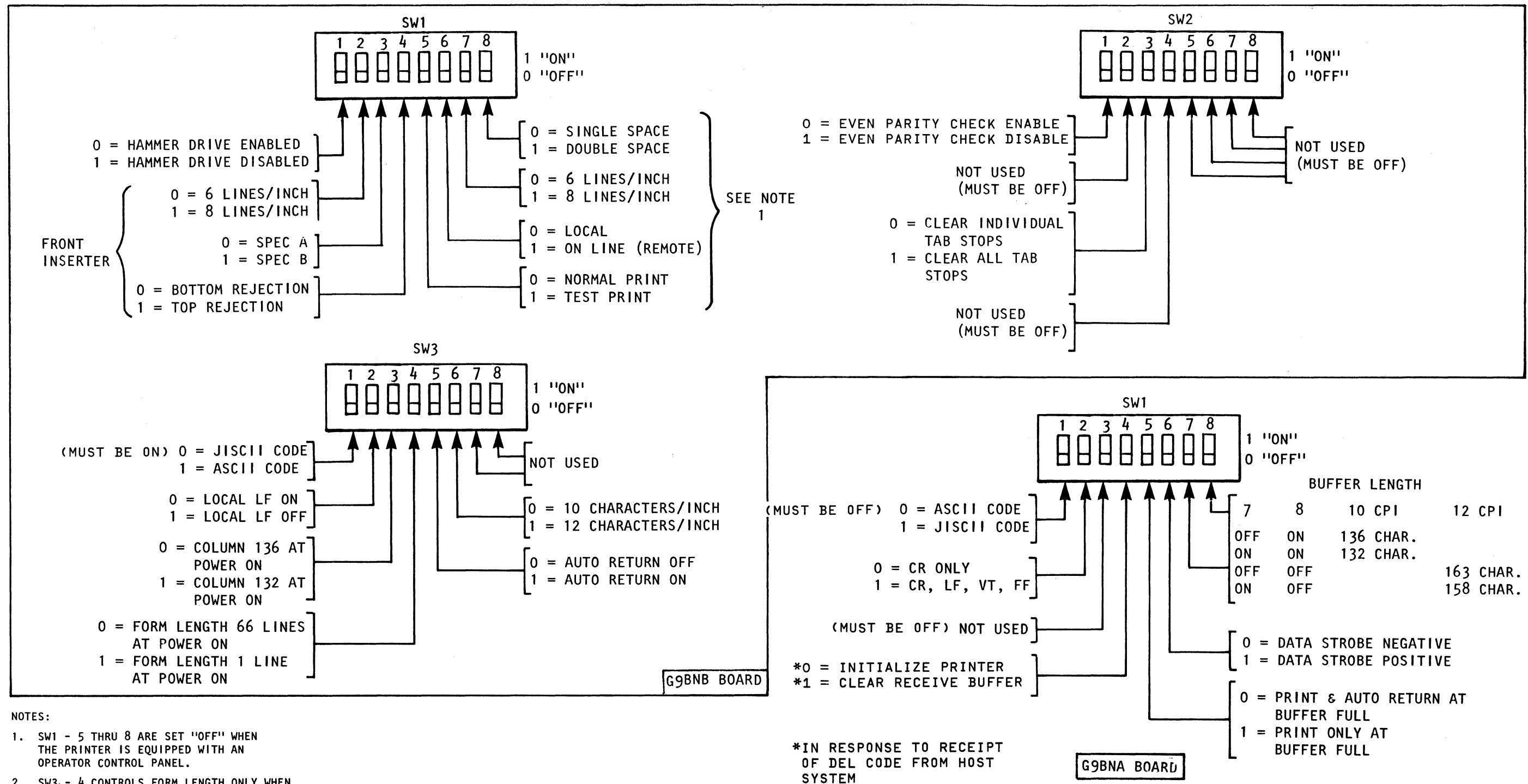


Figure 5-20 DIP Switch Settings (Sheet 1 of 3)

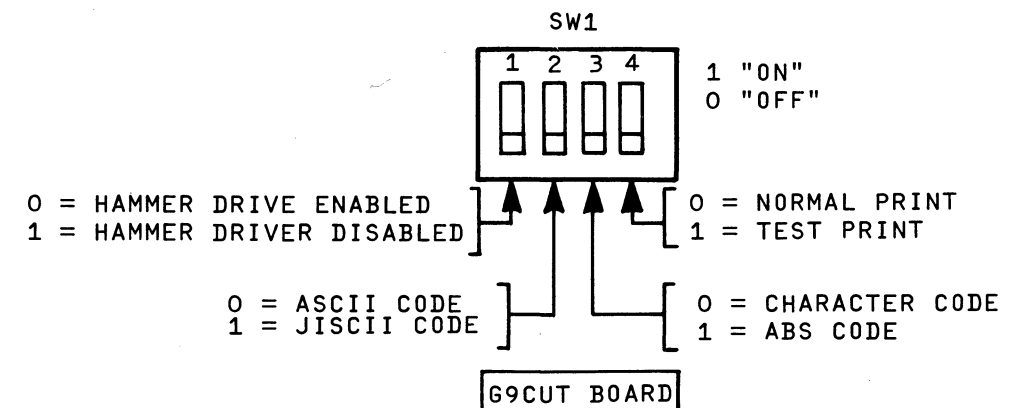
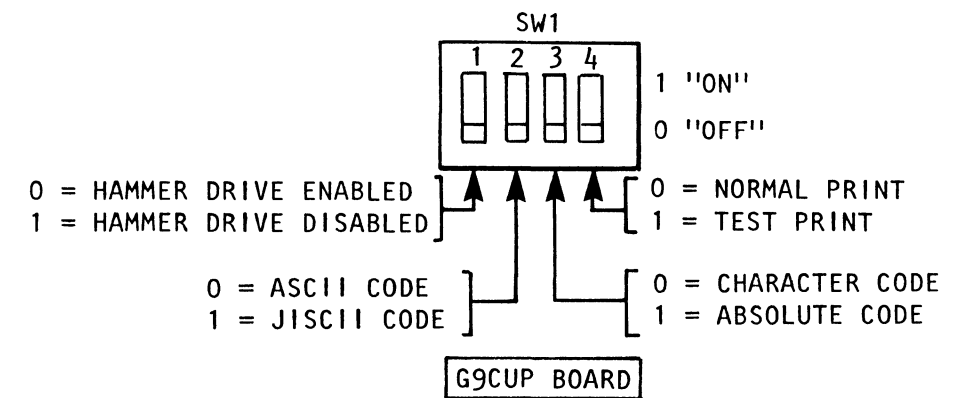
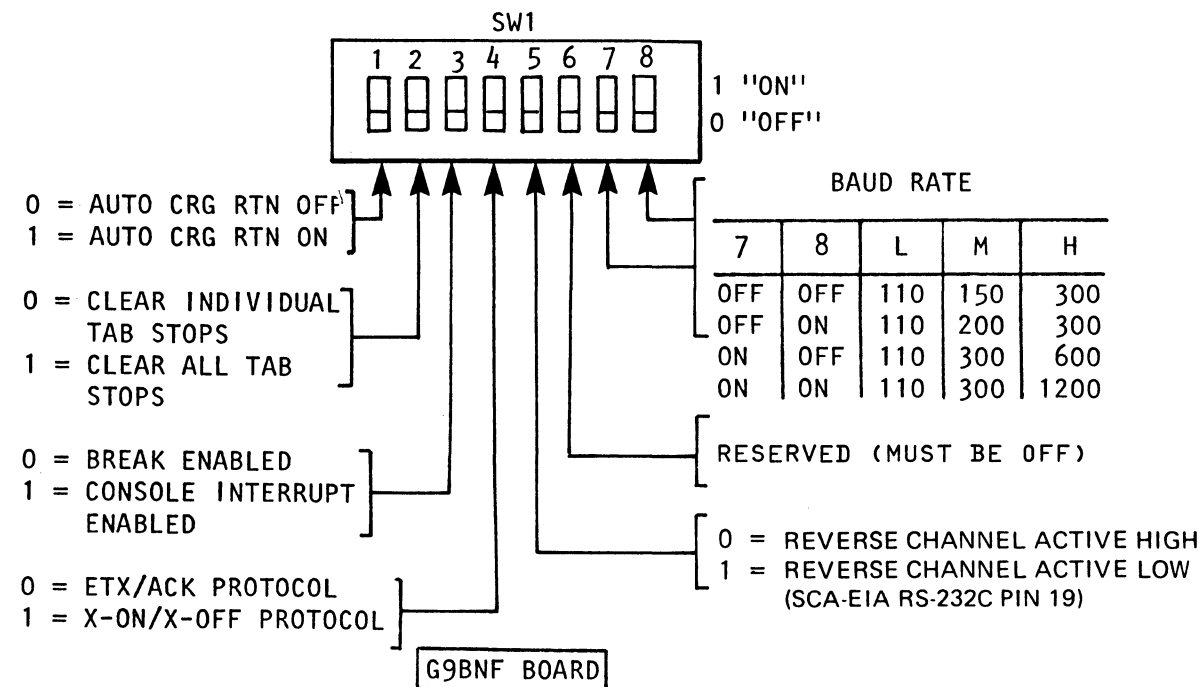
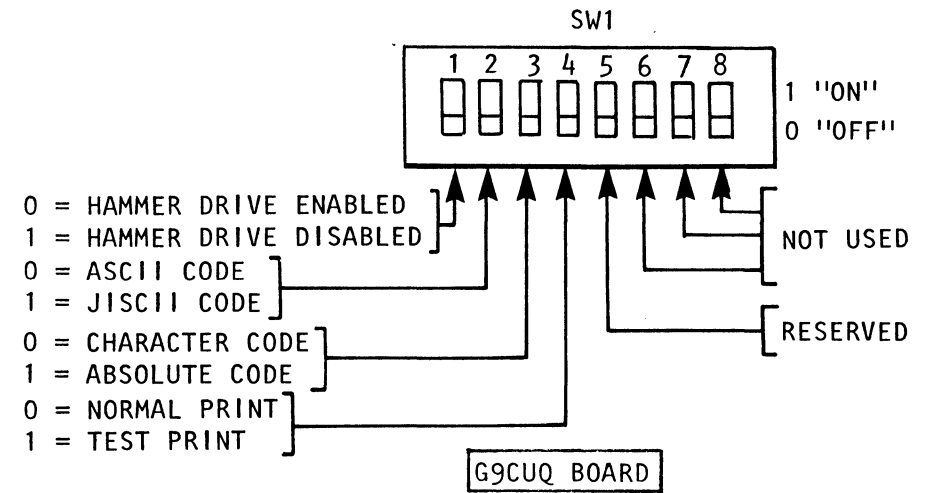
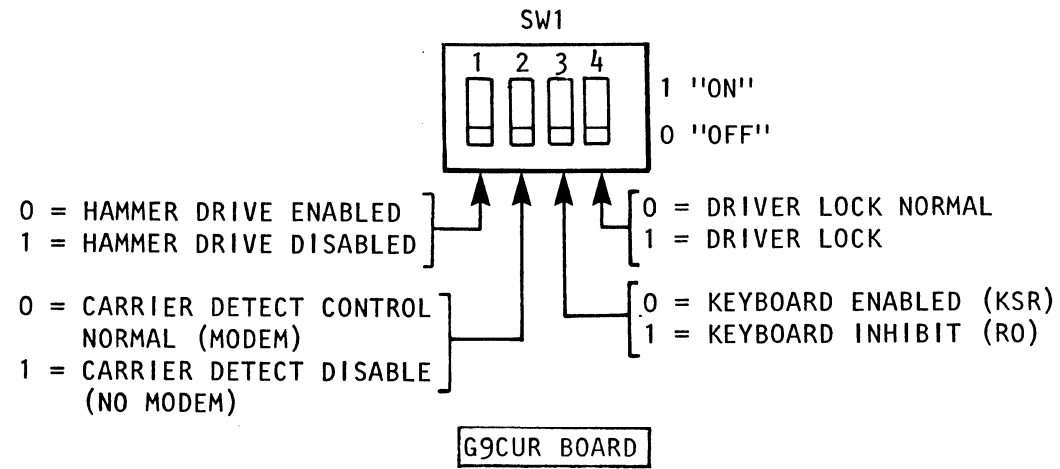
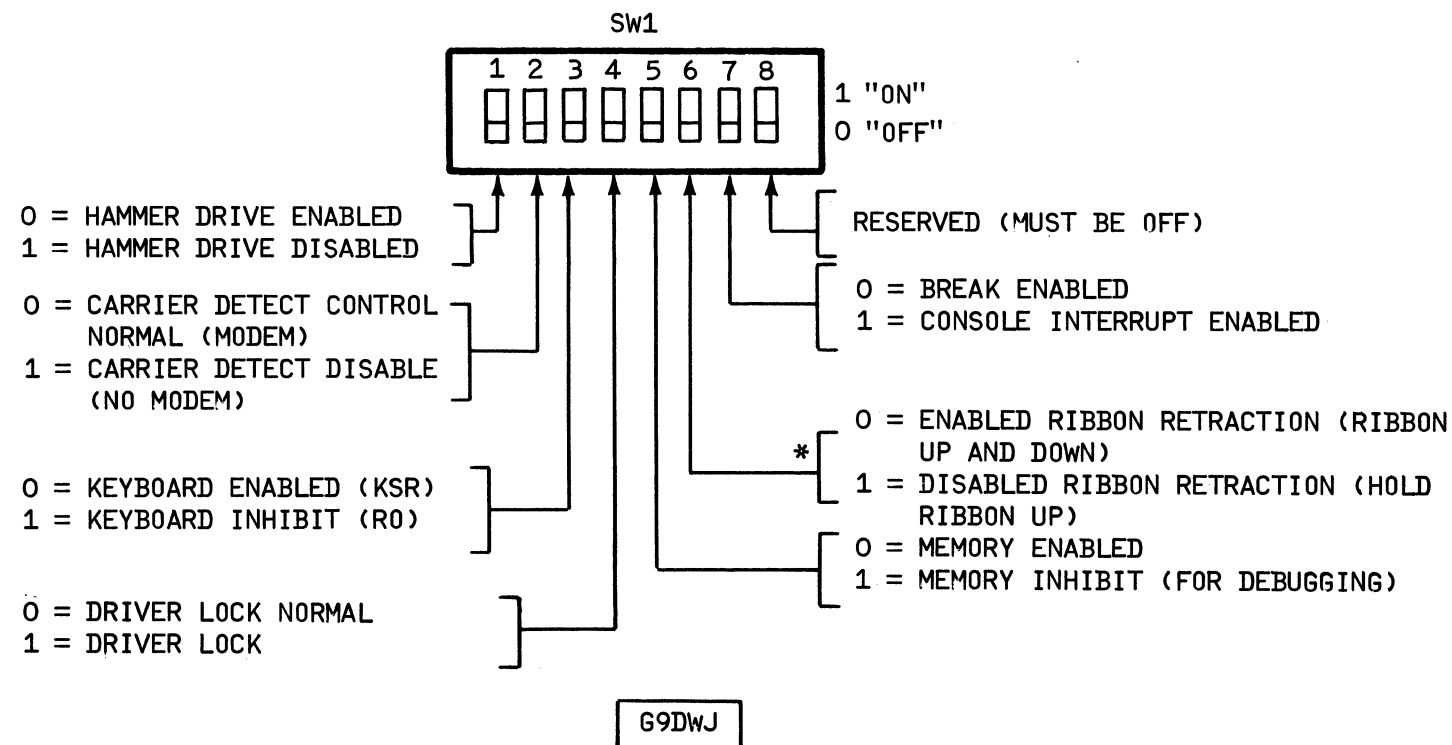
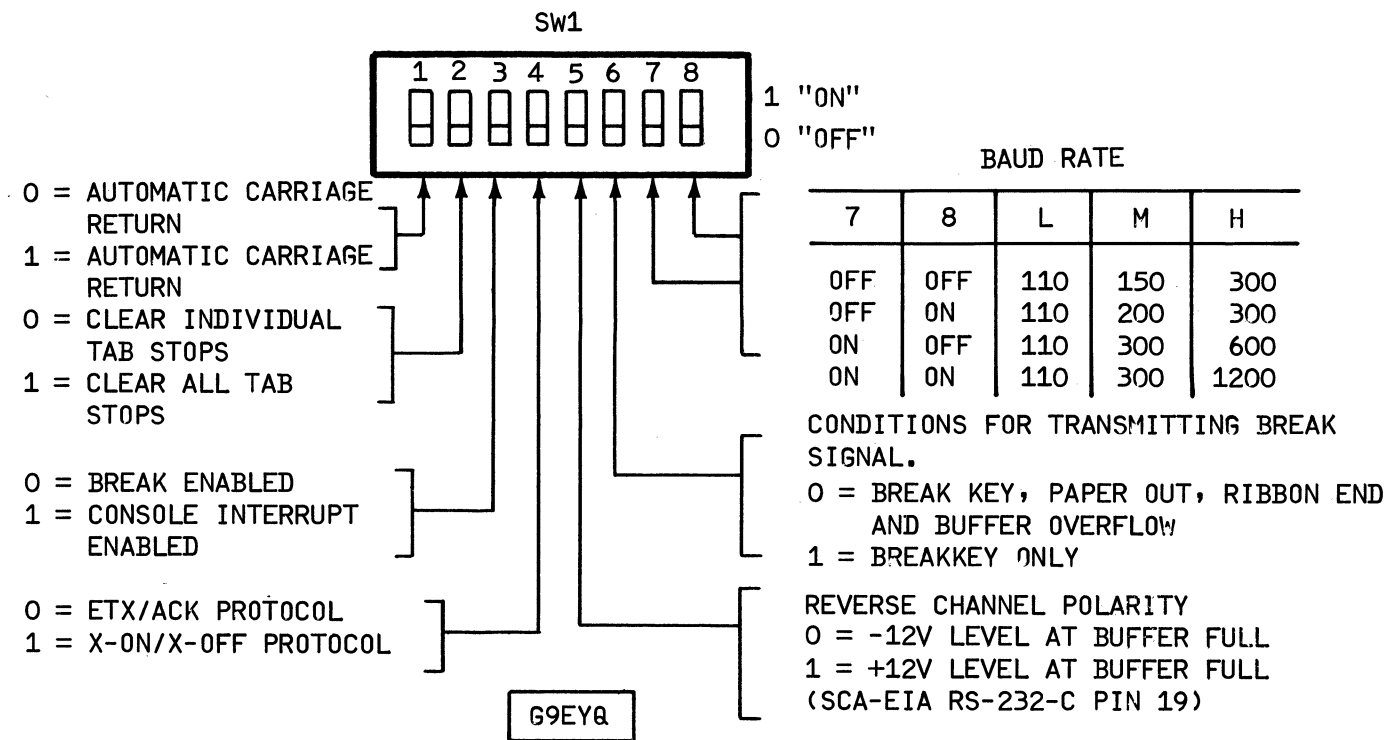


Figure 5-20 DIP Switch Settings (Sheet 2 of 3)



\*WHEN THIS SWITCH IS SET AT ON POSITION, "HOLD RIBBON UP" MODE IS FIXED REGARDLESS OF ESC CODE SEQUENCES USED.

Figure 5-20 DIP Switch Settings (Sheet 3 of 3)

## CHAPTER 6

### ILLUSTRATED PARTS BREAKDOWN

#### 6.1 INTRODUCTION

This chapter is the illustrated parts breakdown for the various SPINWRITER models. The chapter contains a family tree for each model, the mechanical illustrated parts breakdown and the printed circuit board (PCB) illustrated parts breakdown. All figure item numbers are ballooned on the applicable exploded view. The item numbers represent the engineering drawings bill of material numbers and since not all items are called out, certain numbers are not used.

#### 6.2 FAMILY TREE

The family tree illustrations represent in organizational chart format the unit assemblies in disassembly order with the higher order assemblies at the left of the illustration and the lower order assemblies indented from left to right. Each block contains the unit description, part number and applicable IPB figure number.

#### 6.3 MECHANICAL ILLUSTRATED PARTS BREAKDOWN

The mechanical illustrated parts breakdown parts list is arranged in four columns:

Item - Contains the item numbers referred to in the callouts on the exploded view.

Part Number - Contains the NEC part number used when ordering spares or replacement parts.

Description - Contains a brief description of the part. Parts and assemblies are listed followed by the attaching hardware, screws, nuts and washers are described in coded form. (See example.)

Quantity - Contains the number of items per assembly.

#### EXAMPLE

CPIMS x 3 x 6 x 15BF  
 |        |        |        |  
 a.       b.       c.       d.

Galvanized pan-head meter screw of which nominal diameter is 3 mm and length is 6 mm with cross groove.

The code means as follows.

a. Code at the head.

CP○MS : Pan-head meter screw with cross groove

CF○MS : Flat-head meter screw with the cross groove

AHEX○N : A type hexagon nut

BHEX○N : B type hexagon nut

S○WA : Small washer

P○WA : Polished washer

#2○LWA : Spring washer

L-CP○MS

S-CP○MS

P-CP○MS

SEMUSU screw (See e)

SL-CP○MS

PL-CP○MS

The column indicated with ○ has a code which shows the material.

I: Iron  
 B: Brass  
 ST: Spring Steel

b. Number following the head code.

Shows the nominal diameter.

c. The next number.

Shows the length of screw. Not used for nuts and washers.

d. The last code.

Shows the finishing applied to the parts.

15BF: Galvanization, lustrous coloration, chromate finishing

3GF: Lustrous nickel-plated finishing.



e. SEMUSU screw

SEMUSU screw is always provided with a washer as shown below.

(Head Code)	L-CP○MS	Pan-head meter screw with cross groove + spring washer
	P-CP○MS	Pan-head meter screw with cross groove + polished washer
	S-CP○MS	Pan-head meter screw with cross groove + small washer
	PL-CP○MS	Pan-head meter screw with cross groove + spring washer + polished washer
	SL-CP○MS	Pan-head meter screw with cross groove + spring washer + small washer

IPB LIST OF ILLUSTRATIONS

<u>FIGURE</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>
1	136-031570-GRP-A	5500 Basic Models
2	136-031570-GRP-A	RO Models
3	136-031570-GRP-A	KSR Models
4	136-031572-002-A	Carriage Unit
5	136-031580-001-A	Frame Unit
6	136-031561-102-A	Power Supply Assembly
7	136-031586-001-A	Platen Assembly
8	136-031592-001-A	ROP Housing Assembly
9	136-031593-001-A	KSR Housing Assembly
10	136-031595-A	Vertical Type Tractor Feeder
11	136-031590-001-A	Bottom Guide Assembly
12	136-031591-001-A	Pin Feed Platen Assembly
13	804-020198-002-B	Inverter Block
14	136-031596-001-A	Friction Attachment
15	136-031559-002-A	Control Unit Assembly
16	136-040572-001-A	Serial Interface Cable
17	136-031562-GRP-A	Operator Control Panel Assembly
18	136-031569-GRP-A	Keyboard Assembly
19	136-031597-001-A	Paper Net Assembly
20	136-031597-002-A	Paper Net Assembly
21	136-031587-A	Pressure Bail Assembly
22	136-031598-001-A	Paper Cutter Assembly
23	136-031604-A	Blank Panel Assembly
24	136-031560-002-A	Control Frame Assembly
25	136-031573-A	Rotate Motor Assembly
26	136-031575-002-A	Ribbon Base Assembly
27A	136-032022-B	Print Hammer Assembly
27B	136-032022B-A	Print Hammer Subassembly
28	136-031579-002-A	Carriage Cable Assembly
29	136-031581-A	Frame Assembly
30	136-031583-A	Spacing Motor Assembly
31	136-723002-A	Pressure Assembly
32	136-031577-A	Vertical Slide Sleeve Assembly
33	136-720571-A	Card Holder Assembly
34	136-031585-A	Line Feed Motor Assembly
35	136-722888-B	Media Low (Net) Assembly
36	136-722871-001-A	LF Frame Assembly
37	136-722871-002-A	LF Frame Assembly
38	136-722873-A	Pressure Lever Assembly
39	136-722872-A	Control Lever Assembly
40	136-722885-A	Switch Assembly
41	136-722708-001-A	Top Cover Assembly
42	136-722706-001-A	ROP Base Assembly
43	136-722707-001-A	ROP Middle Cover Assembly
44	136-721814-001-A	KSR Base Assembly
45	136-721815-001-A	KSR Middle Cover Assembly
46	136-722896-001-A	Bail Arm Assembly

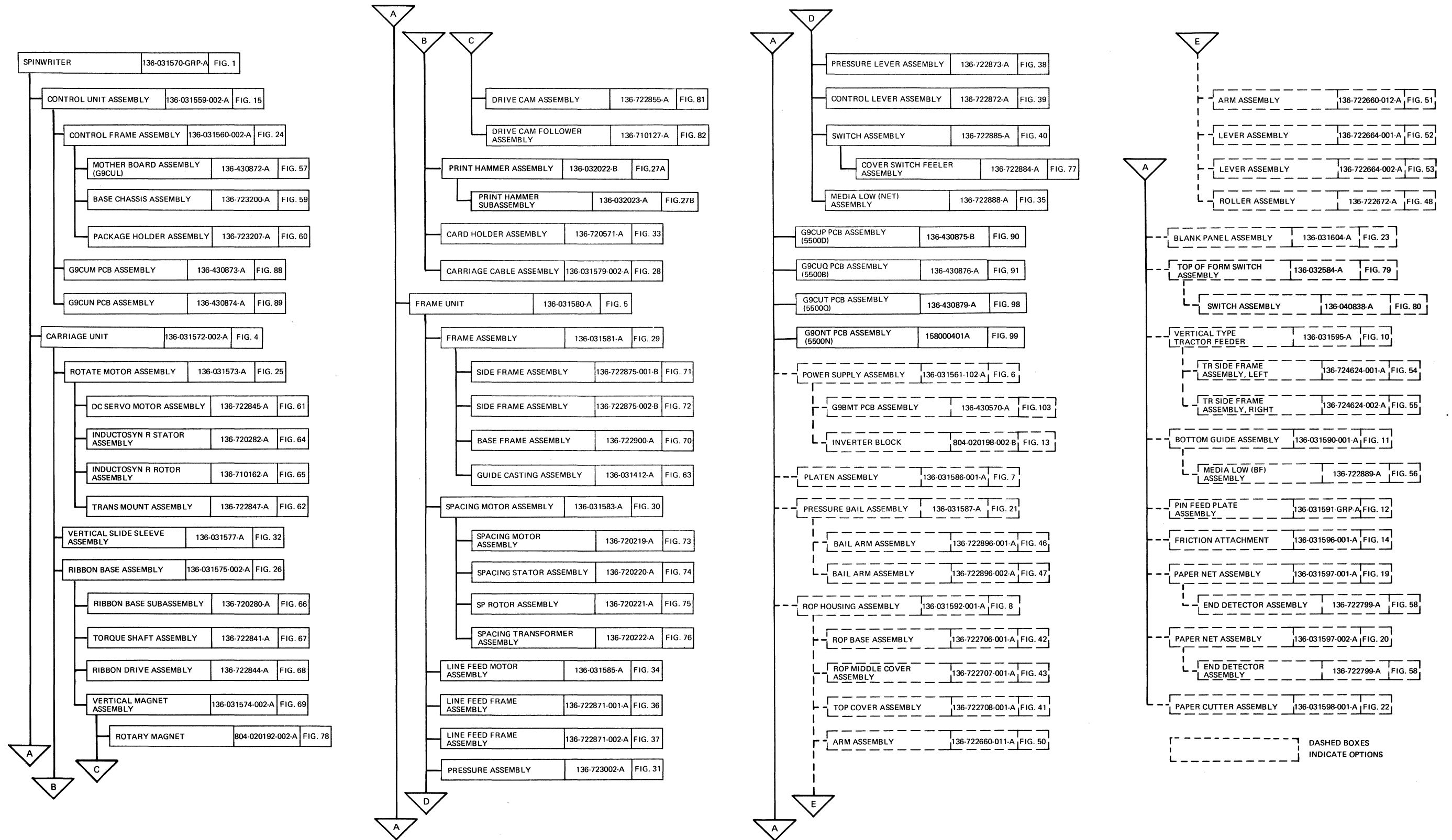
IPB LIST OF ILLUSTRATIONS (cont'd)

FIGURE	PART NUMBER	DESCRIPTION
47	136-722896-002-A	Bail Arm Assembly
48	136-722672-A	Roller Assembly
49	136-040571-A	Power Switch Assembly
50	136-722660-011-A	Arm Assembly
51	136-722660-012-A	Arm Assembly
52	136-722664-001-A	Lever Assembly
53	136-722664-002-A	Lever Assembly
54	136-724624-001-A	TR Side Frame Assembly, Left
55	136-724624-002-A	TR Side Frame Assembly, Right
56	136-722889-A	Media Low (BF) Assembly
57	136-430872-A	Mother Board Assembly (G9CUL PCB Assembly)
58	136-722799-A	End Detector Assembly
59	136-723200-A	Base Chassis Assembly
60	136-723207-A	Package Holder Assembly
61	136-722845-A	DC Servo Motor Assembly
62	136-722847-A	Trans Mount Assembly
63	136-031412-A	Guide Casting Assembly
64	136-720282-A	Inductosyn R Stator Assembly
65	136-710162-A	Inductosyn R Rotor Assembly
66	136-720280-A	Ribbon Base Subassembly
67	136-722841-A	Torque Shaft Assembly
68	136-722844-A	Ribbon Drive Assembly
69	136-031574-A	Vertical Magnet Assembly
70	136-722900-A	Base Frame Assembly
71	136-722875-001-B	Side Frame Assembly
72	136-722875-002-B	Side Frame Assembly
73	136-720219-A	Spacing Motor Subassembly
74	136-720220-A	Spacing Stator Assembly
75	136-720221-A	SP Rotor Assembly
76	136-720222-A	Spacing Transformer Assembly
77	136-722884-A	Cover Switch Feeler Assembly
78	804-020192-002-A	Rotary Magnet
79	136-032584-A	Top of Form (TOF) Switch Assembly
80	136-040838-A	Switch Assembly
81	136-722855-A	Drive Cam Assembly
82	136-710127-A	Drive Cam Follower Assembly
83	136-040621-A	Current Loop Cable Assembly
84	136-040622-A	Current Loop Interface Cable Assembly
85	136-040703-A	5530 Interface Cable Assembly
86	136-040712-A	5530 Connection Cable Assembly
87	136-040810-A	5530 Operator Control Panel Cable Assembly
88	136-430873-A	Driver Board (G9CUM)
89	136-430874-A	Servo Board (G9CUN)
90	136-430875-B	Diablo-Type Interface Board (G9CUP)

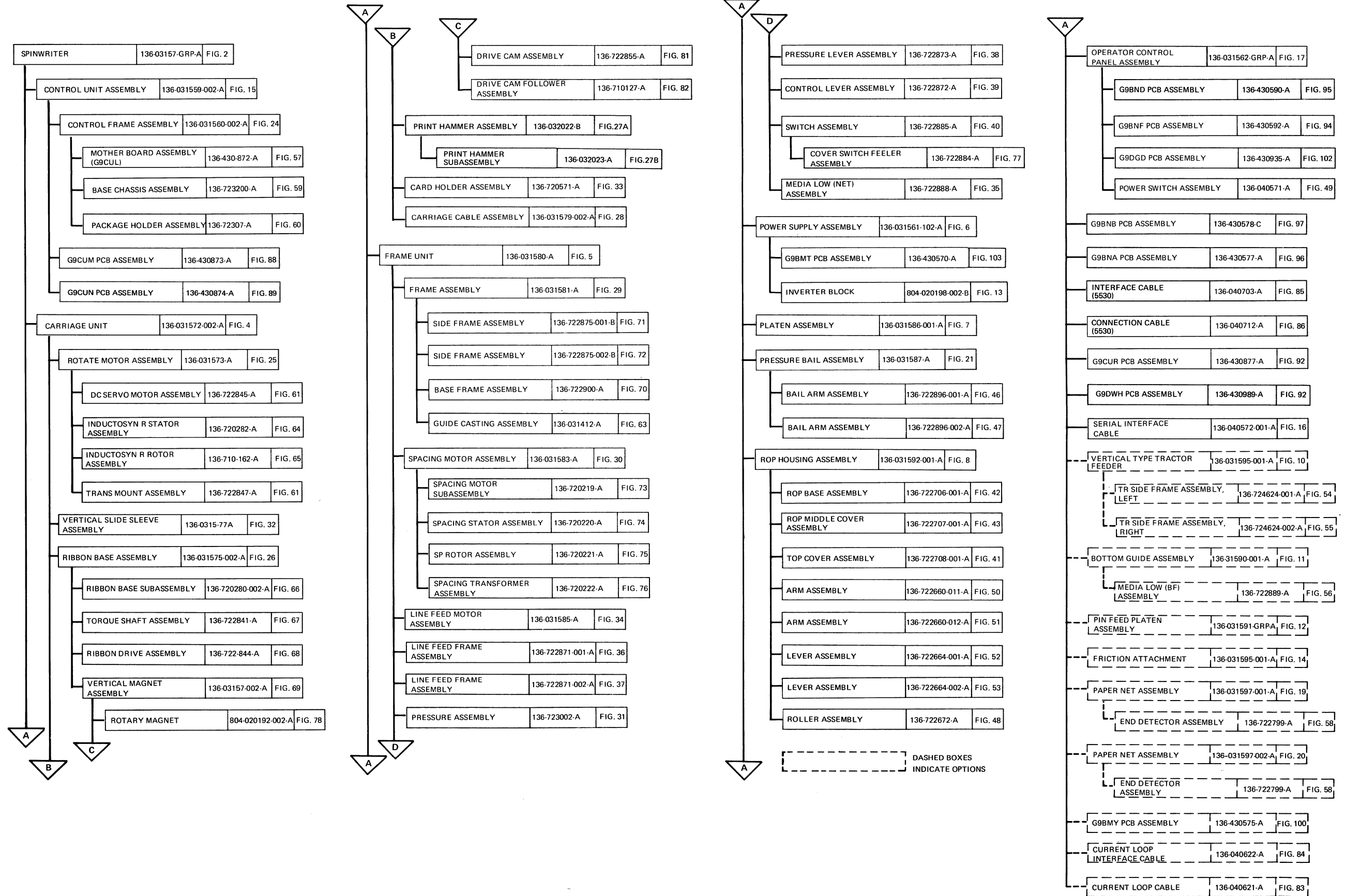
IPB LIST OF ILLUSTRATIONS (cont'd)

FIGURE	PART NUMBER	DESCRIPTION
91	136-430876-A	8080 8-Bit Naked Interface Board (G9CUQ)
92	136-430877-A (G9CUR) 136-430989-A (G9DWH)	RS-232-C Interface Board (G9CUR and G9DWH)
93	136-430990-B	RS-232-C Interface Board (G9DWJ)
94	136-430592-A	Operator Control Panel Board (G9BNF) - Used With 5520 and 5525
95	136-430590-A	Operator Control Panel Board (G9BND) - Used With Centronics-Type Interface
96	136-430577-A	Centronics-Type Interface Board (G9BNA)
97	136-430578-B	Microprocessor Logic Board (G9BNB) - Used With Centronics-Type Interface Board
98	136-430879-A	Qume-Type Interface Board (G9CUT)
99	158000401A	Ontel-Type Interface Board (G9ONT)
100	136-430575-A	Current Loop Interface Board (G9BMY)
101	136-431097-A	Operator Control Panel Board (G9EYQ) - Used With Model 5540
102	136-430935-A	Operator Control Panel Board (G9DGD) - Used On Models 5510 and 5515
103	136-430570-A	Power Supply Regulator (G9BMT)
104	136-020031-002-A	Power Supply Board P1
105	136-020032-002-A	Power Supply Board P2
106	136-020033-002-A	Power Supply Board P3
107	-	Electronic Symbols

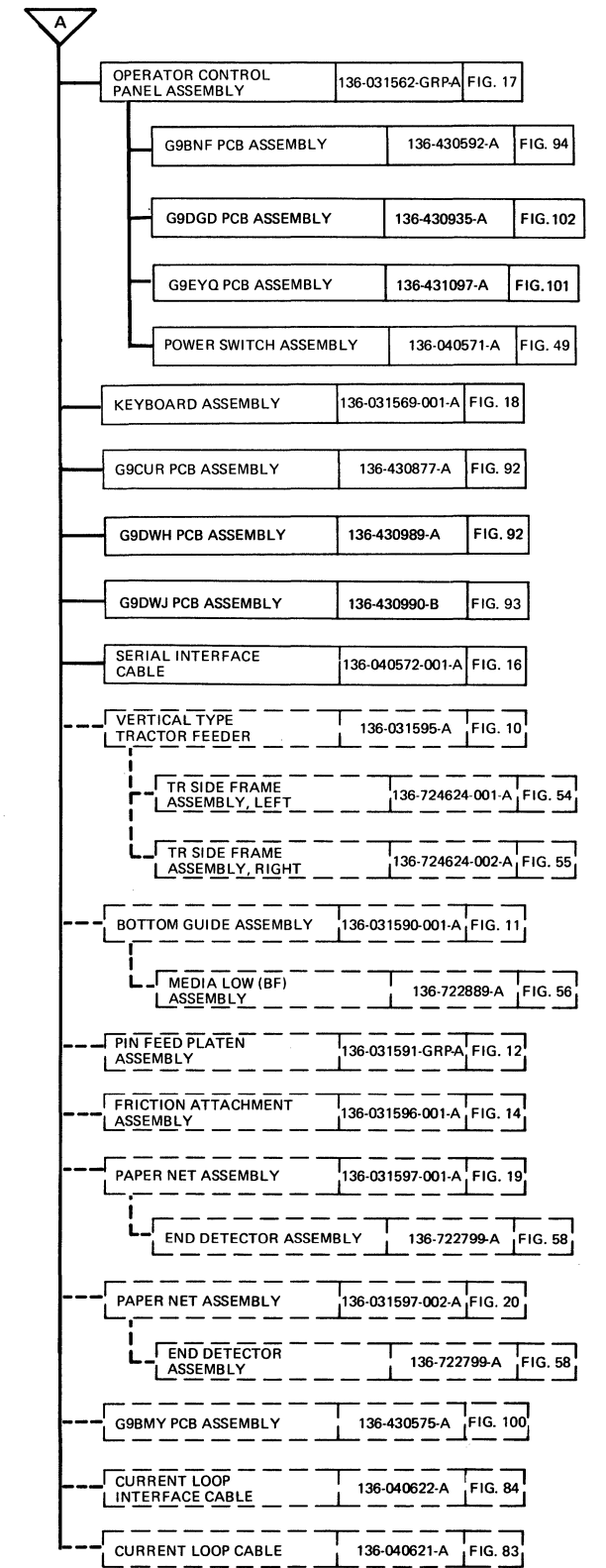
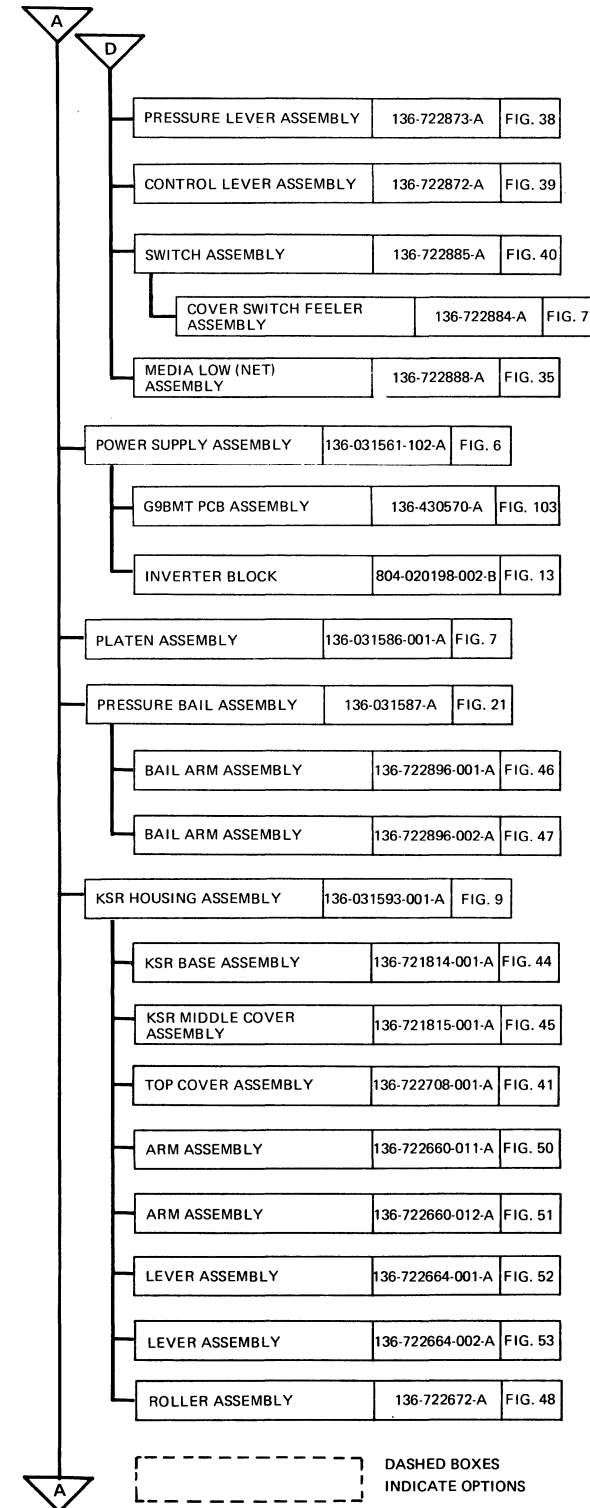
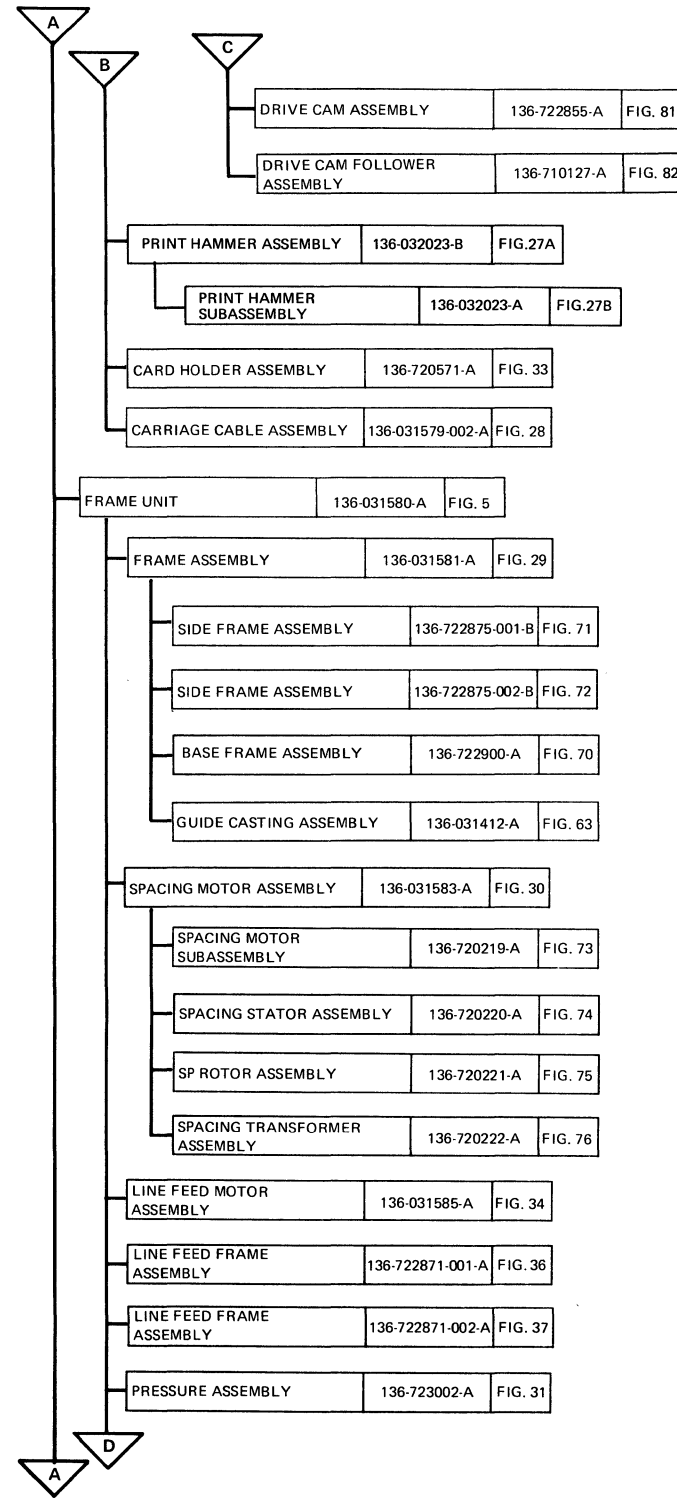
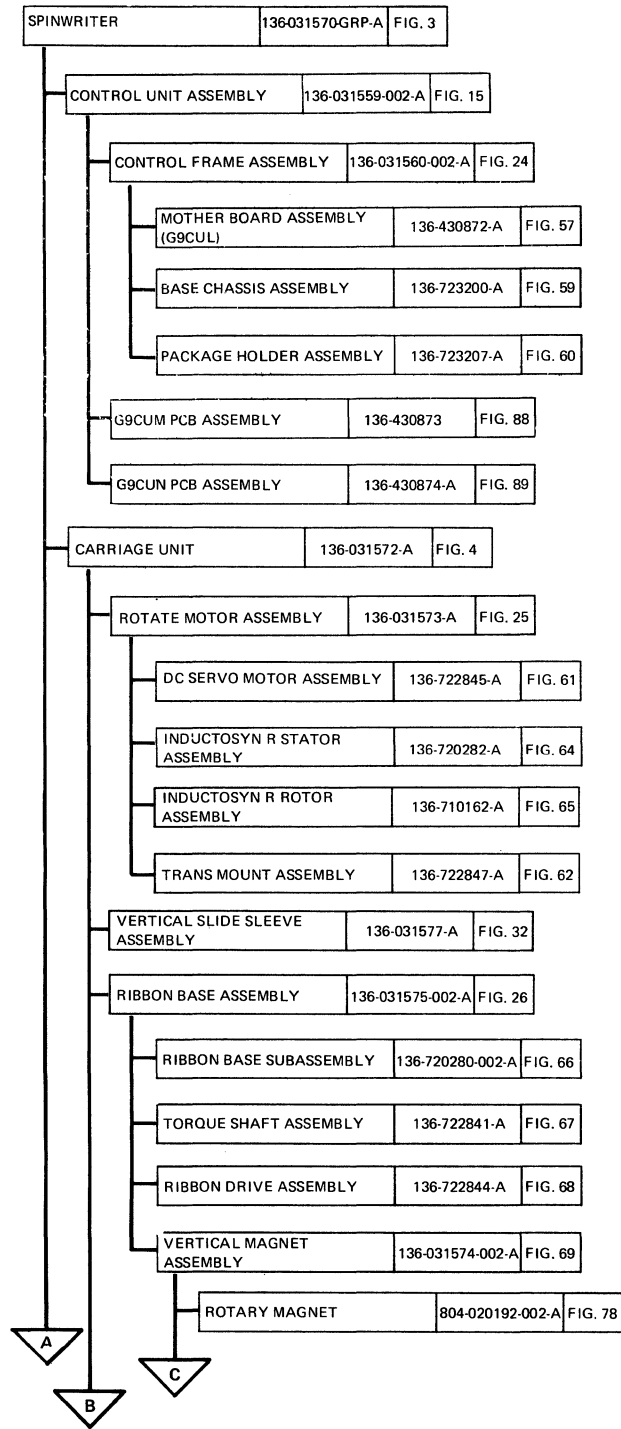
# FAMILY TREE-5500 BASIC MODELS

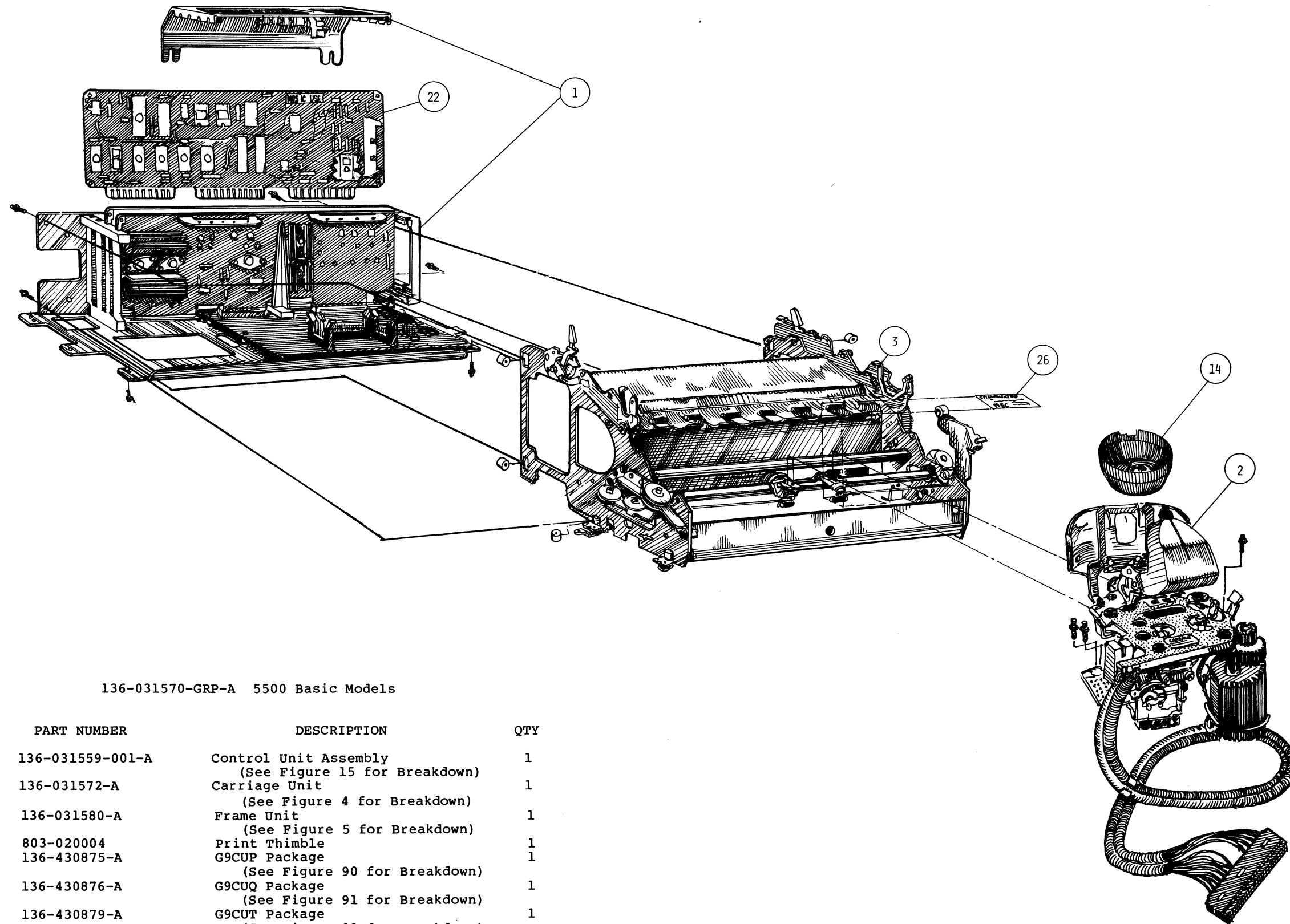


# FAMILY TREE—RO TERMINALS



# FAMILY TREE—KSR TERMINALS





136-031570-GRP-A 5500 Basic Models

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-031559-001-A	Control Unit Assembly (See Figure 15 for Breakdown)	1
2	136-031572-A	Carriage Unit (See Figure 4 for Breakdown)	1
3	136-031580-A	Frame Unit (See Figure 5 for Breakdown)	1
14	803-020004	Print Thimble	1
22	136-430875-A	G9CUP Package (See Figure 90 for Breakdown)	1
22	136-430876-A	G9CUQ Package (See Figure 91 for Breakdown)	1
22	136-430879-A	G9CUT Package (See Figure 98 for Breakdown)	1
22	158000401A	G9ONT Package (See Figure 99 for Breakdown)	1
26	136-700655-A	Name Plate	1

Figure 1 5500 Basic Models

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-031559-001-A	Control Unit Assembly (See Figure 15 for Breakdown)	1
2	136-031572-A	Carriage Unit (See Figure 4 for Breakdown)	1
3	136-031580-A	Frame Unit (See Figure 5 for Breakdown)	1
4	136-031561-102-A	Power Supply (See Figure 6 for Breakdown)	1
5	136-031586-001-A	Platen Assembly (See Figure 7 for Breakdown)	1
6	136-031587-A	Pressure Bail Assembly (See Figure 21 for Breakdown)	1
10	136-031592-001-A	ROP Housing Assembly (See Figure 8 for Breakdown)	1
14	803-020004	Print Thimble	1
20	136-031562-001-A	Operator Control Panel (See Figure 17 for Breakdown)	1
23	136-430877-A	G9CUR Package (See Figure 92 for Breakdown)	1
23	136-430990-B	G9DWJ Package (See Figure 93 for Breakdown)	1
23	136-430989-A	G9DWH Package (See Figure 92 for Breakdown)	1
25	136-040572-001-A	Serial Interface Cable (See Figure 16 for Breakdown)	1
26	136-700655-A	Name Plate	1
27	805-300004-010-0	PL-CPIMSx4x10x15BF	2
28	805-300004-012-0	PL-CPIMSx4x12x15BF	2

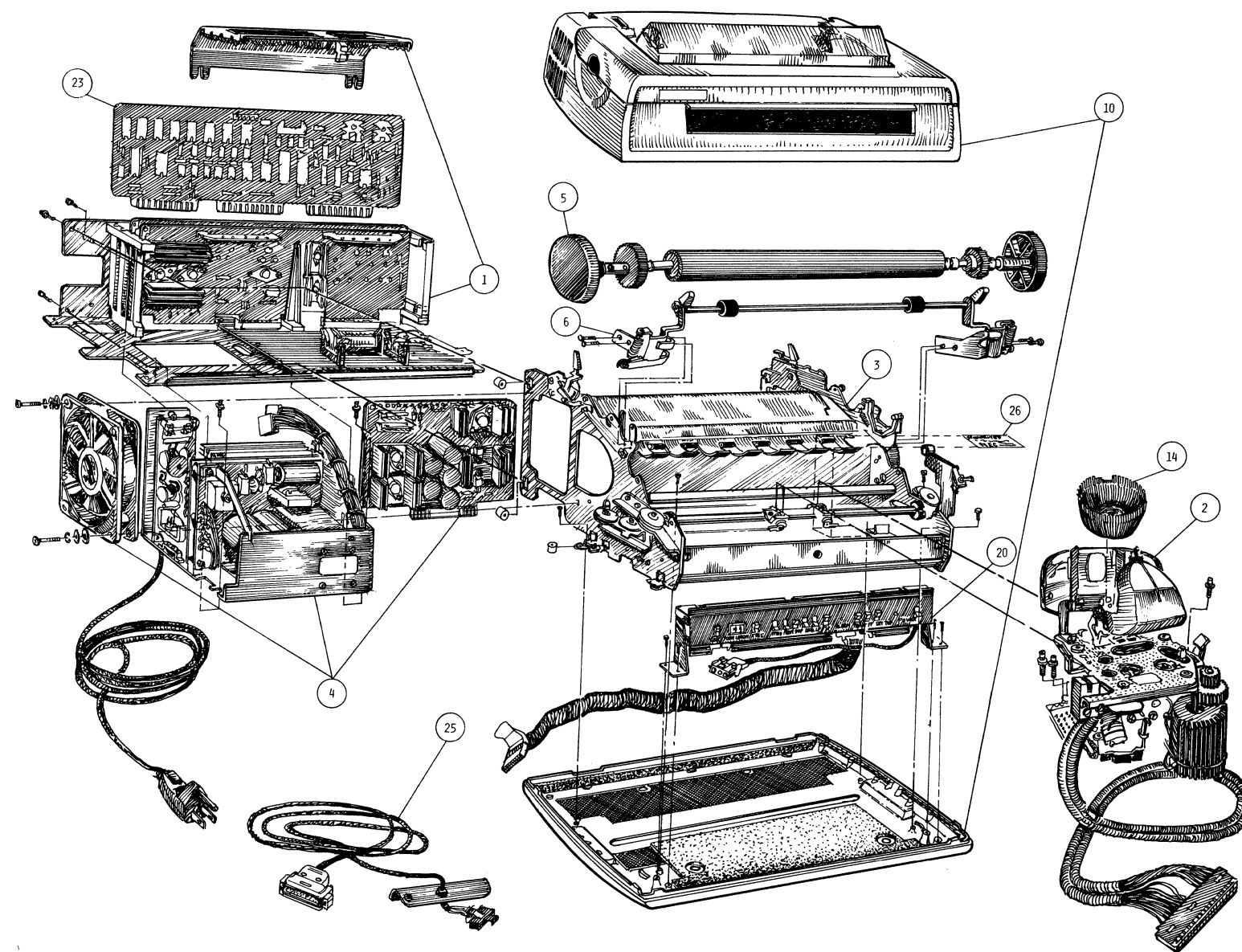


Figure 2 RO Models



136-031570-GRP-A KSR Models

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-031559-001-A	Control Unit Assembly (See Figure 15 for Breakdown)	1
2	136-031572-A	Carriage Unit (See Figure 4 for Breakdown)	1
3	136-031580-A	Frame Unit (See Figure 5 for Breakdown)	1
4	136-031561-102-A	Power Supply (See Figure 6 for Breakdown)	1
5	135-031586-001-A	Platen Assembly (See Figure 7 for Breakdown)	1
6	136-031587-A	Pressure Bail Assembly (See Figure 21 for Breakdown)	1
11	136-031593-001-A	KSR Housing Assembly (See Figure 9 for Breakdown)	1
14	803-020004	Print Thimble	1
20	136-031562-001-A	Operator Control Panel (See Figure 17 for Breakdown)	1
21	136-031569-001-A	Keyboard Assembly (See Figure 18 for Breakdown)	1
23	136-430877-A	G9CUR Package (See Figure 92 for Breakdown)	1
23	136-430989-A	G9DWH Package (See Figure 92 for Breakdown)	1
25	136-040572-001-A	Serial Interface Cable (See Figure 16 for Breakdown)	1
26	136-700655-A	Name Plate	1
27	805-300004-010-0	PL-CPIMSx4x10x15BF	2
28	805-300004-012-0	PL-CPIMSx4x12x15BF	2
29	805-330003-010-0	L-CPIMSx3x10x15BF	3
30	805-300004-030-0	PL-CPIMSx4x30x15BF	2

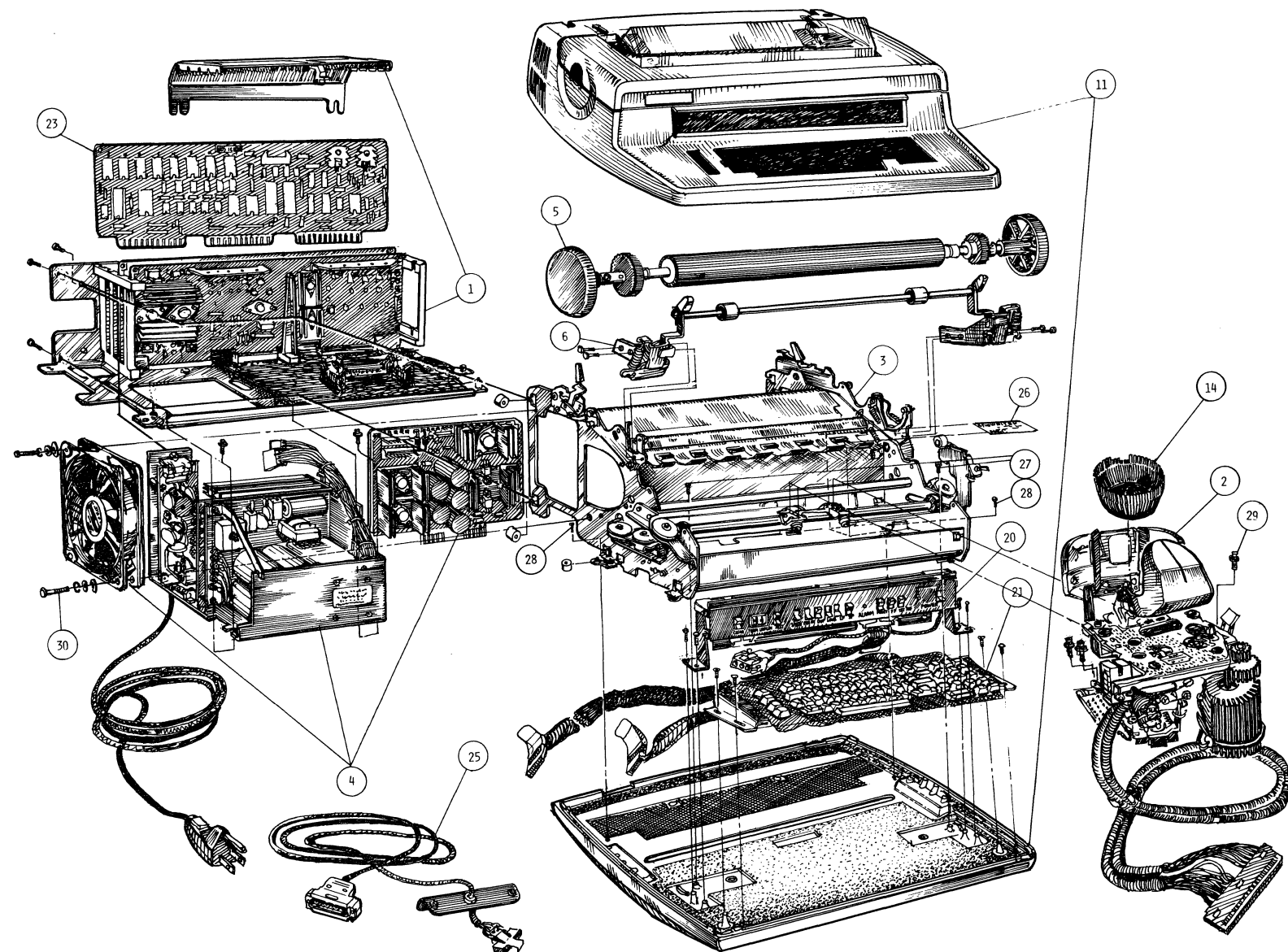
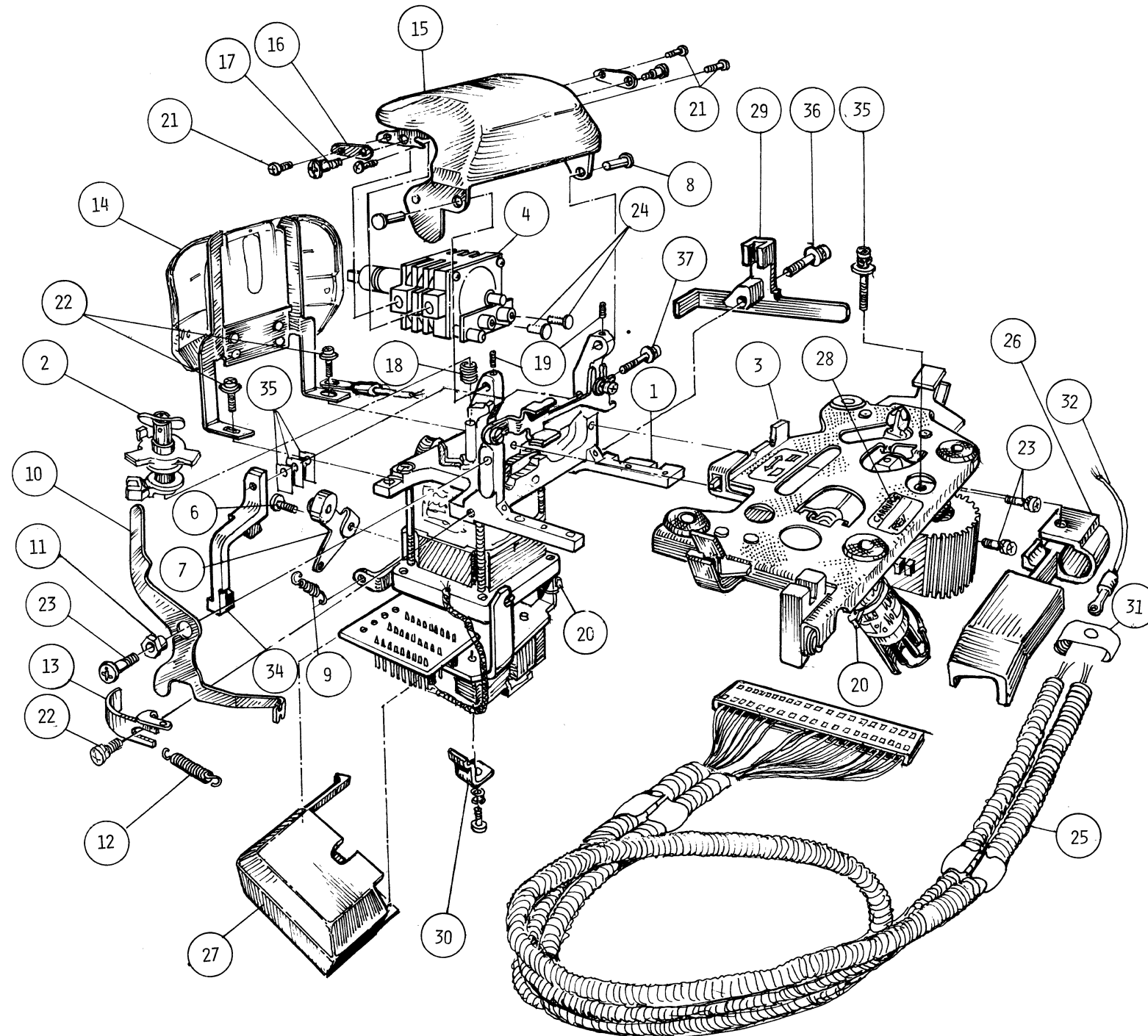


Figure 3 KSR Models



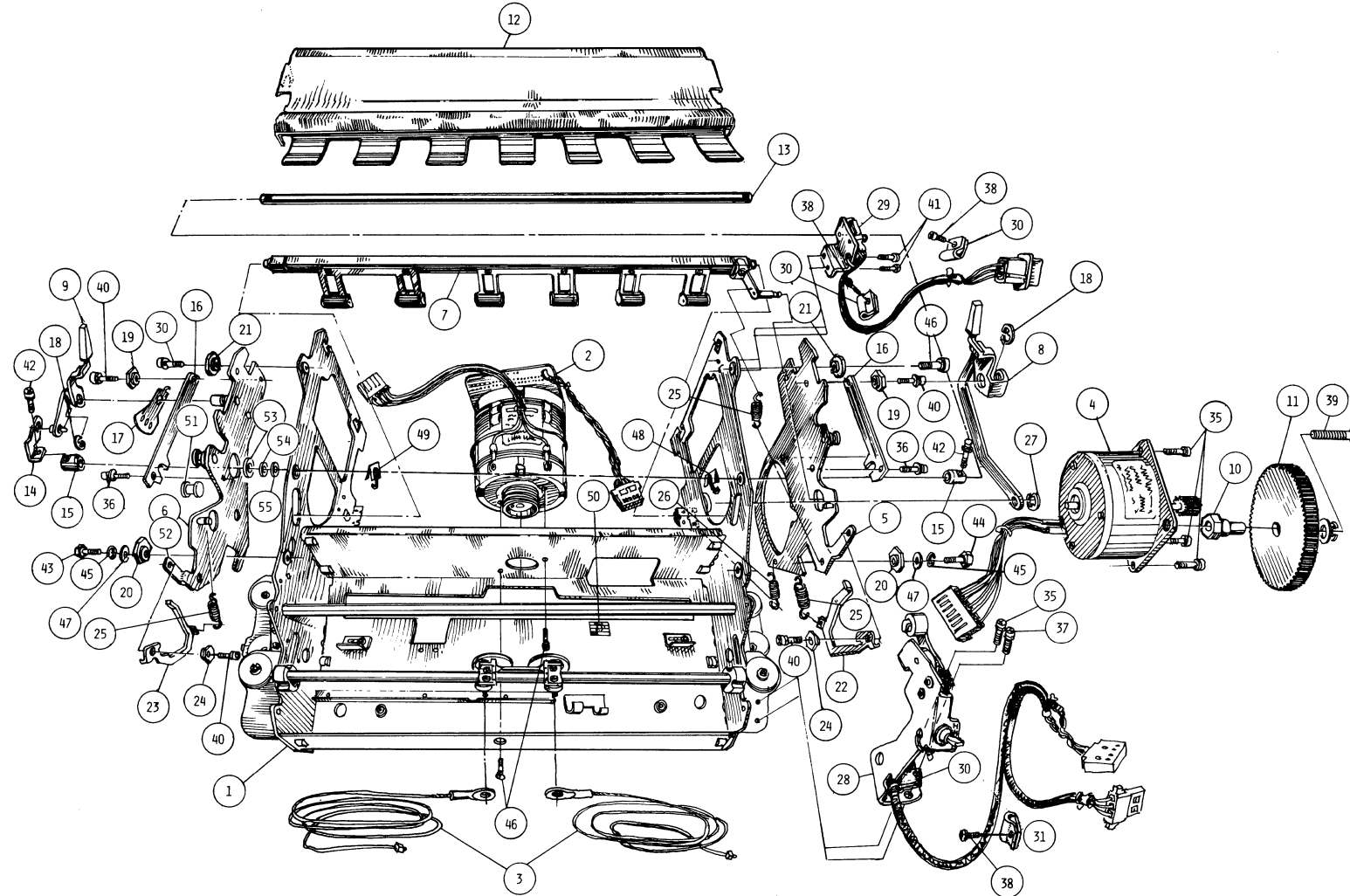
136-031572-002-A Carriage Unit  
(See Figures 1, 2 & 3 for NHA)



ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-031573-B	Rotate Motor Assembly (See Figure 25 for Breakdown)	1
2	136-031577-A	Vertical Slide Sleeve Assembly (See Figure 32 for Breakdown)	1
3	136-031575-002-B	Ribbon Base Assembly (See Figure 26 for Breakdown)	1
4	136-032022-B	Print Hammer Assembly (See Figure 27A for Breakdown)	1
6	136-722866-A	Pivot Screw	1
7	136-720287-A	Bearing Holder Assembly	1
8	136-710139-A	Stud	2
9	136-720250-A	Spring (Bearing Holder)	1
10	136-711966-A	Lock Lever	1
11	136-711967-A	Eccentric Stud	1
12	136-711968-A	Lock Lever Spring	1
13	136-720254-A	Lock Lever Guide	1
14	136-720571-A	Card Holder Assembly (See Figure 33 for Breakdown)	1
15	136-720288-A	Hammer Cover Assembly	1
16	136-712201-A	Position Plate	2
17	136-723810-A	Shoulder Screw	2
18	136-722836-A	VT Spring	1
19	808-802002-303-0	Socket Screw	2
20	808-814004-923-A	IB Tie	3
21	805-300025-005-0	PL-CPIMSx2.5x5x15BF	4
22	805-300003-008-0	PL-CPIMSx3x8x15BF	3
23	805-310003-008-0	SL-CPIMSx3x8x15BF	3
24	805-330002-004-0	L-CPIMSx2x4x15BF	2
25	136-031579-002-A	Carriage Cable Assembly (See Figure 28 for Breakdown)	1
26	136-723807-A	Cable Clamp A	1
27	136-723805-A	Inductosyn Cover	1
28	136-700608-001-A	Unit Label	1
29	136-723814-A	Cable Cover	1
30	136-723826-A	Cable Clamp B	1
31	136-725752-A	Spacer A	1
32	136-725750-A	Carrier FG Cable	1
33	136-726414-A	Stopper Assembly	1
34	136-726418-002-A	Shim	3
35	805-300003-018-0	PL-CPIMSx3x16x15BF	1
36	805-300003-012-0	PL-CPIMSx3x12x15BF	1
37	808-300003-010-0	PL-CPIMSx3x10x15BF	1

Figure 4 Carriage Unit

136-031580-001-A Frame Unit  
(See Figures 1, 2 & 3 for NHA)

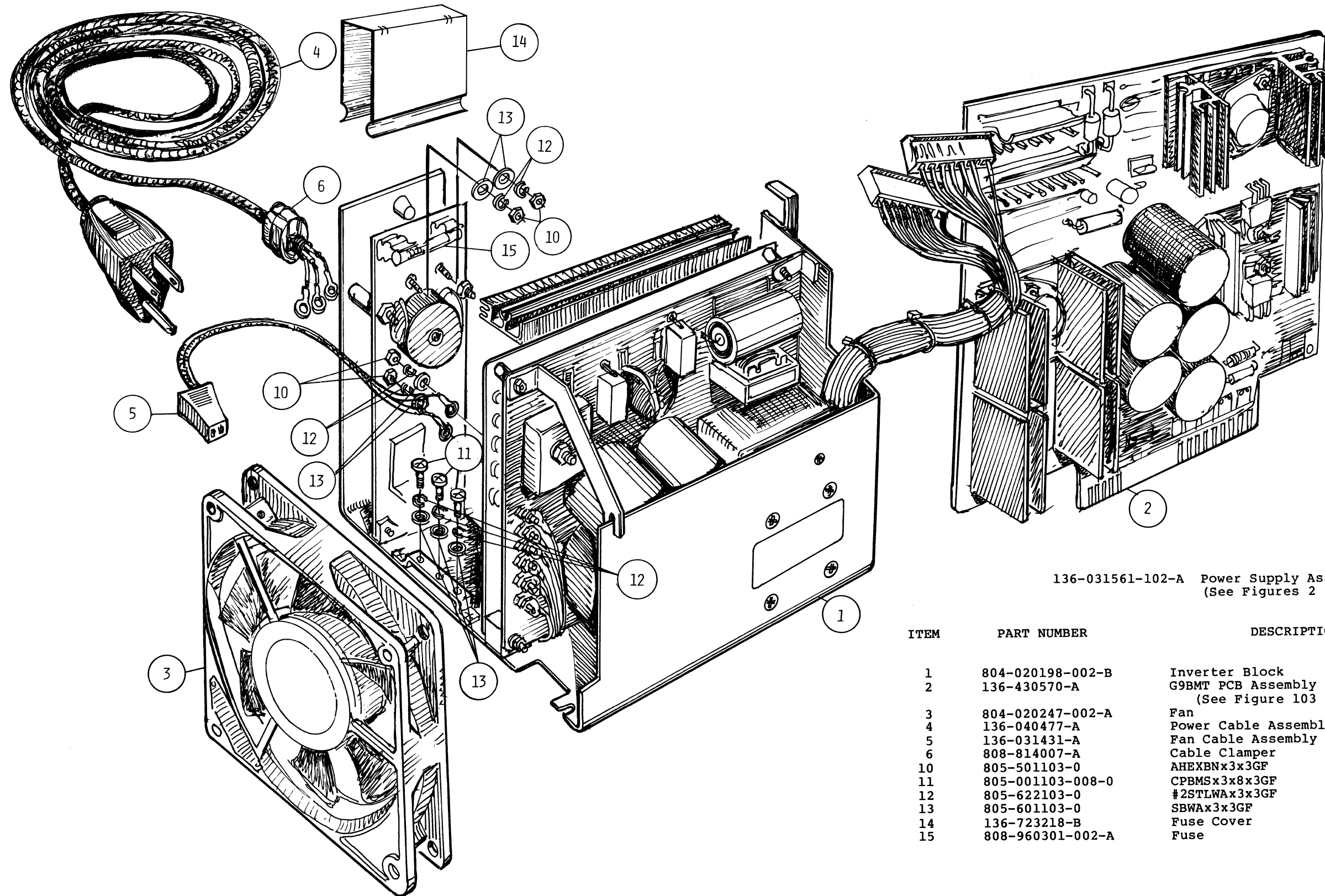


136-031580-001-A Frame Unit  
(See Figures 1, 2 & 3 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
40	805-330003-007-0	L-CPIMSx3x7x15BF	4
41	805-330004-008-0	L-CPIMSx4x8x15BF	2
42	805-310003-008-0	SL-CPIMSx3x8x15BF	2
43	805-050004-012-0	HEXIMSx4x12x15BF	1
44	805-050004-016-0	HEXIMSx4x16x15BF	1
45	805-620004-0	#2STLWx4x15BF	2
46	805-330004-010-0	L-CPIMSx4x10x15BF	4
47	805-610004-0	PIWx4x15BF	2
48	136-723971-001-A	FG Plate (Paper Guide)	1
49	136-723971-002-A	FG Plate (Paper Guide)	1
50	136-700665-A	Frame Label	1
51	136-727017-A	Special Spacer	2
52	136-727038-A	Spacer	4
53	805-610003-0	PIWx3x15BF	2
54	805-620003-0	#2STLWx3x15BF	2
55	805-500003-0	AHEXINx3x15BF	2

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-031581-A	Frame Assembly (See Figure 29 for Breakdown)	1
2	136-031583-A	Spacing Motor Assembly (See Figure 30 for Breakdown)	1
3	136-031584-001-A	Wire Rope Assembly	2
4	136-031585-A	Line Feed Motor Assembly (See Figure 34 for Breakdown)	1
5	136-722871-001-A	Line Feed Frame Assembly (See Figure 36 for Breakdown)	1
6	136-722871-002-A	Line Feed Frame Assembly (See Figure 37 for Breakdown)	1
7	136-723002-A	Pressure Assembly (See Figure 31 for Breakdown)	1
8	136-722873-A	Pressure Lever Assembly (See Figure 38 for Breakdown)	1
9	136-722872-A	Control Lever Assembly (See Figure 39 for Breakdown)	1
10	136-722720-A	Line Feed Idler Gear Bushing	1
11	136-722721-A	Line Feed Idler Gear	1
12	136-722756-A	Paper Guide Assembly	1
13	136-722741-A	Control Shaft	1
14	136-722743-A	Control Arm	1
15	136-722740-A	Control Cam	2
16	136-722742-A	Control Follower Plate	2
17	136-722746-A	Detent Spring	1
18	803-010030-050-0	E Ring	2
19	136-722723-A	P Gap Adjuster	2
20	136-722715-A	Line Feed Height Adjuster	2
21	136-722714-A	Line Feed Slide Bushing	2
22	136-723435-001-A	Platen Clamp Lever	1
23	136-723435-002-A	Platen Clamp Lever	1
24	136-710035-A	Eccentric Bushing	2
25	136-723969-A	Platen Clamp Spring	3
26	136-720390-A	Line Feed Frame Spring	1
27	803-010030-032-0	E Ring	1
28	136-722885-A	Switch Assembly (See Figure 40 for Breakdown)	1
29	136-722888-B	Media Low (Net) Assembly (See Figure 35 for Breakdown)	1
30	803-070031-003-0	Nylon Clip HP-3N	2
31	803-070031-004-0	Nylon Clip HP-4N	2
35	805-300003-008-0	PL-CPIMSx3x8x15BF	4
36	805-300003-006-0	PL-CPIMSx3x6x15BF	2
37	805-300003-010-0	PL-CPIMSx3x10x15BF	1
38	805-300004-010-0	PL-CPIMSx4x10x15BF	3
39	805-300006-030-0	PL-CPIMSx6x30x15BF	1

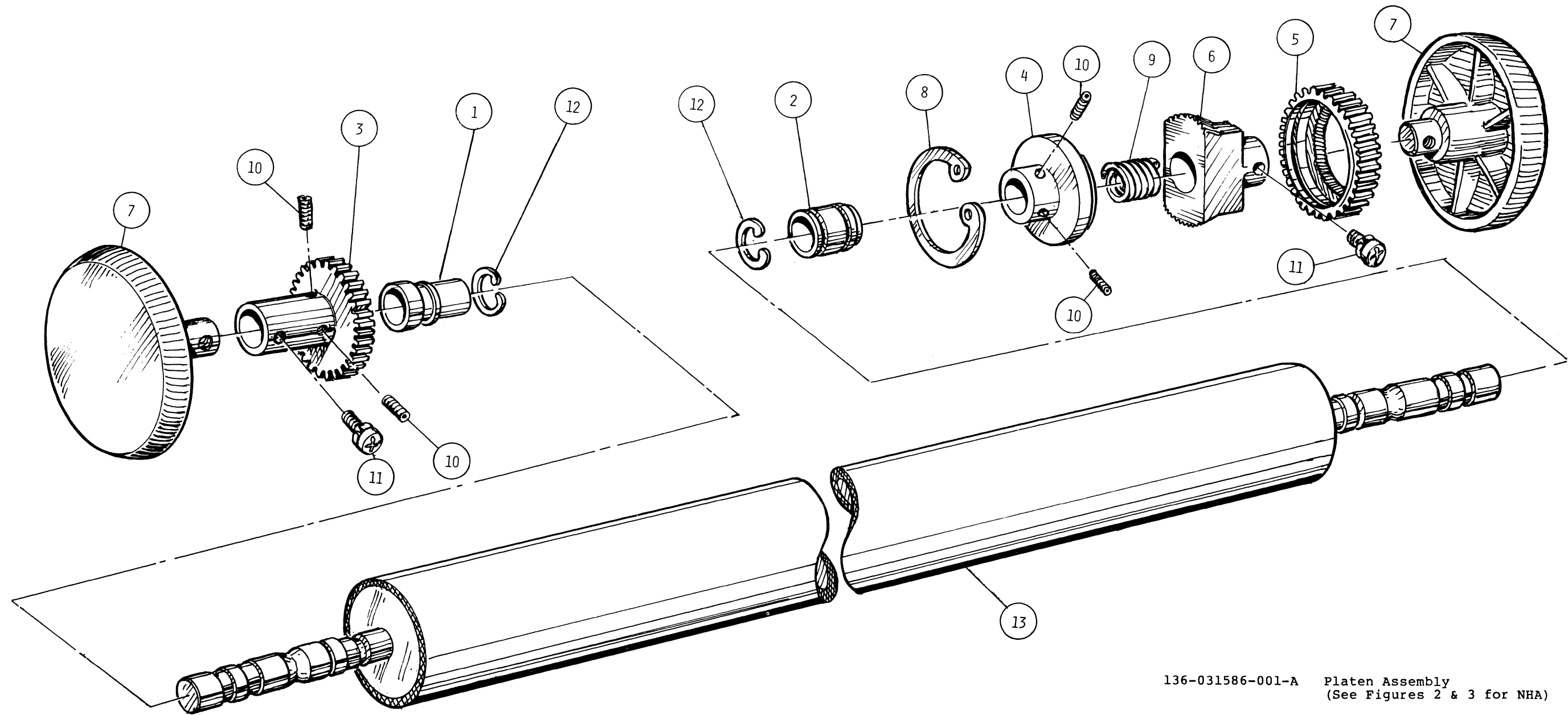
Figure 5 Frame Unit



136-031561-102-A Power Supply Assembly  
(See Figures 2 & 3 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	804-020198-002-B	Inverter Block	1
2	136-430570-A	G9BMT PCB Assembly (See Figure 103 for Breakdown)	1
3	804-020247-002-A	Fan	1
4	136-040477-A	Power Cable Assembly	1
5	136-031431-A	Fan Cable Assembly	1
6	808-814007-A	Cable Clamper	1
10	805-501103-0	AHXBx3x3GF	4
11	805-001103-008-0	CPBMSx3x8x3GF	3
12	805-622103-0	#2STLWx3x3GF	7
13	805-601103-0	SBWx3x3GF	7
14	136-723218-B	Fuse Cover	1
15	808-960301-002-A	Fuse	1

Figure 6 Power Supply Assembly



136-031586-001-A Platen Assembly  
(See Figures 2 & 3 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722778-A	Platen Bushing L	1
2	136-722779-A	Platen Bushing R	1
3	136-722777-A	TR Drive Gear	1
4	136-724225-A	Gear Guide	1
5	136-710011-A	Platen Gear	1
6	136-722782-A	Adjuster	1
7	136-710021-009-A	Knob Mold	2
8	803-010034-032-0	Retaining Ring	1
9	136-710012-A	Platen Gear Spring	1
10	808-802002-404-0	Socket Screw	4
11	805-330004-010-0	L-CPIMSx4x10x15BF	2
12	803-010032-010-0	Retaining Ring	2
13	136-722785-A	Platen	1

Figure 7 Platen Assembly

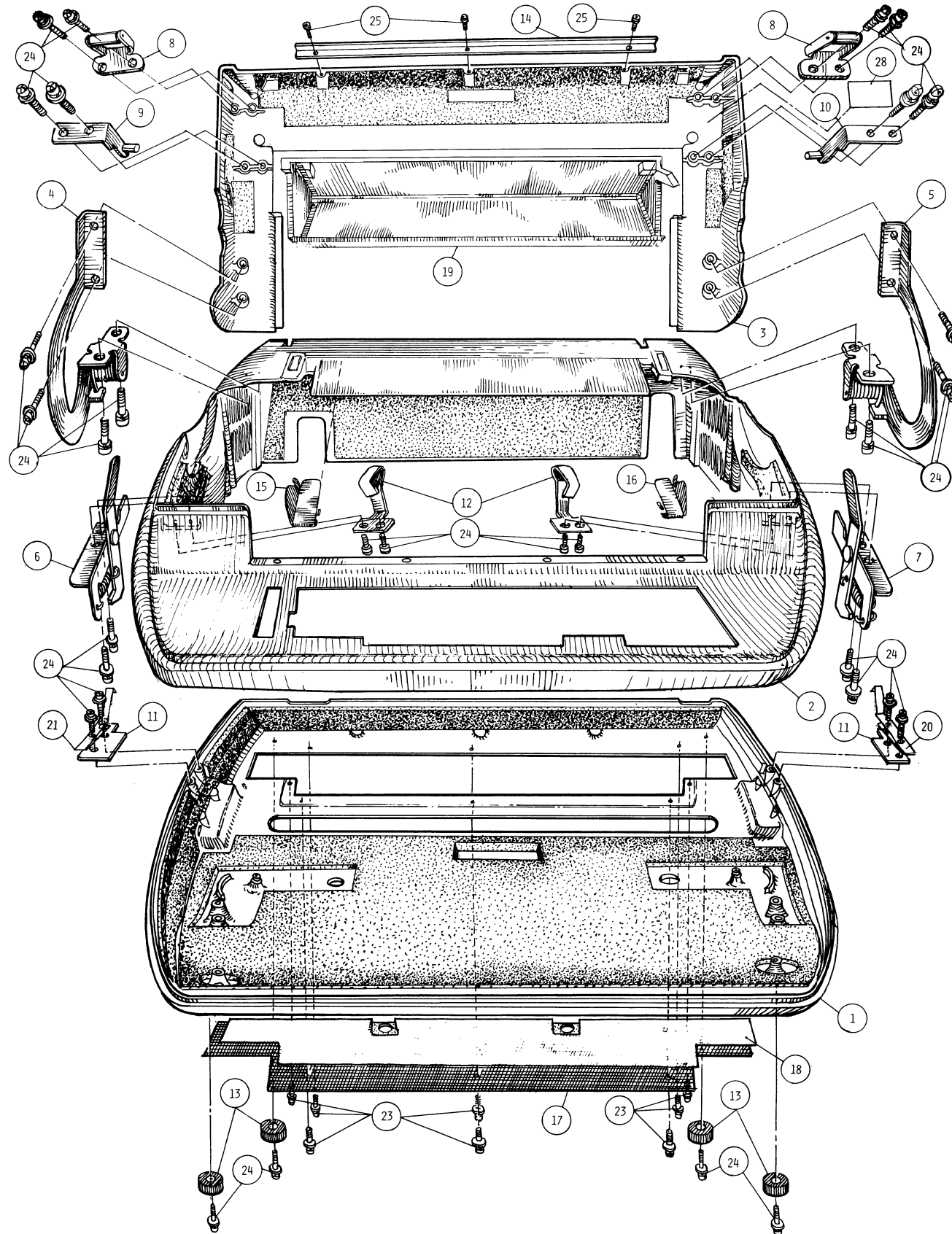
136-031592-001-A ROP Housing Assembly  
(See Figure 2 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722706-001-A	ROP Base Assembly (See Figure 42 for Breakdown)	1
2	136-722707-001-A	ROP Middle Cover Assembly (See Figure 43 for Breakdown)	1
3	136-722708-001-A	Top Cover Assembly (See Figure 41 for Breakdown)	1
3	136-723440-001-A	Top Cover (See Note 1)	1
4	136-722660-011-A	Arm Assembly (See Figure 50 for Breakdown)	1
5	136-722660-012-A	Arm Assembly (See Figure 51 for Breakdown)	1
6	136-722664-001-A	Lever Assembly (See Figure 52 for Breakdown)	1
7	136-722664-002-A	Lever Assembly (See Figure 53 for Breakdown)	1
8	136-722668-A	Lever Plate	2
9	136-722672-B	Roller Assembly (See Figure 48 for Breakdown)	2
10	136-722676-001-A	Hinge Assembly	1
10	136-723263-001-A	Hinge B Assembly (See Note 5)	1
11	136-722676-002-A	Hinge Assembly	1
11	136-723263-002-A	Hinge B Assembly (See Note 5)	1
12	136-722670-002-B	Leaf Spring	2
13	136-722679-A	Rubber Foot	4
14	136-721830-A	Handle	1
15	136-721816-001-A	Reverse Guide	1
16	136-721816-002-A	Reverse Guide	1
17	136-722682-A	Dust Cover	1
18	136-723454-A	Dust Damper Q	1
19	136-723270-A	Acrylic Cover (Short) (See Note 2)	1
19	136-722697-B	Acrylic Cover (Long) (See Note 3)	1
19	136-723271-A	Acrylic Cover (See Note 4)	1
20	136-723458-001-A	Leaf Spring B	1
21	136-723458-002-A	Leaf Spring B	1
22	805-300004-010-0	PL-CPIMSx4x10x15BF	32
23	805-010003-006-0	CFIMSx3x6x15BF	3
24	805-300003-006-0	PL-CPIMSx3x6x15BF	8
28	136-700608-002-A	Unit Label	1

- Note 1: Used with Vertical Type Tractor Feeder, Bidirectional Tractor Assembly, NEC Twin-Feeder (5500 Only) and Cut Sheet Feeder
- Note 2: Used with Vertical Type Tractor Feeder and Bidirectional Tractor Assembly
- Note 3: Used with Tractor Feed Assembly
- Note 4: Used with Front Inserter (5510 Only), Cut Sheet Feeder and NEC Twin-Feeder (5500 Only)
- Note 5: Used with Top Cover 136-723440-001-A

Figure 8 ROP Housing Assembly

136-031593-001-A KSR Housing Assembly  
(See Figure 3 for NHA)



ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-721814-001-A	KSR Base Assembly (See Figure 44 for Breakdown)	1
2	136-721815-001-A	KSR Middle Cover Assembly (See Figure 45 for Breakdown)	1
3	136-722708-001-A	Top Cover Assembly (See Figure 41 for Breakdown)	1
3	136-723440-001-A	Top Cover (See Note 1)	1
4	136-722660-011-A	Arm Assembly (See Figure 50 for Breakdown)	1
5	136-722660-012-A	Arm Assembly (See Figure 51 for Breakdown)	1
6	136-722664-001-A	Lever Assembly (See Figure 52 for Breakdown)	1
7	136-722664-002-A	Lever Assembly (See Figure 53 for Breakdown)	1
8	136-722672-B	Roller Assembly (See Figure 48 for Breakdown)	2
9	136-722676-001-A	Hinge Assembly	1
9	136-723263-001-A	Hinge B Assembly (See Note 5)	1
10	136-722676-002-A	Hinge Assembly	1
10	136-723263-002-A	Hinge B Assembly (See Note 5)	1
11	136-722668-A	Lever Plate	2
12	136-722670-002-B	Leaf Spring	2
13	136-722679-A	Rubber Foot	4
14	136-721830-A	Handle	1
15	136-721816-003-A	Reverse Guide	1
16	136-721816-004-A	Reverse Guide	1
17	136-722682-A	Dust Cover	1
18	136-723454-A	Dust Damper Q	1
19	136-723270-A	Acrylic Cover (Short) (See Note 2)	1
19	136-722697-B	Acrylic Cover (Long) (See Note 3)	1
19	136-723271-A	Acrylic Cover (See Note 4)	1
20	136-723458-001-A	Leaf Spring B	1
21	136-723458-002-A	Leaf Spring B	1
23	805-300003-006-0	PL-CPIMSx3x6x15BF	8
24	805-300004-010-0	PL-CPIMSx4x10x15BF	32
25	805-010003-006-0	CFIMSx3x6x15BF	3
28	136-700608-002-A	Unit Label	1

Note 1: Used with Vertical Type Tractor Feeder, Bidirectional Tractor Assembly and Cut Sheet Feeder

Note 2: Used with Vertical Type Tractor Feeder and Bidirectional Tractor Assembly

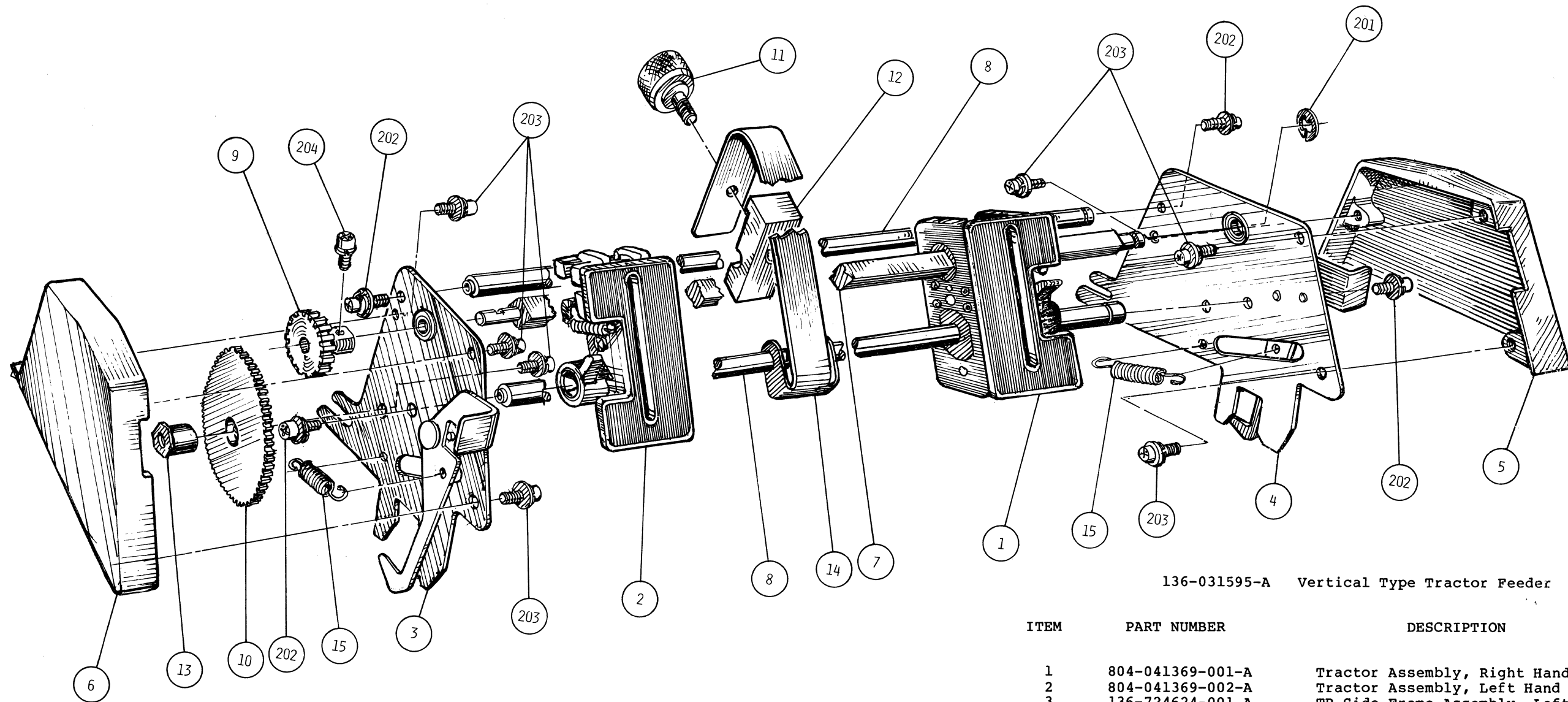
Note 3: Used with Tractor Feed Assembly

Note 4: Used with Front Inserter (5520 Only) and Cut Sheet Feeder

Note 5: Used with Top Cover 136-723440-001-A

Figure 9 KSR Housing Assembly

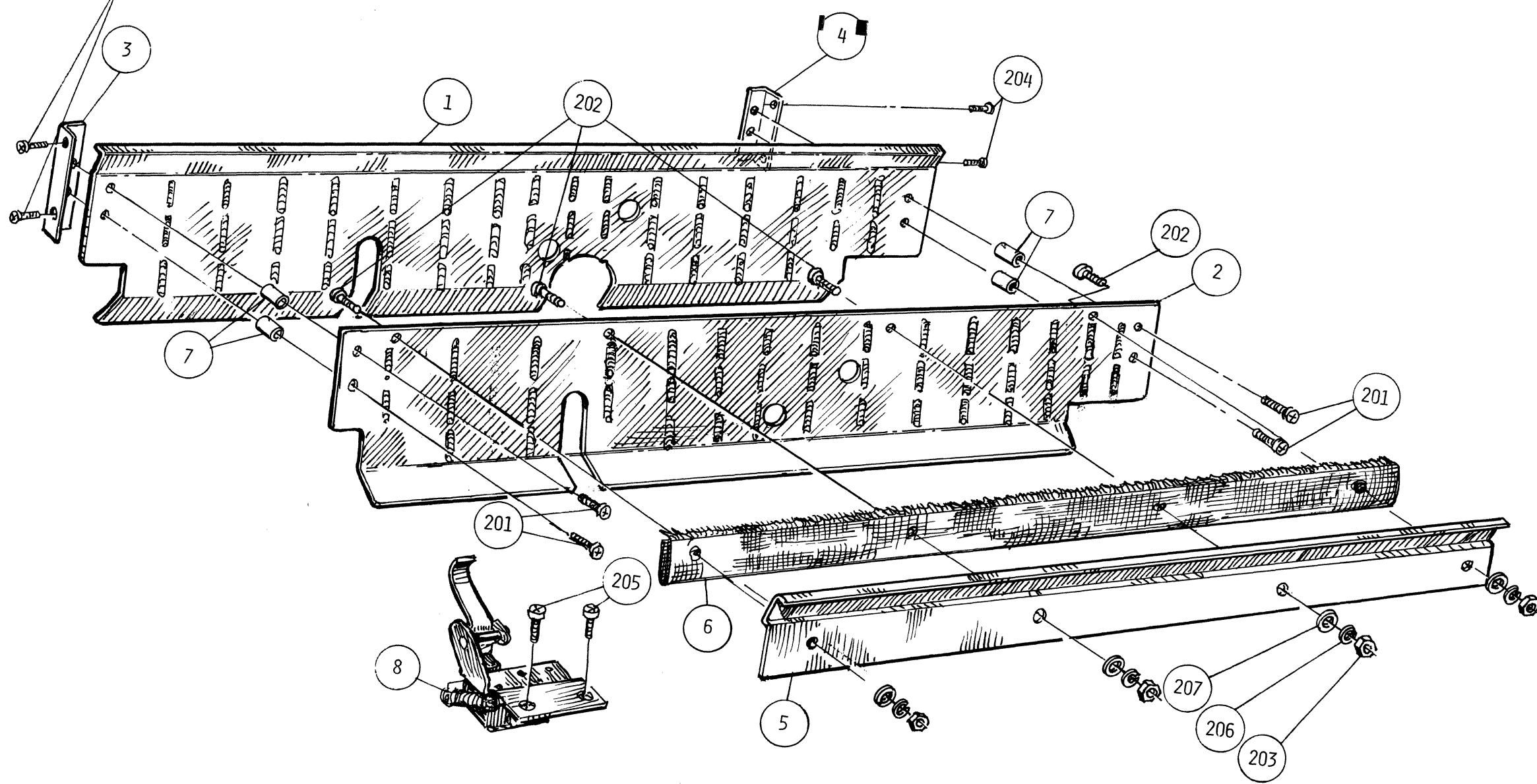




136-031595-A Vertical Type Tractor Feeder

ITEM	PART NUMBER	DESCRIPTION	QTY
1	804-041369-001-A	Tractor Assembly, Right Hand	1
2	804-041369-002-A	Tractor Assembly, Left Hand	1
3	136-724624-001-A	TR Side Frame Assembly, Left (See Figure 54 for Breakdown)	1
4	136-724624-002-A	TR Side Frame Assembly, Right (See Figure 55 for Breakdown)	1
5	136-724627-A	Right TR Cover	1
6	136-724628-A	Left TR Cover	1
7	136-722764-A	Drive Shaft	1
8	136-727434-A	Support Shaft	2
9	136-722759-A	Driven Gear	1
10	136-724629-A	Idler Gear	1
11	136-724630-A	Lock Screw	1
12	136-724634-A	Lock Piece	1
13	136-724632-A	Idler Gear Bushing	1
14	136-724633-A	Center Guide	1
15	136-722879-A	Spring (Platen Clamp)	2
201	803-010030-040-A	E-40	1
202	805-300004-008-0	PL-CPIMSx4x8x15BF	4
203	805-300103-008-0	PL-CPIMSx3x8x3GF	7
204	803-330003-006-0	L-CPIMSx3x6x15BF	1

Figure 10 Vertical Type Tractor Feeder

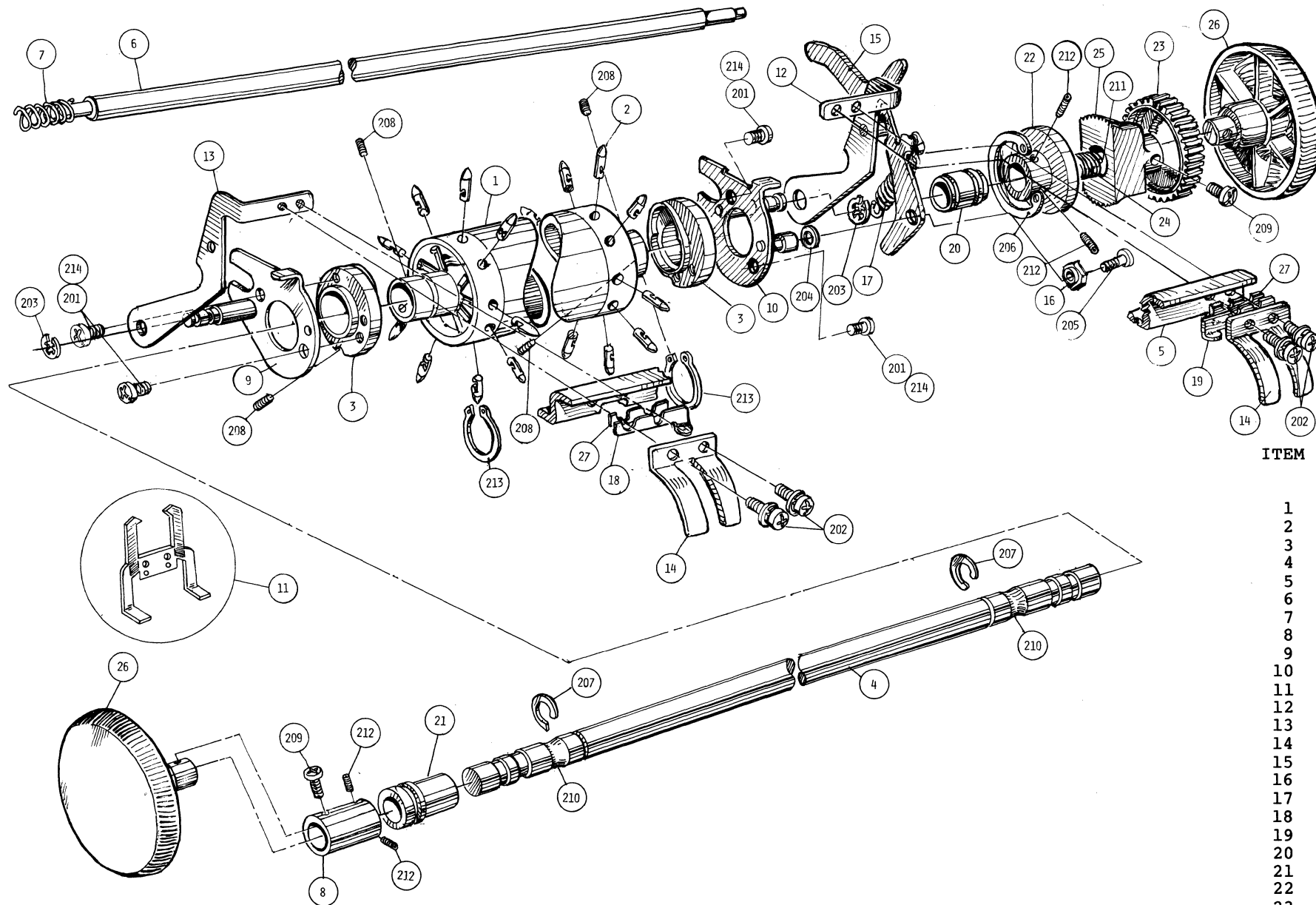


136-031590-001-A Bottom Guide Assembly (Option)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722819-A	Rear Guide	1
2	136-722820-A	Front Guide	1
3	136-722815-001-A	BF Support Bracket	1
4	136-722815-002-A	BF Support Bracket	1
5	136-722816-A	Upper Guide	1
6	804-041070-001-0	Anti-Static Cloth	1
7	136-722115-A	Spacer	1
8	136-722889-A	Media Low (BF) Assembly (See Figure 56 for Breakdown)	4
201	805-300003-012-0	PL-CPIMSx3x12x3GF	1
202	805-000103-006-0	CPIMSx3x6x3GF	4
203	805-500103-0	AHEXINx3x3GF	4
204	805-300003-008-0	PL-CPIMSx3x8x15BF	4
205	805-300004-008-0	PL-CPIMSx4x8x15BF	4
206	805-622103-0	#2STLWx3x3GF	2
207	805-610103-0	PIWx3x3GF	4

Figure 11 Bottom Guide Assembly

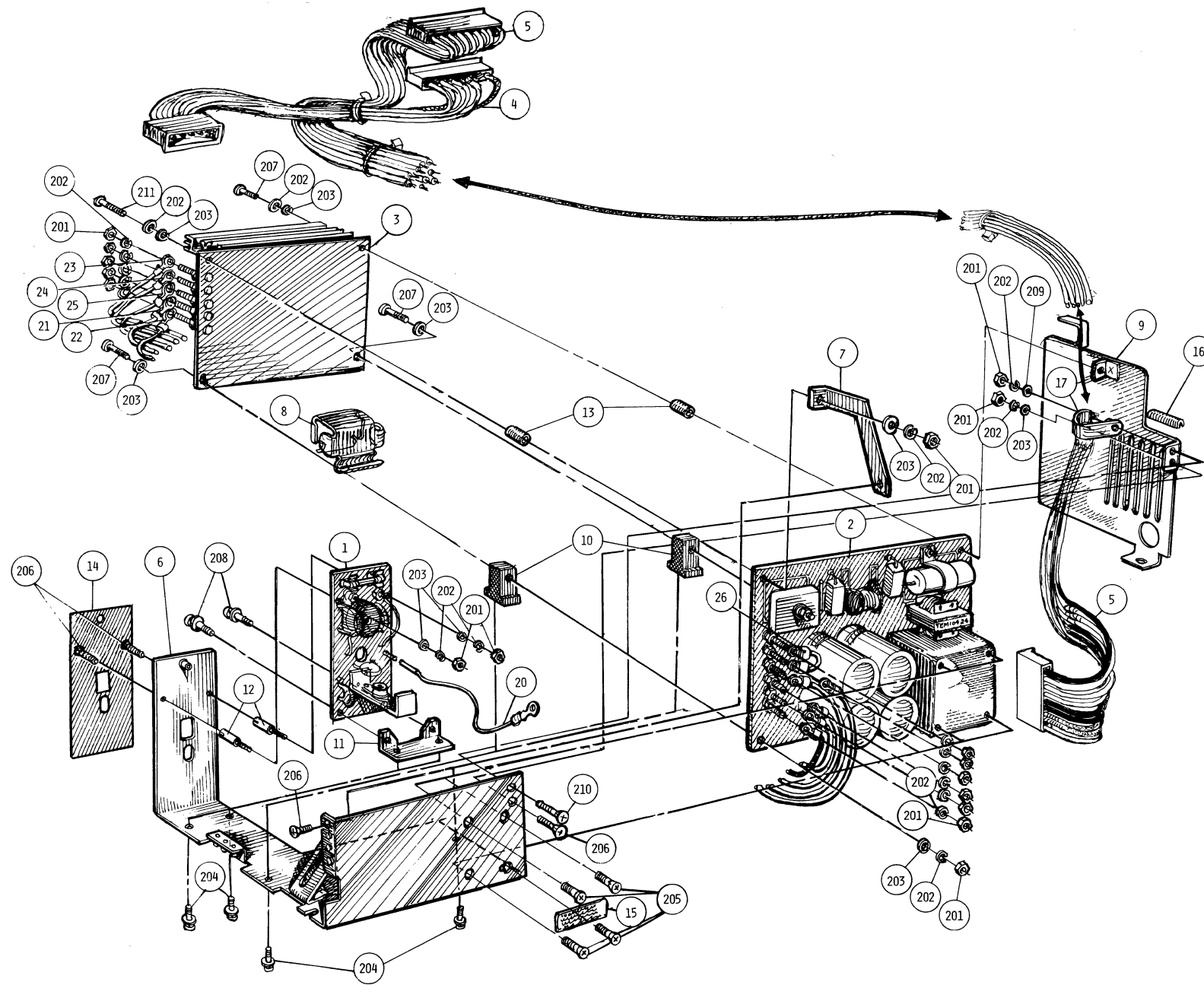




136-031591-001-A Pin Feed Platen Assembly  
(Option)

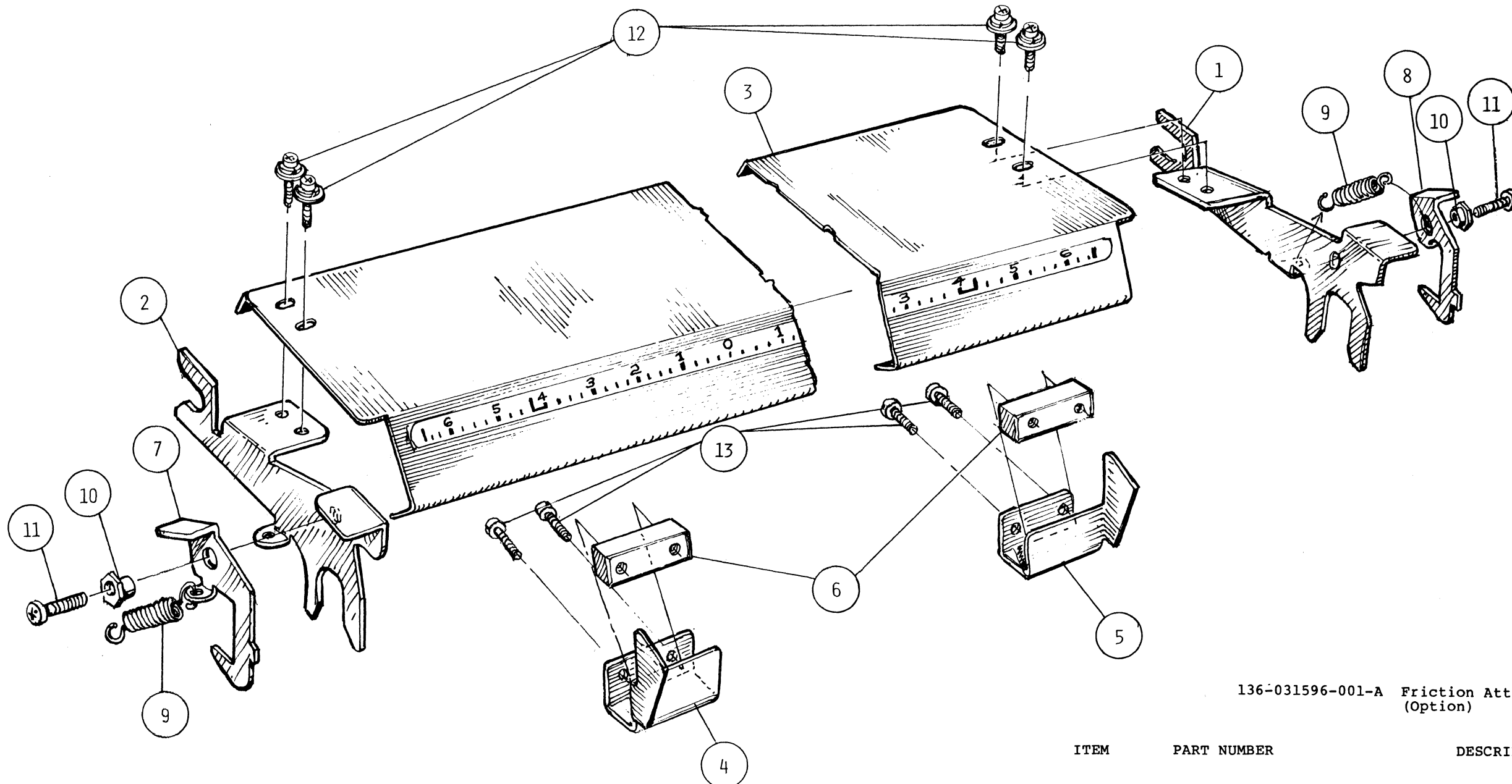
ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-723403-GRP-A	Platen	1
2	136-723404-A	Sprocket Pin	18
3	136-723402-A	Cam	2
4	136-723014-A	Sprocket Platen Shaft	1
5	136-723818-GRP-A	Cutter Bail	1
6	136-723009-A	Shaft	1
7	136-723012-A	Spring (Shaft Lock)	1
8	136-723013-A	Knob Holder	1
9	136-723006-001-A	Cam Control Plate Assembly	1
10	136-723006-002-A	Cam Control Plate Assembly	1
11	136-720573-A	Card Holder Bracket	1
12	136-723827-A	Arm Assembly	1
13	136-723823-001-A	Arm	1
14	136-723819-A	Sprocket Guide	2
15	136-723825-A	Lock Lever	1
16	136-710035-A	Eccentric Bushing	1
17	136-722879-A	Spring	1
18	136-724631-001-A	Spacer	1
19	136-724631-002-A	Spacer	1
20	136-722779-A	Platen Bushing R	1
21	136-722778-A	Platen Bushing L	1
22	136-724225-A	Gear Guide	1
23	136-710011-A	Platen Gear	1
24	136-710012-A	Platen Gear Spring	1
25	136-722782-A	Adjuster	1
26	136-710021-009-A	Knob Mold	2
27	136-723963-002-A	Spacer	2
201	805-000103-006-0	CPIMSx3x6x3GF	4
202	805-300103-007-0	PL-CPIMSx3x7x3GF	4
203	803-010030-032-0	E-Ring	2
204	805-611103-0	PBWAx3x3GF	1
205	805-330103-008-0	L-CPIMSx3x8x3GF	1
206	803-010034-032-0	O-Ring	1
207	803-010032-010-0	CE-Ring	2
208	808-802002-304-0	Socket Set Screw	4
209	805-330004-010-0	L-CPIMSx4x10x15BF	2
210	804-030165-0		1.5
211	808-835010-001-0	Daphne Mechanic Oil #35	0.0003
212	808-802002-404-0	Socket Set Screw	4
213	803-010031-016-0	C-Ring	2
214	808-835000-004-A	Screw Lock	0.0002

Figure 12 Pin Feed Platen Assembly



ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-020031-002-A	P1 PCB Assembly (See Figure 99 for Breakdown)	1
2	136-020032-002-A	P2 PCB Assembly (See Figure 100 for Breakdown)	1
3	136-020033-002-A	P3 PCB Assembly (See Figure 101 for Breakdown)	1
4	136-040792-A	Cable	1
5	136-040793-A	Cable	1
6	136-727070-A	Chassis	1
7	136-723222-B	Locking Bracket	1
8	136-723218-B	Fuse Cover	1
9	136-723829-B	Insulating Plate	1
10	136-727071-A	PCB Setting Block	2
11	136-727072-A	PCB Setting Bracket	1
12	136-727073-A	Screw	2
13	136-727074-A	Collar	2
14	136-727075-A	Panel	1
15	136-700791-A	Label	1
16	136-727076-A	Edge Cover	1
17	136-727077-A	Nylon Clip	1
20	136-780003-A	Jumper Wire	1
21	136-780004-001-A	Jumper Wire	1
22	136-780004-002-A	Jumper Wire	1
23	136-780004-003-A	Jumper Wire	1
24	136-780004-004-A	Jumper Wire	1
25	136-780004-005-A	Jumper Wire	1
26	136-780004-006-A	Jumper Wire	1
201	805-501103-0	AHEXBNx3x3GF	16
202	805-623103-0	#2PBLWAx3x3GF	18
203	805-611103-0	PBWAx3x3GF	8
204	805-301103-008-0	PL-CPBMSx3x8x3GF	5
205	805-011104-008-0	CFBMSx4x8x3GF	4
206	805-011103-006-0	CFBMSx3x6x3GF	4
207	805-001103-018-0	CPBMSx3x18x3GF	4
208	805-301103-006-0	PL-CPBMSx3x6x3GF	2
209	805-601103-0	SBWAx3x3GF	1
210	805-011103-012-0	CFBMSx3x12x3GF	1
211	805-001103-020-0	CPBMSx3x20x3GF	1

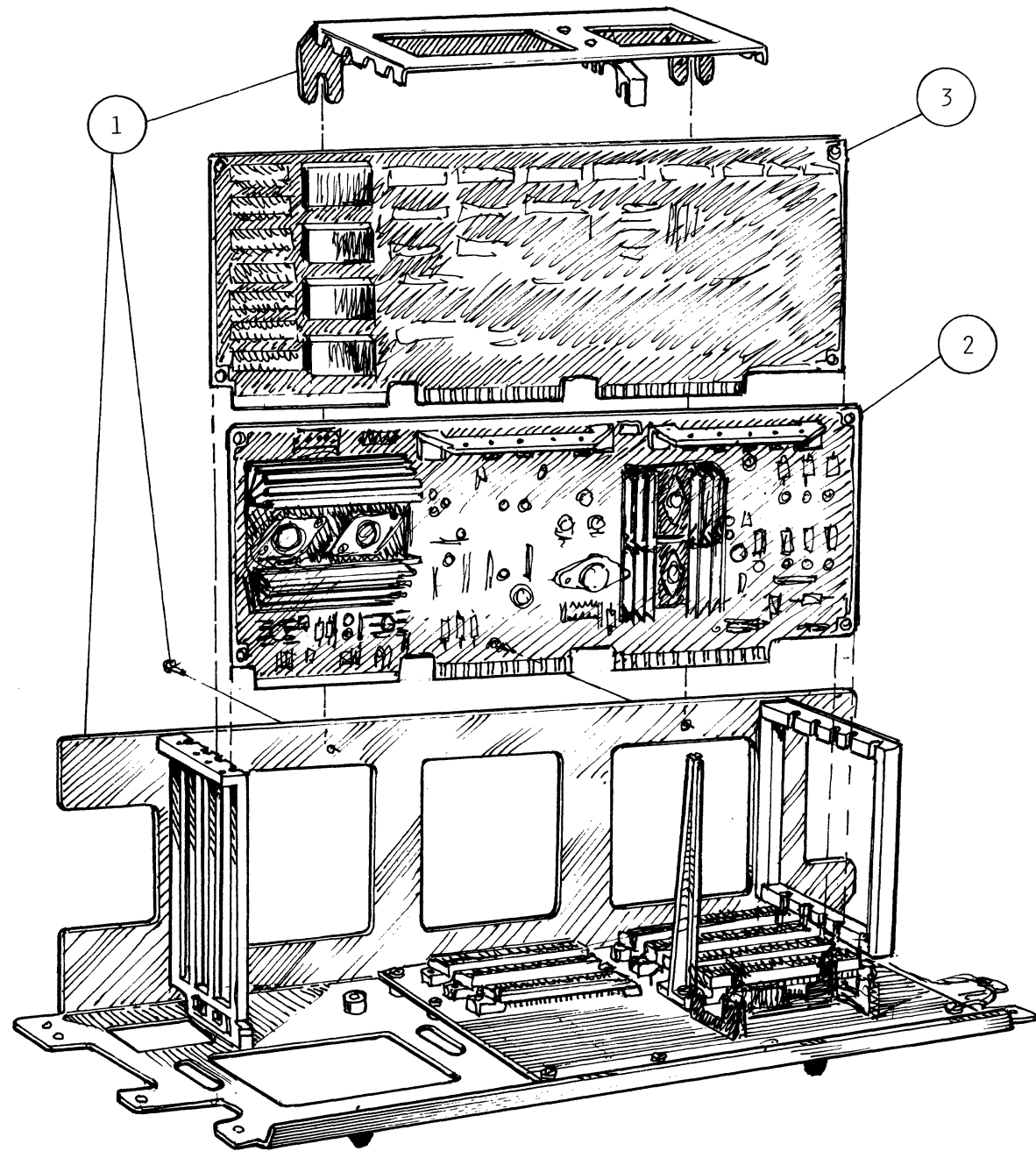
Figure 13 Inverter Block



136-031596-001-A Friction Attachment  
(Option)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722821-001-A	Friction Bracket	1
2	136-722821-002-A	Friction Bracket	1
3	136-723001-A	Friction Guide Print	1
4	136-723800-001-A	Side Guide Assembly	1
5	136-723800-002-A	Side Guide Assembly	1
6	136-722999-A	Slider	2
7	136-722752-001-A	Lock Lever	1
8	136-722752-002-A	Lock Lever	1
9	136-722877-A	Clamp Lever Spring	2
10	136-710035-A	Eccentric Bushing	2
11	805-000003-006-0	CPIMSx3x6x15BF	2
12	805-300103-006-0	PL-CPIMSx3x6x3GF	4
13	805-060003-006-0	#2CTSx3x6x15BF	4

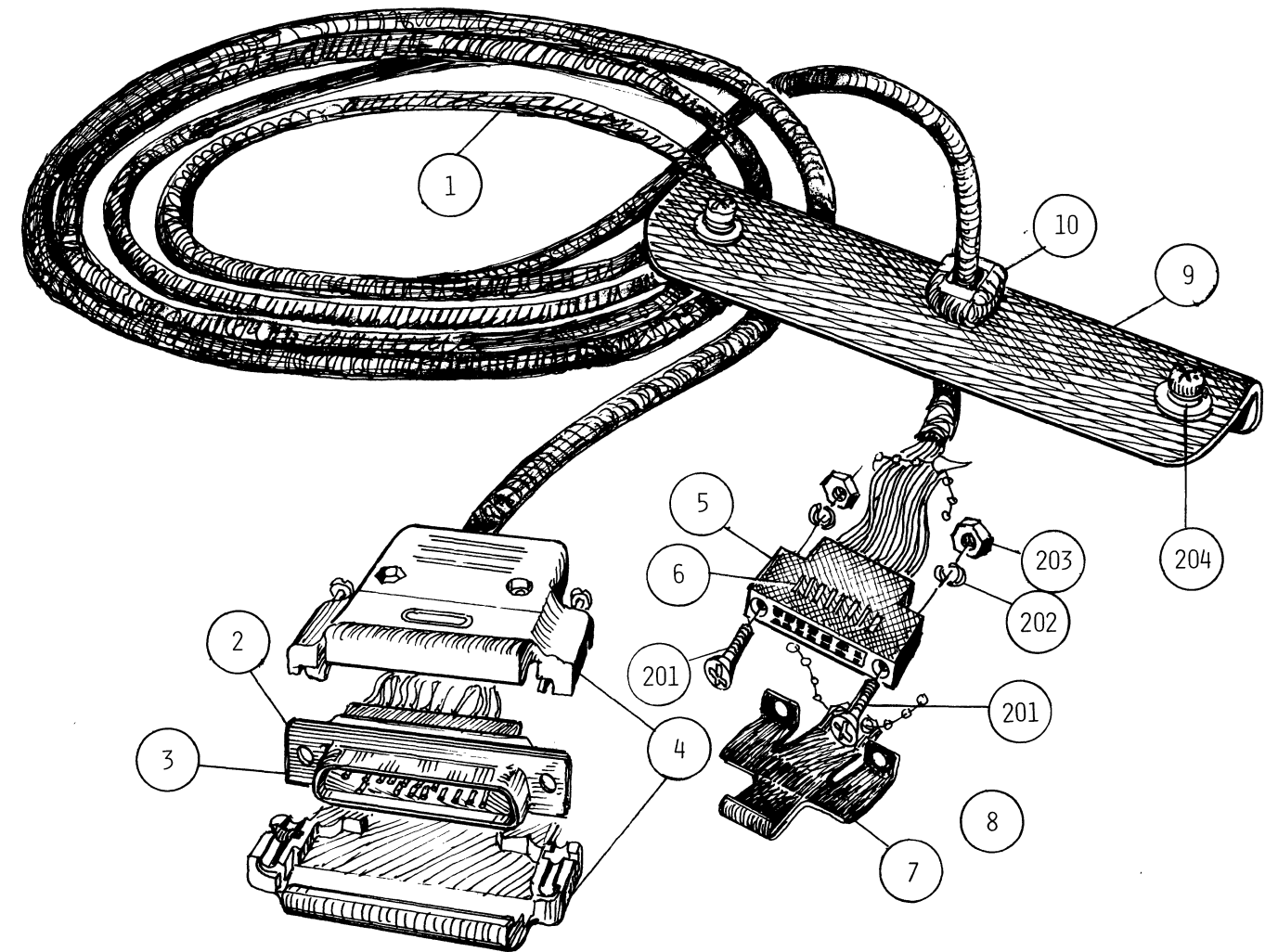
Figure 14 Friction Attachment



136-031559-002-A Control Unit Assembly  
(See Figures 1, 2 & 3 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-031560-001-A	Control Frame Assembly (See Figure 24 for Breakdown)	1
2	136-430873-A	G9CUM PCB Assembly (See Figure 85 for Breakdown)	1
3	136-430874-A	G9CUN PCB Assembly (See Figure 86 for Breakdown)	1

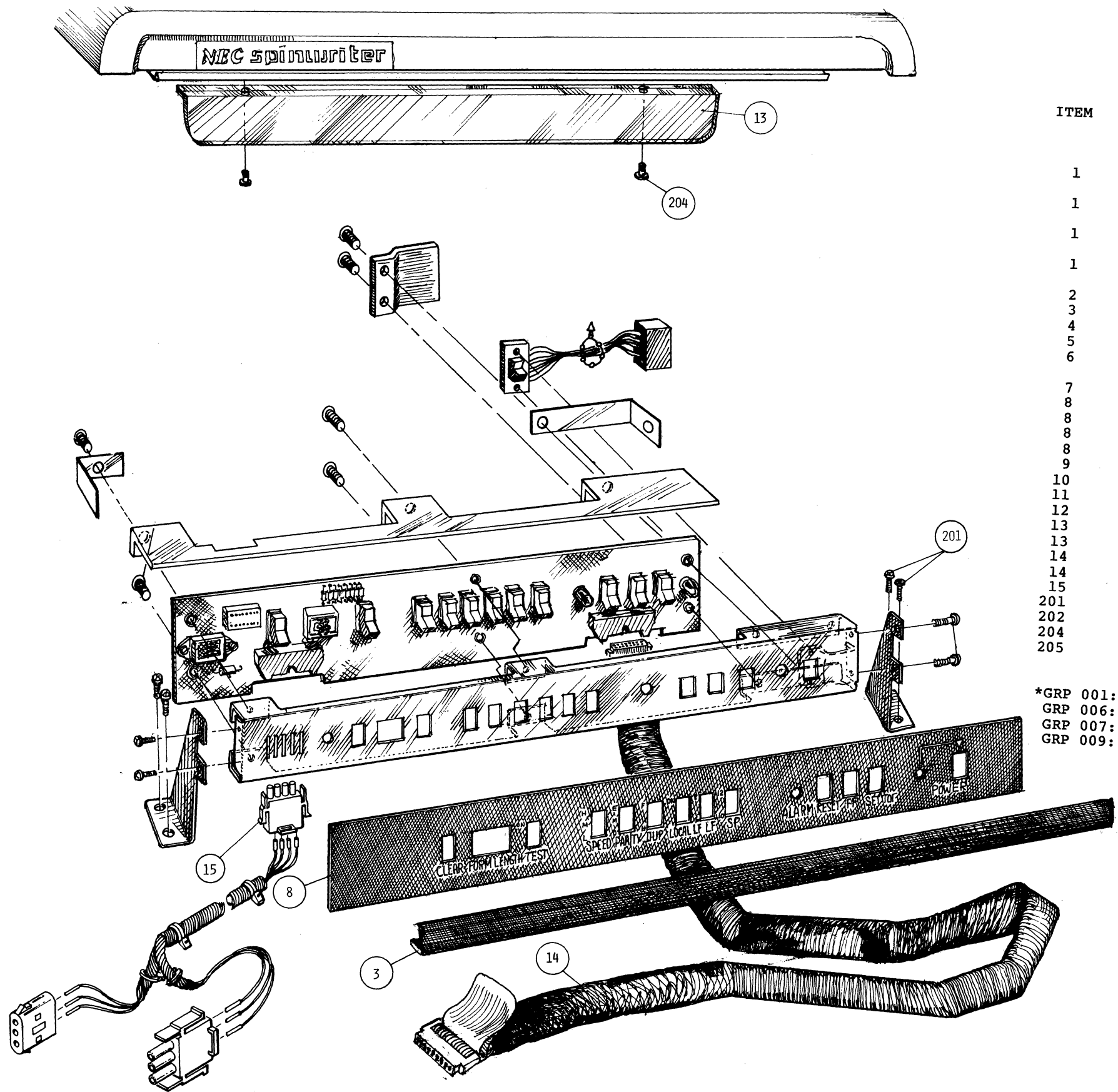
Figure 15 Control Unit Assembly



136-040572-001-A Serial Interface Cable  
(See Figures 2 & 3 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	808-847002-0	Wire UL-2448 AWG 24x15	3.5
2	808-955113-205-A	Shell Housing DBC-25P-FO	1
3	808-955113-222-A	Contact 030-50635	12
4	808-955113-904-A	Housing DB-C2-J9	1
5	808-955140-804-A	Housing 2-86256-2	1
6	808-955140-802-A	Pressure Type Contact 86016-4	12
7	136-710322-B	Connector Locks	1
8	808-814005-A	IB Tie	1
9	136-723215-A	Bracket	1
10	808-814007-002-A	Cable Clamp SR-6N3-4	1
201	805-010023-014-0	CFIMSx2.3x14x15BF	2
202	805-622023-0	#2STLWx2.3x15BF	2
203	805-500023-0	AHEXINx2.3x15BF	2
204	805-300004-008-0	PL-CPIMSx4x8x15BF	2

Figure 16 Serial Interface Cable

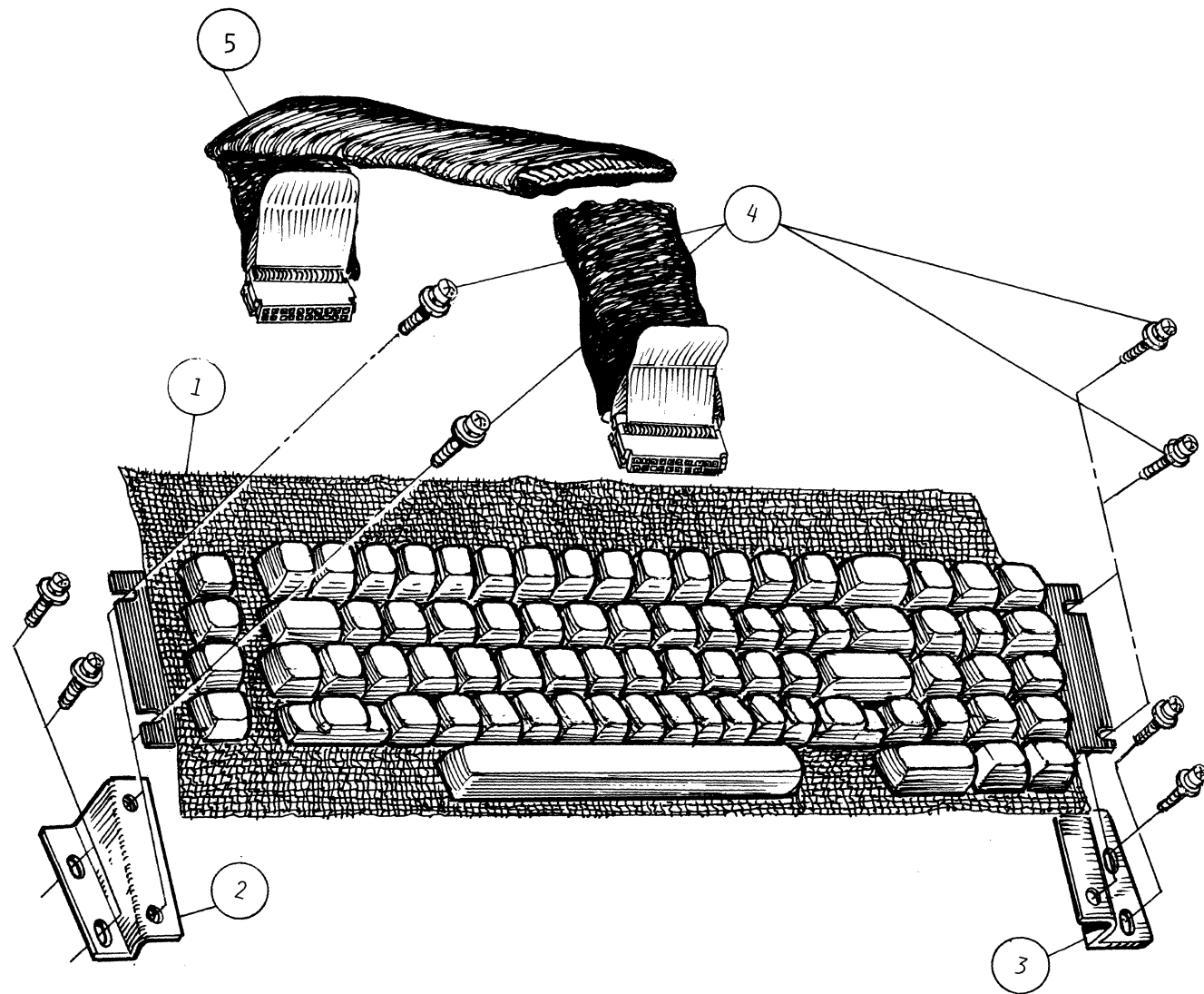


136-031562-GRP-A\* Operator Control Panel Assembly  
(See Figures 2 & 3 for NHA)

ITEM	PART NUMBER	DESCRIPTION	GRP/QTY			
			1	6	7	9
1	136-430592-A	G9BNF PCB Assembly (See Figure 94 for Breakdown)	1			
1	136-430590-A	G9BND PCB Assembly (See Figure 95 for Breakdown)				1
1	136-430935-A	G9DGD PCB Assembly (See Figure 102 for Breakdown)			1	
1	136-431097-A	G9EYQ PCB Assembly (See Figure 101 for Breakdown)				1
2	136-721826-B	Operator Panel A	1	1	1	1
3	136-721827-A	Operator Panel Seal	1	1	1	1
4	136-721829-001-A	Operator Panel Bracket	1	1	1	1
5	136-721829-002-A	Operator Panel Bracket	1	1	1	1
6	136-040570-A	Power Switch Assembly (See Figure 49 for Breakdown)	1	1	1	1
7	136-721832-A	Switch Protector				
8	136-720350-B	Decor Sheet	1	1	1	1
8	136-727191-A	Decor Sheet	1			
8	136-727192-A	Decor Sheet		1		
8	136-727164-A	Decor Sheet				1
9	808-814005-A	IB Tie				1
10	136-723267-A	Seal Supporter Assembly	1	1	1	1
11	136-723456-A	Strap Plate A	1	1	1	1
12	136-723457-A	Strap Plate B	1	1	1	1
13	136-721831-001-A	Operator Panel Window	1	1	1	1
13	136-721831-002-A	Operator Panel Window	1			
14	136-040569-001-A	Connection Cable		1	1	1
14	136-040569-002-A	Connection Cable	1	1	1	1
15	136-040810-A	Cable				1
201	805-300004-010-0	PL-CPIMSx4x10x15BF				1
202	805-300002-006-0	PL-CPIMSx2x6x15BF	8	8	8	8
204	805-310003-010-0	SL-CPIMSx3x10x15BP	2	2	2	2
205	805-300003-008-0	PL-CPIMSx3x8x15BF	2	2	2	2

\*GRP 001: 5515, 5520, & 5525  
 GRP 006: 5510 with REMOTE/LOCAL Switch  
 GRP 007: 5540 APL Model  
 GRP 009: 5530

Figure 17 Operator Control Panel Assembly

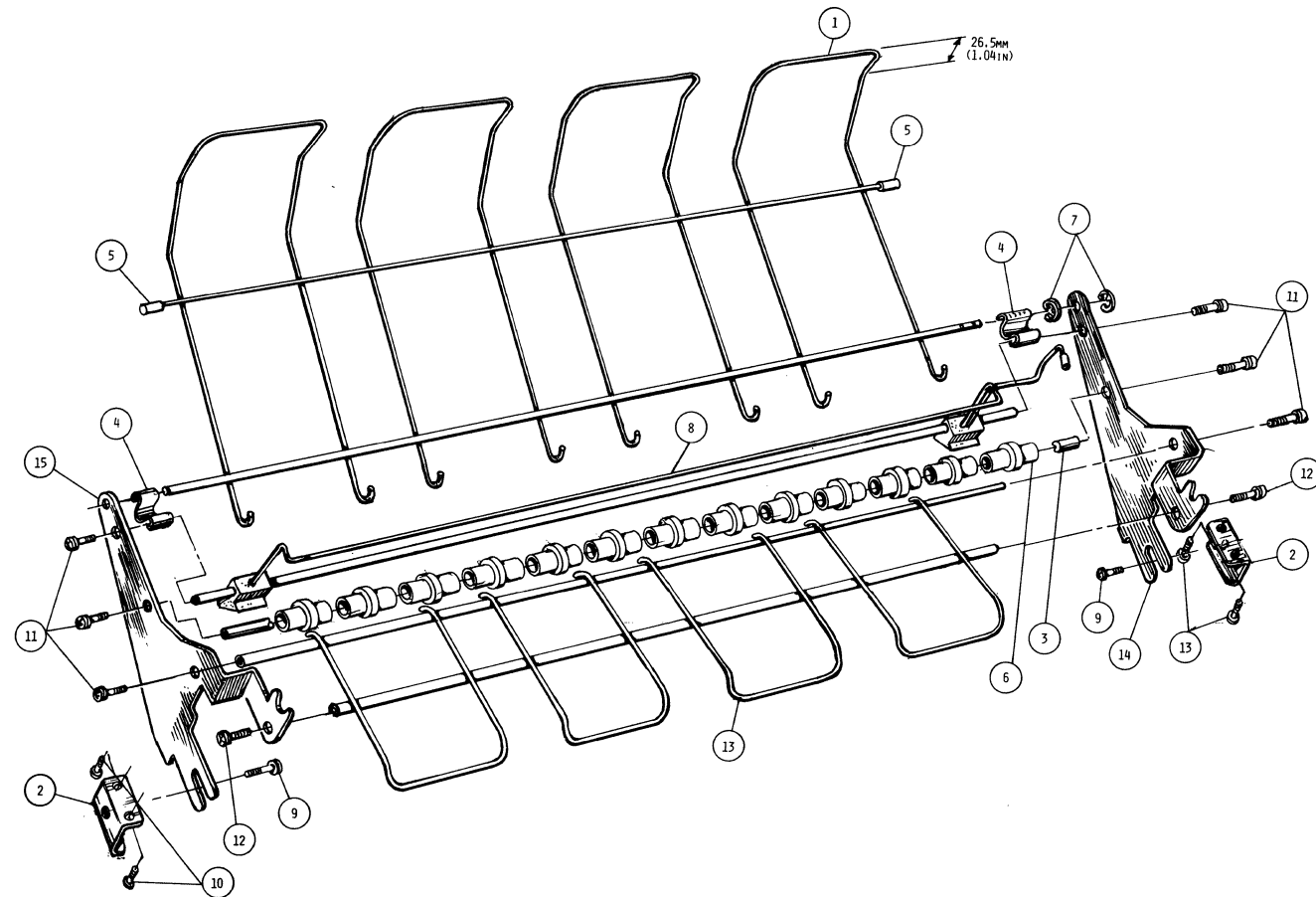


136-031569-GRP-A Keyboard Assembly  
(See Figure 3 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	804-020242-GRP-A*	Keyboard	1
2	136-723212-A	Keyboard Bracket R	1
3	136-723211-A	Keyboard Bracket L	1
4	805-300004-008-0	PL-CPIMSx4x8x15BF	4
5	136-040570-A	Connection Cable	1

\*GRP 001: 5520 & 5525 Models  
GRP 002: 5540 APL Model

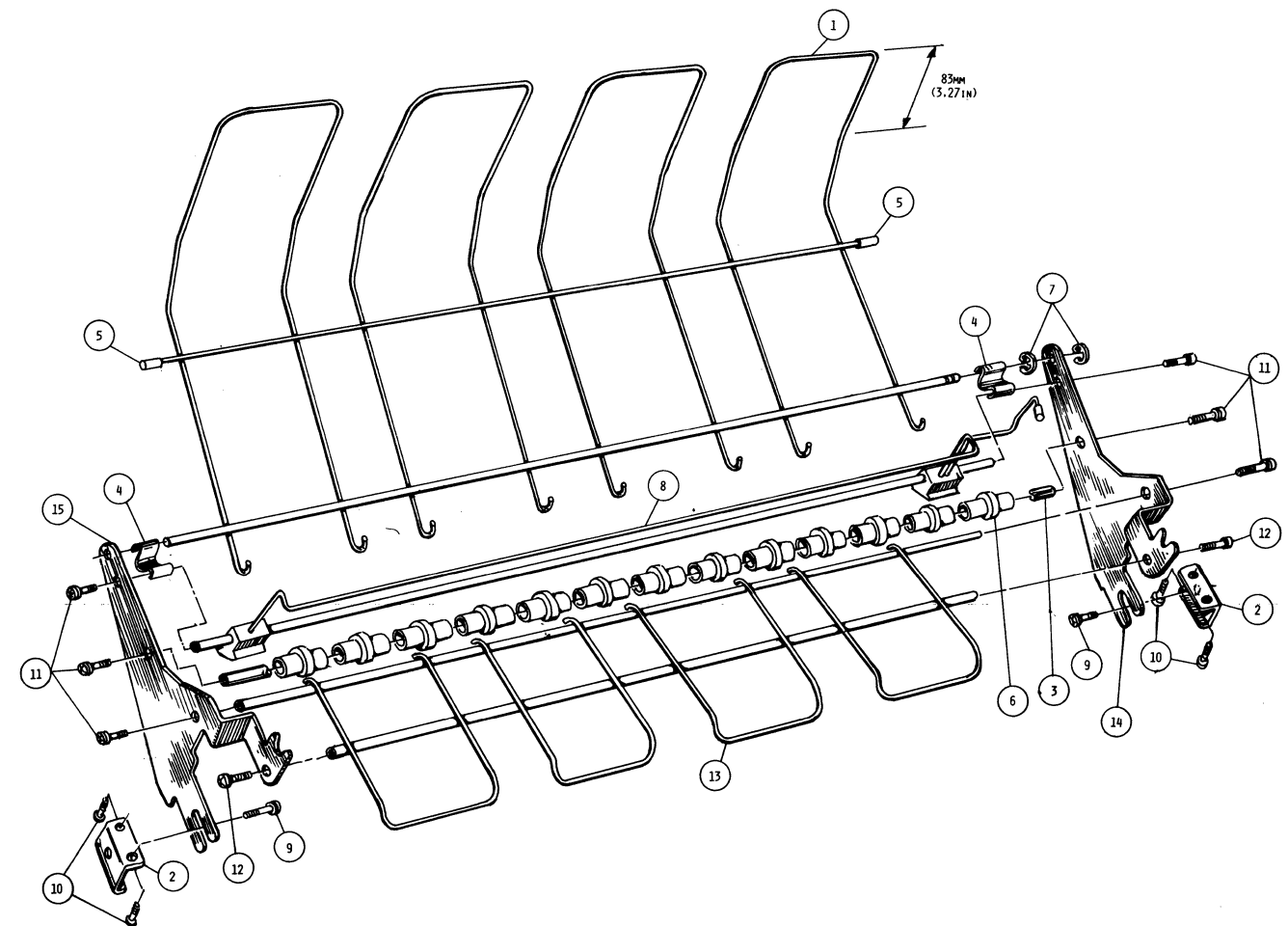
Figure 18 Keyboard Assembly



136-031597-001-A Paper Net Assembly  
(Option)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722810-001-A	Guide Bar Assembly	1
2	136-722791-A	Guide Net Bracket	2
3	136-722804-A	Support Bar	1
4	136-723968-A	Spring (Paper Net)	2
5	136-722903-A	Cushion	2
6	136-722793-A	Guide Roller	13
7	803-010030-040-0	E Ring	2
8	136-722799-A	End Detector Assembly (See Figure 57 for Breakdown)	1
9	805-300003-008-0	PL-CPIMSx3x8x15BF	2
10	805-300004-008-0	PL-CPIMSx4x8x15BF	4
11	805-330103-006-0	L-CPIMSx3x6x3GF	6
12	805-300103-008-0	PL-CPIMSx3x8x3GF	2
13	136-724220-A	Lower Guide Bar Assembly	1
14	136-724223-001-A	Guide Net Frame	1
15	136-724223-002-A	Guide Net Frame	1

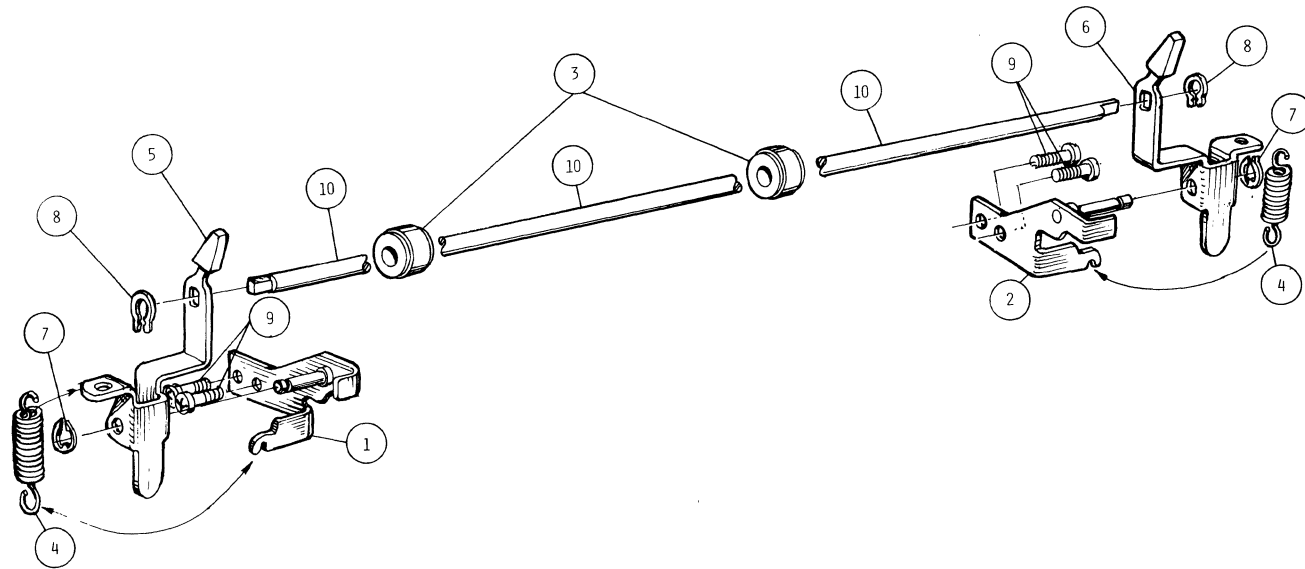
Figure 19 Paper Net Assembly



136-031597-002-A Paper Net Assembly  
(Option)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722810-002-A	Guide Bar Assembly	1
2	136-722791-A	Guide Net Bracket	2
3	136-722804-A	Support Bar	1
4	136-723968-A	Spring (Paper Net)	2
5	136-722903-A	Cushion	2
6	136-722793-A	Guide Roller	13
7	803-010030-040-0	E Ring	2
8	136-722799-A	End Detector Assembly (See Figure 58 for Breakdown)	1
9	805-300003-008-0	PL-CPIMSx3x8x15BF	2
10	805-300004-010-0	PL-CPIMSx4x10x15BF	4
11	805-330103-006-0	L-CPIMSx3x6x3GF	6
12	805-300103-008-0	PL-CPIMSx3x8x3GF	2
13	136-724220-A	Lower Guide Bar Assembly	1
14	136-724223-001-A	Guide Net Frame	1
15	136-724223-002-A	Guide Net Frame	1

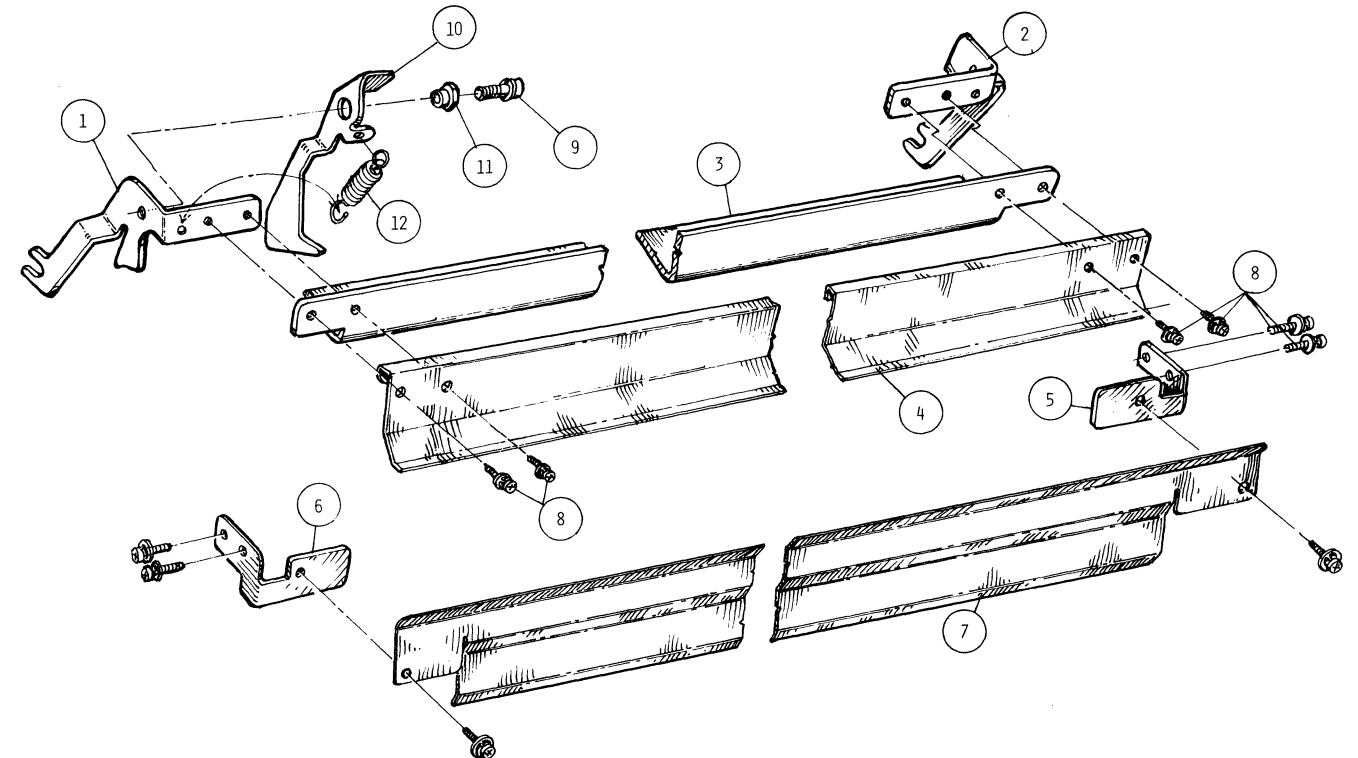
Figure 20 Paper Net Assembly



136-031587-A Pressure Bail Assembly  
(See Figures 2 & 3 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-720122-001-A	Bail Plate Assembly	1
2	136-720122-002-A	Bail Plate Assembly	1
3	808-805000-A	Bail Roller Assembly	2
4	136-710332-A	Bail Spring	2
5	136-722896-001-A	Bail Arm Assembly	1
6	136-722896-002-A	Bail Arm Assembly (See Figure 46 for Breakdown)	1
7	803-010030-032-0	E Ring	2
8	808-802006-050-0	Grip Ring	2
9	805-300003-006-0	PL-CPIMSx3x6x15BF	4
10	136-722769-A	Bail Shaft	1

Figure 21 Pressure Bail Assembly

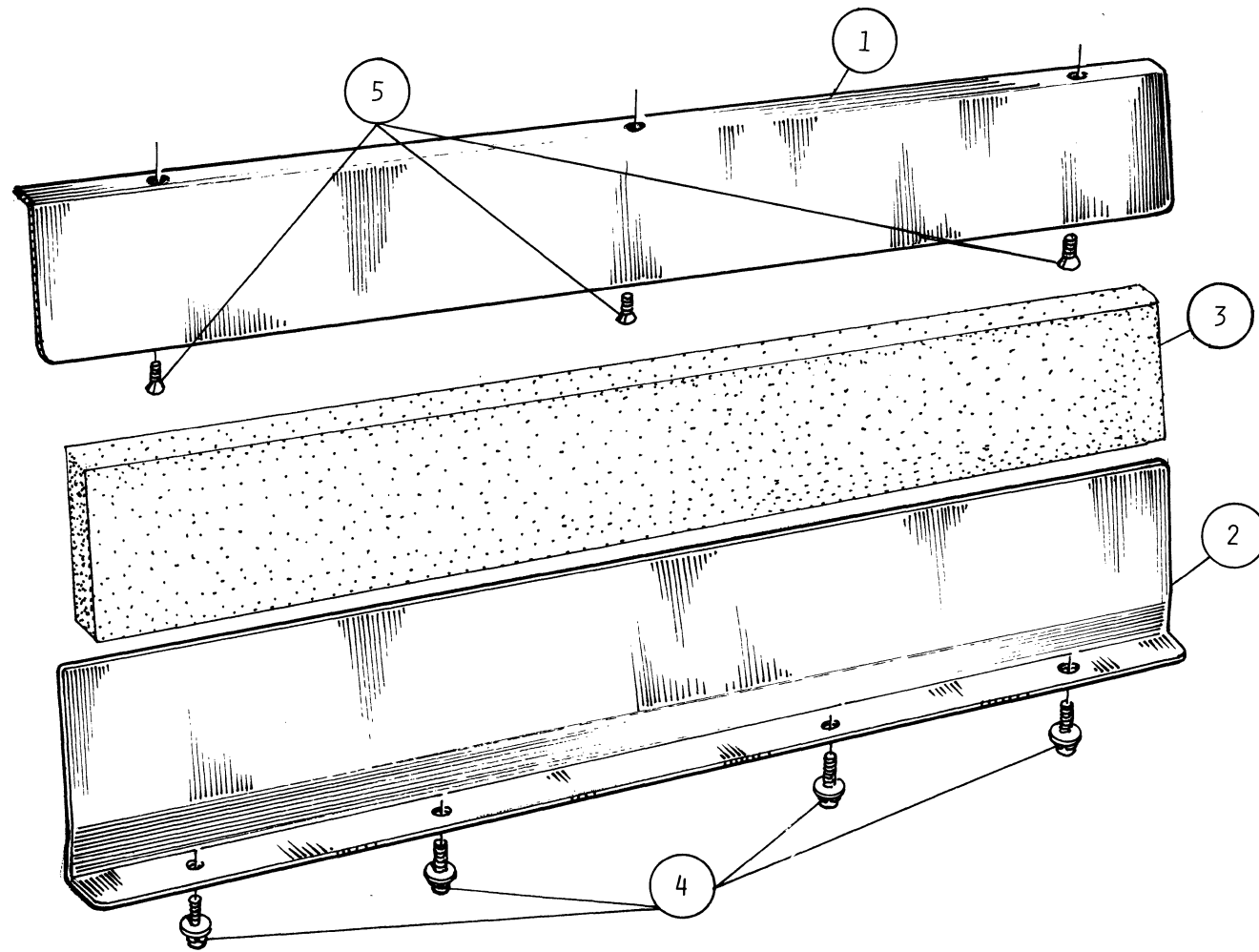


136-031598-001-A Paper Cutter Assembly  
(Option)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722826-001-A	Cutter Bracket	1
2	136-722826-002-A	Cutter Bracket	1
3	136-722825-A	Cutter	1
4	136-722829-A	Upper Pass Guide	1
5	136-722827-001-A	Guide Bracket	1
6	136-722827-002-A	Guide Bracket	1
7	136-722828-A	Under Pass Guide	1
8	805-300103-006-0	PL-CPIMSx3x6x3GF	10
9	805-330103-006-0	L-CPIMSx3x6x3GF	1
10	136-723000-A	Cutter Clamp Lever	1
11	136-710035-A	Eccentric Bushing	1
12	136-723003-A	Clamp Lever Spring	1

Figure 22 Paper Cutter Assembly

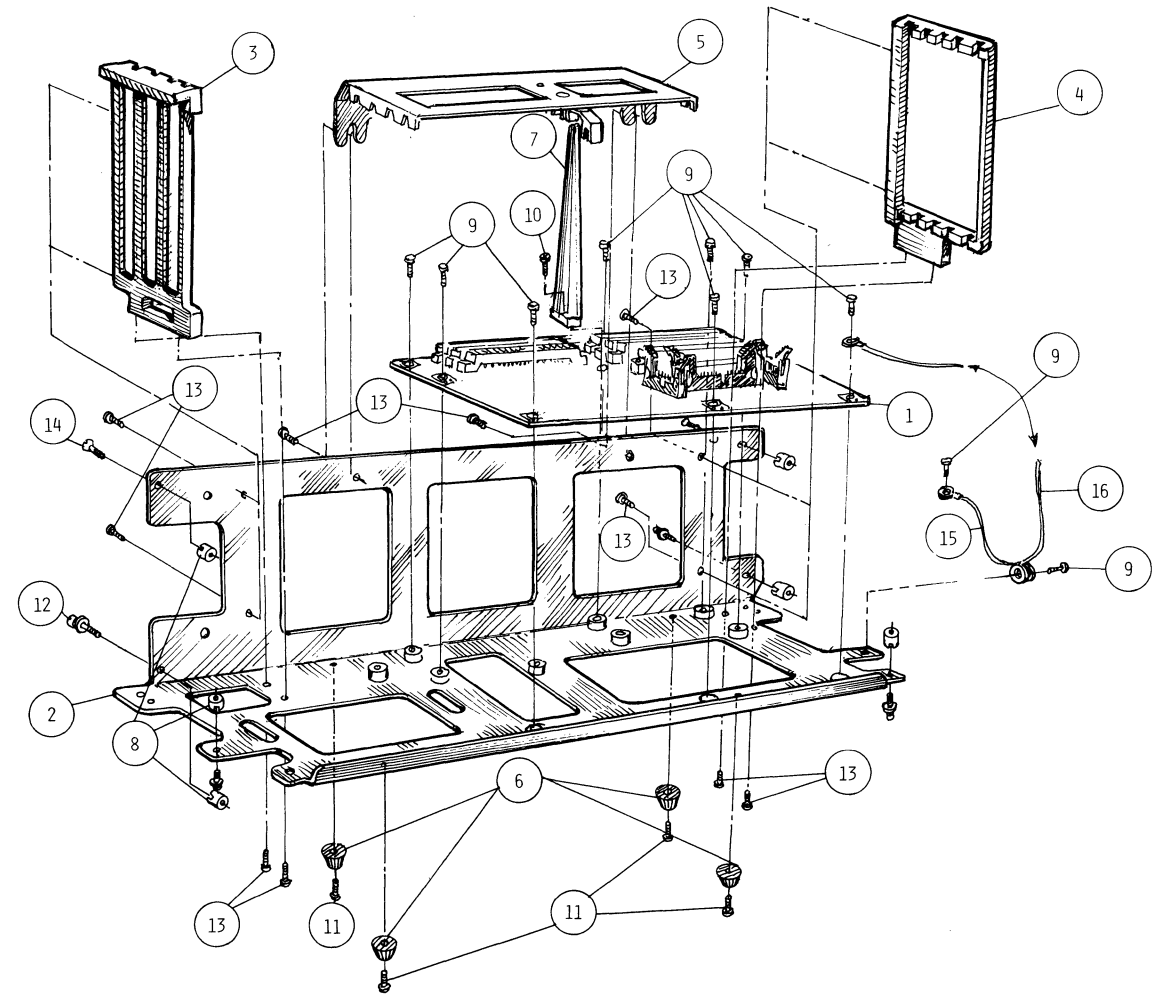




136-031604-A Blank Panel Assembly  
(Option)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722683-A	Blank Panel	1
2	136-722685-A	Plate	1
3	136-723256-A	Blank Damper	1
4	805-300003-008-0	PL-CPIMSx3x8x15BF	4
5	805-010003-006-0	CFIMSx3x6x15BF	3

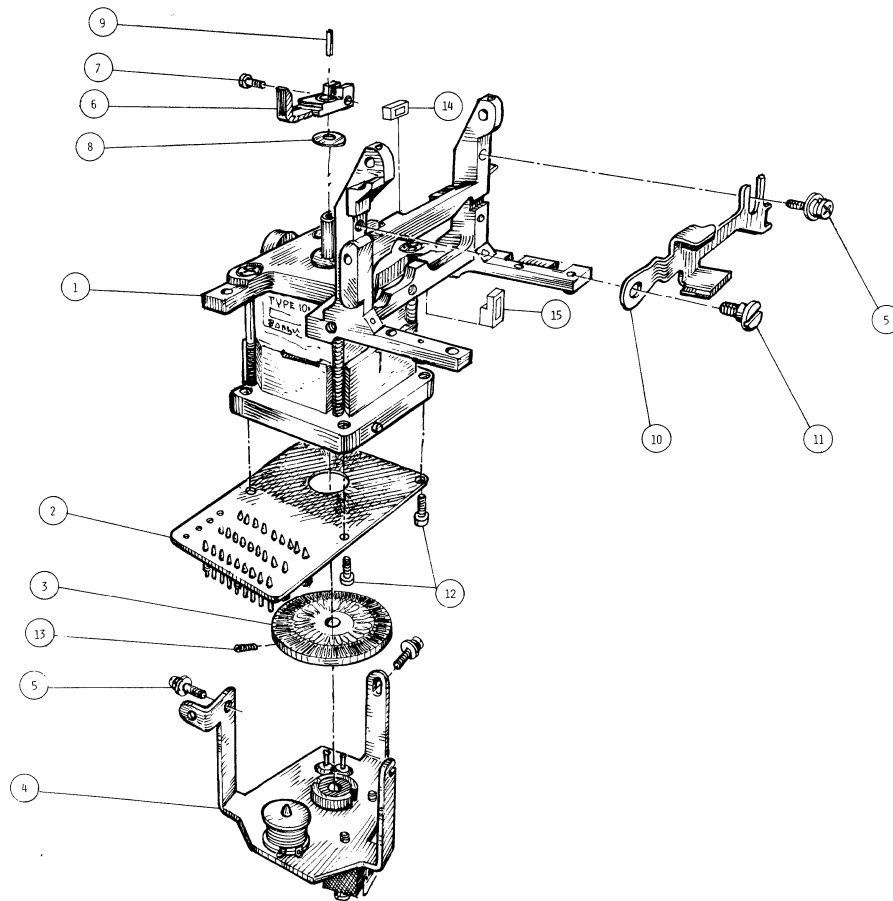
Figure 23 Blank Panel Assembly



136-031560-002-A Control Frame Assembly  
(See Figure 15 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-430872	Mother Board Assembly (See Figure 57 for Breakdown)	1
2	136-723200-A	Base Chassis Assembly (See Figure 59 for Breakdown)	1
3	136-723205-A	PCB Guide (L)	1
4	136-723206-A	PCB Guide (R)	1
5	136-723207-A	PCB Holder Assembly (See Figure 60 for Breakdown)	1
6	808-814000-417-A	Gum Cushion Type D LSR-17 (Washer)	4
7	136-723204-A	PCB Guide (S)	1
8	136-720164-A	Special Nut	6
9	805-300004-007-0	PL-CPIMSx4x7x15BF	11
10	805-300004-014-0	PL-CPIMSx4x14x15BF	1
11	805-300003-008-0	PL-CPIMSx3x8x15BF	4
12	805-300004-016-0	PL-CPIMSx4x16x15BF	4
13	805-300004-010-0	PL-CPIMSx4x10x15BF	10
14	805-010004-014-0	CFIMSx4x14x15BF	2
15	136-723216-001-A	Plug Cord Assembly	1
16	136-723216-002-A	Plug Cord Assembly	1

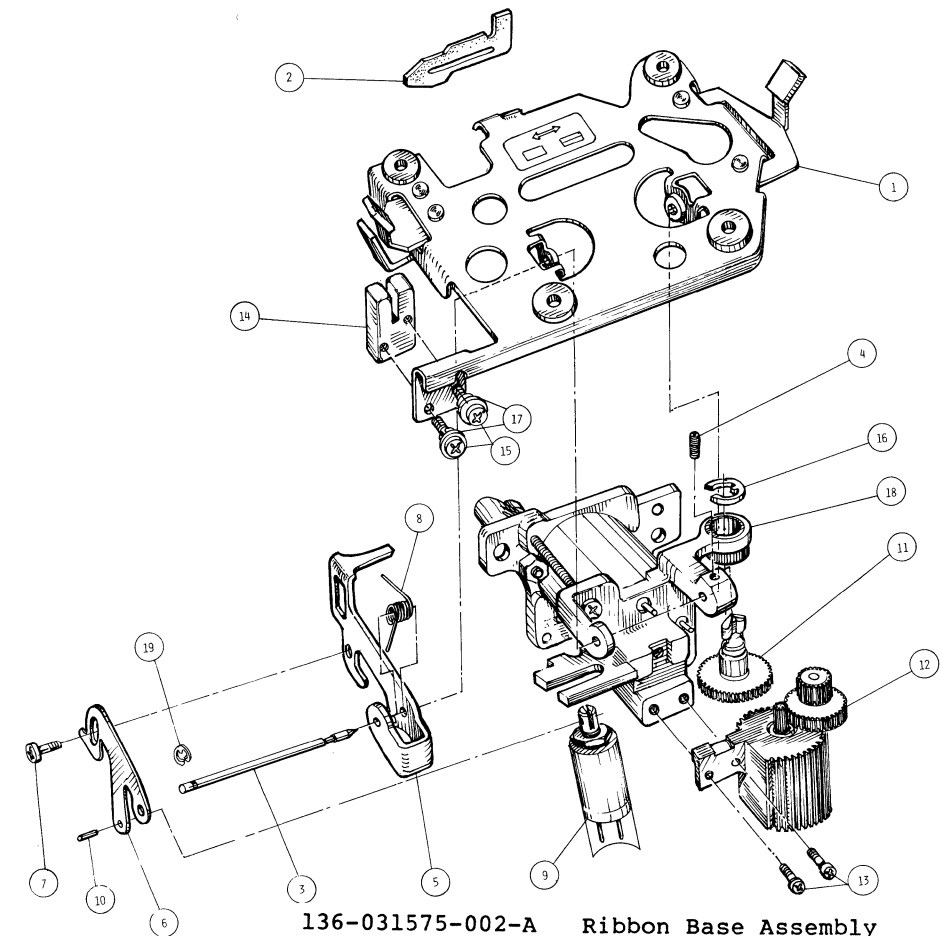
Figure 24 Control Frame Assembly



136-031573-A Rotate Motor Assembly  
(See Figure 4 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722845-A	DC Servo Motor Assembly (See Figure 61 for Breakdown)	1
2	136-720282-A	Inductosyn R Stator Assembly (See Figure 64 for Breakdown)	1
3	136-726509-A	Inductosyn R Rotor Assembly (See Figure 65 for Breakdown)	1
4	136-722847-A	Trans Mount Assembly (See Figure 62 for Breakdown)	1
5	805-300003-006-0	PL-CPIMSx3x6x15BF	3
6	136-722831-A	Torque Piece	1
7	805-000003-008-0	CPIMSx3x8x15BF	1
8	136-712007-A	Shim	1
9	136-712380-A	Oil Felt	1
10	136-722848-A	Ribbon Base Stopper Assembly	1
11	136-722838-A	Special Screw	1
12	805-000025-006-0	CPIMSx2.5x6x15BF	4
13	808-802002-303-A	Socket Screw	1
14	136-724636-A	Vertical Stopper A	1
15	136-724637-A	Vertical Stopper B	1

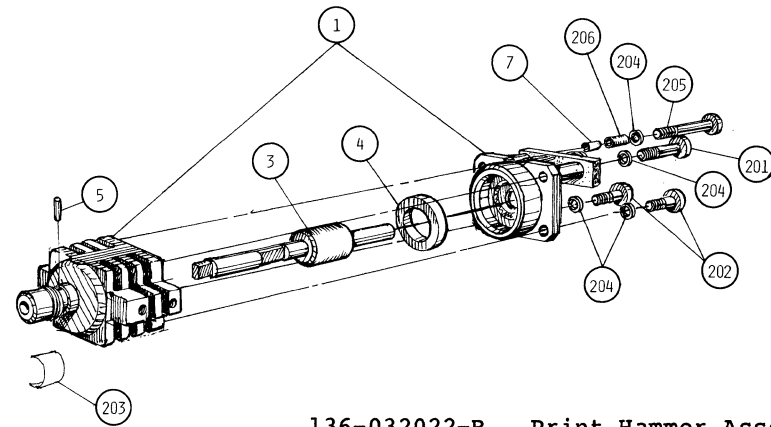
Figure 25 Rotate Motor Assembly



136-031575-002-A Ribbon Base Assembly  
(See Figure 4 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-720280-GRP-A	Ribbon Base Subassembly (See Figure 66 for Breakdown)	1
2	136-720266-A	Ribbon Mode Slider	1
3	136-720258-A	Ribbon Base Pivot	1
4	808-802002-304-A	Socket Screw	1
5	136-722832-A	Ribbon Change Arm A	1
6	136-722833-A	Ribbon Change Arm B	1
7	805-300003-005-0	PL-CPIMSx3x6x15BF	1
8	136-720270-A	Ribbon Change Spring	1
9	804-020195-A	DC Solenoid (RC)	1
10	803-010020-006-0	Spring Pin	1
11	136-722841-A	Torque Shaft Assembly (See Figure 67 for Breakdown)	1
12	136-722844-A	Ribbon Drive Assembly (See Figure 68 for Breakdown)	1
13	805-310003-008-0	SL-CPIMSx3x8x15BF	2
14	804-041103-A	Magnetic Sensor Switch	1
15	805-300025-004-0	PL-CPIMSx2.5x4x15BF	2
16	803-010030-050-0	E Ring	1
17	808-835000-004-A	Screw Lock	AR
18	136-031574-GRP-A	Vertical Magnet Assembly (See Figure 69 for Breakdown)	1
19	803-010030-024-0	E Ring	1

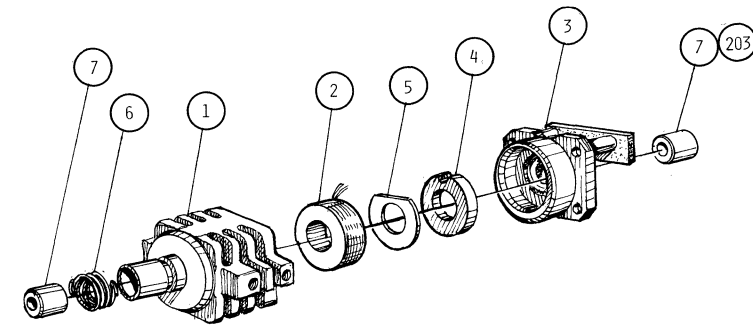
Figure 26 Ribbon Base Assembly



136-032022-B Print Hammer Assembly  
(See Figure 4 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-032023-A	Print Hammer Subassembly (See Figure 27B for Breakdown)	1
3	136-725551-B	Magnet Plunger Assembly	1
4	803-020015-002-A	Permanent Magnet	1
5	136-712529-A	Roll Pin	1
7	136-727032-A	Cable Clamp	1
201	805-330002-012-0	L-CPIMSx2x12x15BF	1
202	805-330002-006-0	L-CPIMSx2x6x15BF	2
203	804-080006-A	Label	1
204	808-835000-004-A	Screw Lock 222	AR
205	805-330002-016-0	L-CPIMSx2x16x15BF	1
206	804-030143-040-A	Shrinkage Tube	0.006

Figure 27A Print Hammer Assembly



136-032023-B Print Hammer Subassembly  
(See Figure 27A for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-725541-A	Hammer Case	1
2	136-725543-B	Magnet Coil Assembly	1
3	136-725547-A	Stopper Assembly	1
4	136-725542-B	Hammer Base	1
5	136-725546-A	Isolate Sheet	1
6	136-712528-A	Spring	1
7	808-805009-A	Dry Sleeve Bearing	2
203	804-030006-A	Adhesive Material	AR

Figure 27B Print Hammer Subassembly

136-031579-002-A Carriage Cable Assembly  
(See Figure 4 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
14	136-720271-001-A	Cable Guard Spring	1
15	136-720271-002-A	Cable Guard Spring	1
17	136-720583-A	Spring Clamp	2

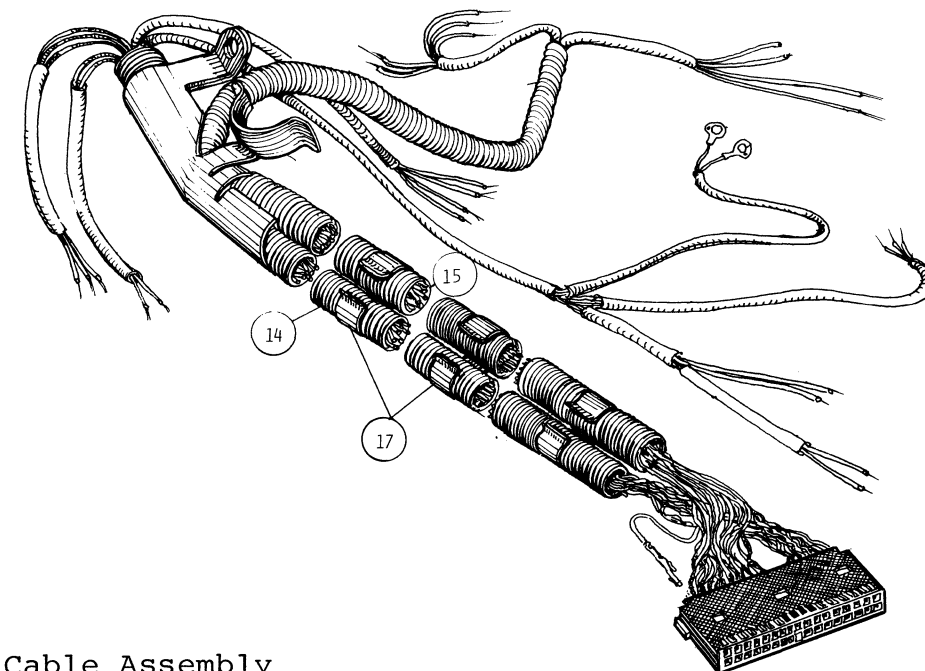
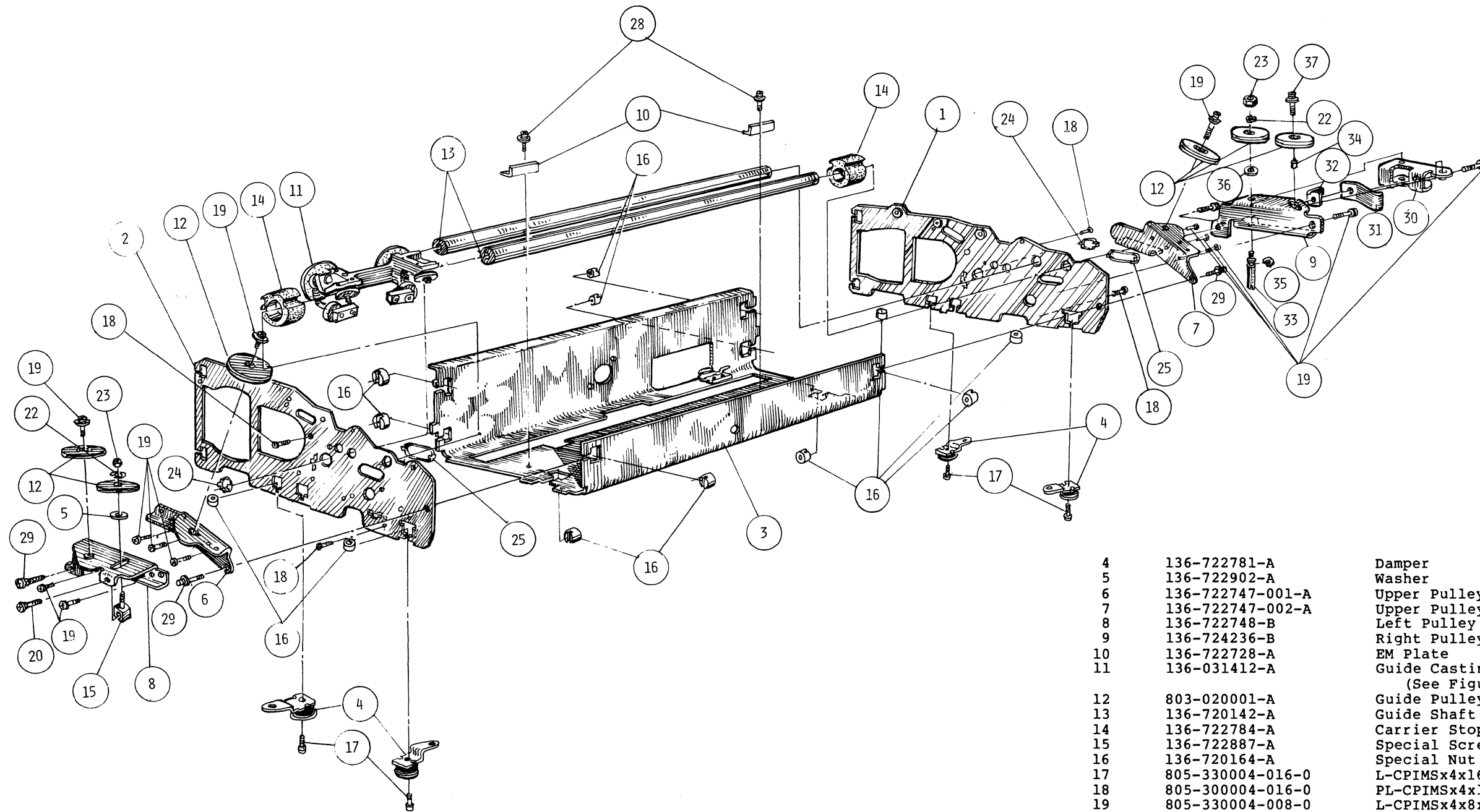


Figure 28 Carriage Cable Assembly

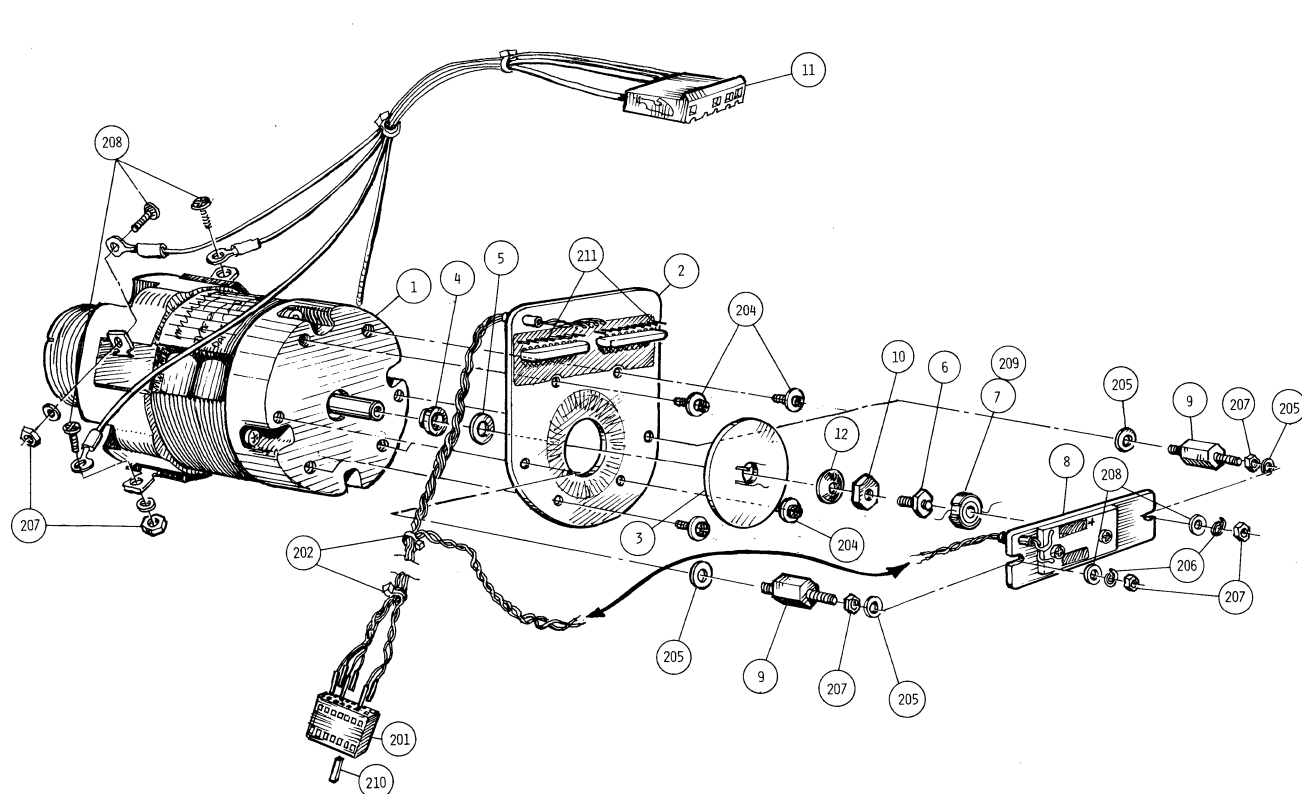


136-031581-A Frame Assembly  
(See Figure 5 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722875-001-B	Side Frame Assembly (See Figure 71 for Breakdown)	1
2	136-722875-002-B	Side Frame Assembly (See Figure 72 for Breakdown)	1
3	136-722900-A	Base Frame Assembly (See Figure 70 for Breakdown)	1

4	136-722781-A	Damper	4
5	136-722902-A	Washer	1
6	136-722747-001-A	Upper Pulley Bracket	1
7	136-722747-002-A	Upper Pulley Bracket	1
8	136-722748-B	Left Pulley Bracket	1
9	136-724236-B	Right Pulley Bracket	1
10	136-722728-A	EM Plate	2
11	136-031412-A	Guide Casting Assembly (See Figure 63 for Breakdown)	1
12	803-020001-A	Guide Pulley	6
13	136-720142-A	Guide Shaft	2
14	136-722784-A	Carrier Stopper	2
15	136-722887-A	Special Screw	1
16	136-720164-A	Special Nut	12
17	805-330004-016-0	L-CPIMSx4x16x15BF	4
18	805-300004-016-0	PL-CPIMSx4x16x15BF	4
19	805-330004-008-0	L-CPIMSx4x8x15BF	16
20	805-000004-025-0	CPIMSx4x25x15BF	1
22	805-622004-0	#2STLWx4x15BF	2
23	805-500004-0	AHEXINx4x15BF	2
24	136-723436-A	Protect Bushing	2
25	136-722919-A	Protect Bushing	2
28	805-300004-008-0	PL-CPIMSx4x8x15BF	2
29	805-300004-020-0	PL-CPIMSx4x20x15BF	4
30	136-724229-B	Swing Arm	1
31	136-724230-A	Swing Arm Spring	1
32	136-724231-A	Special Nut	1
33	136-724232-A	Shoulder Screw	1
34	136-724233-A	Spacer	1
35	803-010030-050-0	E-50	1
36	805-610004-0	PIWx4x15BF	1
37	805-330004-014-0	L-CPIMSx4x14x15BF	1

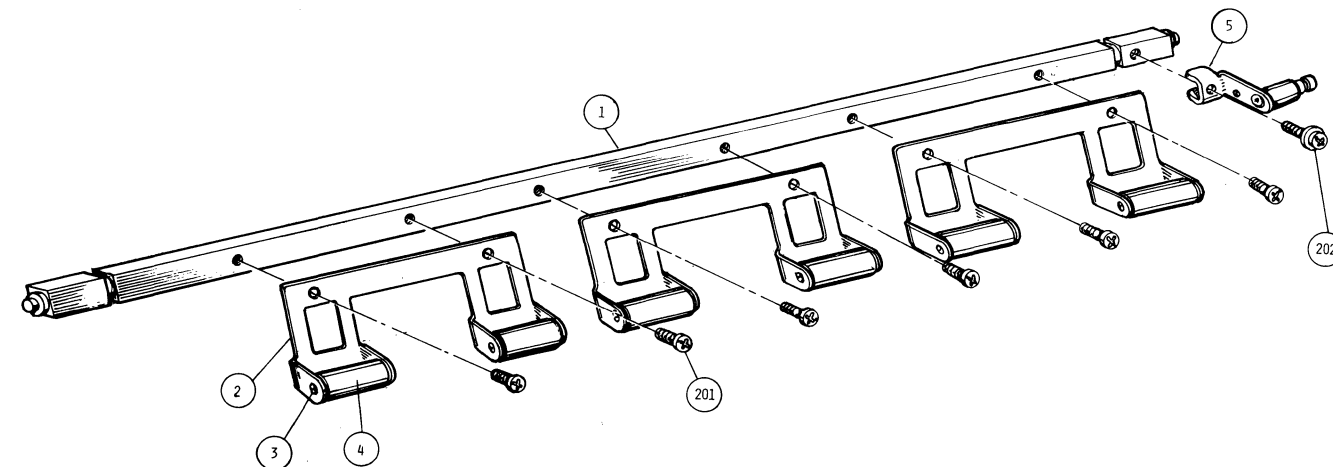
Figure 29 Frame Assembly



136-031583-A Spacing Motor Assembly  
(See Figure 5 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-720219-A	Spacing Motor Subassembly (See Figure 73 for Breakdown)	1
2	136-720220-A	Spacing Stator Assembly (See Figure 74 for Breakdown)	1
3	136-720221-A	SP Rotor Assembly (See Figure 75 for Breakdown)	1
4	136-720393-A	Spacer Number 1	1
5	136-720141-001-A	Spacer Number 2	4
6	136-720146-A	SP Trans Mount	1
7	804-020116-003-A	Trans Assembly	1
8	136-720222-A	Spacing Transformer Assembly (See Figure 76 for Breakdown)	1
9	136-720144-A	Stud Screw	2
10	808-802007-0	SP Nut	1
11	136-040481-A	Spacing Motor Cable	1
12	808-802005-208-A	Washer	1
201	808-955111-281-A	Connector	1
202	808-814004-923-A	Cable Clamp	2
204	805-32003-006-0	P-CPIMSx3x6x15BF	4
205	805-610003-0	PIWAx3x15BF	6
206	805-622003-0	#2STLWAx3x15BF	2
207	805-500003-0	AHEXINx3x15xBF	8
208	805-330003-0	L-CPIMSx3x6x15BF	4
210			1
211	804-173001-004-A	AWG #30	AR

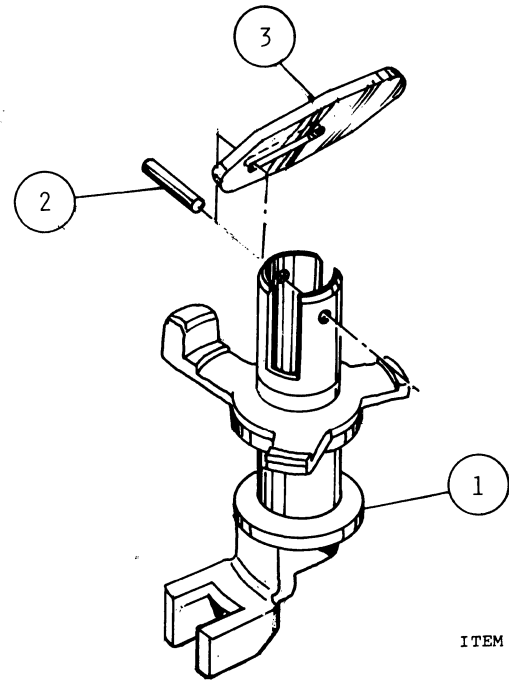
Figure 30 Spacing Motor Assembly



136-723002-A Pressure Assembly  
(See Figure 5 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722755-A	Pressure Shaft	1
2	136-722754-A	Pressure Spring	3
3	136-722753-A	Roller Shaft	6
4	136-712385-001-A	Roller Assembly	6
5	136-722878-A	Pressure Arm Assembly	1
201	805-330003-005-0	L-CPIMSx3x5x15BF	6
202	805-300003-008-0	PL-CPIMSx3x8x15BF	1

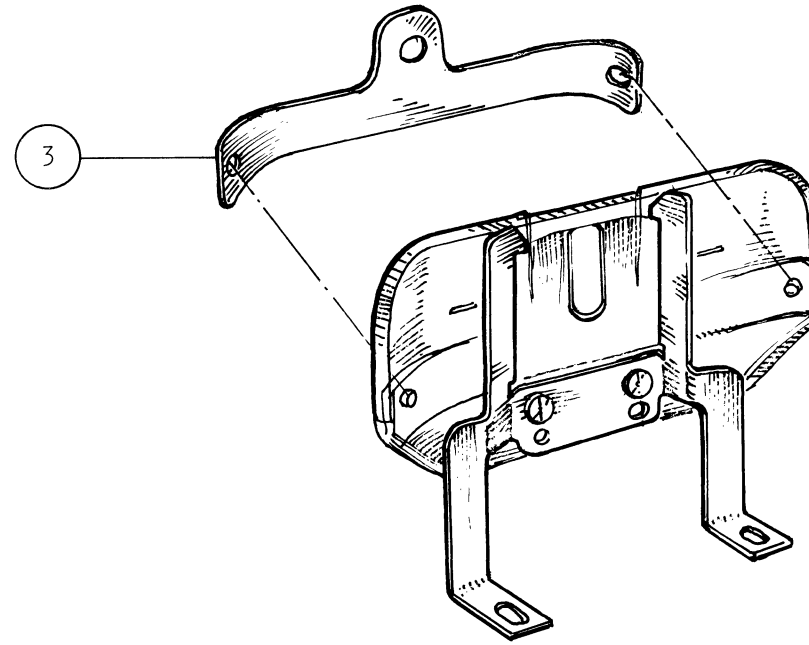
Figure 31 Pressure Assembly



136-031577-A Vertical Slide Sleeve Assembly  
(See Figure 4 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722890-A	Slide Sleeve Assembly	1
2	136-710113-B	Pivot Pin	1
3	136-710114-B	Lock Piece (Mold)	1

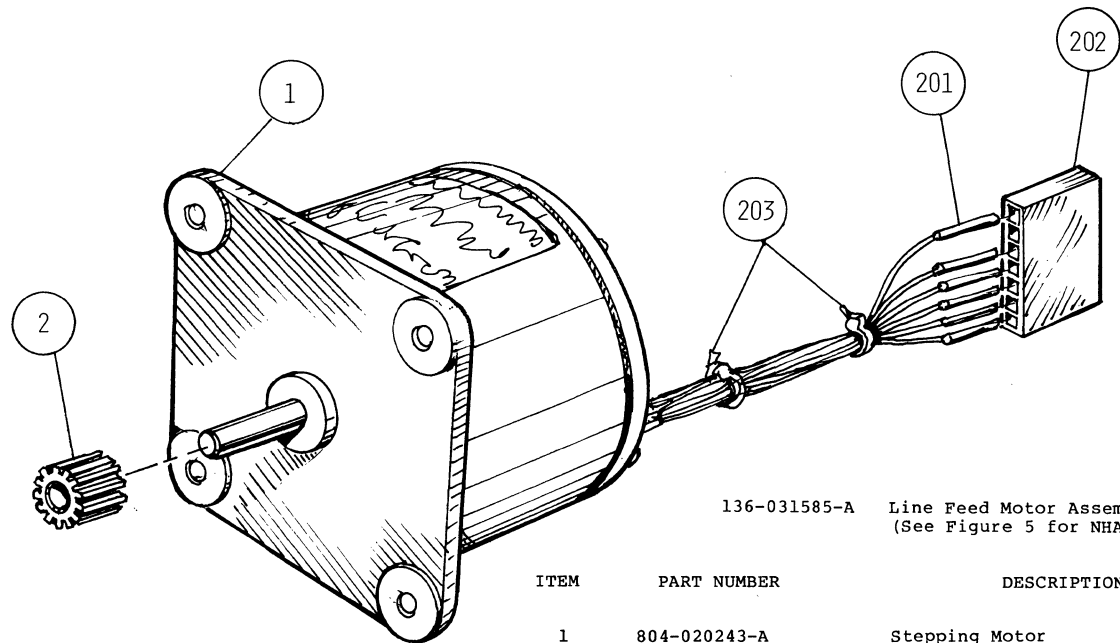
Figure 32 Vertical Slide Sleeve Assembly



136-720571-A Card Holder Assembly  
(See Figure 4 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
3	136-720574-A	Mylar Sheet	1

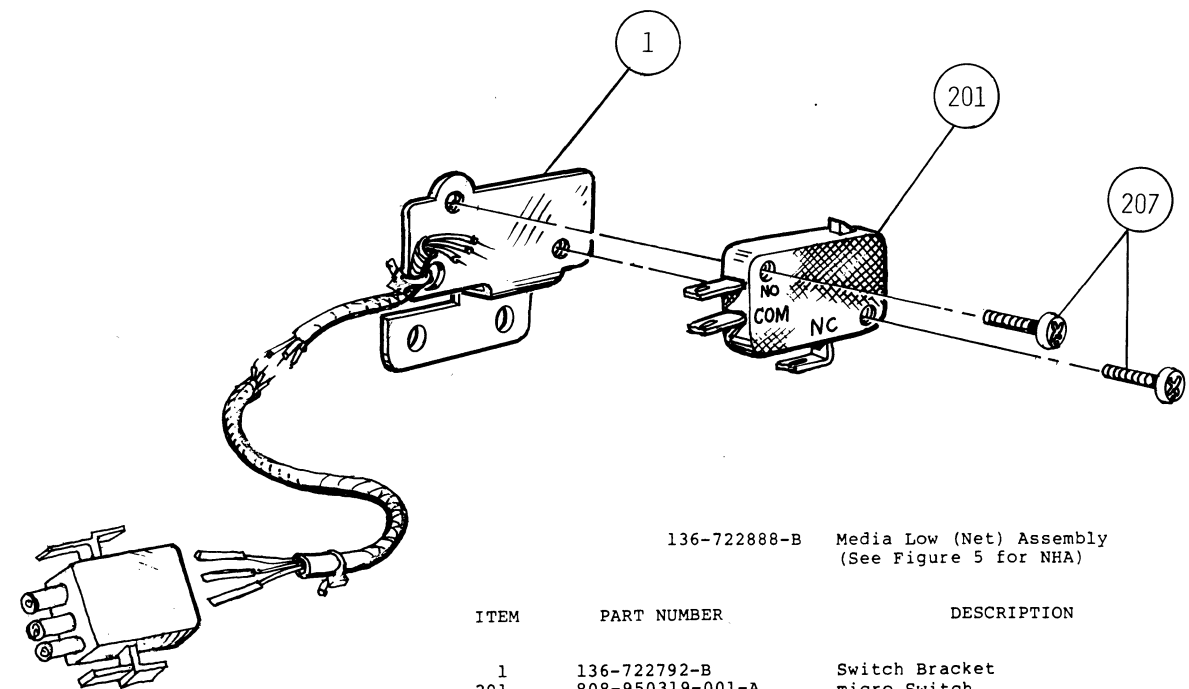
Figure 33 Card Holder Assembly



136-031585-A Line Feed Motor Assembly  
(See Figure 5 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	804-020243-A	Stepping Motor	1
2	136-722722-A	LF Motor Gear	1
201	808-955150-101-A	Terminal	6
202	808-955150-004-A	Connector	1
203	808-814004-923-A	Cable Clamp	1

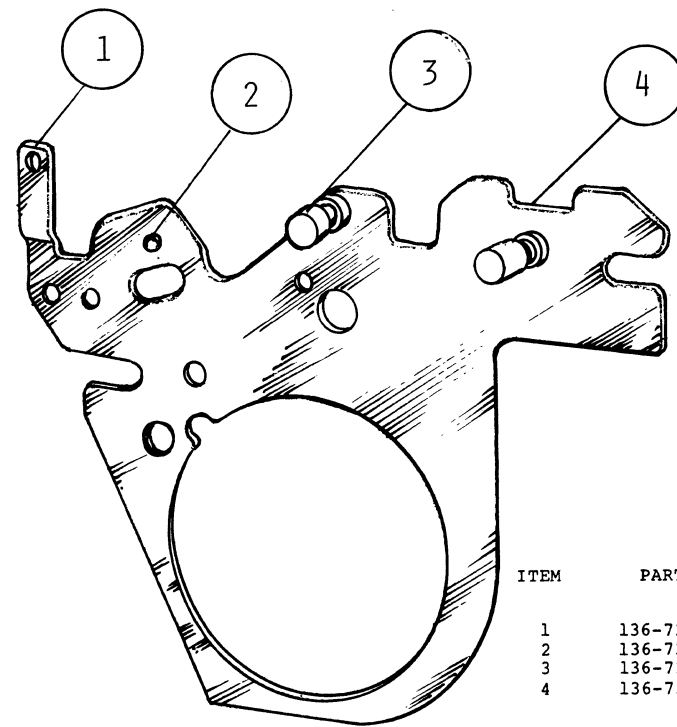
Figure 34 Line Feed Motor Assembly



136-722888-B Media Low (Net) Assembly  
(See Figure 5 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722792-B	Switch Bracket	1
201	808-950319-001-A	micro Switch	1
207	805-310003-014-0	SL-CPIMSx3x14x15BF	2

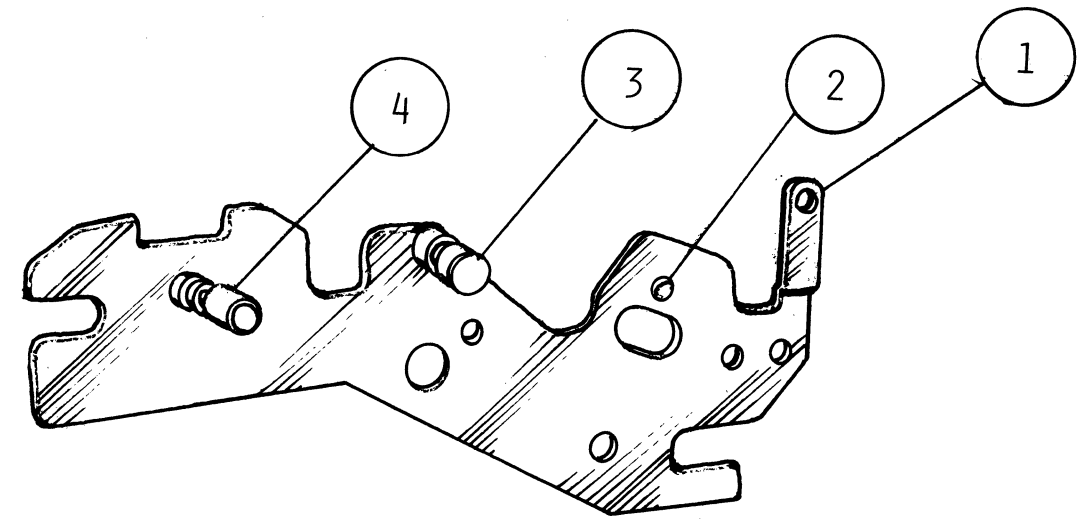
Figure 35 Media Low (Net) Assembly



136-722871-001-A LF Frame Assembly  
(See Figure 5 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722727-001-A	Line Feed Frame	1
2	136-722768-A	Platen Hook	1
3	136-722761-A	Mount Stud	1
4	136-722725-001-A	Lever Stud	1

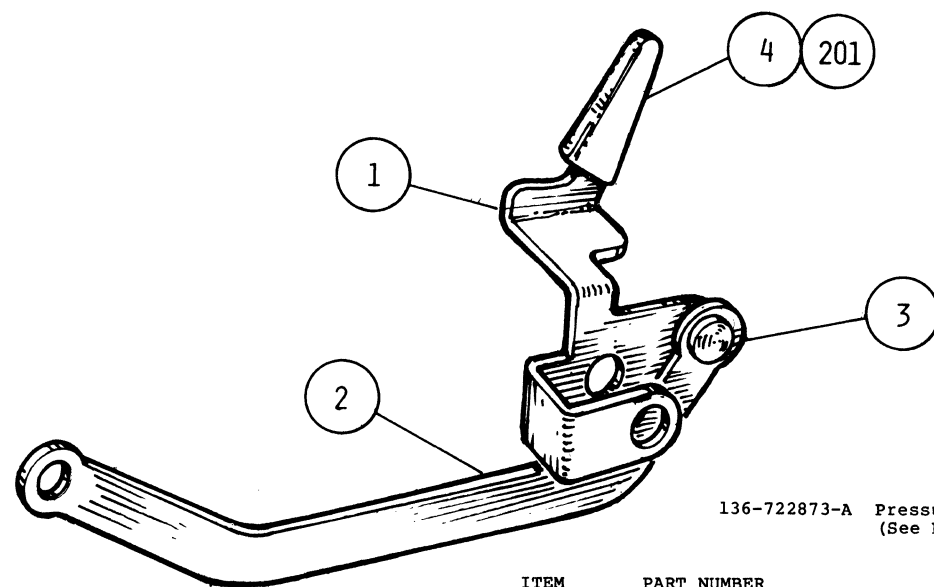
Figure 36 LF Frame Assembly



136-722871-002-A LF Frame Assembly  
(See Figure 5 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722727-002-A	Line Feed Frame	1
2	136-722768-A	Platen Hook	1
3	136-722761-A	Mount Stud	1
4	136-722725-002-A	Lever Stud	1

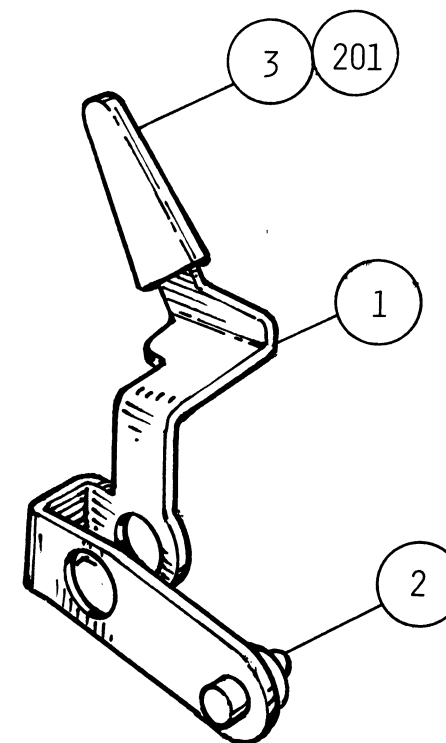
Figure 37 LF Frame Assembly



136-722873-A Pressure Lever Assembly  
(See Figure 5 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722718-A	Pressure Lever	1
2	136-722719-A	P Connecting Arm	1
3	136-722717-A	Pressure Lever Pin	1
4	136-722904-A	Lever Cap	1
201	808-835000-001-A	Adhesive	AR

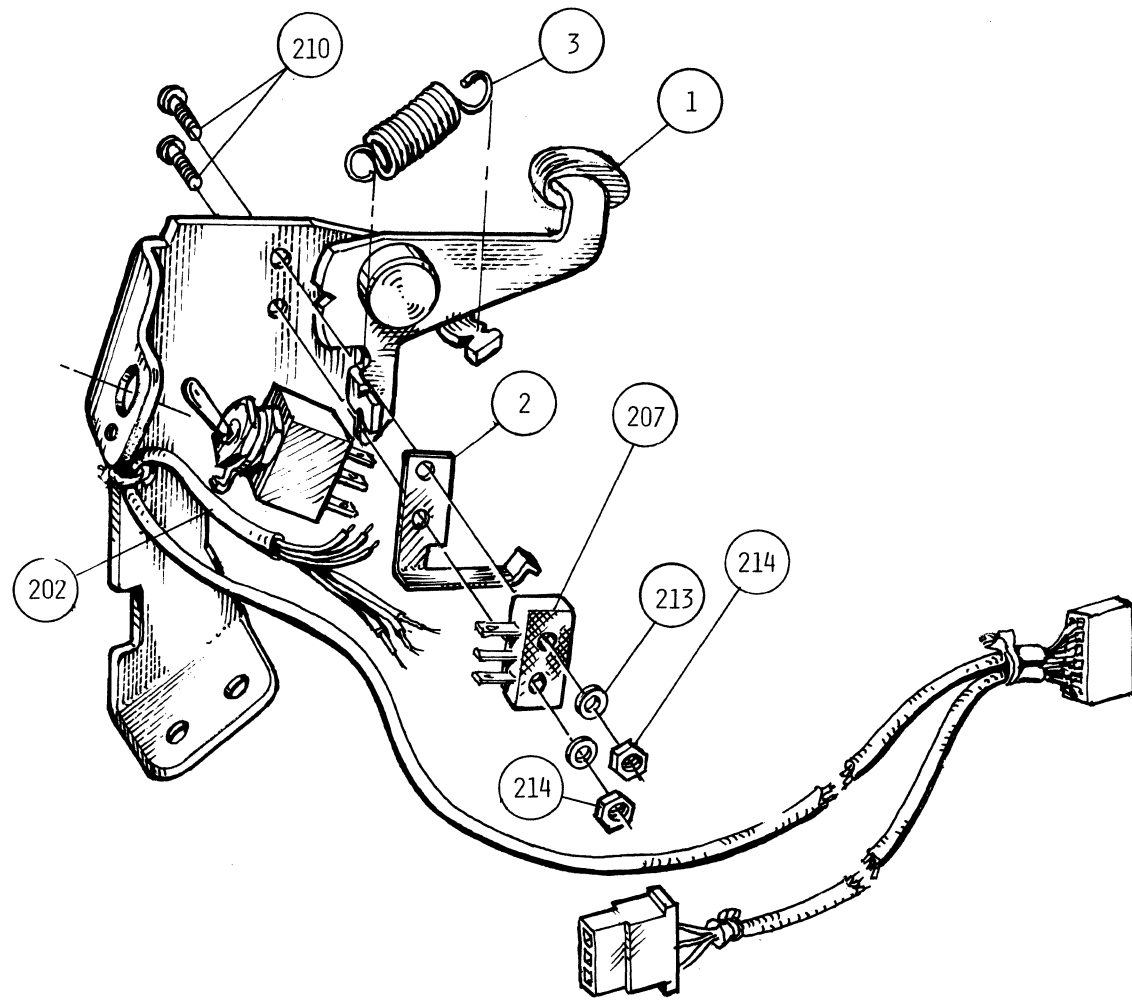
Figure 38 Pressure Lever Assembly



136-722872-A Control Lever Assembly  
(See Figure 5 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722745-A	Control Lever	1
2	136-722744-A	Detent Pin	1
3	136-722904-A	Lever Cap	1
201	808-835000-001-A	Adhesive	AR

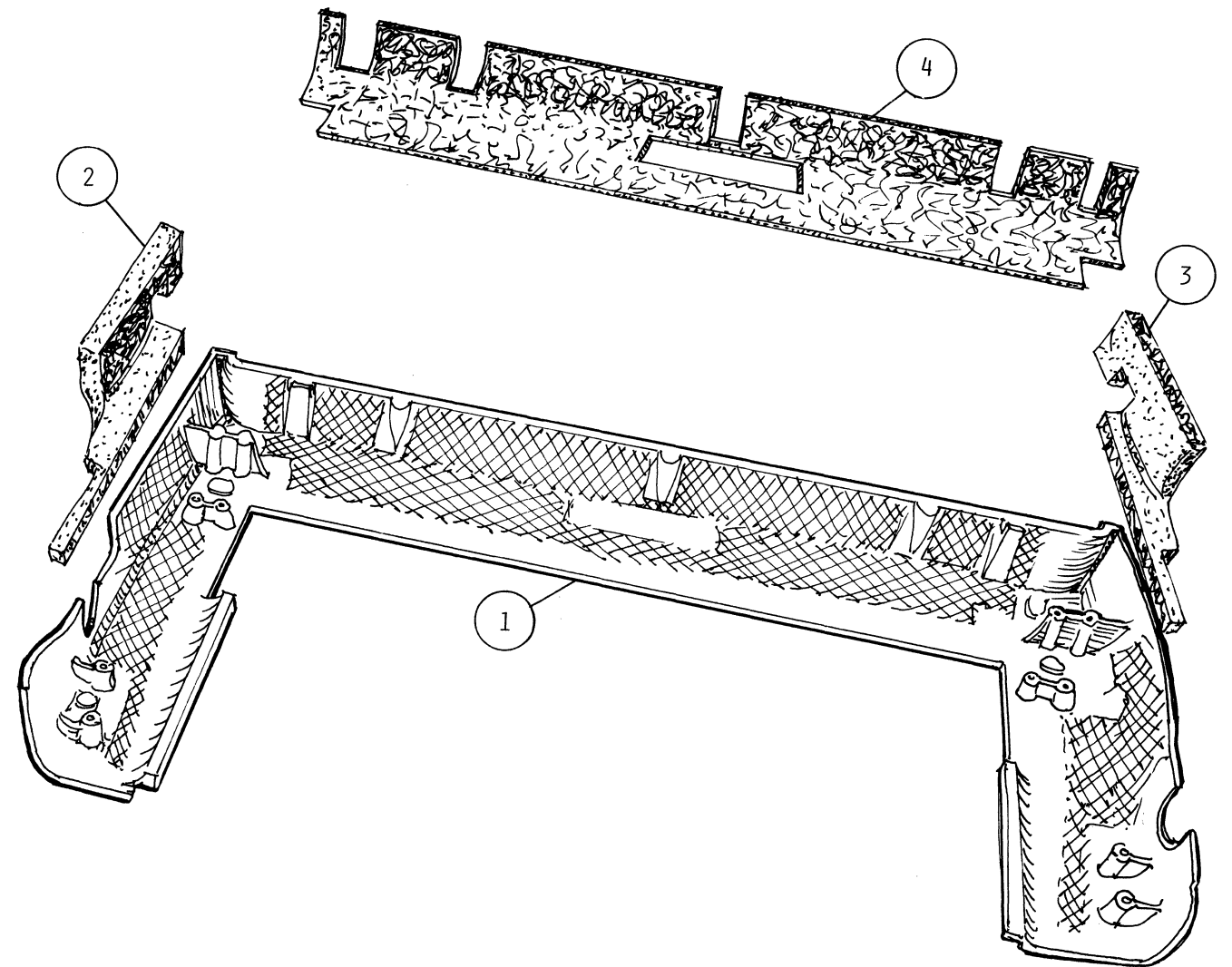
Figure 39 Control Lever Assembly



136-722885-A Switch Assembly  
(See Figure 5 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722884-A	Cover Switch Feeler Assembly (See Figure 77 for Breakdown)	1
2	136-722787-A	Switch Stopper Spring	1
3	136-722893-A	Cover Switch Spring	1
202	808-950314-005-A	Toggle Switch	1
207	808-950320-001-A	Micro Switch	1
210	805-000002-012-A	CPIMSx2x12x15BF	2
213	805-620002-0	#2STLWx2x15BF	2
214	805-500002-0	AHEXINx2x15BF	2

Figure 40 Switch Assembly

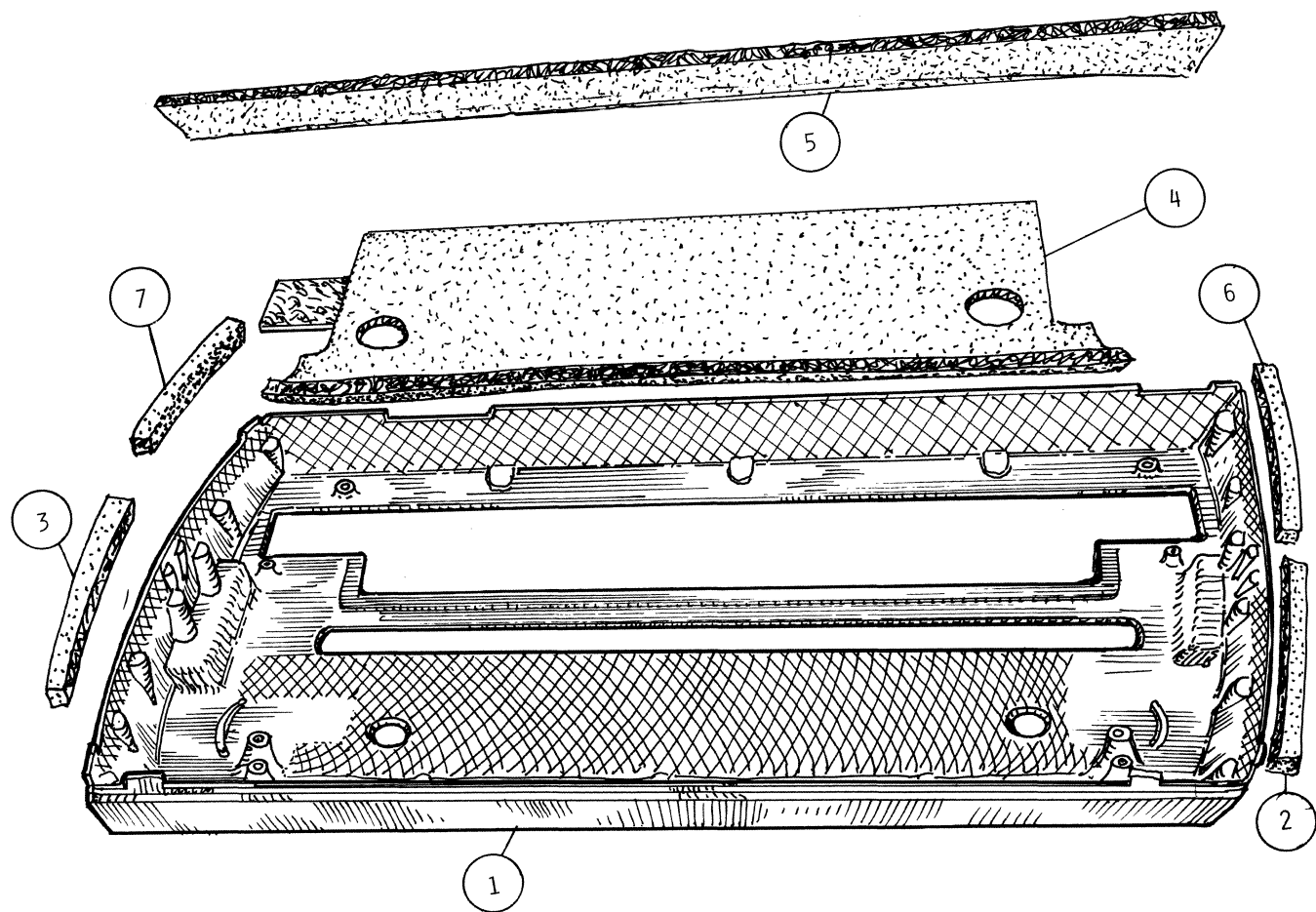


136-722708-001-A Top Cover Assembly  
(See Figures 8 & 9 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722705-001-A	Top Cover Painting	1
2	136-723257-001-A	Top Cover Damper (1)	1
3	136-723257-002-A	Top Cover Damper (1)	1
4	136-723258-A	Top Cover Damper (2)	1

Figure 41 Top Cover Assembly

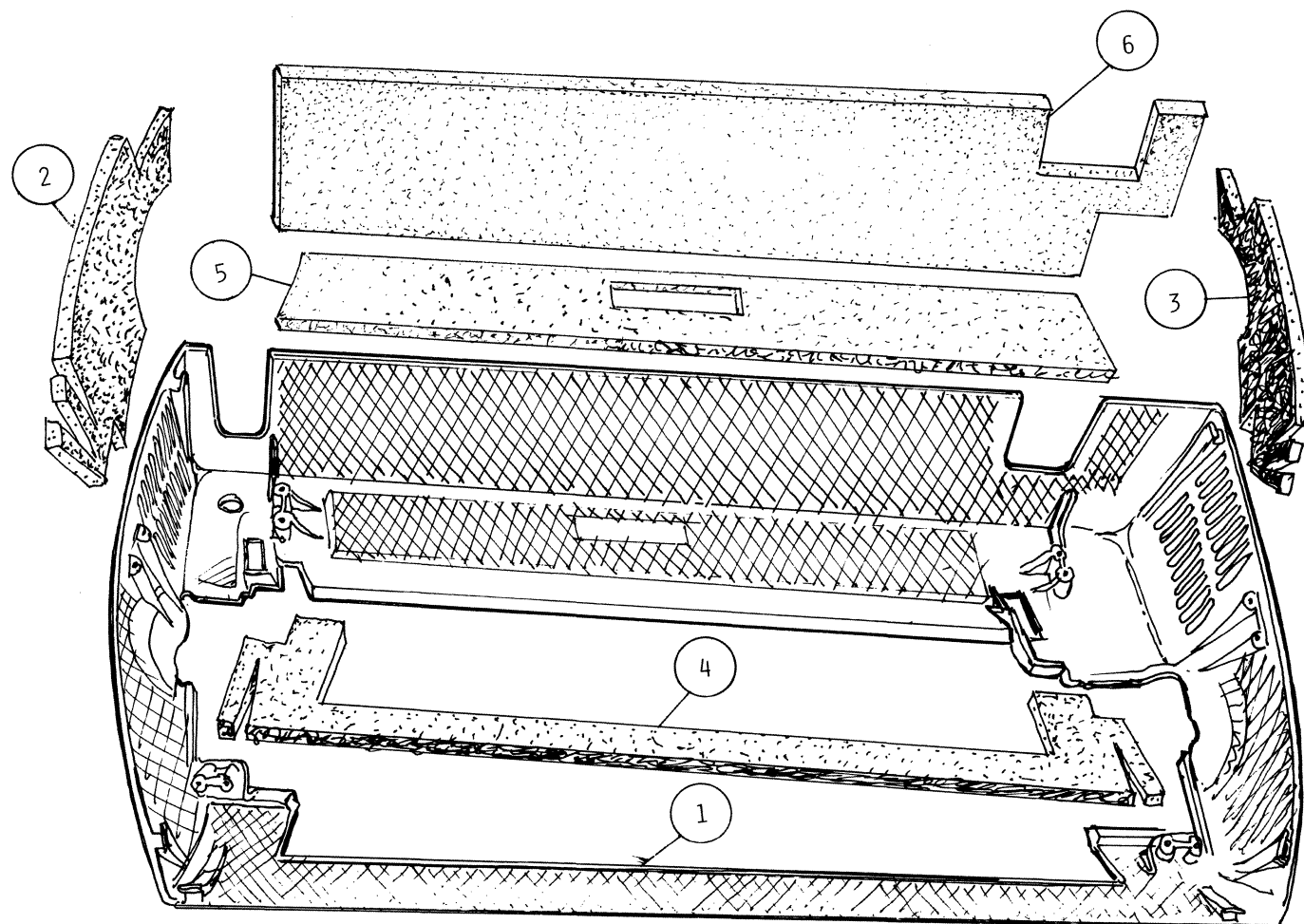




136-722706-001-A ROP Base Assembly  
(See Figure 8 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722703-001-A	ROP Base Painting	1
2	136-723251-001-A	ROP Base Damper (1)	1
3	136-723251-002-A	ROP Base Damper (1)	1
4	136-723252-A	ROP Base Damper (2)	1
5	136-721844-001-A	Base Damper K	1
6	136-721847-001-A	Base Damper N	1
7	136-721848-001-A	Base Damper O	1

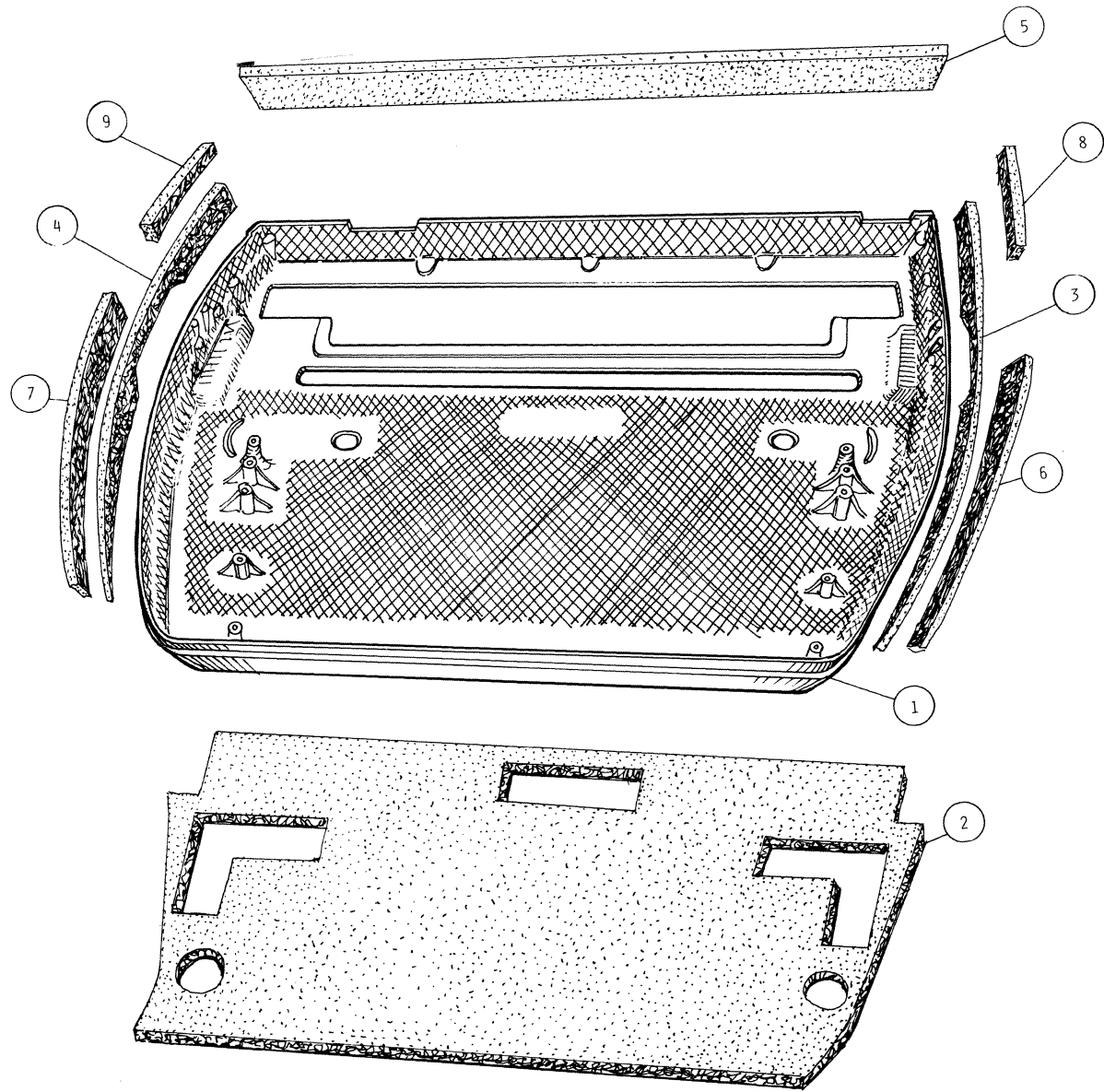
Figure 42 ROP Base Assembly



136-722707-001-A ROP Middle Cover Assembly  
(See Figure 8 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722704-001-A	ROP Middle Cover Painting	1
2	136-723254-001-A	ROP Middle Damper (1)	1
3	136-723254-002-A	ROP Middle Damper (1)	1
4	136-723255-A	ROP Middle Damper (2)	1
5	136-721836-001-A	Middle Damper C	1
6	136-721837-001-A	Middle Damper D	1

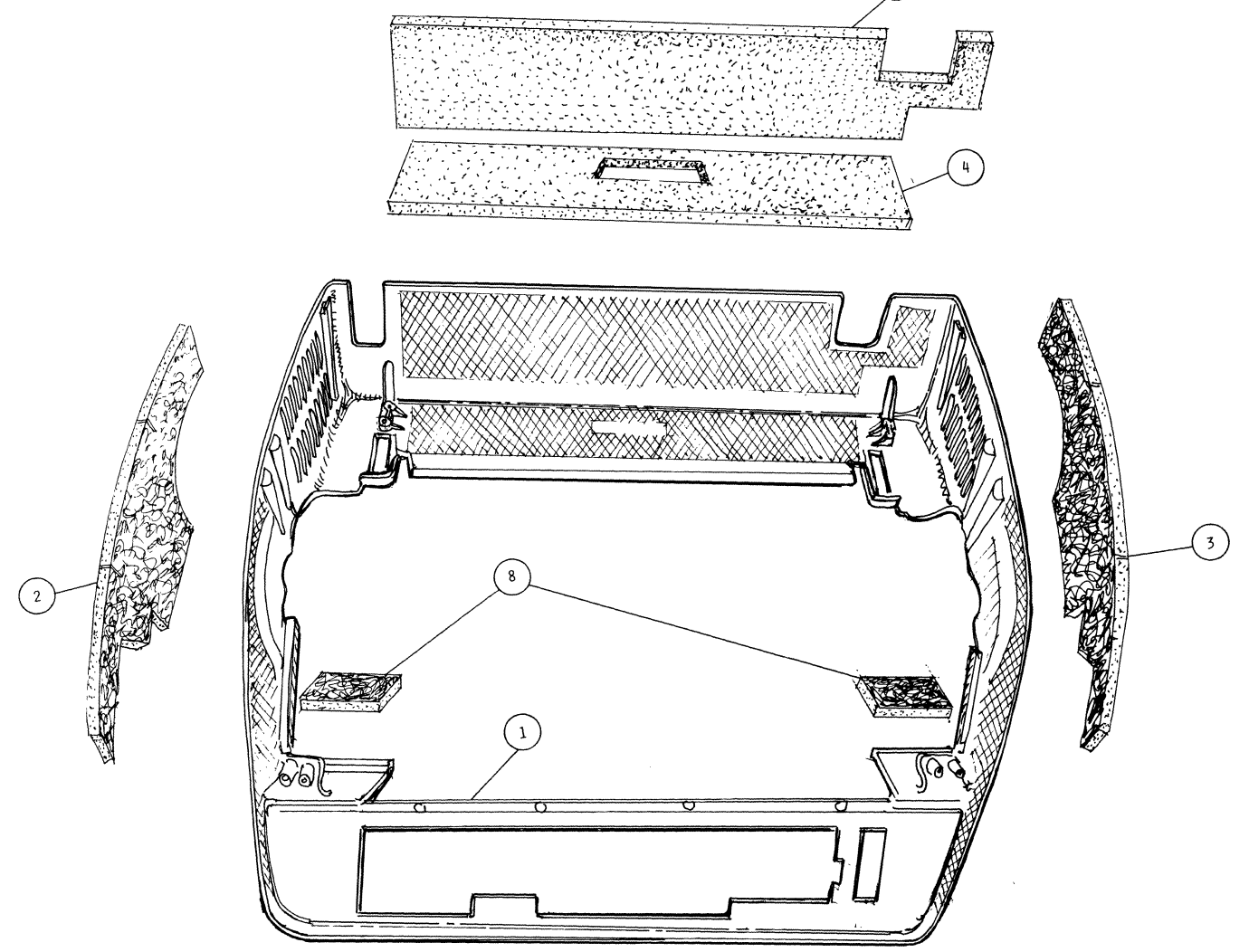
Figure 43 ROP Middle Cover Assembly



136-721814-001-A KSR Base Assembly  
(See Figure 9 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722654-001-A	KSR Base Painting	1
2	136-721841-001-A	KSR Base Damper H	1
3	136-721842-001-A	KSR Base Damper I	1
4	136-721843-001-A	KSR Base Damper J	1
5	136-721844-001-A	Base Damper K	1
6	136-721845-001-A	KSR Base Damper L	1
7	136-721846-001-A	KSR Base Damper M	1
8	136-721847-001-A	Base Damper N	1
9	136-721848-001-A	Base Damper O	1

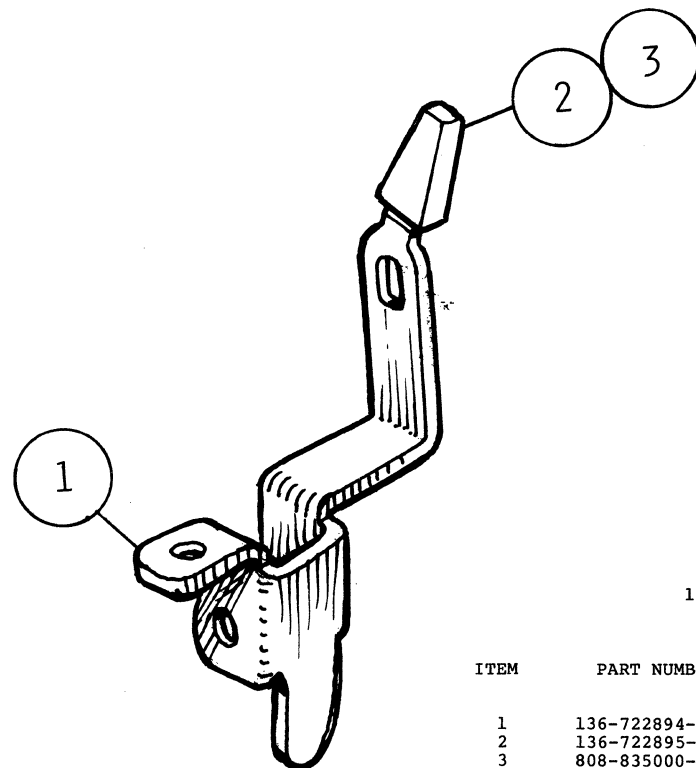
Figure 44 KSR Base Assembly



136-721815-001-A KSR Middle Cover Assembly  
(See Figure 9 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722656-001-A	KSR Middle Cover Painting	1
2	136-721834-001-A	KSR Middle Damper A	1
3	136-721835-001-A	KSR Middle Damper B	1
4	136-721836-001-A	Middle Damper C	1
5	136-721837-001-A	Middle Damper D	1
8	136-721840-001-A	KSR Middle Damper G	2

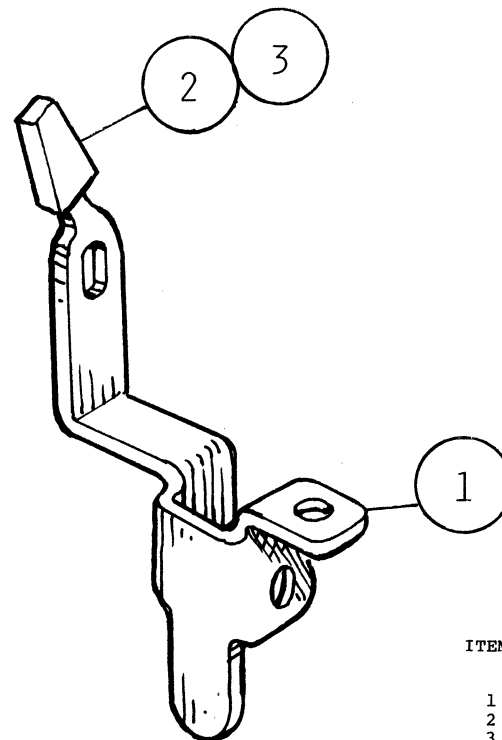
Figure 45 KSR Middle Cover Assembly



136-722896-001-A Bail Arm Assembly  
(See Figure 21 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722894-001-A	Bail Arm	1
2	136-722895-A	Bail Arm Cap	1
3	808-835000-001-A	Adhesive	AR

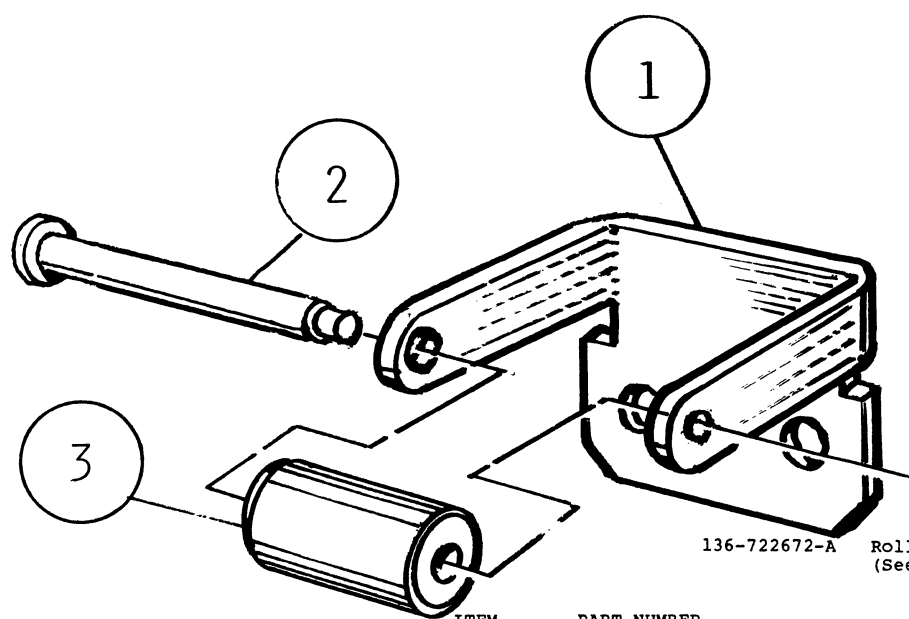
Figure 46 Bail Arm Assembly



136-722896-002-A Bail Arm Assembly  
(See Figure 21 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722894-002-A	Bail Arm	1
2	136-722895-A	Bail Arm Cap	1
3	808-835000-001-A	Adhesive	AR

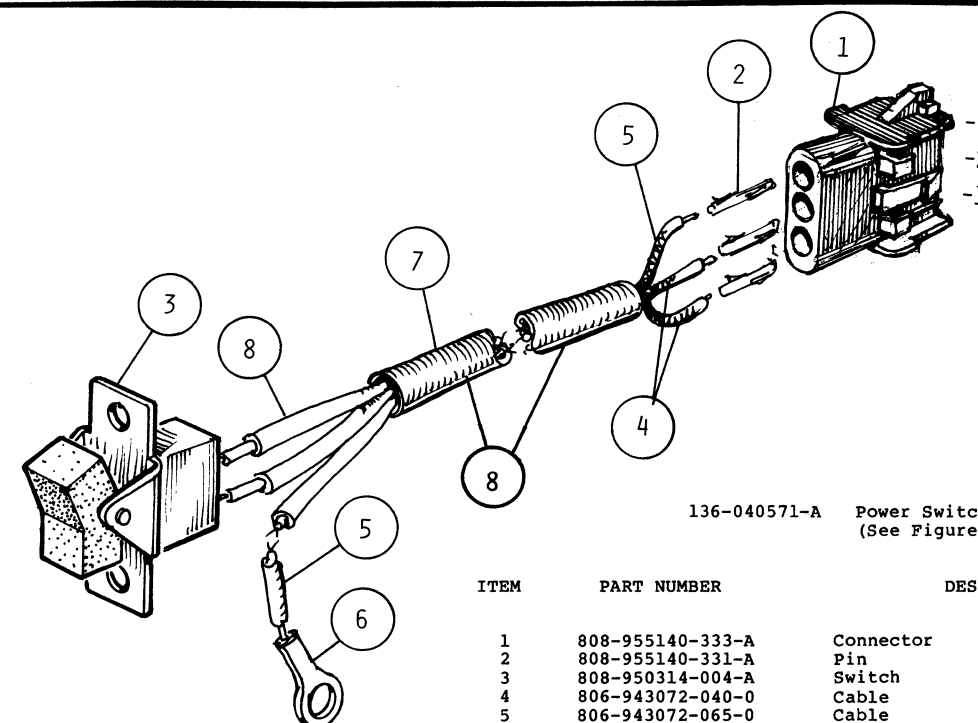
Figure 47 Bail Arm Assembly



136-722672-A Roller Assembly  
(See Figures 8 & 9 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722673-A	Roller Bracket	1
2	136-722674-A	Roller Pin	1
3	136-722675-A	Roller	1

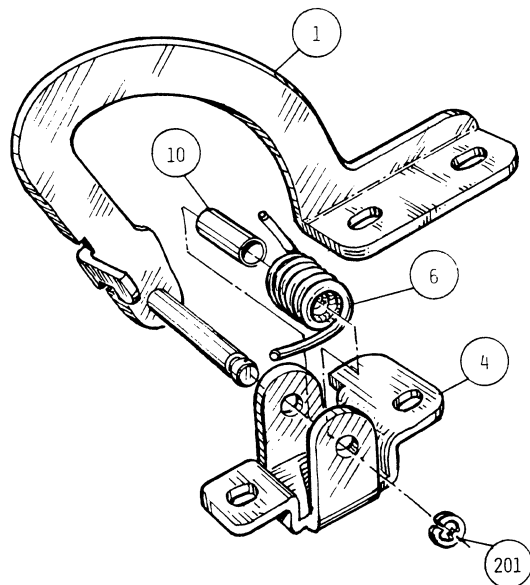
Figure 48 Roller Assembly



136-040571-A Power Switch Assembly  
(See Figure 17 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	808-955140-333-A	Connector	1
2	808-955140-331-A	Pin	3
3	808-950314-004-A	Switch	1
4	806-943072-040-0	Cable	1.5
5	806-943072-065-0	Cable	0.8
6	804-020012-114-B	Terminal	1
7	804-030155-010-0	IRRAX Tube	0.6
8	808-814004-923-A	Cable Clamp	0.1

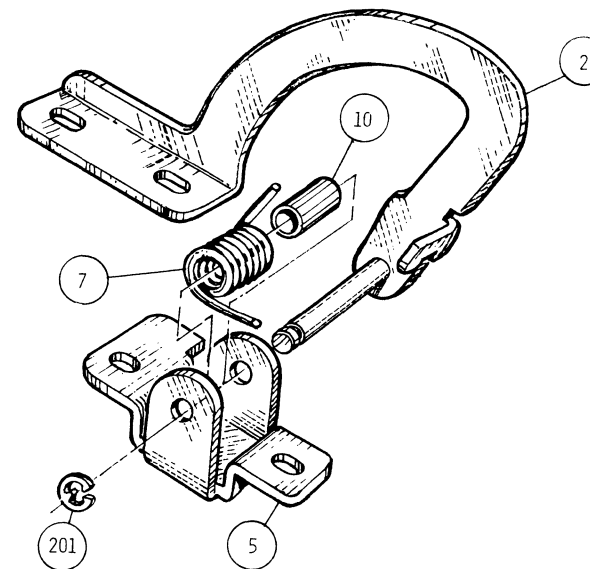
Figure 49 Power Switch Assembly



136-722660-011-A Arm Assembly  
(See Figures 8 & 9 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722690-001-A	Arm Subassembly	1
4	136-722663-001-A	Arm Bracket	1
6	136-722671-011-A	Torsion Spring	1
10	136-722681-B	Collar	1
201	803-010001-040-A	E Ring	1

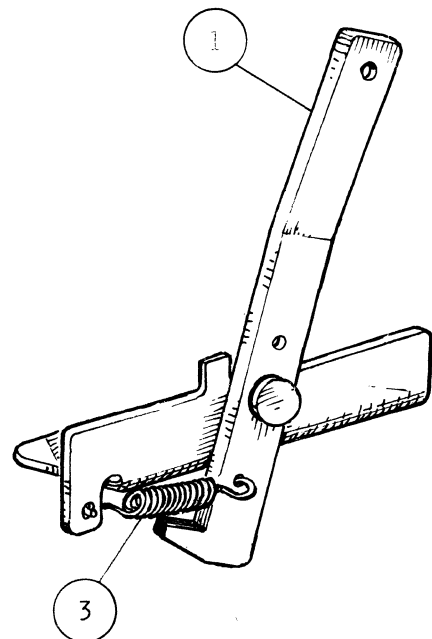
Figure 50 Arm Assembly



136-722660-012-A Arm Assembly  
(See Figures 8 & 9 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
2	136-722690-002-A	Arm Subassembly	1
5	136-722663-002-A	Arm Bracket	1
7	136-722671-012-A	Torsion Spring	1
10	136-722681-B	Collar	1
201	803-010001-040-A	E Ring	1

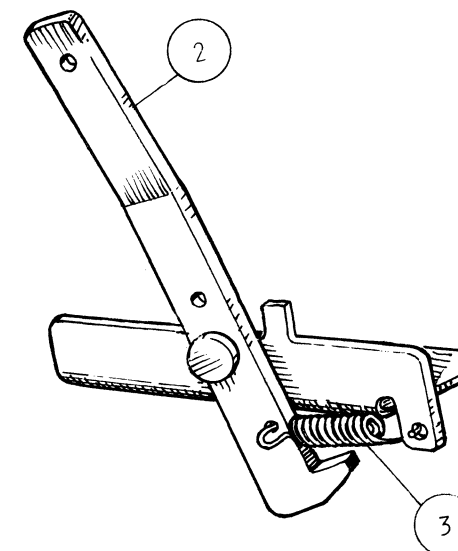
Figure 51 Arm Assembly



136-722664-001-A Lever Assembly  
(See Figures 8 & 9 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722691-001-A	Lever Subassembly	1
3	136-722669-A	Lever Spring	1

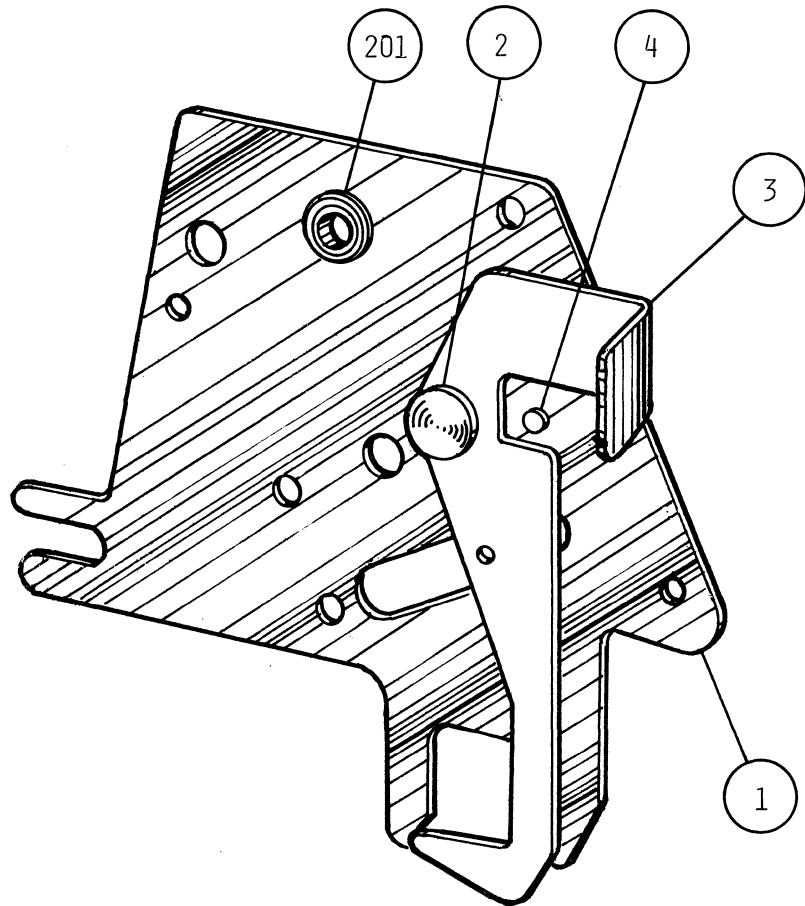
Figure 52 Lever Assembly



136-722664-002-A Lever Assembly  
(See Figures 8 & 9 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
2	136-722691-002-A	Lever Subassembly	1
3	136-722669-A	Lever Spring	1

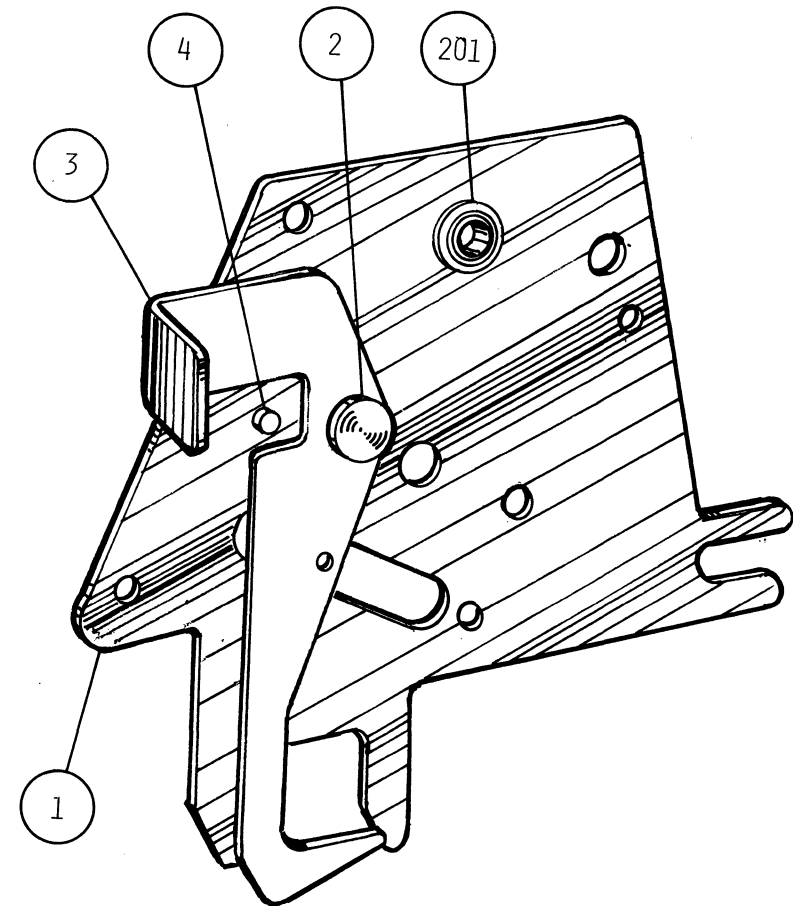
Figure 53 Lever Assembly



136-724624-001-A TR Side Frame Assembly, Left

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-724625-A	TR Side Frame	1
2	136-722865-A	Pivot Stud	1
3	136-722862-001-A	Lock Lever	1
4	136-724626-A	Stud	1
201	803-020017-010-0	Ball Bearing	1

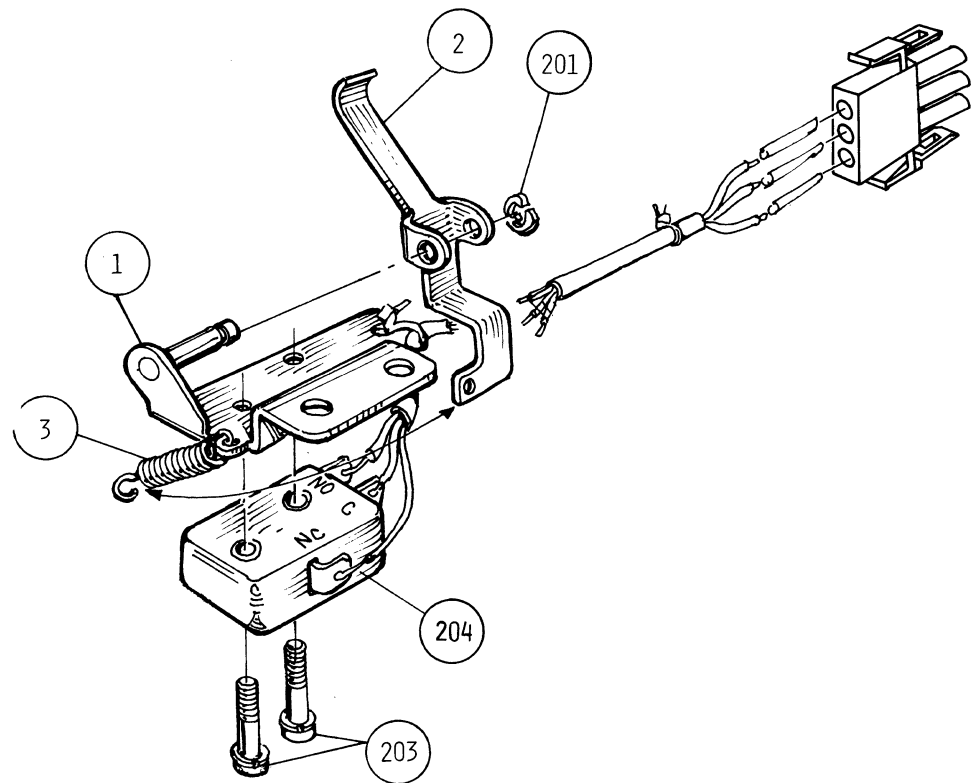
Figure 54 TR Side Frame Assembly, Left



136-724624-002-A TR Side Frame Assembly, Right

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-724625-A	TR Side Frame	1
2	136-722865-A	Pivot Stud	1
3	136-722862-002-A	Lock Lever	1
4	136-724626-A	Stud	1
201	803-020017-010-0	Ball Bearing	1

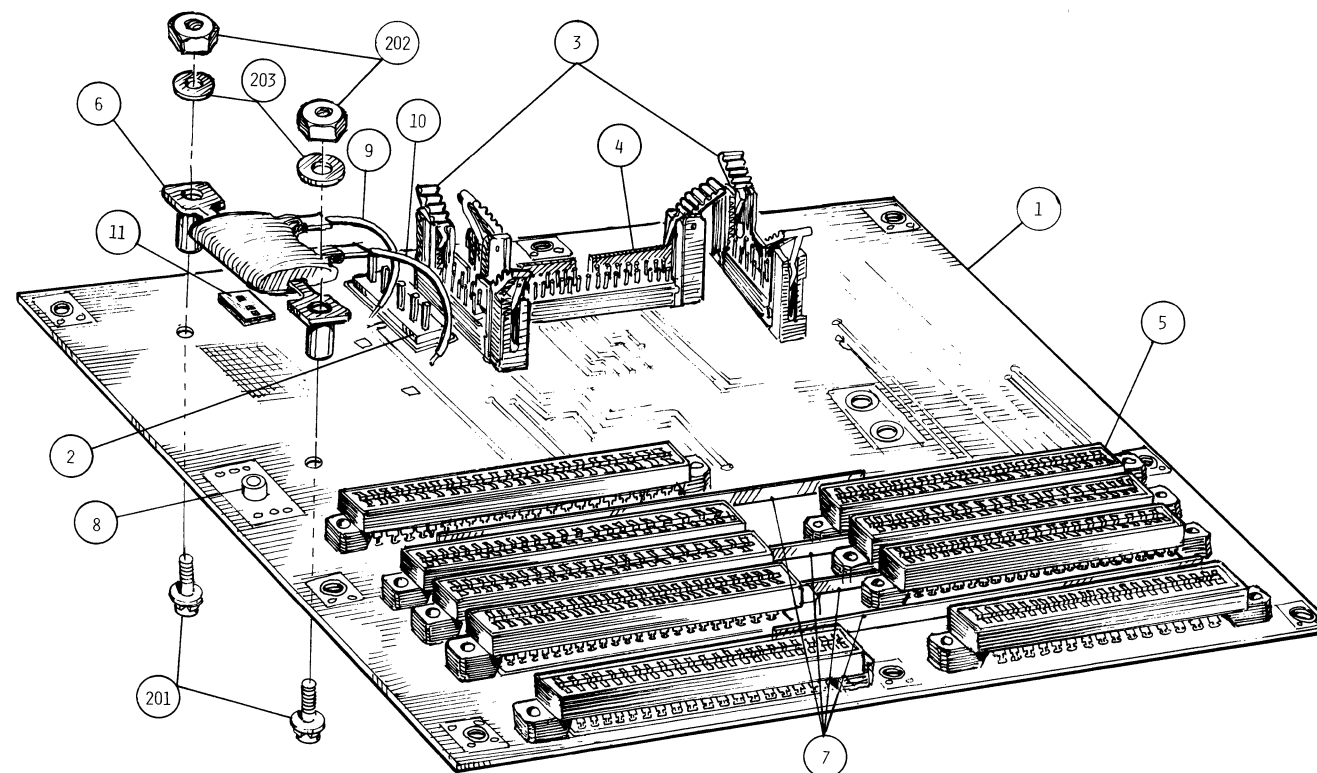
Figure 55 TR Side Frame Assembly, Right



136-722889-A Media Low (BF) Assembly  
(See Figure 11 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722806-A	MDL Bracket Assembly	1
2	136-722809-A	MDL Feeler	1
3	136-722892-A	Spring (MDL)	1
201	803-010030-024-0	E-Ring	1
203	805-310003-014-0	SL-CPIMSx3x14x15BF	2
204	808-950319-001-A	Micro Switch	1

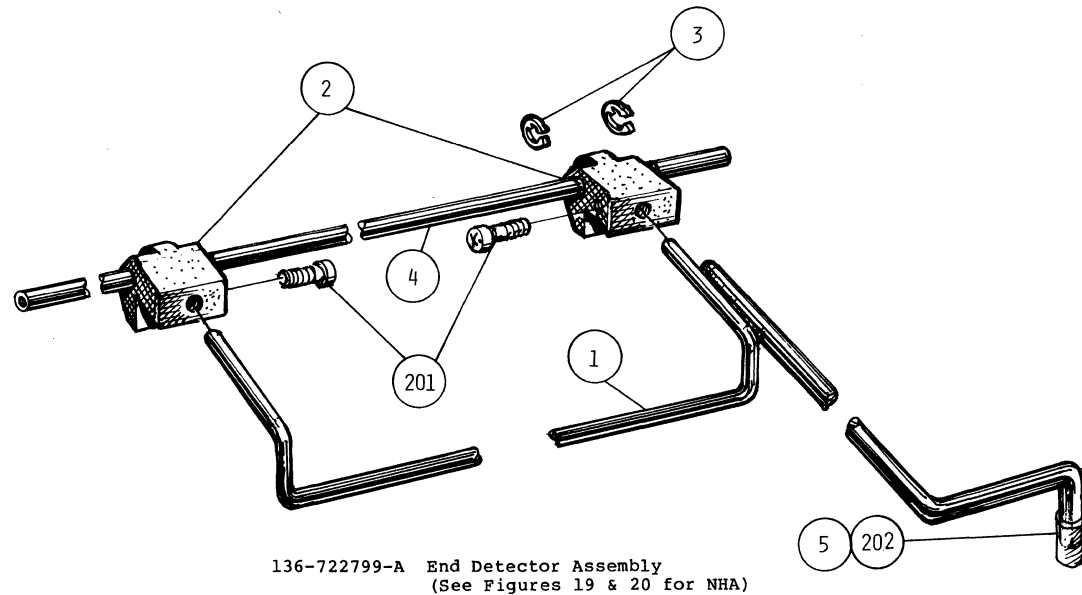
Figure 56 Media Low (BF) Assembly



136-430872-A Mother Board Assembly (G9CUL PCB Assembly)  
(See Figure 24 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-450872-A	G9CUL PCB	1
2	808-955150-054-A	Connector (CN1) 5066-06AG	1
3	808-955111-031-A	Connector (CN2,3) PS-10PA-D4T1-0L1	2
4	808-955111-035-A	Connector (CN4) PS-34PA-D4T1-0L1	1
5	808-955119-003-A	Connector PBKS-44D-AT1-11	7
6	802-310007-064-A	Resistor (R1) (Enameled) RW20V43ΩJ	1
7	804-020048-003-C	MiniBus	4
8	133-310003-003-B	Insert	1
9	804-171001-050-A	Tin Plate Wire 0.5 φ TCW	AR
10	804-030024-002	Teflon Tube AWG 24 (White)	AR
11	808-955150-051-A	Connector (CN5) 5066-03AG	1
201	805-300003-018-0	PL-CPIMSx3x18x15BF	2
202	805-500003-0	AHEXINx3x15BF	2
203	805-610003-0	PIWax3x15BF	2

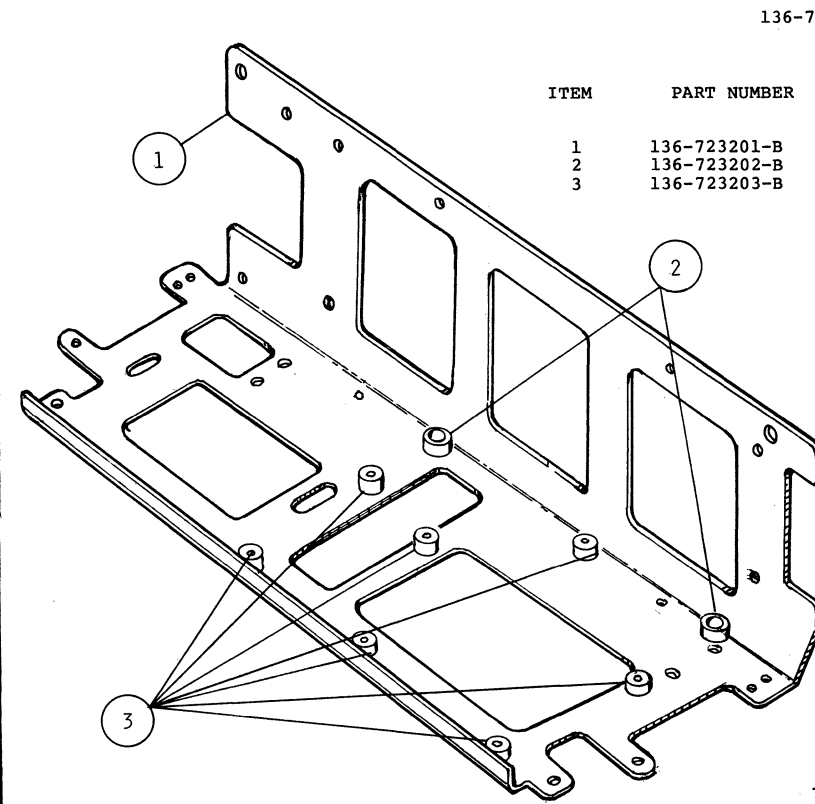
Figure 57 Mother Board Assembly (G9CUL PCB Assembly)



136-722799-A End Detector Assembly  
(See Figures 19 & 20 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722797-A	Detect Bar Assembly	1
2	136-722798-A	Detect Bar Support	2
3	803-010030-040-0	E Ring	2
4	136-722794-A	Support Shaft	1
5	136-722903-A	Cushion	1
201	805-060103-008-0	#2CTSx3x8x3GF	2
202	808-835000-001-A	Adhesive	AR

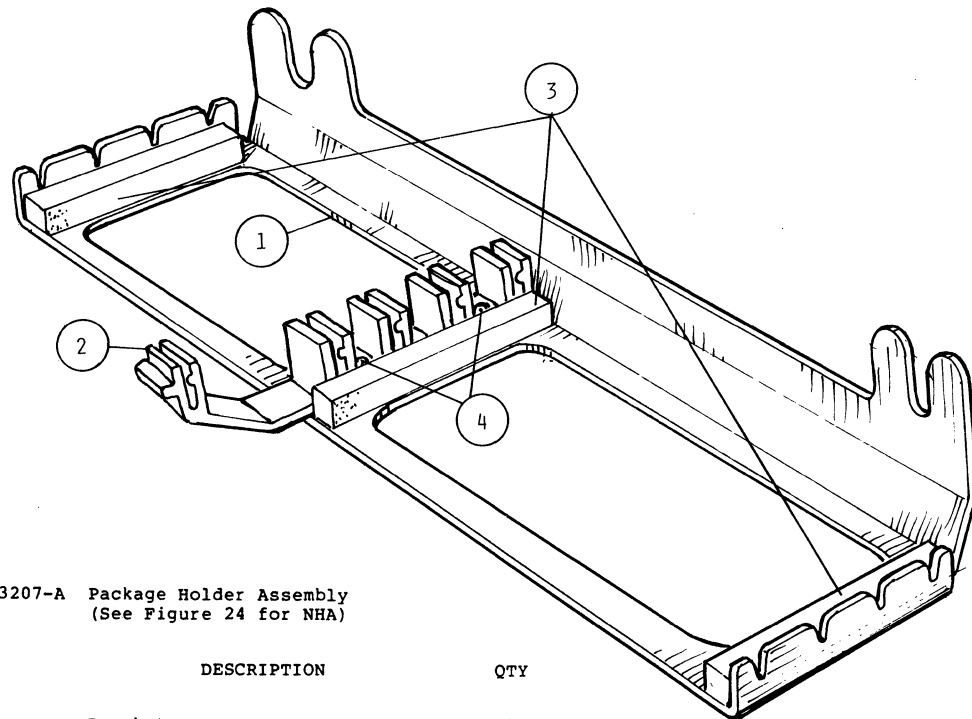
Figure 58 End Detector Assembly



136-723200-A Base Chassis Assembly  
(See Figure 24 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-723201-B	Base Chassis	1
2	136-723202-B	Boss L	2
3	136-723203-B	Boss S	7

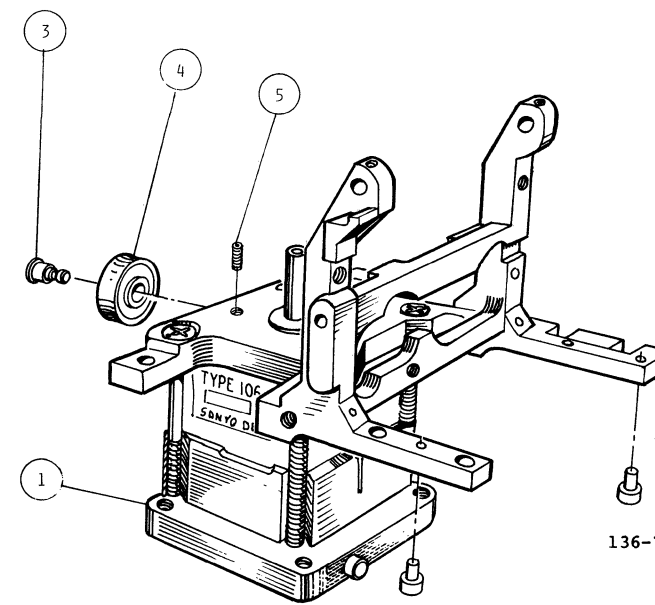
Figure 59 Base Chassis Assembly



136-723207-A Package Holder Assembly  
(See Figure 24 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-723208-A	Bracket	1
2	136-723209-A	Package Holder	1
3	136-723210-A	Cushion	3
4	805-706403-008-0	Rivet	2

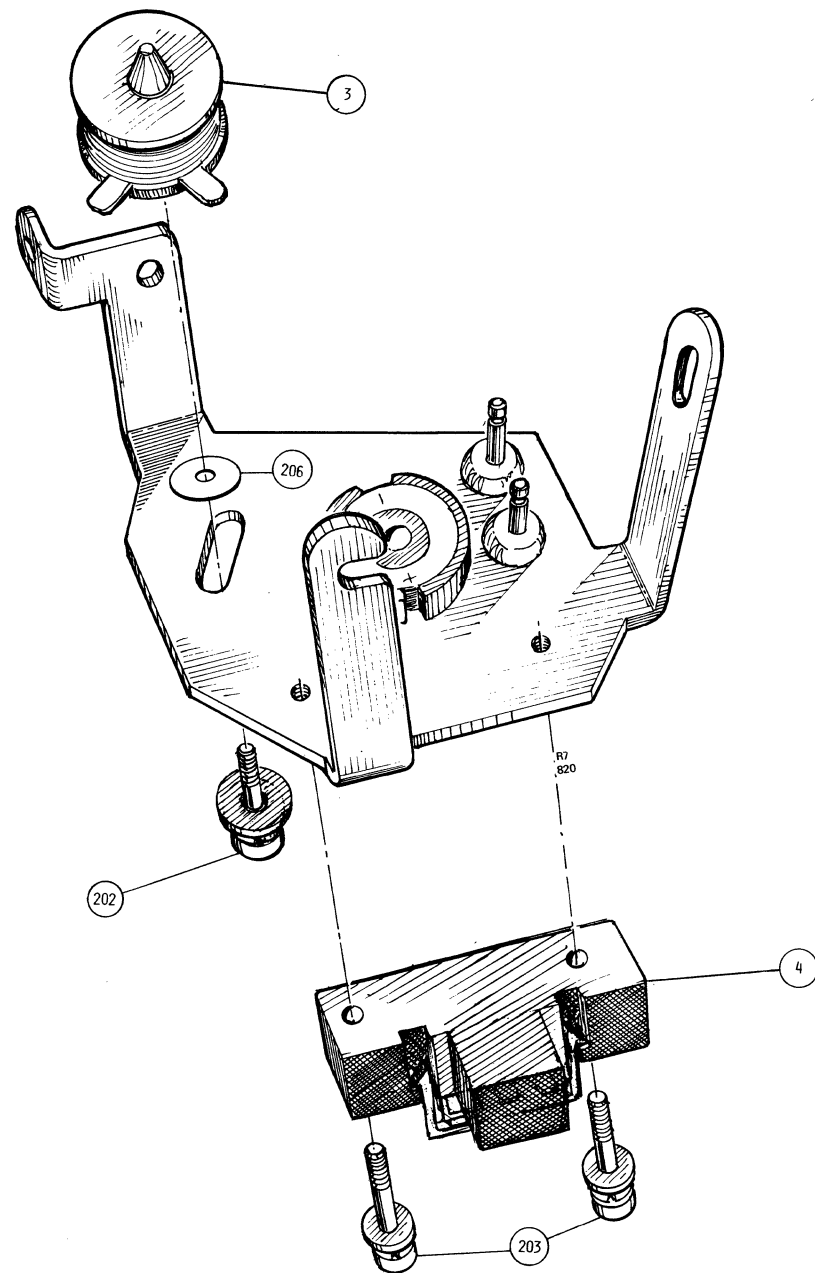
Figure 60 Package Holder Assembly



136-722845-A DC Servo Motor Assembly  
(See Figure 25 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	804-020196-B	DC Servo Motor (RT)	1
3	136-720253-A	Bearing Stud B	1
4	803-020023-002-A	Ball Bearing	1
5	808-802002-303-0	Socket Set Screw	1

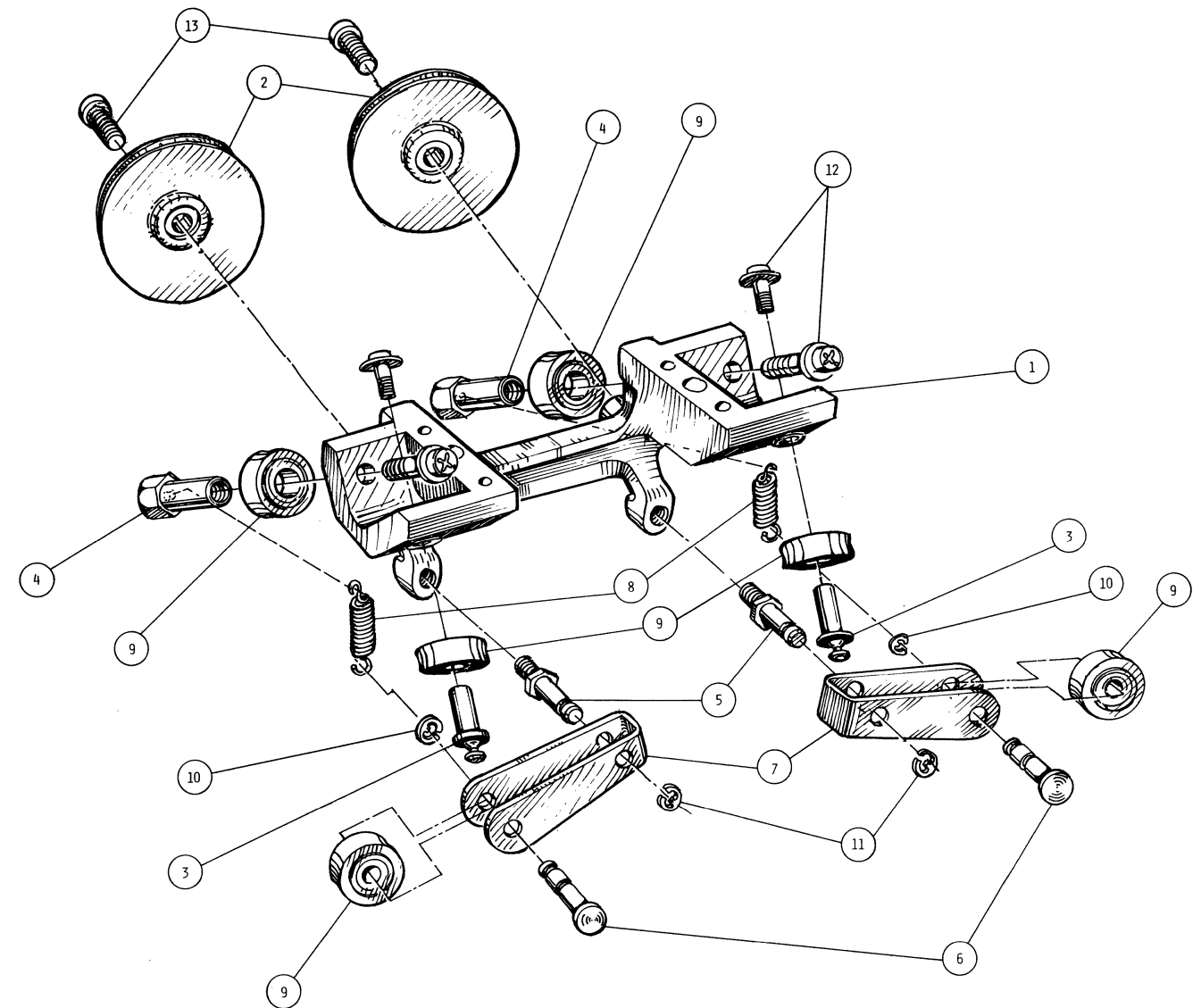
Figure 61 DC Servo Motor Assembly



136-722847-A Trans Mount Assembly  
(See Figure 25 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-720252-A	Trans Mount	1
2	804-020116-002-A	Trans Assembly	1
3	136-722858-A	Magnet Pickup	1
4	804-020244-001-A	Margin Switch	1
202	805-300025-006-0	PL-CPIMSx2.5x6x15BF	1
203	805-300025-014-0	PL-CPIMSx2.5x14x15BF	2
204	808-835009-A	Adhesive	AR
205	808-816000-A	Terminal	2
206	805-610026-0	PIWx2.6x15BF	7

Figure 62 Trans Mount Assembly

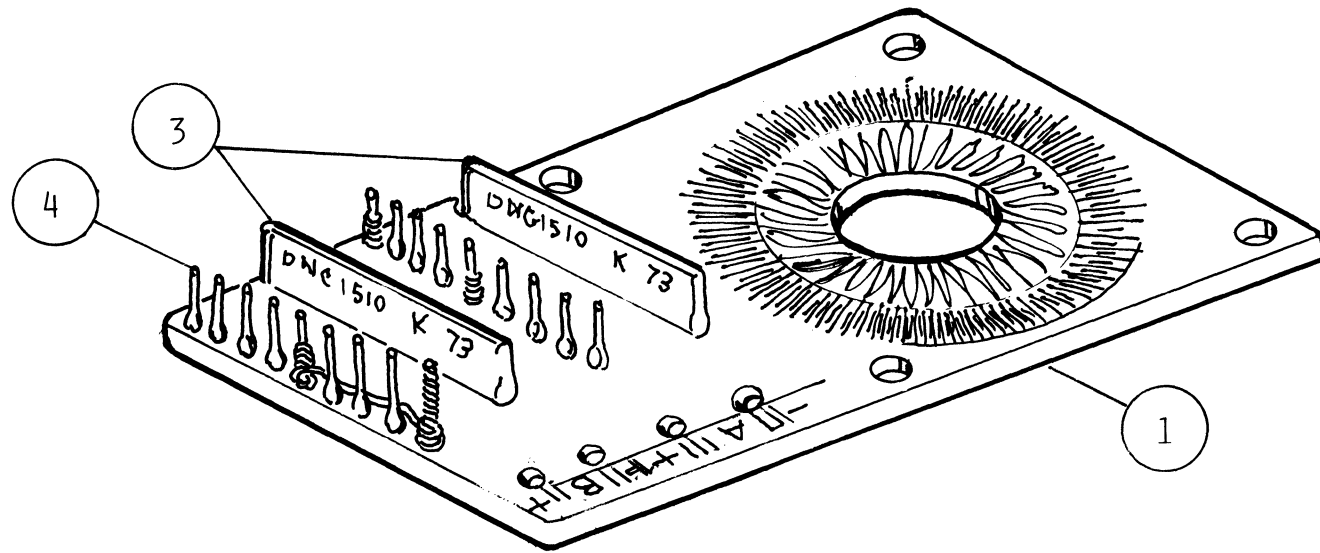


136-031412-A Guide Casting Assembly  
(See Figure 29 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-720275-A	Guide Casting	1
2	803-020001-A	Guide Pulley	2
3	136-720248-A	Wire Hook	2
4	136-723434-A	Spring Anchor	2
5	136-710096-A	Stud (Bearing and Rotor)	2
6	136-710097-A	Bearing Stud	2
7	136-710098-A	Bearing Holder A	2
8	136-720277-A	Spring Guide Casting	2
9	803-020023-002-A	Ball Bearing	6
10	803-010030-032-0	E Ring	2
11	803-010030-024-0	E Ring	2
12	805-320003-006-0	P-CPIMSx3x6x15BF	4
13	805-000004-010-0	CPIMSx4x10x15BF	2

Figure 63 Guide Casting Assembly

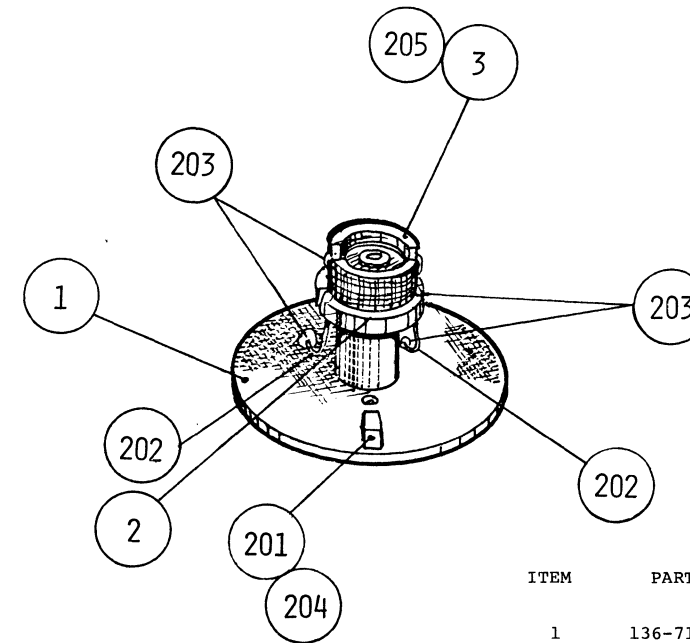




136-720282-A Inductosyn R Stator Assembly  
(See Figure 25 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-719922-A	Inductosyn R Stator	1
3	808-930391-010-A	Resistor Module	2
4	803-070040-001	Wrapping Post	18

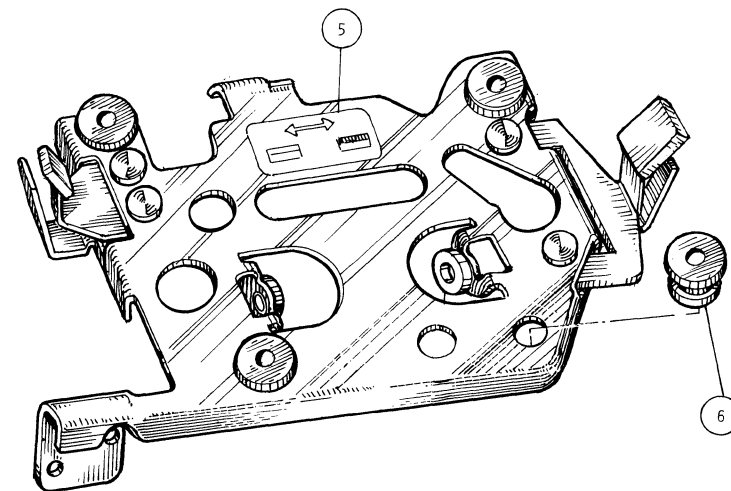
Figure 64 Inductosyn R Stator Assembly



136-710162-A Inductosyn R Rotor Assembly  
(See Figure 25 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-710163-A	Inductosyn R Rotor	1
2	136-710164-A	Inductosyn Boss	1
3	136-710215-002-A	Trans Assembly	1
201	808-802004-A	Magnet	1
202	808-853005-A	Tube	AR
203	808-835003-001-A	Rubber	AR
204	808-835014-001-0	Adhesive	AR
205	808-835000-001-A	Adhesive	AR

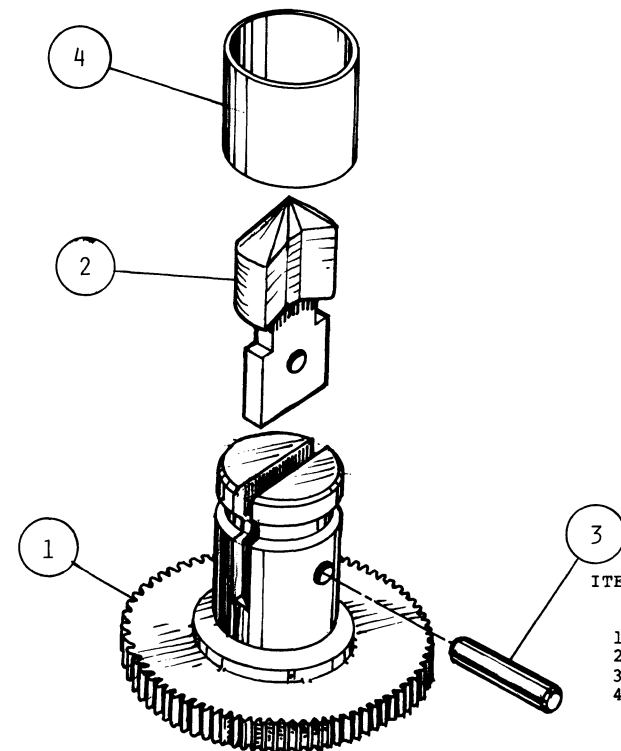
Figure 65 Inductosyn R Rotor Assembly



136-720280-A Ribbon Base Subassembly  
(See Figure 26 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
5	136-722867-A	Ribbon Mode Label	1
6	136-712521	Grommet	4

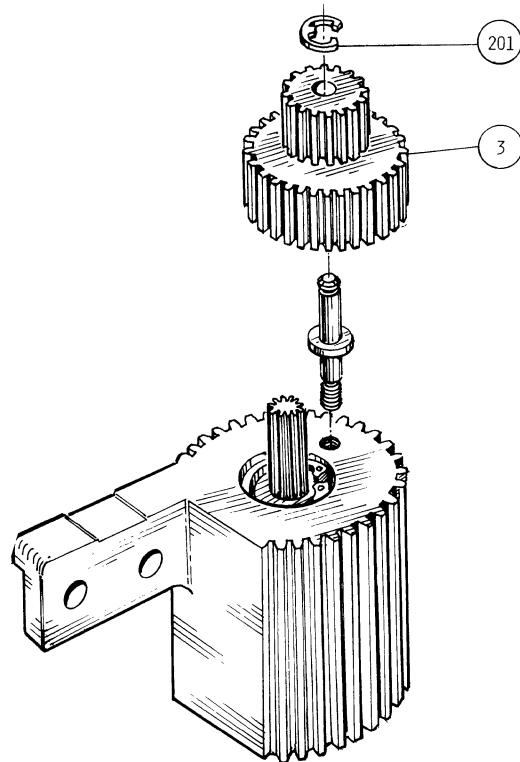
Figure 66 Ribbon Base Subassembly



136-722841-A Torque Shaft Assembly  
(See Figure 26 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-720421-A	Ribbon Feed Gear	1
2	136-722842-A	Torque Arm	1
3	136-720431-A	Pin	1
4	136-712379-A	Bushing	1

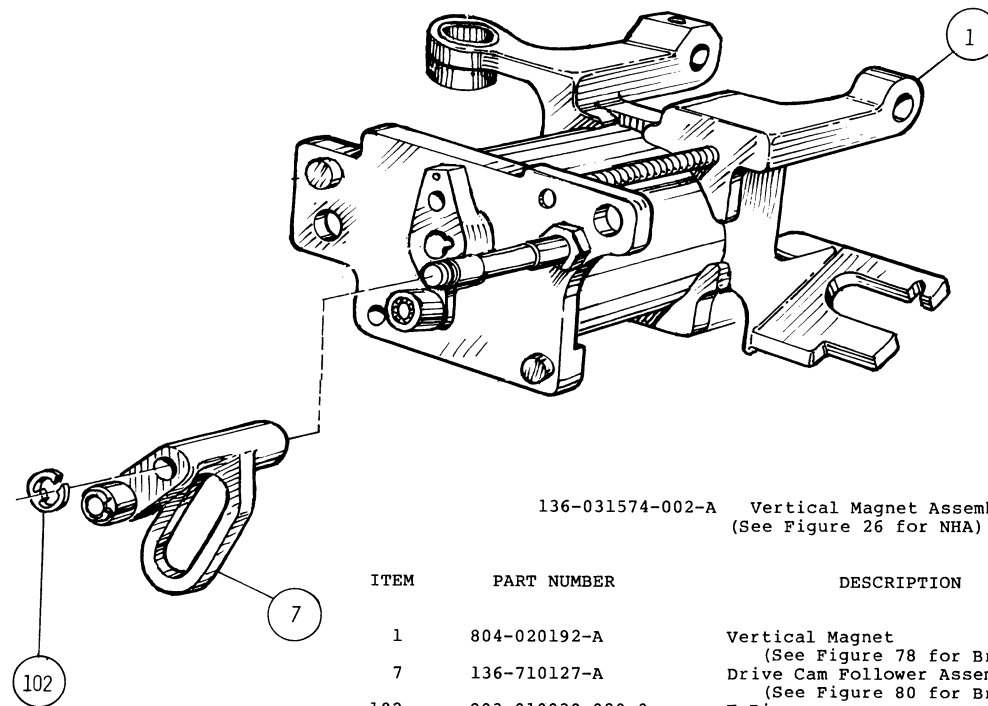
Figure 67 Torque Shaft Assembly



136-722844-A Ribbon Drive Assembly  
(See Figure 26 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	804-020201-A	Stepping Motor	1
3	136-722802-A	Idler Gear	1
201	803-010030-032-0	E Ring	1

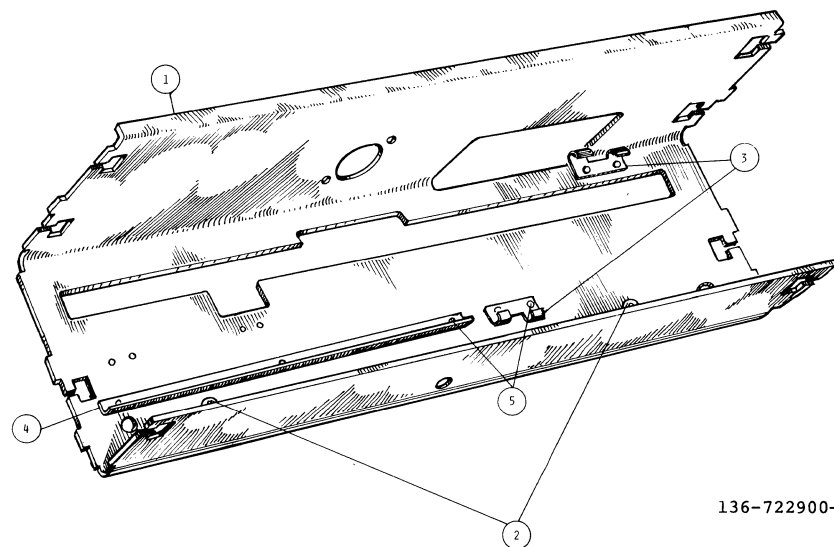
Figure 68 Ribbon Drive Assembly



136-031574-002-A Vertical Magnet Assembly  
(See Figure 26 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	804-020192-A	Vertical Magnet (See Figure 78 for Breakdown)	1
7	136-710127-A	Drive Cam Follower Assembly (See Figure 80 for Breakdown)	1
102	803-010030-020-0	E Ring	1

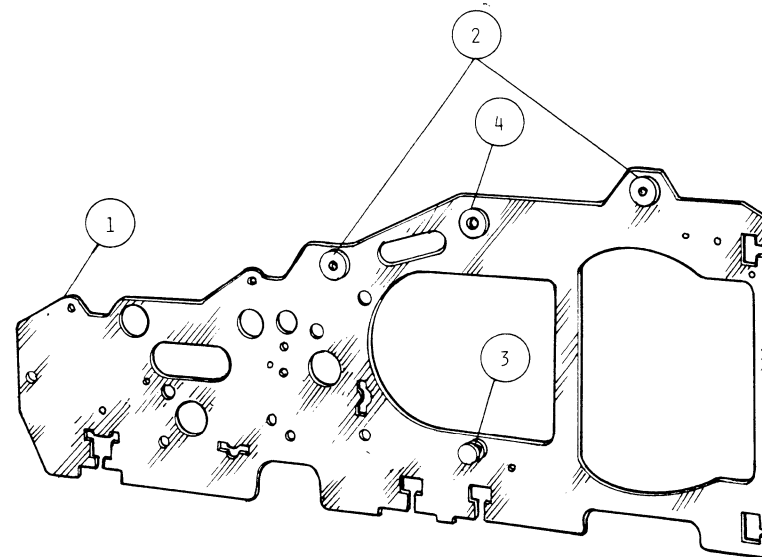
Figure 69 Vertical Magnet Assembly



136-722900-A Base Frame Assembly  
(See Figure 29 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722738-A	Base Frame	1
2	803-010000-006-A	Nut Insert	2
3	136-722729-A	Cable Clamp	2
4	136-722897-A	Cable Guide	1
5	136-722899-A	Rivet	7

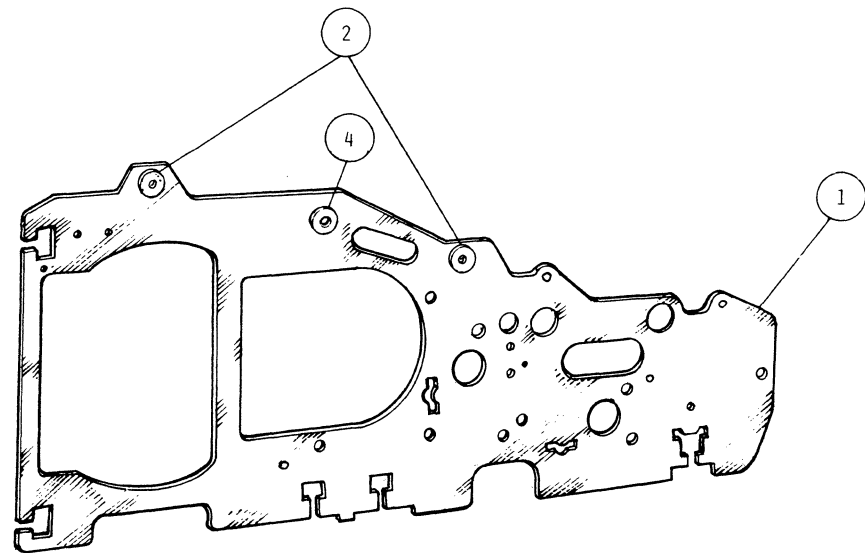
Figure 70 Base Frame Assembly



136-722875-001-B Side Frame Assembly  
(See Figure 29 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722750-A	Side Frame	1
2	136-722716-A	LF Mount Bushing	2
3	136-722874-A	LF Mount Stud	1
4	136-722739-A	Control Shaft Bushing	1

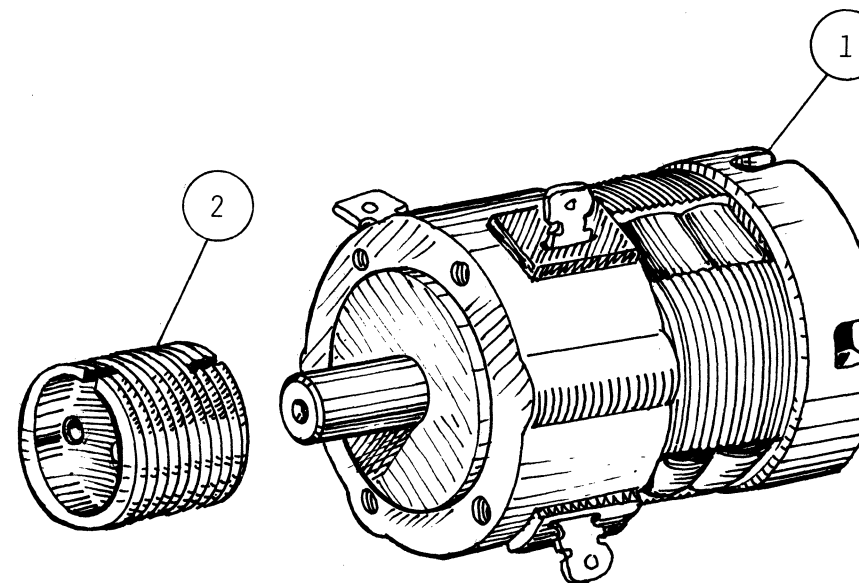
Figure 71 Side Frame Assembly



136-722875-002-B Side Frame Assembly  
(See Figure 29 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722750-A	Side Frame	1
2	136-722716-A	LF Mount Bushing	2
4	136-722739-A	Control Shaft Bushing	1

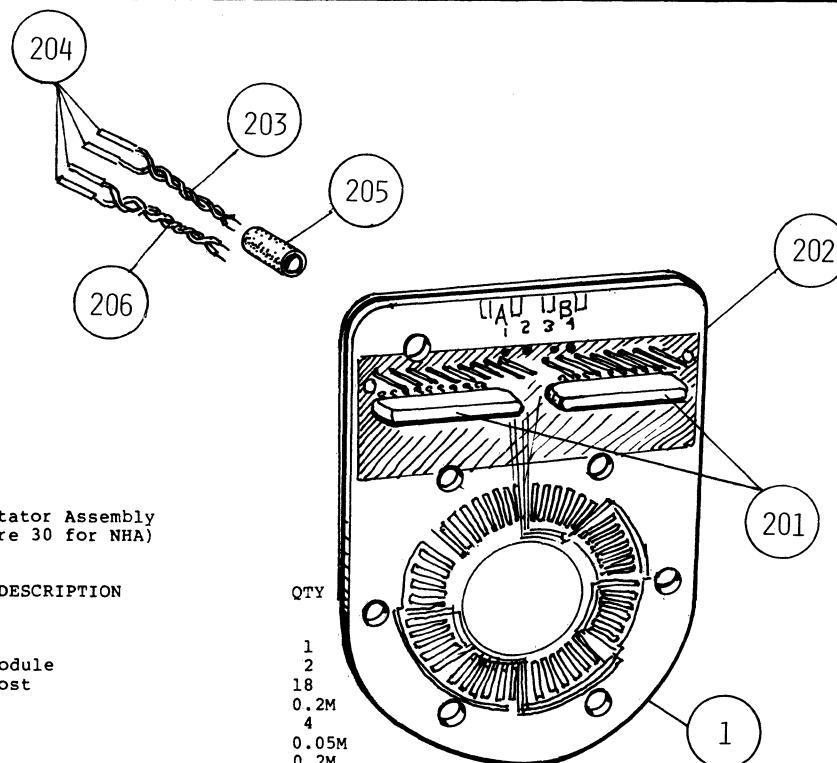
Figure 72 Side Frame Assembly



136-720219-A Spacing Motor Subassembly  
(See Figure 30 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	804-020130-A	DC Servo Motor	1
2	136-720155-A	Spacing Drive Pulley	1

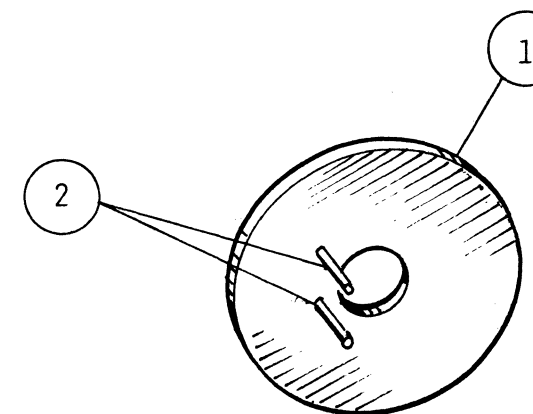
Figure 73 Spacing Motor Subassembly



136-720220-A Spacing Stator Assembly  
(See Figure 30 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-719920-A	Stator	1
201	808-930391-010-A	Resistor Module	2
202	803-070040-001-0	Wrapping Post	18
203	806-943072-181-0	Wire	0.2M
204	808-955111-292-A	Contact	4
205	804-030168-004-A	Tube	0.05M
206	806-943072-186-0	Wire	0.2M

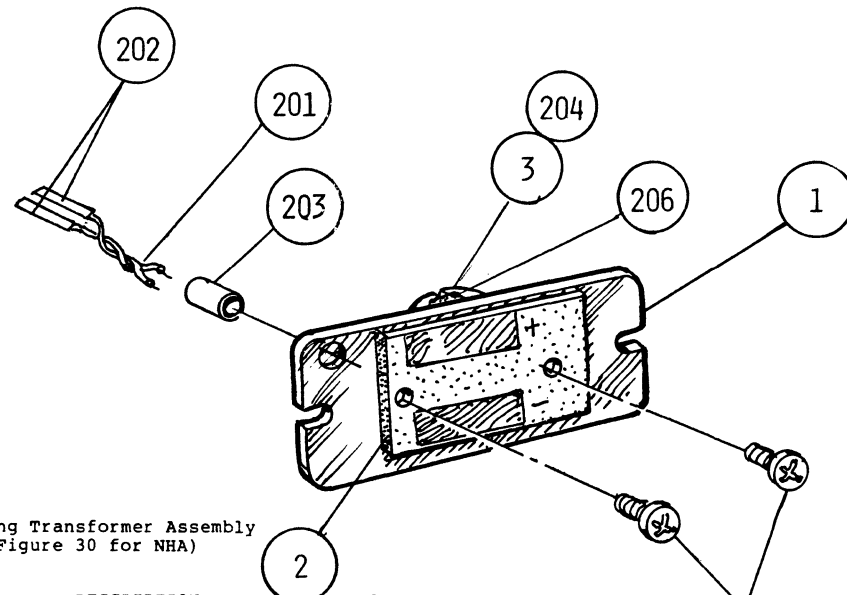
Figure 74 Spacing Stator Assembly



136-720221-A SP Rotor Assembly  
(See Figure 30 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-7199210A	Rotor	1
2	136-726182-A	Post Mold	2

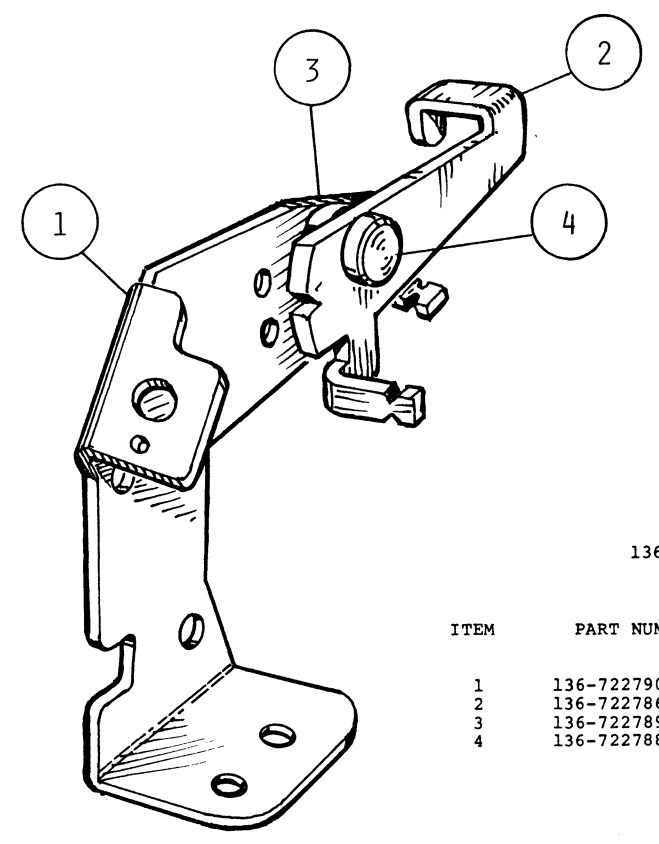
Figure 75 SP Rotor Assembly



136-720222-A Spacing Transformer Assembly  
(See Figure 30 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-720145-A	Trans Holder	1
2	136-712028-A	Trans Plate	1
3	804-020116-004-A	Trans Assembly	1
201	806-943072-183-0	Wire	0.2M
202	808-955111-292-A	Contact	2
203	804-030168-004-A	Tube	0.05M
204	808-835000-001-A	Adhesive	AR
205	805-000003-005-0	CPIMSx3x5x15BF	2
206	808-835003-001-A	Silicone Rubber	AR

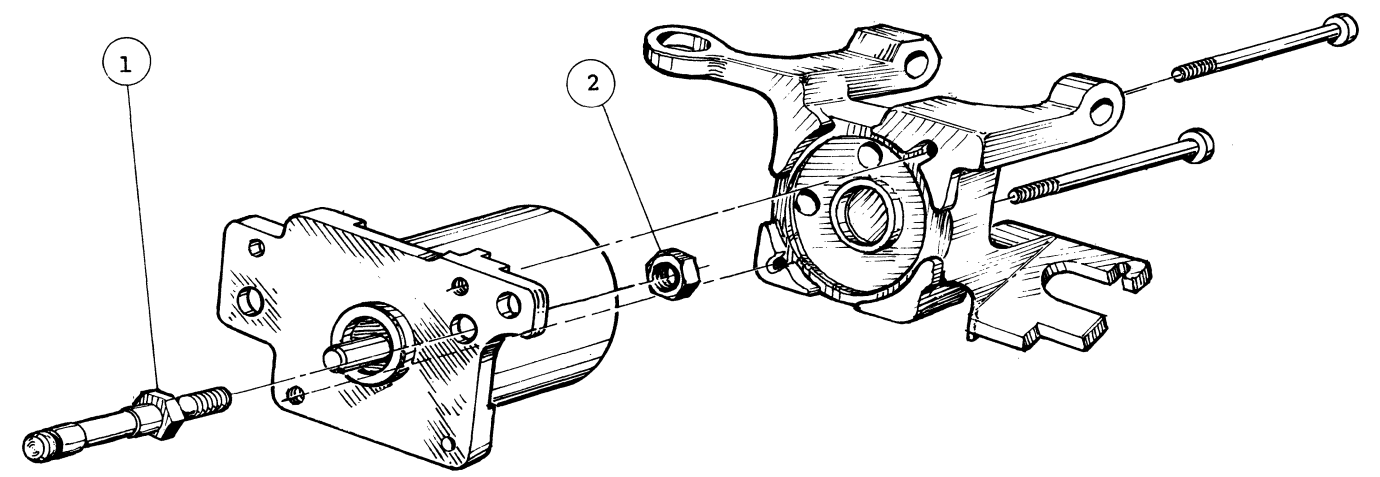
Figure 76 Spacing Transformer Assembly



136-722884-A Cover Switch Feeler Assembly  
(See Figure 40 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722790-A	Switch Bracket	1
2	136-722786-A	Cover Switch Feeler	1
3	136-722789-A	Cover Switch Collar	1
4	136-722788-A	Cover Switch Stud	1

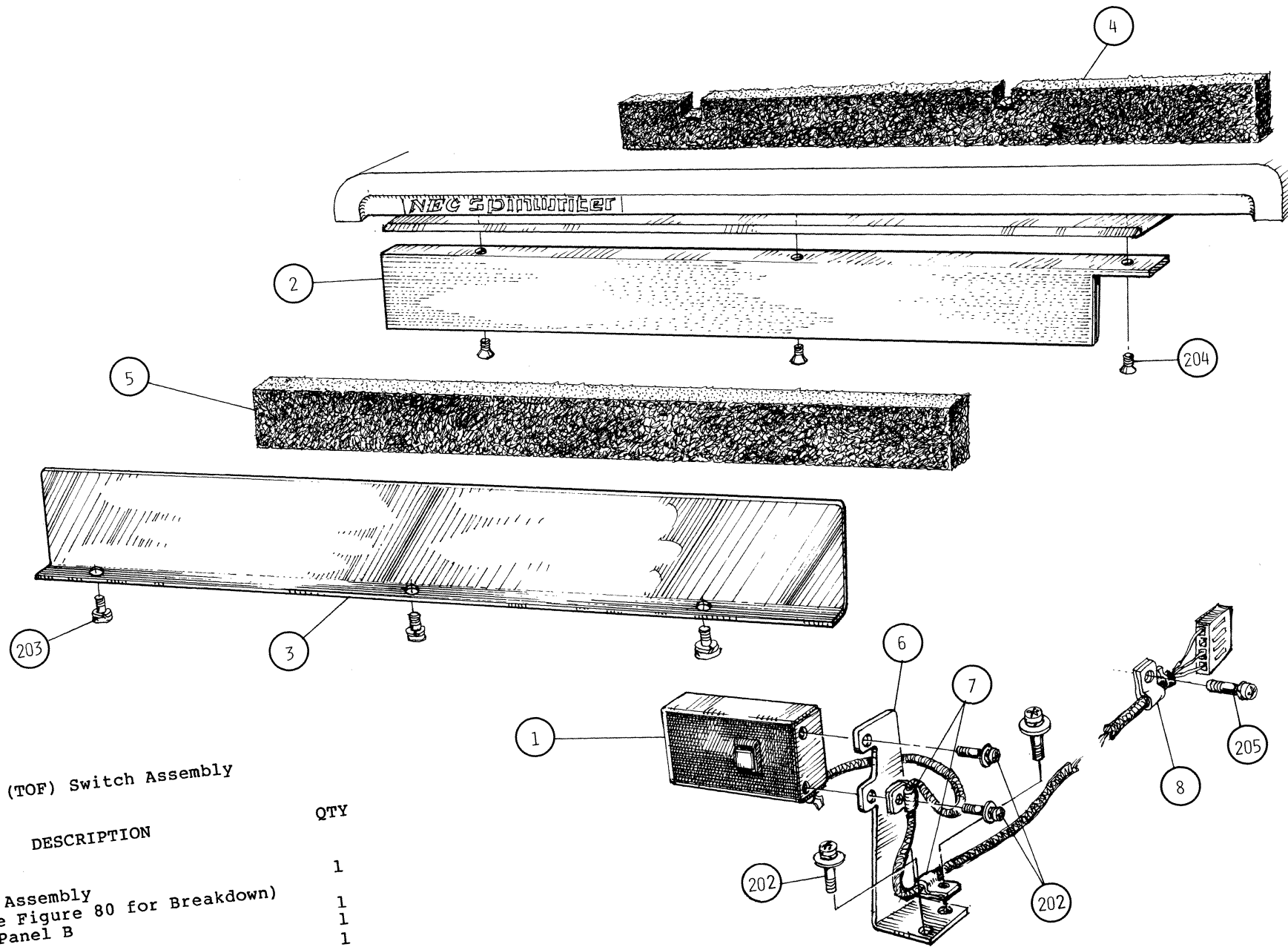
Figure 77 Cover Switch Feeler Assembly



804-020192-002-A Rotary Magnet  
(See Figure 69 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722803-A	Cam Follower Stud	1
2		AHEXINx3x15BF	1

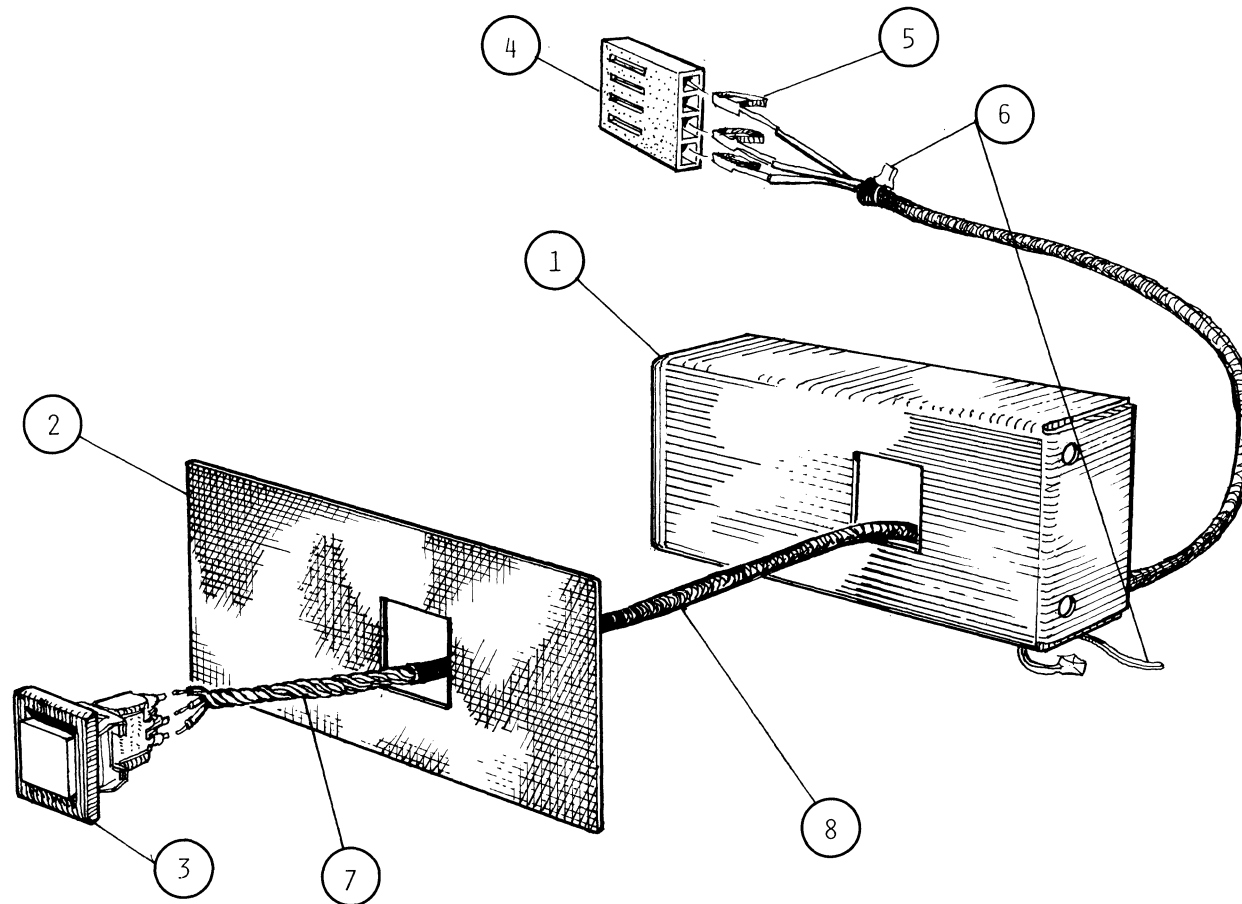
Figure 78 Rotary Magnet



136-032584-A Top Of Form (TOF) Switch Assembly

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-040838-A	Switch Assembly (See Figure 80 for Breakdown)	1
2	136-723277-A	Blank Panel B	1
3	136-723278-A	Plate B	1
4	136-723279-001-A	Blank Damper B	1
5	136-723279-002-A	Blank Damper B	2
6	136-721829-002-B	OP Bracket B	1
7	803-070031-004-A	Nylon Clip HP-4N	1
8	803-070031-006-A	Nylon Clip HP-6N	3
201	805-300004-012-0	PL-CPIMSx4x12x15BF	3
202	805-300004-010-0	PL-CPIMSx4x10x15BF	3
203	805-300003-008-0	PL-CPIMSx3x8x15BF	3
204	805-010003-008-0	CFIMSx3x8x15BF	1
205	805-300003-012-0	PL-CPIMSx3x12x15BF	

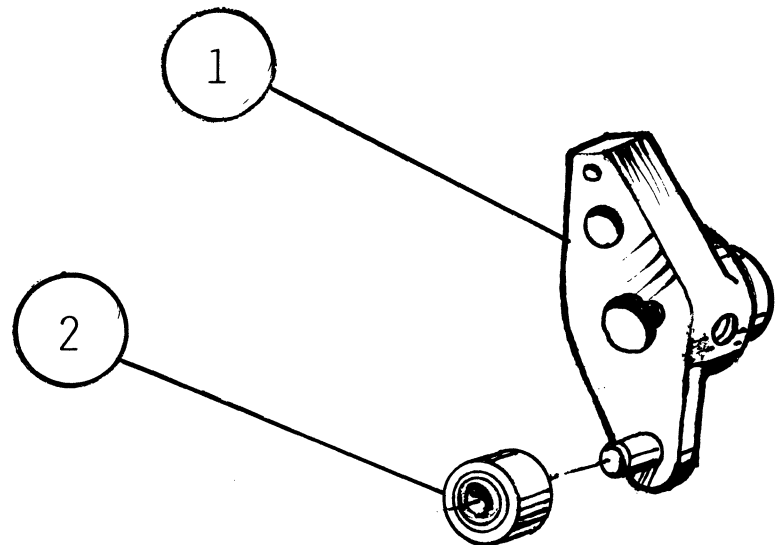
Figure 79 Top of Form (TOF) Switch Assembly



136-040838-A Switch Assembly  
(See Figure 79 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-723275-A	Single Switch Panel	1
2	136-723276-A	Single Switch Seat	1
3	808-950314-013	U811J81Z92	1
4	808-955150-001-A	5065-03	1
5	808-955150-102-A	2578GL	3
6	808-955150-923-A	TY-23M	2
7	806-943072-387-0	Cable UL1571 AWG 24-8x7x3	0.6
8	804-030155-010-0	Tube V2 φ4	0.5

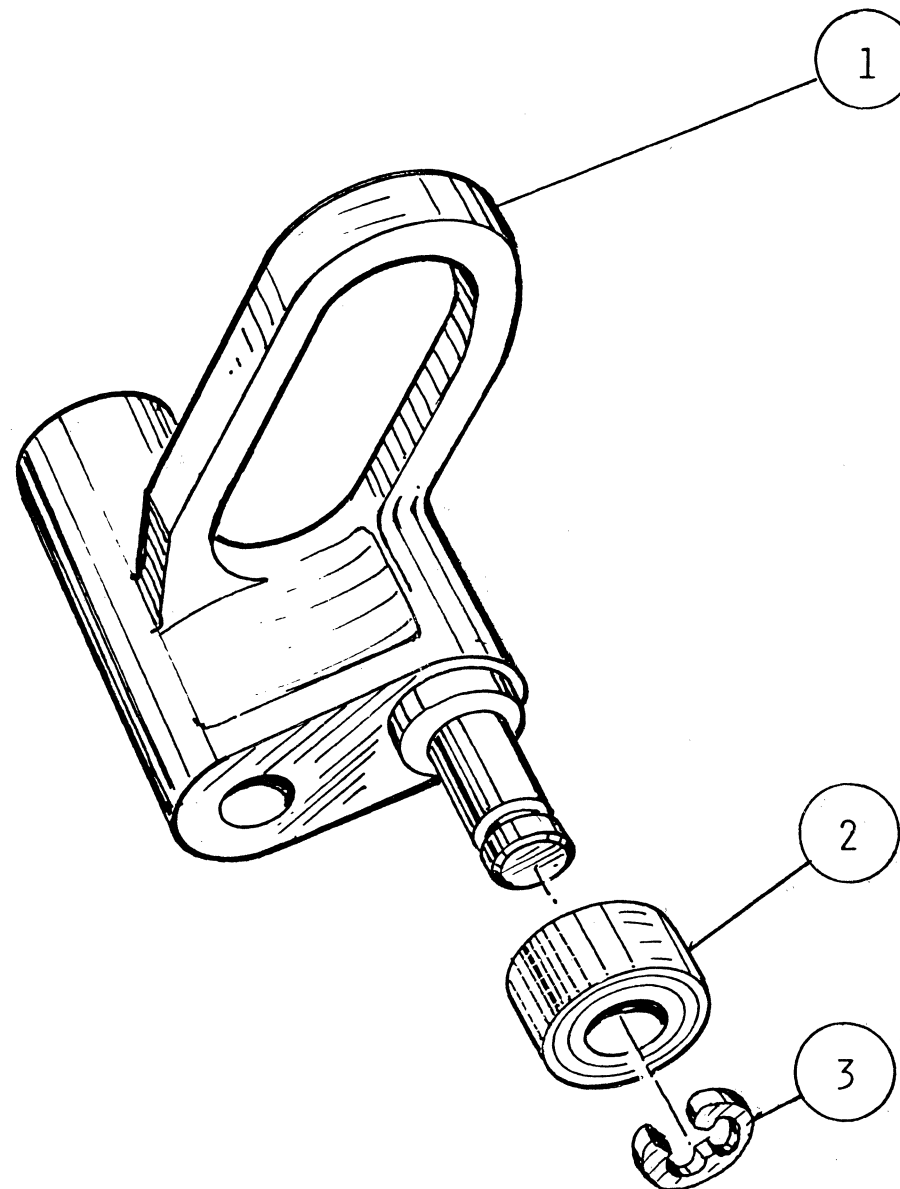
Figure 80 Switch Assembly



136-722855-A Drive Cam Assembly  
(See Figure 69 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-722856-A	Drive Cam Subassembly	1
2	803-020017-002-0	Ball Bearing	1

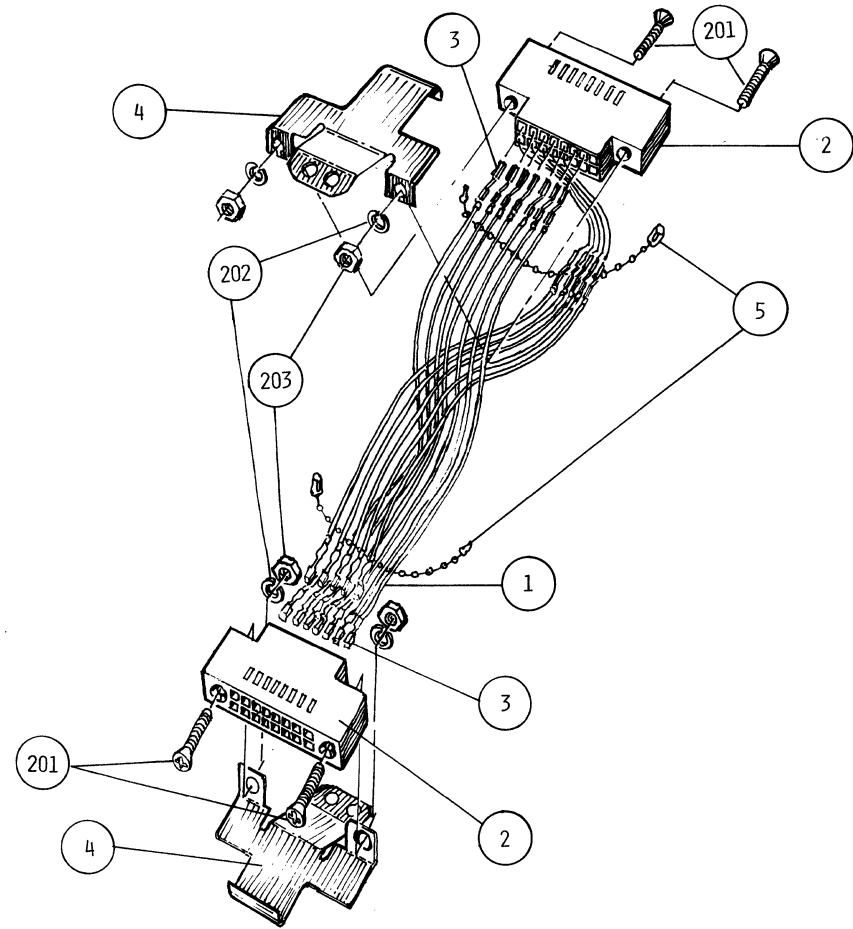
Figure 81 Drive Cam Assembly



136-710127-A Drive Cam Follower Assembly  
(See Figure 69 for NHA)

ITEM	PART NUMBER	DESCRIPTION	QTY
1	136-710128-A	Drive Cam Follower	1
2	803-020017-002-0	Bearing	1
3	803-010030-020-0	E Ring	1

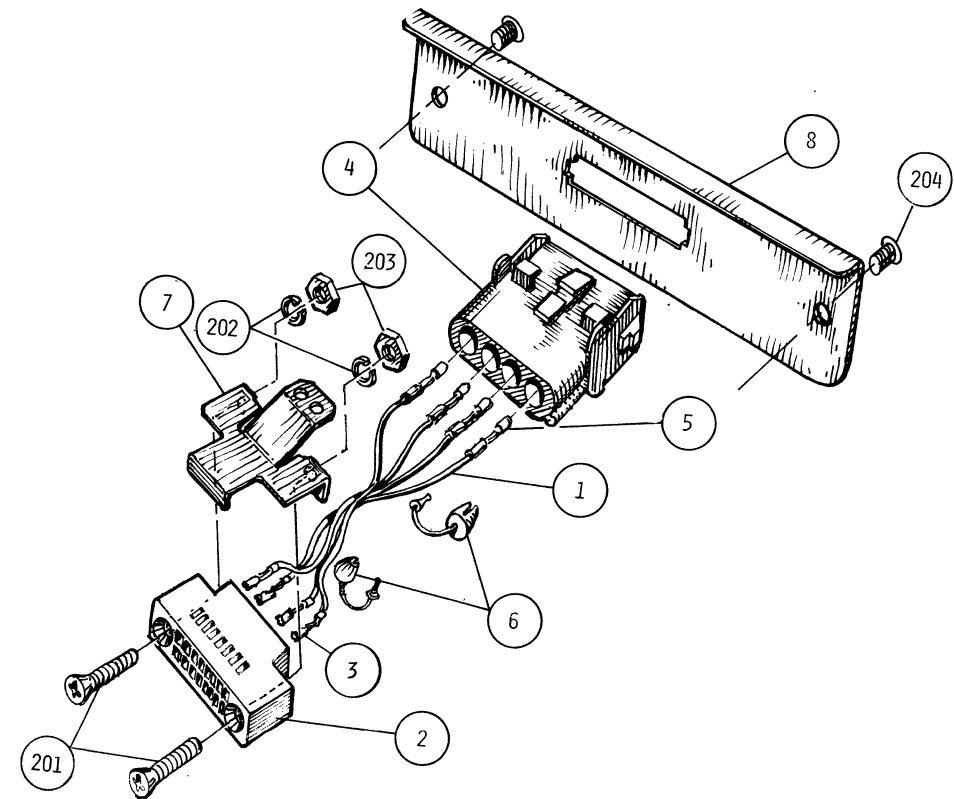
Figure 82 Drive Cam Follower Assembly



136-040621-A Current Loop Cable Assembly

ITEM	PART NUMBER	DESCRIPTION	QTY
1	804-183001-210-0	Wire UL-1571 AWG-24 (Black)	AR
2	808-955140-804	Housing 2-86256-2	2
3	808-955140-802	Pressure Type Contact 86016-4	24
4	136-710322-B	Connector Lock S	2
5	808-814005	IB Tie	2
201	805-010023-016-0	CFIMSx2.3x16x15BF	4
202	805-622023-0	#2STLWx2.3x15BF	4
203	805-500023-0	AHEXINx2.3x15BF	4

Figure 83 Current Loop Cable Assembly

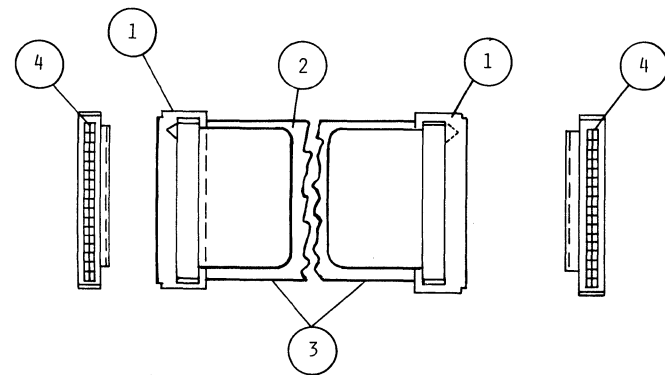


136-040622-A Current Loop Interface Cable Assembly

ITEM	PART NUMBER	DESCRIPTION	QTY
1	804-183001-210-0	Wire UL-1571 AWG24 (Black)	0.5M
2	808-955140-804-A	Housing 2-86256-2	1
3	808-955140-802-A	Pressure Type Contact 86016-4	4
4	808-955140-335	Universal Mate-N-Lok Socket 350780-1	1
5	808-955140-331-A	Pin 350690-3	4
6	808-814005-A	IB Tie	2
7	136-710322-B	Connector Lock S	1
8	136-723228-A	Interface Bracket C	1
201	805-010023-016-0	CFIMSx2.3x16x15BF	2
202	805-622023-0	#2STLWx2.3x15BF	2
203	805-500023-0	AHEXINx2.3x15BF	2
204	805-300004-008-0	PL-CPIMSx4x8x15BF	2

Figure 84 Current Loop Interface Cable Assembly

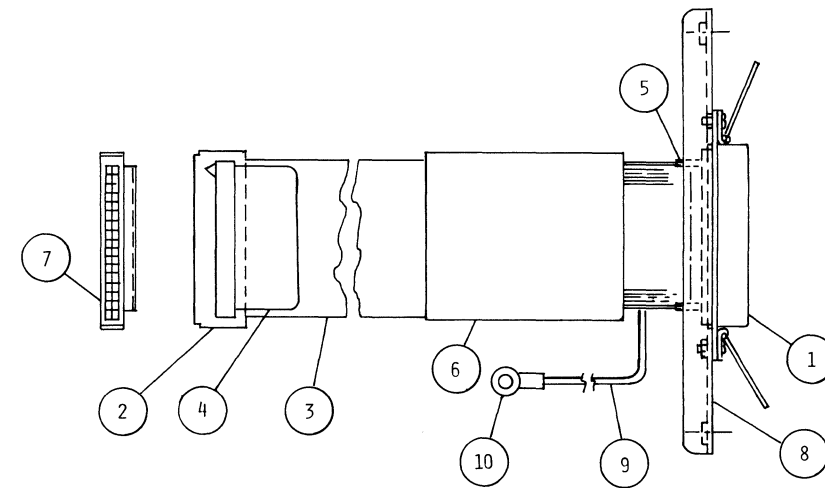




136-040712-A 5530 Connection Cable Assembly

ITEM	PART NUMBER	DESCRIPTION	QTY
1	808-955130-201-A	Connector 3414-3000	2
2	804-175036-034-0	Flat Cable 3365/34	0.1
3	808-955130-394-A	Pull Tab 3490-3	2
4	808-955130-390-A	Polarizing Keys 3435-0000	2

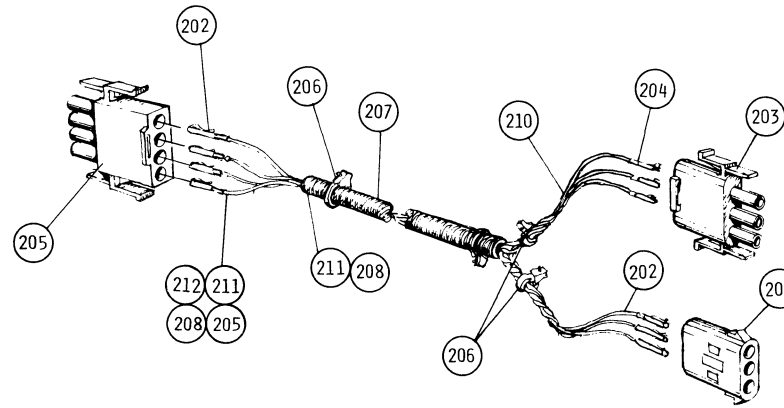
Figure 85 5530 Interface Cable Assembly



136-040703-A 5530 Interface Cable Assembly

ITEM	PART NUMBER	DESCRIPTION	QTY
1	808-955160-002-A	Connector Socket 57-40360	1
2	808-955130-306-A	Connector 3414-3000	1
3	804-175036-034-0	Flat Cable 3365/34	0.3
4	808-955130-394-A	Pull Tab 3490-3	1
5	804-030143-040-0	Tube 4x0.25 (Black)	0.5
6	804-030155-023-0	Tube 1-1/16"	0.1
7	808-955130-390-A	Polarizing Keys 3435-0000	1
8	136-723240-A	Connector Bracket	1
9	804-183001-240-0	Wire UL-1430 AWG24-OT	0.5
10	808-020012-104-B	Terminal FN0.5-4	1

Figure 86 5530 Connection Cable Assembly



136-040810-A 5530 Operator Control Panel Cable Assembly

ITEM	PART NUMBER	DESCRIPTION	QTY
201	808-955140-421-A	Connector 1-480701-0	1
202	808-955140-327-A	350689-3	7
203	808-955140-419-A	Connector 1-480700-0	1
204	808-955140-331-A	350690-3	3
205	808-955140-334-A	Connector 350779-1	1
206	808-814004-923-A	Cable Band TY-23M	4
207	804-030155-010-0	Tube V2 BLAK 4.1φ	0.79M
208	804-183001-203-0	UL-1571AWG24-3	0.9
209	804-183001-207-0	UL-1571AWG24-7	0.9
210	804-183001-208-0	UL-1571AWG24-8	0.15
211	804-183001-204-0	UL-1571AWG24-4	0.9
212	804-183001-206-0	UL-1571AWG24-6	0.9

Figure 87 5530 Operator Control Panel Cable Assembly

COMPONENT DESIGNATION	PART NUMBER	DESCRIPTION	QTY	COMPONENT DESIGNATION	PART NUMBER	DESCRIPTION	QTY
(1)	136-450873-A	G9CUM PCB	1	R8	802-310003-041-0	Resistor NES 1/2 121G	1
C1, C7, C11, C12, C26	808-935561-403-A	Capacitor FD3AF1H104Z	4	R9 thru R11, R48 R51, R57, R61	802-310021-049-0	Resistor RF07Q102G	7
C2, C19	808-935592-013-A	Capacitor CK45B2H102KY	2	R15, R56	808-930324-901-A	Resistor RE55YQ150KF	2
C3, C24	808-935561-045-A	Capacitor FD1NP01H681K	2	R17	802-310021-052-0	Resistor RF07Q132G	1
C4, C5, C20 thru C23	808-935592-004-A	Capacitor CK45B2H181KY	6	R18, R19	802-310003-066-0	Resistor NES 1/2 132G	2
C6, C9, C10	802-410002-058-0	Capacitor CS02H1D100M	3	R20, R21	802-310003-068-0	Resistor NES 1/2 162G	2
C8	802-410002-049-0	Capacitor CS02H1A330M	1	R22, R60	802-310004-092-0	Resistor NW31R30J	2
C13 thru C17	808-935592-009-A	Capacitor CK45B2H471KY	5	R23, R24	802-310021-008-0	Resistor RF07Q200G	2
C18	808-935592-019-A	Capacitor CK45B2H332KY	1	R25	808-930324-903-A	Resistor RE55YQ430KF	1
CN13	808-955150-042-A	Connector Flat Wafer Assy 5142-04AG	1	R29	802-310021-063-0	Resistor RF07Q392G	1
D1 thru D4, D14 thru D23, D26 thru D31, D36 thru D40, D49, D50	808-923009-531-A	Diode 1S953	27	R30, R32	802-310021-043-0	Resistor RF07Q561G	2
D5, D8 thru D13, D25, D32 thru D35, D45, D51	808-923302-021-A	Diode F14C	14	R31	802-310021-097-0	Resistor RF07Q104G	1
D6, D7, D41 thru D44, D46, D47	808-923009-541-A	Diode 1S954	8	R33	802-310021-078-0	Resistor RF07Q163G	1
D24, D48	808-924001-001-A	Diode UF-2	2	R35, R49	802-310021-027-0	Resistor RF07Q121G	2
DM1	808-910000-644-A	Diode Module $\mu$ PA64H	1	R37, R39, R41 R43, R52 thru R55	802-310021-067-0	Resistor RF07Q562G	8
Q1, Q2	808-920405-351-A	Transistor 2SD535	2	R38, R40, R42, R44	802-310004-052-0	Resistor NW31131J	4
Q3, Q26, Q35	808-920105-041-A	Transistor 2SB504	3	R46	802-310003-045-0	Resistor NES 1/2 181G	1
Q4, Q12, Q13, Q20, Q22 thru Q25, Q41, Q42	808-920209-431-A	Transistor 2SC943	10	R59	802-310021-053-0	Resistor RF07Q152G	1
Q5, Q14 thru Q19, Q21, Q36 thru Q39, Q40, Q43	808-920006-031-A	Transistor 2SA603	18	RD1	808-923504-075-A	Zener Diode RD3.6E-B	1
Q6, Q44	808-920400-781-A	Transistor 2SD78	2	RD2	808-923504-115-A	Zener Diode RD5.1E-B	1
Q7 thru Q11, Q30 thru Q34	808-920405-601-A	Transistor 2SD560	10	RM1	808-930391-036-A	Resistor Module (DNG-1510AR)	1
Q27	808-920105-501-A	Transistor 2SB550	1	RM2	808-930391-021-A	Resistor Module (DNG-1510Z)	1
Q28, Q29	808-920402-971-A	Transistor 2SD297	2	RM3	808-930391-035-A	Resistor Module (DNG-1510AP)	1
Q45 thru Q48, Q53	808-920405-581-A	Transistor 2SD558	5	RM4, RM14	808-930391-014-A	Resistor Module (DNG-1512P)	2
R1	802-310004-081-0	Resistor NW31R10J	1	RM5	808-930391-016-A	Resistor Module (DNG-1510S)	1
R2, R4, R12, R14, R34	802-310021-033-0	Resistor RF07Q221G	5	RM6	808-930391-013-A	Resistor Module (DNG-1510N)	1
R3, R13, R16, R26 thru R28, R36, R50, R58	802-310021-073-0	Resistor RF07Q103G	9	RM7	808-930391-017-A	Resistor Module (DNG-1510T)	1
R5, R45	802-310003-047-0	Resistor NES 1/2 221G	2	RM8	808-930391-020-A	Resistor Module (DNG-1510Y)	1
R6	802-310003-015-0	Resistor NES 1/2 100G	1	RM9	808-930391-015-A	Resistor Module (DNG-1510R)	1
R7, R47	802-310021-085-0	Resistor RF07Q333G	2	RM10	808-930391-023-A	Resistor Module (DNG-1510-AB)	1
				RM11	808-930391-024-A	Resistor Module (DNG-1510-AC)	1
				RM12	808-930391-022-A	Resistor Module (DNG-1510AA)	1
				RM13	808-930391-011-A	Resistor Module (DNG-1510L)	1
				RM15, RM16	808-930392-001-A	Resistor Module (DNG-1457A)	2
				Z1, Z6	808-910201-511-A	IC $\mu$ PC151C	2
				Z2 thru Z4	808-914020-009-A	IC LM318H	3
				Z5	808-910206-035-A	IC $\mu$ PC603D	1
				(2)	808-970903-004-A	Heat Sink	1
				(3)	136-725131-A	Bushing 6K	8
				(4)	136-725132-A	Insulator #36A	2
				(5)	136-718114-C	Heat Sink Bracket	2
				(6)	136-725133-A	25K Bushing B-17	10
				(7)	136-723217-B	Insulator	2
				(8)	133-350040-0	Spacer B	5
				(9)	133-350039-0	Spacer A	28
				(10)	808-970904-002-A	Heat Sink KC603-1G3	2
				(11)	136-725134-A	Insulator T0-66	2
				(12)	808-970904-003-A	Heat Sink 213A-840	2

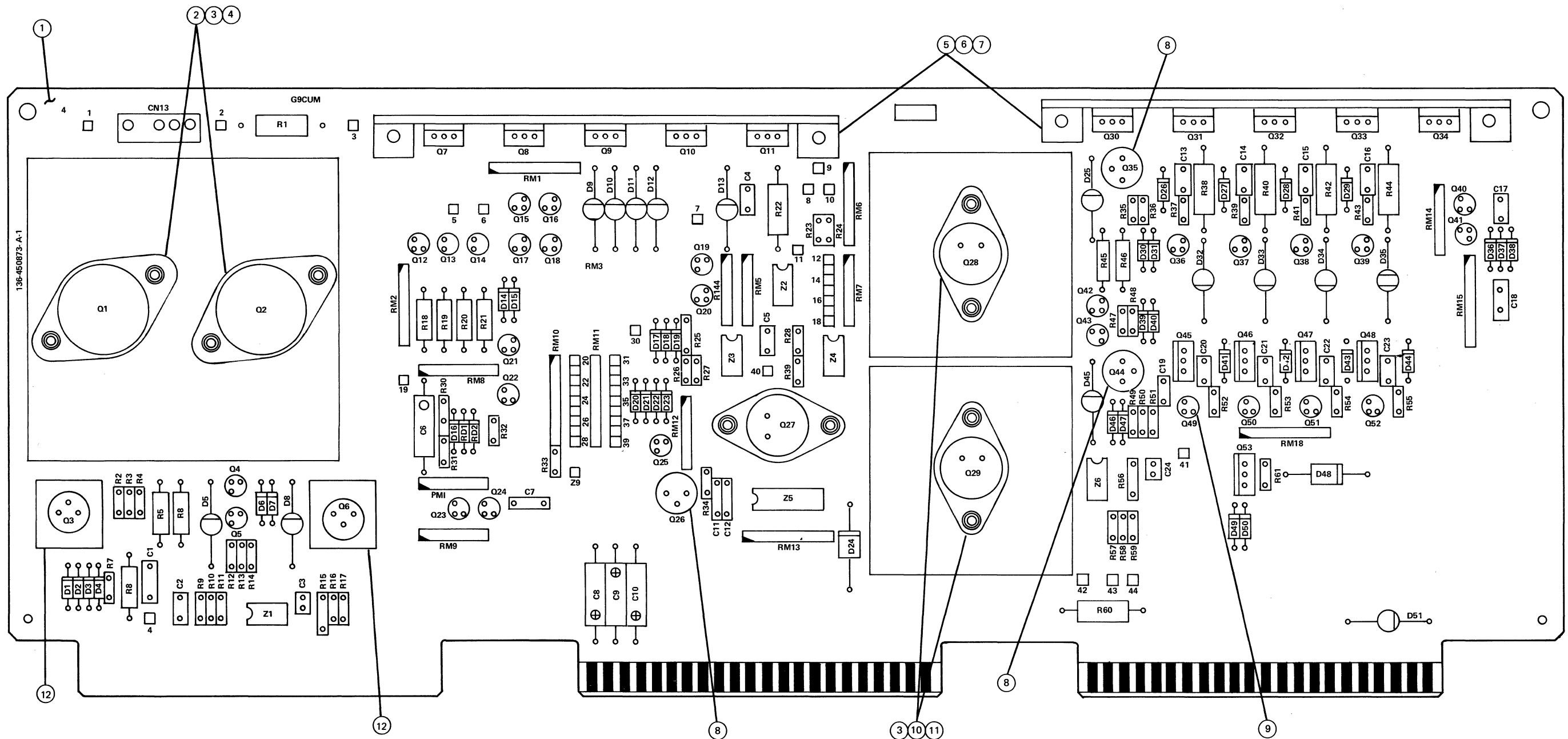


Figure 88 Driver Board (G9CUM)

COMPONENT DESIGNATION	PART NUMBER	DESCRIPTION	QTY	COMPONENT DESIGNATION	PART NUMBER	DESCRIPTION	QTY
(1)	136-450874-D	G9CUN PCB	1	R13	802-310021-082-0	Resistor RF07Q243G	1
C1, thru C4	808-935590-020-A	Capacitor TMC01CH1H750K	4	R17	802-310021-041-0	Resistor RF07Q471G	1
C5 thru C8, C10	808-935590-147-A	Capacitor TMC01CH1H102G	8	R18, R28	802-310021-055-0	Resistor RF07Q182G	2
C9, C12, C25, C27, C35 thru C40, C46, C47, C51, C52	808-935561-403-A	Capacitor FD3AF1H104Z	14	R23	802-310021-076-0	Resistor RF07Q133G	1
C15, C16, C23	808-935590-025-A	Capacitor TMC01CH1H121K	3	R24	802-310021-045-0	Resistor RF07Q681G	1
C17, C20, C26, C28, C30	808-935590-571-A	Capacitor TMC02SL1H103K	5	R25	802-310021-047-0	Resistor RF07Q821G	1
C18	802-410002-053-0	Capacitor CS02H1C220M	1	R26, R27	808-930324-029-A	Resistor RE55YQ150ΩF	2
C19, C21	802-410002-059-0	Capacitor CS02H1D150M	2	R29	802-310021-078-0	Resistor RF07Q163G	1
C22	808-935590-041-A	Capacitor TMC01CH1H561K	1	R30, R31	802-310021-003-0	Resistor RF07Q120G	2
C24	808-935590-039-A	Capacitor TMC01CH1H471K	1	RM1, RM4, RM7, RM10	808-930391-026-A	Resistor Module DNG-1510-AE	4
C29	802-410002-058-0	Capacitor CS02H1D100M	1	RM2, RM3, RM8, RM9	808-930391-027-A	Resistor Module DNG-1510-AF	4
C31, C32	808-935590-053-A	Capacitor TMC01CH12H182K	2	RM5, RM6	808-930391-028-A	Resistor Module DNG-1510-AG	2
C33, C34	808-935590-059-A	Capacitor TMC01C1H332K	1	RM11, RM12	808-930391-032-A	Resistor Module DNG-1510-AL	2
C41, C45	802-410005-041-0	Capacitor MT05M2A223J	2	RM13, RM15	808-930391-001-A	Resistor Module DNG-1510-A	2
C42, C43	808-935590-049-A	Capacitor TMC01CH1H122K	2	RM14, RM19, RM24, RM29	808-930390-004-A	Resistor Module DNG-1419-D	4
C44	802-410002-057-0	Capacitor CS02H1D2R2M	1	RM16	808-930391-029-A	Resistor Module DNG-1510-AH	1
C48	808-935590-151-A	Capacitor TMC01CH1H152G	1	RM17, RM18	808-930391-009-A	Resistor Module DNG-1510-J	2
C49, C53	802-410002-073-0	Capacitor CS02H1V100M	2	RM20, RM22	808-930391-002-A	Resistor Module DNG-1510-B	2
C50	802-410005-022-0	Capacitor MT05M2A472K	1	RM21	808-930391-038-A	Resistor Module DNG-1510-AT	1
C54	808-935590-003-A	Capacitor TMC01CH1H150K	1	RM23	808-930391-003-A	Resistor Module DNG-1510-C	1
C80	808-935590-569-A	TMC02SL1H 822K	1	RM25	808-930349-201-A	Resistor Module IHR-1/8-8-471JC	1
C81	808-935590-565-A	TMC02SL1H 562K	1	RM26	808-930391-005-A	Resistor Module DNG-1510-E	1
CM1, CM2	808-935569-002-A	Capacitor Module IHC-4-222KA	2	RM27, RM28, RM30, RM31	808-930349-002-A	Resistor Module IHR-1/8-4-133JA	4
CM3, CM4	808-935569-001-A	Capacitor Module IHC-4-331KA	2	RM32	808-930390-009-A	Resistor Module DNG-1419-J	1
D1, D2, D8, D13	808-923500-052-A	Zener Diode RD5AM	4	RM33	808-930390-013-A	Resistor Module DNG-1419-P	1
D3, D4	802-230001-016-0	Zener Diode RD7AN	2	RM34	808-930391-037-A	Resistor Module DNG-1510-AS	1
D5, D6	808-923500-072-A	Zener Diode RD7AM	2	RM35	808-930391-025-A	Resistor Module DNG-1510-AD	1
D7, D9, D10	808-923009-531-A	Diode 1S953	3	RM36	808-930391-007-A	Resistor Module DNG-1510-G	1
D11, D12	808-923500-062-A	Zener Diode RD6AM	2	Z1 thru Z4	808-910401-103-A	HIC MC5110 (A,B)	4
DM1, DM2	808-910401-430-A	Diode Module MC5143	2	Z5, Z8, Z13, Z19	808-914250-001-A	IC CD4051BE	4
L1 thru L3	802-530001-037-0	Choke Coil TP0410L-102J	3	Z6, Z7, Z9 thru Z11, Z14, Z17, Z18, Z23 thru Z26	808-919101-001-A	IC 1458C	12
Q1	808-920400-781-A	Transistor 2SD78	1	Z12, Z15, Z16, Z80	808-914250-011-A	IC CD4052BE	4
R1, R15	802-310021-073-0	Resistor RF07Q103G	2	Z20	808-912140-001-A	IC SN74LS00N	1
R2	802-310021-060-0	Resistor RF07Q302G	1	Z21, Z22	808-914120-026-A	IC MC1489AL	2
R3, R14	802-310021-067-0	Resistor RF07Q562G	2	Z27	808-912140-041-A	IC SN74LS04N	1
R4, R7, R20	808-930324-904-A	Resistor RE55YQ470KΩF	3	Z28, Z34	808-912141-951-A	IC SN74LS195AN	2
R5	802-310021-093-0	Resistor RF07Q683G	1	Z29, Z35	808-912140-421-A	IC SN74LS42N	2
R6, R21, R22	802-310021-085-0	Resistor RF07Q333G	3	Z30	808-912142-791-A	IC SN74LS279N	1
R8, R16, R82, R83	802-310021-069-0	Resistor RF07Q682G	4	Z31, Z33	808-912140-081-A	IC SN74LS08N	2
R9, R19	802-310021-087-0	Resistor RF07Q393G	2	Z32	808-912141-391-A	IC SN74LS139N	1
R10, R80, R81	808-930324-902-A	Resistor RE55YQ300KΩF	3	Z36	808-912141-751-A	IC SN74LS175N	1
R11	802-310021-005-0	Resistor RF07Q150G	1	Z37	808-912140-861-A	IC SN74LS86N	1
R12	808-930324-036-A	Resistor RE55YQ300ΩF	1	Z38	808-912100-161-A	IC SN7416N	1
				Z39, Z40	808-914020-001-A	IC LM318N/Bt	2
				(2)	133-350040-0	Insulator for Transistor	2
				(3)	133-070040-001-0	Wrapping Post	29
				(4) A,B,C,D,E,F,G, H,I,J,K,L,M,N	808-955123-209-A	Wrapping Post Module FFC-14AMEPI	13

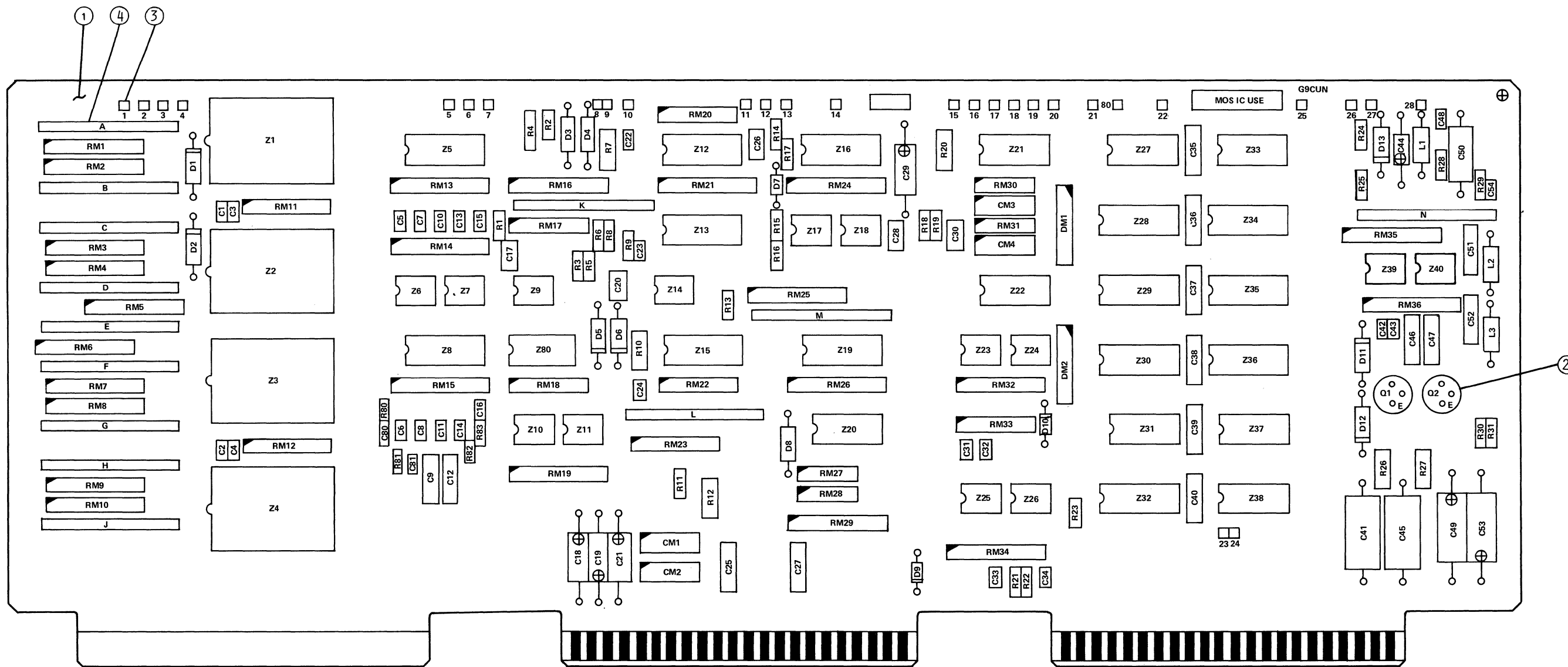


Figure 89 Servo Board (G9CUN)

136-430875-B Diablo-Type Interface Board (G9CUP)

136-430875-B Diablo-Type Interface Board (G9CUP) (cont'd)

COMPONENT DESIGNATION	PART NUMBER	DESCRIPTION	QTY
(1)	136-450875-B-2	G9CUP PCB	1
C1	808-935561-901-A	Capacitor FD35NP01H070F	1
C2, C12, C19, C20, C27, C37, C52, C53	802-410002-059-0	Capacitor CS02H1D150M	8
C3, C4, C15 thru C18, C26, C48 thru C51	802-410002-049-0	Capacitor CS02H1A330M	11
C5 thru C11, C14, C21 thru C23, C25, C28 thru C36, C38 thru C47	808-935561-403-A	Capacitor FD3AF1H104Z	31
C13, C24	808-935561-141-A	Capacitor FD1NP01H471M	2
CM1	808-935569-001-A	Capacitor Module IHC-4-331KA	1
CM2	808-935569-002-A	Capacitor Module IHC-4-222KA	1
CN30	808-955130-367-A	Connector 3433-1002	1
D1	808-923504-115-A	Diode RD5-1EB	1
L1, L2	802-530001-026-0	Choke Coil TP0410U-R22M	2
R1, R5	802-310021-045-0	Resistor RF07Q681G	2
R2	802-310021-025-0	Resistor RF07Q101G	1
R3, R4	802-310021-073-0	Resistor RF07Q103G	2
R6	802-310004-015-0	Resistor NW313R9J	1
RM1 thru RM3 RM6 thru RM8	808-930391-011-A	Resistor Module (15Kx8)	6
RM4, RM5	808-930391-012-A	Resistor Module (4.7Kx8)	2
RM9, RM18	808-930349-007-A	Resistor Module IHR-1/8-8-621JA	2
RM10, RM13, RM16	808-930349-006-A	Resistor Module IHR-1/8-8-391JA	3
RM11, RM12, RM14, RM15, RM17	808-930349-005-A	Resistor Module IHR-1/8-8-361JA	5
SW1	808-950313-004-A	DIP SWITCH CTS 206-4	1
XL1	808-970101-003-A	Crystal HC-43U 18.432MHZ	1
Z1	808-910052-241-A	IC $\mu$ PB8224C	1
Z2, Z27	808-912141-951-A	IC SN74LS195AN	2
Z3, Z4	808-910321-111-A	IC $\mu$ PD2111ALC	2
Z5	136-031563-001-A	IC CUP05A1 ( $\mu$ PD 458D)	1
Z6	136-031563-002-A	IC CUP06A1 ( $\mu$ PD 458D)	1
Z7	136-031563-003-A	IC CUP07A1 ( $\mu$ PD 458D)	1
Z8	136-031563-004-A	IC CUP08A1 ( $\mu$ PD 458D)	1
Z9	136-031563-005-A	IC CUP09A1 ( $\mu$ PD 458D)	1
Z10	808-910380-805-A	IC $\mu$ PD 8080AFD	1
Z11, Z12	808-910382-531-A	IC $\mu$ PD 8253C	2
Z13, Z26	808-914400-001-A	IC P8205	2
Z14, Z30	808-912140-041-A	IC SN74LS04N	2
Z15, Z16, Z32	808-912141-391-A	IC SN74LS139N	3

COMPONENT DESIGNATION	PART NUMBER	DESCRIPTION	QTY
Z17	808-910052-281-A	IC $\mu$ PB 8228C	1
Z18	808-910382-591-A	IC $\mu$ PD 8259C	1
Z19, Z20	808-910382-551-A	IC $\mu$ PD 8255C	2
Z21, Z22	808-912141-611-A	IC SN74LS161AN	2
Z23, Z28	808-912142-791-A	IC SN74LS279N	2
Z24, Z43	808-912140-051-A	IC SN74LS05N	2
Z25	808-912100-451-A	IC SN7445N	1
Z29, Z48	808-912140-141-A	IC SN74LS14N	2
Z31, Z35, Z37	808-912140-001-A	IC SN74LS00N	3
Z33	808-912140-101-A	IC SN74LS10N	1
Z34	808-912140-741-A	IC SN74LS74AN	1
Z36	808-912140-201-A	IC SN74LS20N	1
Z38	808-912140-031-A	IC SN74LS03N	1
Z39 thru Z42	808-912146-701-A	IC SN74LS670N	4
Z44	808-912140-081-A	IC SN74LS08N	1
Z45 thru Z47	808-914019-001-A	IC DS8837N	3
Z49 thru Z52	808-912204-521-A	IC SN75452BP	4
Z53	808-910201-433-A	IC $\mu$ PC14312H	1
(2)	802-730014-128-A	IC Receptacle (28-Pin)	5
(3)	802-730014-040-A	IC Receptacle (40-Pin)	1
(4)	808-970904-001-A	Heat Sink IC291-H-9-M	1

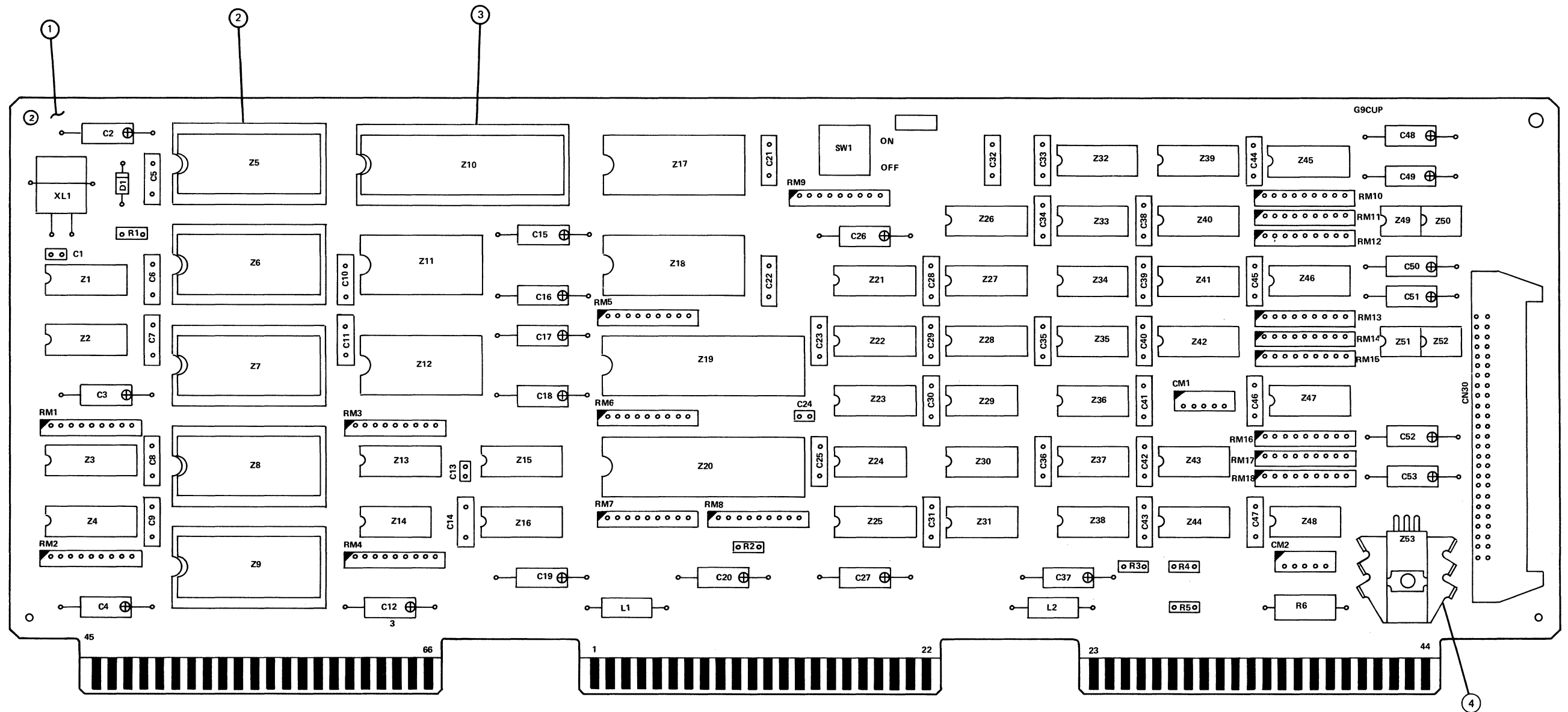


Figure 90 Diablo-Type Interface Board (G9CUP)



COMPONENT DESIGNATION	PART NUMBER	DESCRIPTION	QTY	COMPONENT DESIGNATION	PART NUMBER	DESCRIPTION	QTY
(1)	136-450876-A	G9CUQ PCB	1	Z14, Z30	808-912140-041-A	IC SN74LS04N	2
C1, C13, C16, C26, C29, C40, C51, C52	802-410002-059-0	Capacitor CS02H1D150M	8	Z16, Z22	808-912141-611-A	IC SN74LS161AN	2
C2	808-935561-901-A	Capacitor FD35NP01H070F	1	Z17	808-910052-281-A	IC $\mu$ PB 8228C	1
C3, C4, C17, C20, C23, C28, C33, C34, C48 thru C50	802-410002-049-0	Capacitor CS02H1A330M	11	Z18	808-910382-591-A	IC $\mu$ PD 8259C	1
C5 thru C12, C14, C15, C18, C19, C22, C24, C25, C27, C30 thru C32, C35, C36, C39, C41 thru C47	808-935561-403-A	Capacitor FD3AF1H104Z	29	Z19, Z20	808-910382-551-A	IC $\mu$ PD 8255C	2
C21, C37	808-935561-141-A	Capacitor FD1NP01H471M	2	Z21	808-912141-951-A	IC SN74LS195AN	1
C38	802-410012-002-0	Capacitor MC03F1H2248	1	Z23, Z28, Z36	808-912142-791-A	IC SN74LS279N	3
CM1	808-935569-001-A	Capacitor Module IHC-4-331KA	1	Z24, Z44	808-912140-051-A	IC SN74LS05N	2
CM2	808-935569-002-A	Capacitor Module IHC-4-222KA	1	Z25	808-912100-451-A	IC SN7445N	1
CN30	808-955130-330-A	Connector 3431-1002	1	Z29	808-912140-741-A	IC SN74LS74AN	1
D1	808-923504-115-A	Diode RD5.1EB	1	Z31, Z37	808-912140-001-A	IC SN74LS00N	2
L1, L2	802-530001-026-0	Choke Coil TP0410L-R22M	2	Z33	808-912140-301-A	IC SN74LS30N	1
R1, R4	802-310021-045-0	Resistor RF07Q681G	2	Z35, Z49	808-912140-141-A	IC SN74LS14N	2
R2	802-310021-025-0	Resistor RF07Q101G	1	Z38	808-912140-031-A	IC SN74LS03N	1
R3, R5	802-310021-073-0	Resistor RF07Q103G	2	Z39 thru Z42	808-912146-701-A	IC SN74LS670N	4
R6	802-310004-015-0	Resistor NW313R9J	1	Z43	808-912140-101-A	IC SN74LS10N	1
RM1 thru RM3, RM6 thru RM8	808-930391-011-A	Resistor Module (15Kx8)	6	Z45	808-912140-081-A	IC SN74LS08N	1
RM4, RM5	808-930391-012-A	Resistor Module (4.7Kx8)	2	Z46 thru Z48	808-914019-001-A	IC DS8837N	3
RM9, RM16	808-930349-007-A	Resistor Module IHR-1/8-8-621JA	2	Z50 thru Z53	808-912204-521-A	IC SN75452BP	4
RM10, RM13, RM14	808-930349-051-A	Resistor Module IHR-1/4-8-162JA	3	Z54	808-910201-433-A	IC $\mu$ PC 14312H	1
RM11, RM12, RM15	808-930349-004-A	Resistor Module IHR-1/8-8-681JA	3	(2)	802-730014-128-A	IC Receptacle (28-Pin)	5
SW1	808-950324-008-A	Dip Switch 7-171474-8	1	(3)	802-730014-040-A	IC Receptacle (40-Pin)	1
XL1	808-970101-003-A	Crystal HC-43U 18.432MHZ	1	(4)	808-970904-001-A	Heat Sink IC291-H-9-M	1
Z1	808-910052-241-A	IC $\mu$ PB 8224C	1				
Z2, Z15, Z27, Z32	808-912141-391-A	IC SN74LS139N	4				
Z3, Z4	808-910321-111-A	IC $\mu$ PD 2111ALC	2				
Z5	136-031570-001-A	IC CUQ05A1 ( $\mu$ PD 458D)	1				
Z6	136-031570-002-A	IC CUQ06A1 ( $\mu$ PD 458D)	1				
Z7	136-031570-003-A	IC CUQ07A1 ( $\mu$ PD 458D)	1				
Z8	136-031570-004-A	IC CUQ08A1 ( $\mu$ PD 458D)	1				
Z9	136-031570-005-A	IC CUQ09A1 ( $\mu$ PD 458D)	1				
Z10	808-910380-805-A	IC $\mu$ PD 8080AFD	1				
Z11, Z12	808-910382-531-A	IC $\mu$ PD 8253C	2				
Z13, Z26, Z34	808-914400-001-A	IC P8205	3				

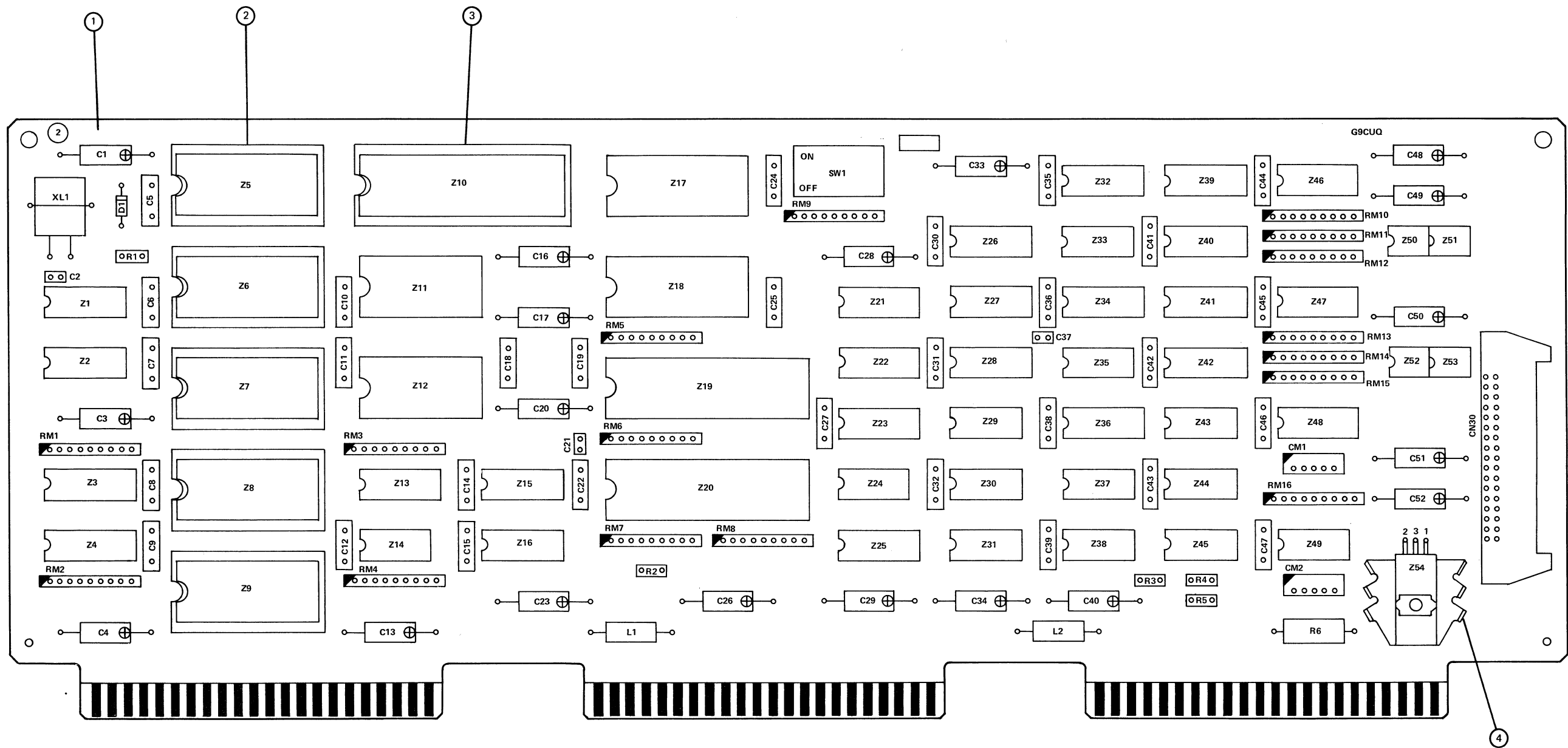


Figure 91 8080 8-Bit Naked Interface Board (G9CUQ)

136-430877-A RS-232-C Interface Board (G9CUR)  
 136-430989-A RS-232-C Interface Board (G9DWH)

136-430877-A RS-232-C Interface Board (G9CUR) (cont'd)  
 136-430989-A RS-232-C Interface Board (G9DWH) (cont'd)

COMPONENT DESIGNATION	PART NUMBER	DESCRIPTION	QTY
(1)	136-450877-A	G9CUR PCB	1
(1)	136-450989-A	G9DWH PCB	1
C1 thru C6, C8 thru C23, C25 thru C27, C32, C33, C35 thru C41, C44 thru C46, C48, C51 thru C54	808-935561-403-A	Capacitor FD3AF1H104Z	42
C7, C31, C47, C50	802-410002-049-0	Capacitor CS02H1A330M	4
C24	808-935561-901-A	Capacitor FD35NP01H070F	1
C28, C29, C34, C42	802-410013-013-0	Capacitor MC01CH1H101	4
C30, C43, C49, C55	802-410002-059-0	Capacitor CS02H1D150M	4
C56	802-410002-061-0	Capacitor CS02H1D470M	1
CM1 thru CM4	808-935569-002-A	Capacitor Module IHC-4-222KA	4
CN30	808-955140-103-A	L-Type Post Housing AMP1-170850-7	1
CN31	808-955130-312-A	Connector 3428-1002	1
D1, D2	808-923009-531-A	Diode 1S953	2
D3	808-923504-115-A	Diode RD5.1EB	1
L1 thru L3	802-530001-026-0	Choke Coil TP0410L-R22M	3
R1, R2, R8	802-310021-065-0	Resistor RF07Q472G	3
R3	802-310021-025-0	Resistor RF07Q101G	1
R4, R6	802-310021-073-0	Resistor RF07Q103G	2
R5, R9, R15	802-310021-049-0	Resistor RF07Q102G	3
R7, R14	802-310021-045-0	Resistor RF07Q681G	2
R10 thru R13	802-310021-074-0	Resistor RF07Q113G	4
R16	802-310004-011-0	Resistor NW312R7J	1
RM1 thru RM5, RM9 thru RM11	808-930391-011-A	Resistor Module (15K)	8
RM6 thru RM8, RM12	808-930349-010-A	Resistor Module IHR-1/8-8-102-JA	4
SW1	808-950313-004-A	Dip Switch CTS 206-4	1
XL1	808-970101-001-A	HC-18U 18.432MHZ	1
Z1	136-031576-001-A	IC CUR01A (μPD458D)	1
Z2	136-031576-002-A	IC CUR02A (μPD458D)	1
Z3	136-031576-003-A	IC CUR03A (μPD458D)	1
Z4	136-031576-004-A	IC CUR04A (μPD458D)	1
Z5	136-031576-005-A	IC CUR05A (μPD458D)	1
Z6	136-031576-006-A	IC CUR06A (μPD458D)	1
Z7	136-031576-007-A	IC CUR07A (μPD458D)	1
Z8	136-031576-008-A	IC CUR08A (μPD458D)	1
Z1*	136-032459-001-A	IC DWH01A (μPD458D)	1
Z2*	136-032459-002-A	IC DWH02A (μPD458D)	1
Z3*	136-032459-003-A	IC DWH03A (μPD458D)	1
Z4*	136-032459-004-A	IC DWH04A (μPD458D)	1

COMPONENT DESIGNATION	PART NUMBER	DESCRIPTION	QTY
Z5*	136-032459-005-A	IC DWH05A (μPD458D)	1
Z6*	136-032459-006-A	IC DWH06A (μPD458D)	1
Z7*	136-032459-007-A	IC DWH07A (μPD458D)	1
Z8*	136-032459-008-A	IC DWH08A (μPD458D)	1
Z9 thru Z12	808-910321-111-A	IC μPD 2111ALC	4
Z13	808-910052-281-A	IC μPB 8228C	1
Z14	808-910380-805-A	IC μPD 8080AFD	1
Z15, Z20 thru Z23	808-912141-611-A	IC SN74LS161AN	5
Z16	808-912141-551-A	IC SN74LS155N	1
Z17, Z25, Z38, Z39, Z43	808-912140-041-A	IC SN74LS04N	5
Z18	808-910052-241-A	IC μPB 8224C	1
Z19, Z24	808-912140-421-A	IC SN74LS42N	2
Z26, Z48	808-912140-081-A	IC SN74LS08N	2
Z27	808-910382-591-A	IC μPD 8259C	1
Z28	808-910382-531-A	IC μPD 8253C	1
Z29, Z30, Z33	808-910382-551-A	IC μPD 8255C	3
Z31, Z32	808-910340-421-A	IC μPD 4042C	2
Z34, Z35, Z41, Z44	808-912140-031-A	IC SN74LS03N	4
Z36	808-912141-071-A	IC SN74LS107AN	1
Z37	808-910100-451-A	IC μPB 7445C	1
Z40	808-912141-391-A	IC SN74LS139N	1
Z42, Z45	808-912140-051-A	IC SN74LS05N	2
Z46	808-912140-741-A	IC SN74LS74N	1
Z47	808-912140-001-A	IC SN74LS00N	1
Z49	808-910382-511-A	IC μPD 8251C	1
Z50, Z54	808-910201-433-A	IC μPC 14312H	2
Z51	808-912141-951-A	IC SN74LS195AN	1
Z52, Z53	808-914120-025-A	IC MC1489L	2
Z55, Z56	808-914120-015-A	IC MC1488L	2
(2)	808-970904-001-A	Heat Sink IC 291-H-9-M	2
(3)	802-730014-040-A	40-Pin IC Socket (Gold Plate)	1
		IC-63-2806	
(4)	802-730014-128-A	28-Pin IC Socket (Silver Plate)	8
		IC-99-2806	

NOTE

The only difference between the G9CUR and the G9DWH PCBs are only the PCB names and board part numbers, and part numbers of the firmware PROMs Z1 thru Z8.

\*Used on G9DWH PCB for Models 5515 and 5525

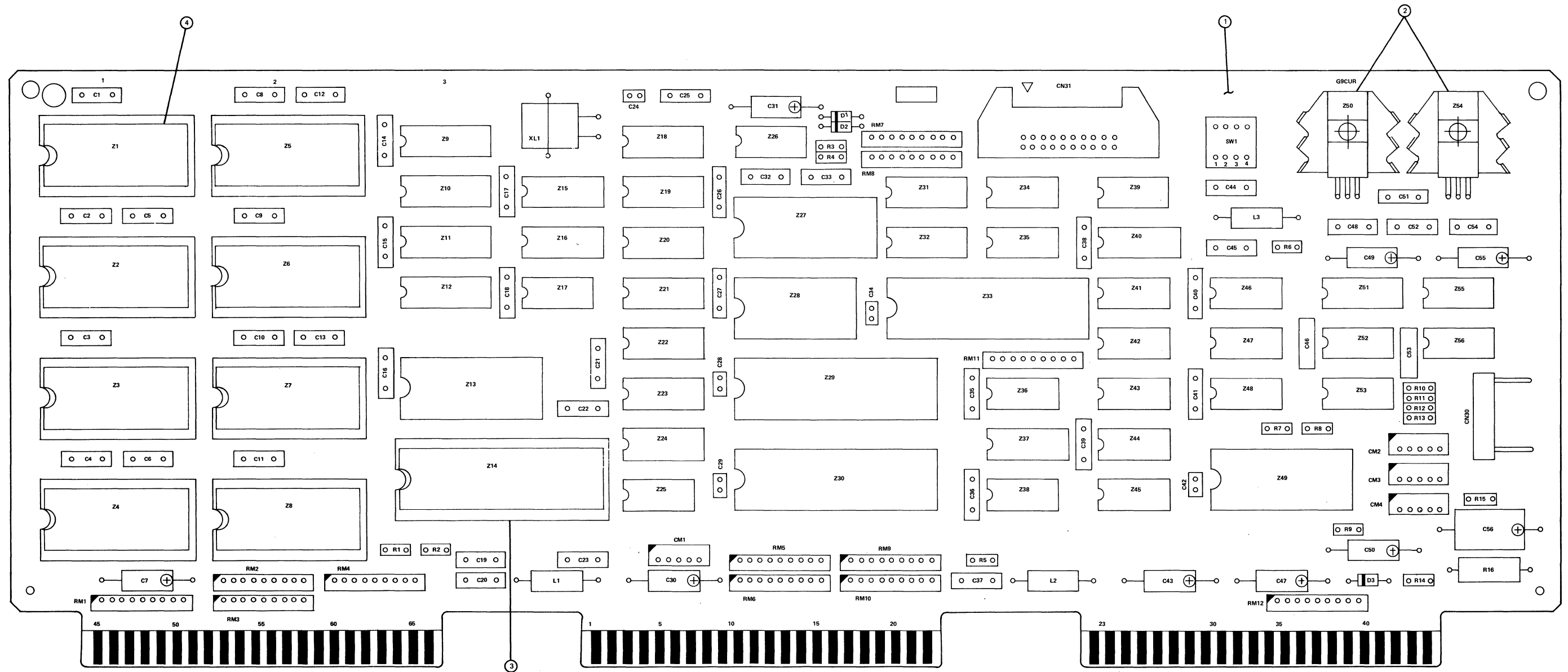


Figure 92 RS-232-C Interface Board (G9CUR and G9DWH)

## 136-430990-B RS-232-C Interface Board (G9DWJ)

COMPONENT DESIGNATION	PART NUMBER	DESCRIPTION	QTY
(1)	136-450987-A	G9DWJ PCB	1
C1 thru C8, C10 thru C13, C15 thru C20, C22 thru C25, C27 thru C33, C35 thru C41, C44 thru C47, C49 thru C51, C54	808-935561-403-A	Capacitor FD3AF1H104Z	42
C9, C14, C42, C43	802-410002-049-0	Capacitor CS02H1A330M	4
C21	808-935561-901-A	Capacitor FD35NP01H070F	1
C26, C34, C44, C48	802-410002-059-0	Capacitor CS02H1D150M	4
C52	808-935561-141-A	Capacitor FD1NP01H471M	1
C53	802-410002-061-0	Capacitor CS02H1D470M	1
CM1 thru CM6	808-935569-002-A	Capacitor Module IHC-4-222KA	6
CN30	808-955140-103-A	L-Type Post Housing AMP1-170850-7	1
CN31	808-955130-312-A	Connector 3428-1002	1
D1, D2	808-923009-531-A	Diode 1S953	2
D3	808-923504-115-A	Diode RD5.1EB	1
L1 thru L3	802-530001-026-0	Choke Coil TP0410L-R22M	3
R1	802-310021-025-0	Resistor RF07Q101G	1
R2, R5	802-310021-073-0	Resistor RF07Q103G	2
R3	802-310021-065-0	Resistor RF07Q472G	1
R4, R6	802-310021-045-0	Resistor RF07Q681G	2
R7	802-310004-011-0	Resistor NW312R7J	1
RM1 thru RM3, RM5, RM7, RM8, RM10, RM13, RM16	808-930391-011-A	Resistor Module (15K)	9
RM4	808-930391-012-A	Resistor Module (4.7KX8)	1
RM6, RM9, RM11, RM12, RM14	808-930349-010-A	Resistor Module IHR-1/8-8-102JA	5
RM15	808-930349-101-A	Resistor Module IHR-1/8-4-103JB	1
SW1	808-950324-008-A	DIP Switch 7-171474-8	1
XL1	808-970101-001-A	HC-18U 18.432MHZ	1
Z1	136-032460-001-A	IC DWJ01B (μPD458D)	1
Z2	136-032460-002-A	IC DWJ02B (μPD458D)	1
Z3	136-032460-003-A	IC DWJ03B (μPD458D)	1
Z4	136-032460-004-A	IC DWJ04B (μPD458D)	1
Z5	136-032460-005-A	IC DWJ05B (μPD458D)	1
Z6	136-032460-006-A	IC DWJ06B (μPD458D)	1
Z7	136-032460-007-A	IC DWJ07B (μPD458D)	1
Z8	136-032460-008-A	IC DWJ08B (μPD458D)	1
Z9	136-032460-009-A	IC DWJ09B (μPD458D)	1
Z10	808-910382-531-A	IC μPD8253C	1
Z11	808-910380-805-A	IC μPD8080AFD	1
Z12	808-910052-281-A	IC μPB8228C	1
Z13 thru Z16	808-910321-111-A	IC μPD2111ALC	4
Z17	808-910052-241-A	IC μPB8224C	1

## 136-430990-B RS-232-C Interface Board (G9DWJ) (cont'd)

COMPONENT DESIGNATION	PART NUMBER	DESCRIPTION	QTY
Z18	808-912141-551-A	IC SN74LS155N	1
Z19, Z32	808-912140-421-A	IC SN74LS42N	2
Z20, Z46	808-912141-391-A	IC SN74LS139N	2
Z21, Z24, Z39, Z44	808-912140-041-A	IC SN74LS04N	4
Z22	808-910382-591-A	IC μPD8259C	1
Z23, Z29, Z30, Z36, Z37	808-912141-611-A	IC SN74LS161AN	5
Z25, Z28	808-912140-081-A	IC SN74LS08N	2
Z26, Z27, Z38, Z50	808-910382-551-A	IC μPD8255C	4
Z31	808-910100-451-A	IC μPB7445C	1
Z33	808-912141-071-A	IC SN74LS107AN	1
Z34, Z35	808-910340-421-A	IC μPD4042C	2
Z40	808-912140-001-A	IC SN74LS00N	1
Z41, Z42, Z48, Z49	808-912140-031-A	IC SN74LS03N	4
Z43, Z47	808-912140-051-A	IC SN74LS05N	2
Z45	808-912140-741-A	IC SN74LS74AN	1
Z51	808-912141-951-A	IC SN74LS195AN	1
Z52, Z58	808-910201-433-A	IC μPC14312H	2
Z53, Z54	808-914120-015-A	IC MC1488L	2
Z55, Z56	808-914120-025-A	IC MC1489L	2
Z57	808-910382-511-A	IC μPD8251C	1
(2)	808-970904-001-A	Heat Sink IC291-H-9-M	2
(3)	804-173010-108-A	ETFE Wire AWG#24-8T	AR
(4)	802-730014-040-A	40-Pin IC Socket (Gold Plate)	1
(5)		IC-63-2806	
(6)	802-730014-128-A	28-Pin IC Socket (Silver Plate)	9
(7)		IC-99-2806	
(8)	805-610003-0	PIWAX3x15BF	2
(9)	805-620003-0	#2PILWAX3x15BF	2
	805-500003-0	AHEXINx3x15BF	2
	805-000003-010-0	CPIMSx3x10x15BF	2

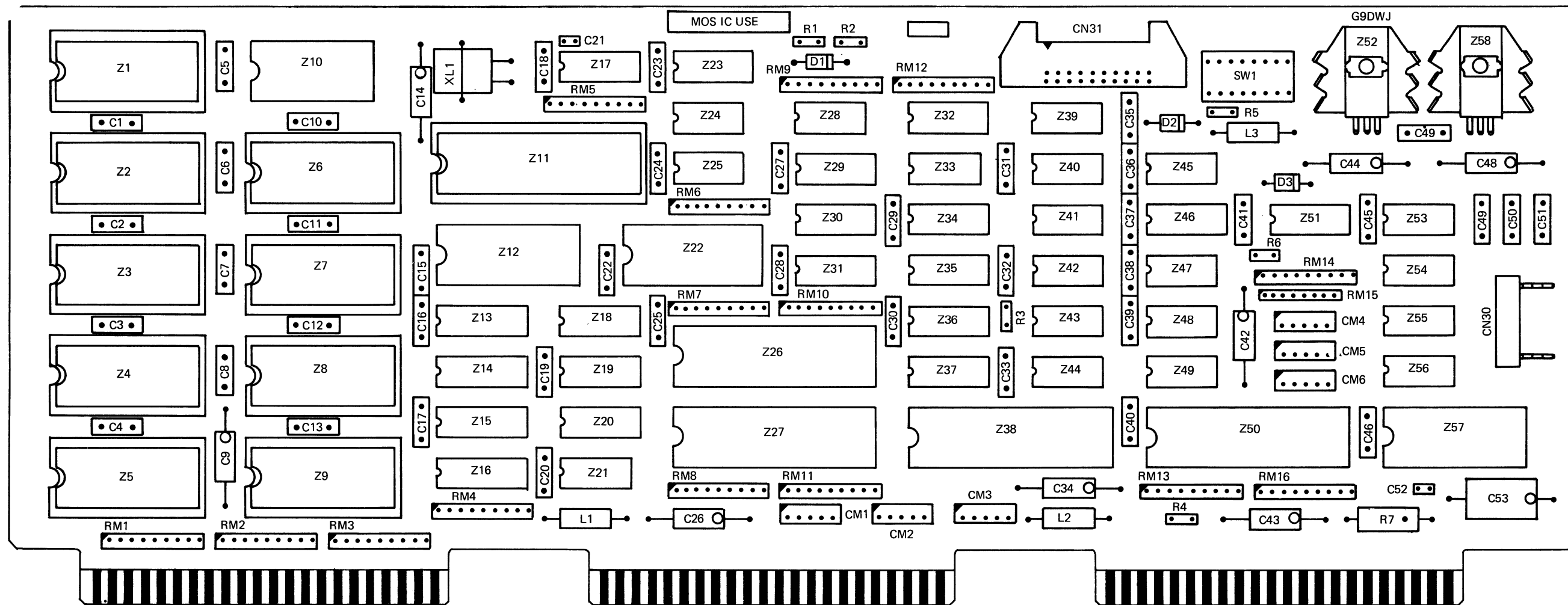


Figure 93 RS-232-C Interface Board (G9DWJ)

136-430592-A Control Panel Board (G9BNF) - Used With 5520 and 5525

<u>COMPONENT DESIGNATION</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QTY</u>
(1)	136-450592-B	G9BNF PCB	1
C1, C82, C83	802-410002-049-A	Capacitor CS02H1A330M	3
C2	808-935561-564-A	Capacitor FD52Ax1H103K	1
C31 thru C34	808-935561-403-A	Capacitor FD3AF1H104Z	4
CN32, CN33	808-955130-312-A	Connector 3428-1002	2
D1 thru D11	808-923009-531-A	Diode 1S953	11
D12, D13	802-810019-001-A	Light Emitting Diode SR103D	2
DM1 thru DM3	808-910000-544-A	Diode Module $\mu$ PA54H	3
R1	802-310021-017-A	Resistor RF0Q470G	1
R2 thru R5	802-310021-065-A	Resistor RF07Q472G	4
R6, R7, R9	802-310021-049-A	Resistor RF07Q102G	3
R8, R10	802-310021-027-A	Resistor RF0Q121G	2
RM1	808-930391-012-A	Resistor Module 47K x 8	1
SW1	808-950313-008-A	Dip Switch CTS206-8	1
SW3, SW11 thru SW13	808-950314-001-A	Switch U18J1V3GE9	4
SW4, SW7 thru SW10	808-950314-002-A	Switch U11J1V3GE9	5
SW5, SW6	808-950314-003-A	Switch U13J1V3GE9	2
Z1, Z3	808-912141-751-A	SN74LS175N	2
Z2, Z4, Z5, Z8	808-912140-031-A	SN74LS03N	4
Z6	808-912140-041-A	SN74LS04N	1
Z7	808-912140-042-A	SN74LS42N	1
Z9	808-912141-741-A	SN74LS174N	1
Z10 thru Z12	808-912204-511-A	SN75451BP	3
(2)	808-950315-012-A	Digital Switch 2-A7MA-206-P2	1
(3)	808-960402-001-A	Buzzer SMB-06	1
(201)	808-310002-008-0	SL-CPIMSx2x8x15BF	2
(204)	805-500002-0	AHEXINx2x15BF	2

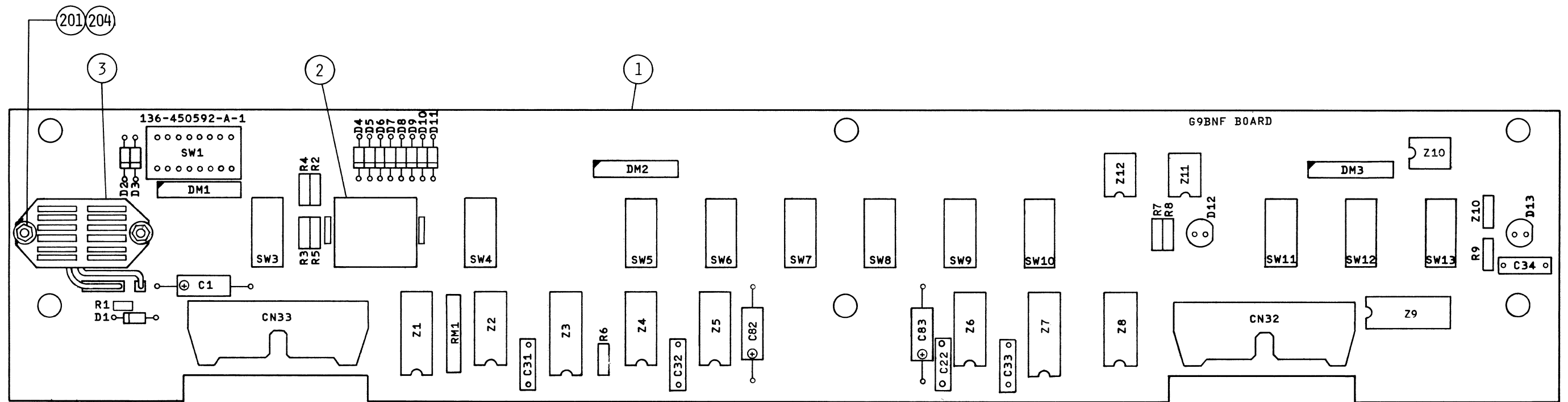


Figure 94 Operator Control Panel Board (G9BNF) -  
Used With 5520 and 5525



136-430590-A Control Panel Board (G9BND) - Used With  
Centronics-Type Interface

<u>COMPONENT DESIGNATION</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QTY</u>
(1)	136-450590-A	G9BND PCB	1
C1	808-935561-403-A	Capacitor FD3AF1H104Z	2
C2, C3	808-935561-525-A	Capacitor FD52NP01H102K	2
C4	802-410002-049-0	Capacitor CS02H1A330M	1
CN32	808-955130-312-A	Connector 3428-1002	1
CN33	808-955140-345-A	L-Type Connector Assembly 1-350944-0	1
D2 thru D14, D19, D20	808-923009-531-A	Diode 1S953	15
D16 thru D18, D21	802-810019-001-0	Light Emitting Diode SR103D	4
R3 thru R6	802-310021-027-A	Resistor RF07Q121G	4
SW1, SW4 thru SW6	808-950314-002-A	Switch U11J1V3GE9	4
SW2	808-950315-012-A	Digital Switch 2-A7MA-206-P2	1
SW3, SW7, SW9, SW10	808-950314-001-A	Switch U18J1V3G3E9	4
(2)	805-001103-010-0	CPBMSx3x10x3GF	2
(3)	805-501103-0	AHEXBNx3x3GF	2
(4)	805-611103-0	PBWAX3x3GF	2
(5)	805-623110-0	#2PBLWAX3x3GF	2

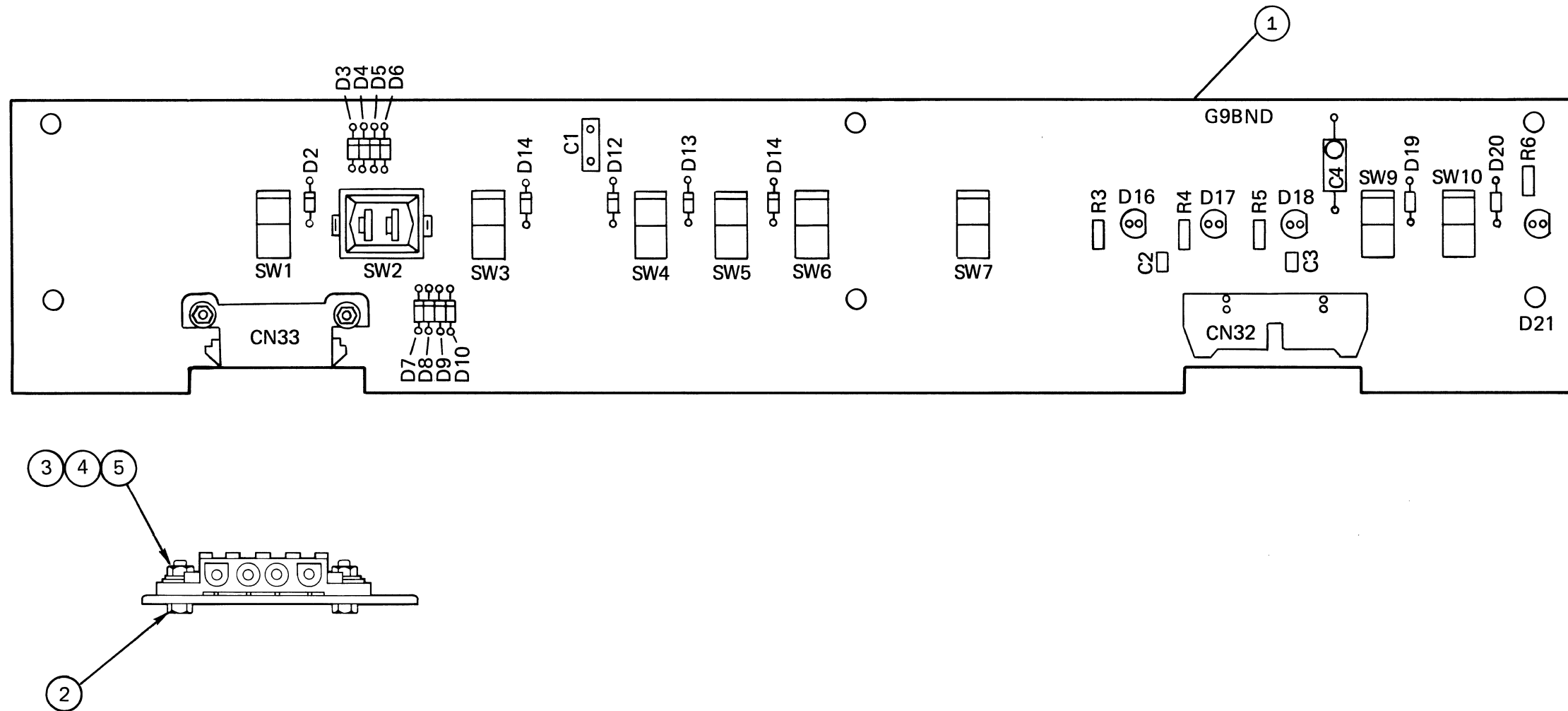


Figure 95 Operator Control Panel Board (G9BND) -  
Used With Centronics-Type Interface

136-430577-A Centronics-Type Interface Board (G9BNA)

<u>COMPONENT DESIGNATION</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QTY</u>
(1)	136-450577-C	G9BNA PCB	1
C1, C4, C5, C7 thru C18, C21 thru C23, C25, C26	808-935561-403-A	Capacitor FD3AF1H104Z	20
C2, C24	802-410002-059-0	Capacitor CS02H1D150M	2
C3, C6, C27, C28	802-410002-049-0	Capacitor CS02H1A330M	4
C19, C20	808-935561-707-A	Capacitor FD35NP01H330K	2
CN41, CN42	808-955130-330-A	Connector 3431-1002	2
L1	802-530001-026-0	Choke Coil TP0410L-R22M	1
R1	802-310021-025-0	Resistor RF07Q101G	1
R2	802-310021-077-0	Resistor RF07Q153G	1
R3, R4	802-310021-041-0	Resistor RF07Q471G	2
RM1, RM3	808-930349-012-A	Resistor Module IHR-1/8-8- 122JA	2
RM2, RM4	808-930349-010-A	Resistor Module IHR-1/8-8- 102JA	2
SW1	808-950324-008-A	Dip Switch 7-171474-8	1
Z1, Z16, Z23, Z24	808-912140-741-A	IC SN74LS74AN	4
Z2, Z25	808-912140-081-A	IC SN74LS08N	2
Z3, Z6, Z8	808-912141-951-A	IC SN74LS195AN	3
Z4, Z21, Z22, Z32	808-912140-001-A	IC SN74LS00N	4
Z5	808-912140-421-A	IC SN74LS42N	1
Z7	808-912100-081-A	IC SN7408N	1
Z9	808-912142-791-A	IC SN74LS279N	1
Z10	808-912140-111-A	IC SN74LS11N	1
Z11, Z17, Z30	808-912140-041-A	IC SN74LS04N	3
Z12	808-912140-141-A	IC SN74LS14N	1
Z13	808-912100-001-A	IC SN7400N	1
Z14	808-912100-041-A	IC SN7404N	1
Z15	808-912140-201-A	IC SN74LS20N	1
Z18	808-912140-101-A	IC SN74LS10N	1
Z19, Z31	808-912141-391-A	IC SN74LS139N	2
Z20	808-912141-751-A	IC SN74LS175N	1
Z26, Z27	808-912140-851-A	IC SN74LS85N	2
Z28, Z29	808-912141-931-A	IC SN74LS193N	2
Z33, Z37	808-912141-731-A	IC SN74LS173N	2
Z34, Z38	808-910321-111-A	IC $\mu$ PD2111-ALS	2
Z35	136-031582-001-A	IC BNA35 ( $\mu$ PD458D)	1
Z36, Z39	808-912141-571-A	IC SN74LS157N	2
(2)	802-730014-128-A	28-Pin IC Socket (Tin Plate) IC-99-2806	1

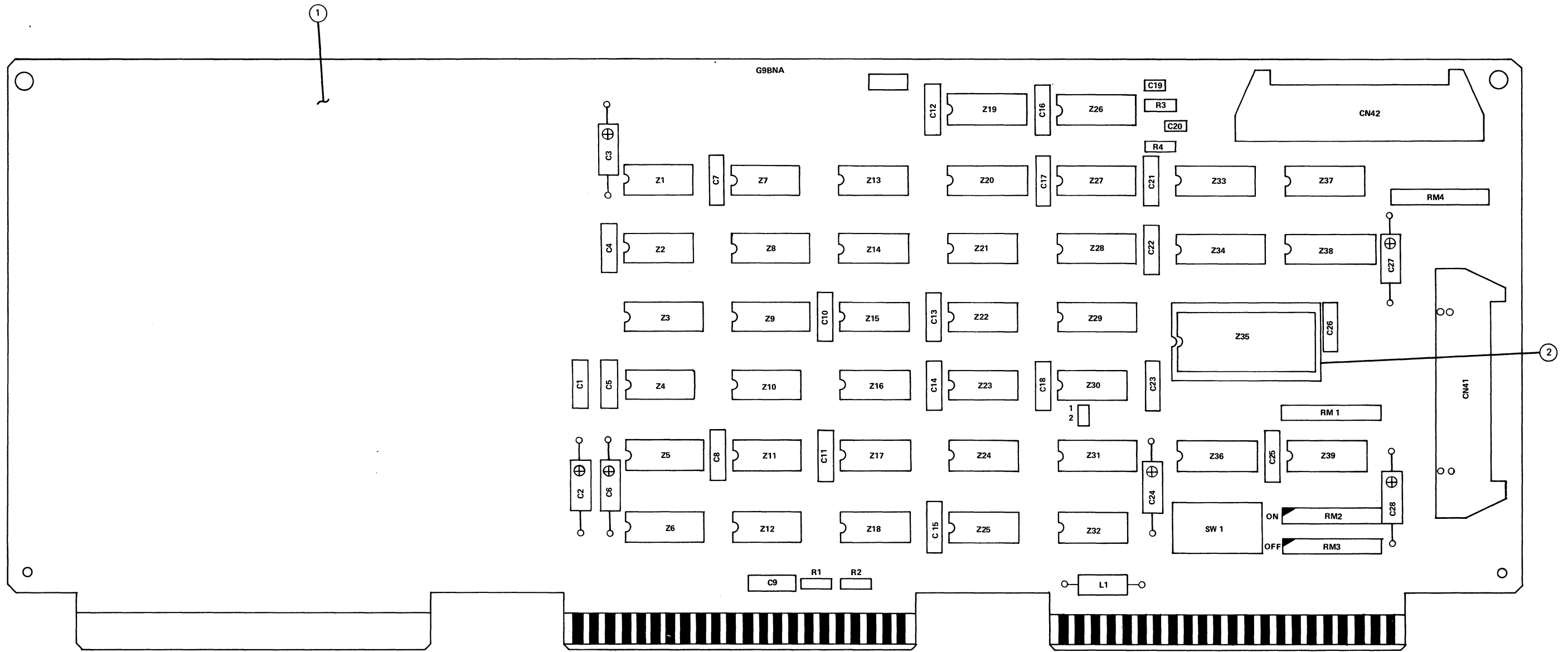


Figure 96 Centronics-Type Interface Board (G9BNA)

136-430578-B Microprocessor Logic Board (G9BNB) - Used With  
Centronics-Type Interface Board

COMPONENT DESIGNATION	PART NUMBER	DESCRIPTION	QTY
(1)	136-450578-C	G9BNB PCB	1
C1 thru C4, C6, C9 thru C12, C14 thru C18, C20 thru C23, C26, C27, C29, C33, C35, C37, C39 thru C47, C49, C50, C53 thru C55, C58, C60	808-935561-403-A	Capacitor FD3AF1H104Z	40
C5	808-935561-901-A	Capacitor FD35NP01H070F	1
C7, C8, C13, C25, C31, C36, C48	802-410002-049-0	Capacitor CS02H1A330M	7
C19, C24, C30, C52, C57	802-410002-059-0	Capacitor CS02H1D150M	5
C28, C32	808-935561-137-A	Capacitor FD1NP01H331M	2
C34, C38, C51, C56, C59	808-935561-900-A	Capacitor FDLAX1H222M	5
C61	802-410002-061-0	Capacitor CS02H1D470M	1
CM1, CM4 thru CM6	808-935569-002-A	Capacitor Module IHC-4-222KA	4
CM2, CM3	808-935569-001-A	Capacitor Module IHC-4-331KA	2
CN30	808-955130-330-A	Connector 3431-1002	1
CN31	808-955130-312-A	Connector 3428-1002	1
D1	808-923504-115-A	Diode RD5.1EB	1
DM1 thru DM4	808-910000-544-A	Diode Module $\mu$ PA54H	4
L1 thru L4	802-530001-026-0	Choke Coil TP0410L-R22M	4
R1, R12	802-310021-073-0	Resistor RF07Q103G	2
R2, R6, R7,	802-310021-025-0	Resistor RF07Q101G	3
R3, R4, R13 thru R15	802-310021-065-0	Resistor RF07Q472G	5
R5, R8	802-310021-045-0	Resistor RF07Q681G	2
R9, thru R11	802-310021-049-0	Resistor RF07Q102G	3
R16	802-310004-011-0	Resistor NW312R7J	1
RM1 thru RM4, RM7, RM8, RM15 thru RM17, RM22	808-930391-011-A	Resistor Module 15Kx8	10
RM5, RM6, RM9 thru RM14, RM23	808-930349-102-A	Resistor Module IHR-1/8-4-102JB	9
RM18	808-930349-003-A	Resistor Module IHR-1/8-8-471JB	1
RM19 thru RM21	808-930349-103-A	Resistor Module IHR-1/8-4-471JB	3

136-430578-B Microprocessor Logic Board (G9BNB) - Used With  
Centronics-Type Interface Board (cont'd)

COMPONENT DESIGNATION	PART NUMBER	DESCRIPTION	QTY
SW1 thru SW3	808-950324-008-A	Dip Switch 7-171474-8	3
XL1	808-970101-003-A	HC-43U 18.432MHZ	1
Z1	136-031578-001-B	IC BNB01 ( $\mu$ PD458D)	1
Z2	136-031578-002-B	IC BNB02 ( $\mu$ PD458D)	1
Z3	136-031578-003-B	IC BNB03 ( $\mu$ PD458D)	1
Z4	136-031578-004-B	IC BNB04 ( $\mu$ PD458D)	1
Z5	136-031578-005-B	IC BNB05 ( $\mu$ PD458D)	1
Z6	136-031578-006-B	IC BNB06 ( $\mu$ PD458D)	1
Z7	136-031578-007-B	IC BNB07 ( $\mu$ PD458D)	1
Z8	136-031578-008-B	IC BNB08 ( $\mu$ PD458D)	1
Z9	808-910052-241-A	IC $\mu$ PB8224C	1
Z10	808-910380-805-A	IC $\mu$ PD8080AFD	1
Z11, Z12, Z38, Z39	808-912140-041-A	IC SN74LS04N	4
Z13	808-912140-421-A	IC SN74LS42N	1
Z14	808-912141-551-A	IC SN74LS155N	1
Z15, Z22	808-910321-111-A	IC $\mu$ PD2111ALC	2
Z16	808-910382-591-A	IC $\mu$ PD8259C	1
Z17	808-910052-281-A	IC $\mu$ PB8228C	1
Z18, Z19	808-912141-611-A	IC SN74LS161AN	2
Z20	808-912140-741-A	IC SN74LS74AN	1
Z21, Z41	808-912141-951-A	IC SN74LS195AN	2
Z23	808-912141-391-A	IC SN74LS139N	1
Z24, Z40	808-912140-001-A	IC SN74LS00N	2
Z25	808-912140-081-A	IC SN74LS08N	1
Z26	808-910382-531-A	IC $\mu$ PD8253C	1
Z27, Z33, Z42, Z43	808-910382-551-A	IC $\mu$ PD8255C	4
Z28, Z45, Z47	808-912140-031-A	IC SN74LS03N	3
Z29, Z37	808-912140-051-A	IC SN74LS05N	2
Z30, Z35	808-910100-451-A	IC $\mu$ PB7445C	2
Z31, Z32	808-910340-421-A	IC $\mu$ PD4042C	2
Z34	808-912100-061-A	IC SN7406N	1
Z44, Z48	808-910201-433-A	IC $\mu$ PC14312	2
Z46, Z50, Z51	808-914120-025-A	IC MCL489L	3
Z49	808-912100-051-A	IC SN7405N	1
(2)	802-730014-040-A	40-Pin IC Socket (Gold Plate) IC-63-2806	1
(3)	802-730014-128-A	18-Pin IC Socket (Tin Plate) IC-99-2806	8
(4)	808-970904-001-A	Heatsink IC291-H-9-M	2

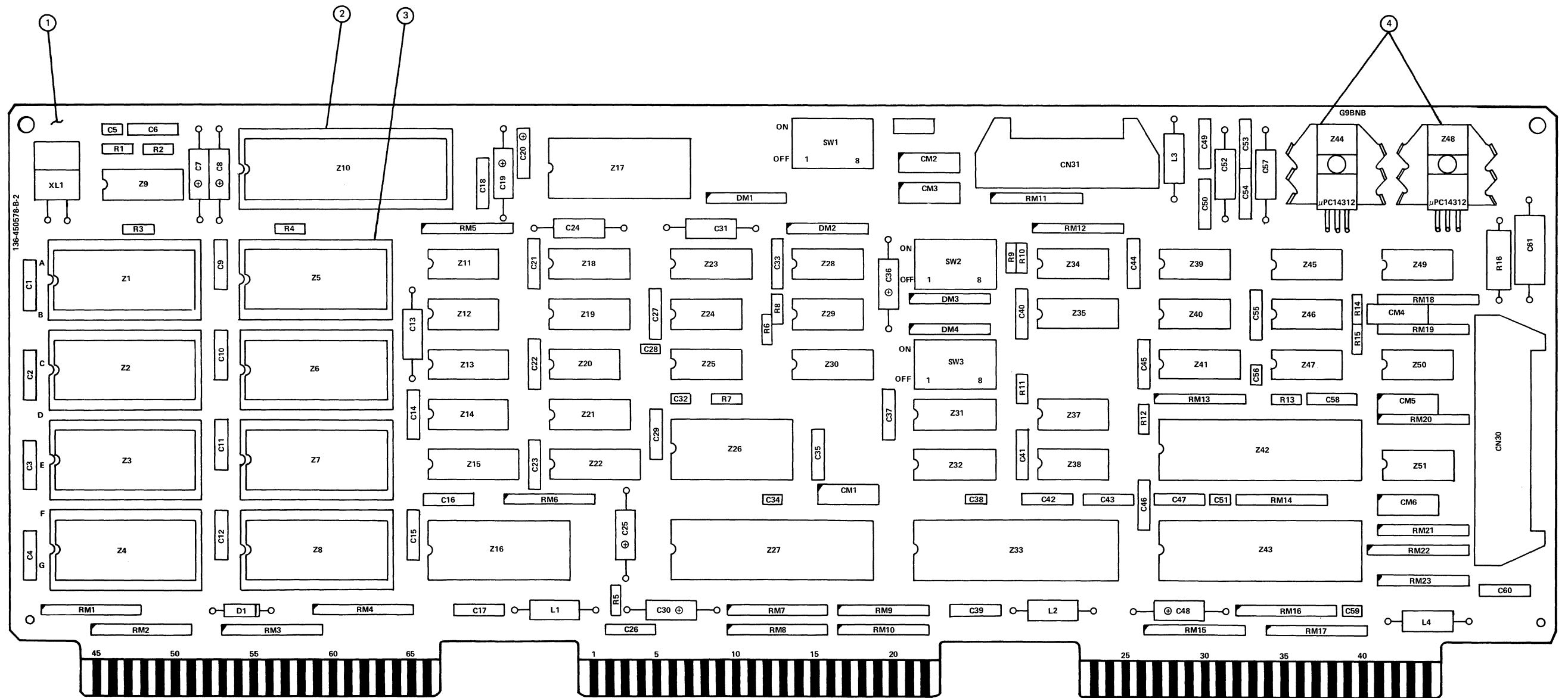


Figure 97 Microprocessor Logic Board (G9BNB) -  
Used With Centronics-Type Interface  
Board

## 136-430879-A Qume-Type Interface Board (G9CUT)

## 136-430879-A Qume-Type Interface Board (G9CUT) (cont'd)

COMPONENT DESIGNATION	PART NUMBER	DESCRIPTION	QTY	COMPONENT DESIGNATION	PART NUMBER	DESCRIPTION	QTY
(1)	136-450879-A	G9CUT PCB	1	Z18	808-910382-591-A	IC $\mu$ PB8259C	1
C1	808-935561-901-A	Capacitor FD35NP01H070F	1	Z19 thru Z21	808-910382-551-A	IC $\mu$ PB8255C	3
C2, C3, C5, C18, C21, C29, C34, C37, C40, C47, C50	802-410002-049-0	Capacitor CS02H1A330M	11	Z22, Z28	808-912140-041-A	IC SN74LS04N	2
C4, C27, C28, C33, C45, C46, C51, C52	802-410002-059-0	Capacitor CS02H1D150M	8	Z24, Z27	808-912140-001-A	IC SN74LS00N	2
C6 thru C16, C19, C20, C22 thru C26, C30 thru C32, C35, C36, C38, C39, C41, C42, C48, C49	808-935561-403-A	Capacitor FD3AF1H104Z	29	Z25	808-912100-451-A	IC SN7445N	1
C17, C43, C44	808-935561-141-A	Capacitor FD1NP01H471M	3	Z26	808-912140-081-A	IC SN74LS08N	1
CM1, CM3	808-935569-001-A	Capacitor Module IHC-4-331KA	2	Z29	808-912140-031-A	IC SN74LS03N	1
CM2	808-935569-002-A	Capacitor Module IHC-4-222KA	1	Z31	808-912141-751-A	IC SN74LS175N	1
CN30	808-955130-367-A	Connector 3433-1002	1	Z32	808-912140-741-A	IC SN74LS74AN	1
D1	808-923504-115-A	Diode RD5-1EB	1	Z33	808-912141-951-A	IC SN74LS195AN	1
L1, L2	802-530001-026-0	Choke Coil TP0410L-R22M	2	Z34, Z35	808-912140-051-A	IC SN74LS05N	2
R1, R3, R4, R6	802-310021-045-0	Resistor RF07Q681G	4	Z36, Z37, Z43, Z44	808-914019-001-A	IC DS8837N	4
R2	802-310021-025-0	Resistor RF07Q101G	1	Z39	808-912140-111-A	IC SN74LS11N	1
R5, R7	802-310021-073-0	Resistor RF07Q103G	2	Z40	808-912142-791-A	IC SN74LS279N	1
R8	802-310004-015-0	NW313R9J	1	Z41, Z42, Z46, Z47	808-912204-521-A	IC SN75452BP	4
RM1, RM4	808-930391-012-A	Resistor Module (4.7Kx8)	2	Z48	808-910201-433-A	IC $\mu$ PC14312N	1
RM2, RM3, RM5 thru RM9	808-930391-011-A	Resistor Module (15Kx8)	7	(2)	802-730014-040-A	IC Socket (40-Pin)	1
RM10, RM17	808-930349-007-A	IHR-1/8-8-621JA	2	(3)	802-730014-128-A	IC Socket (28-Pin)	5
RM11, RM14, RM15	808-930349-052	IHR-1/4-8-181JA	3	(4)	808-970904-001-A	Heat Sink IC291-H-9-M	1
RM12, RM13, RM16	808-930349-006-A	Resistor IHR-1/8-8-391JA	3	(5)	805-611103-0	PBWAx3x3GF	1
SW1	808-950313-004-A	DIP Type Switch CTS 206-4	1	(6)	805-623103-0	#2PBLWAx3x3GF	1
XL1	808-970101-003-A	Crystal HC-43U18432MHZ	1	(7)	805-501103-0	AHEXBNx3x3GF	1
Z1	808-910052-241-A	IC $\mu$ PB8224C	1	(8)	805-001103-010-0	CPBMSx3x10x3GF	1
Z2, Z30	808-912141-611-A	IC SN74LS161AN	2				
Z3, Z4	808-910321-111-A	IC $\mu$ PD2111ALC	2				
Z5	136-032416-001-A	IC CUT05 ( $\mu$ PD458D)	1				
Z6	136-032416-002-A	IC CUT06 ( $\mu$ PD458D)	1				
Z7	136-032416-003-A	IC CUT07 ( $\mu$ PD458D)	1				
Z8	136-032416-004-A	IC CUT08 ( $\mu$ PD458D)	1				
Z9	136-032416-005-A	IC CUT09 ( $\mu$ PD458D)	1				
Z10	808-910380-205-A	IC $\mu$ PD8080AFD	1				
Z11, Z12	808-910382-531-A	IC $\mu$ PD8253C	2				
Z13, Z15, Z23	808-912141-391-A	IC SN74LS139N	3				
Z14, Z38, Z45	808-912140-141-A	IC SN74LS14N	3				
Z16	808-912140-421-A	IC SN74LS42N	1				
Z17	808-910052-281-A	IC $\mu$ PB8228C	1				

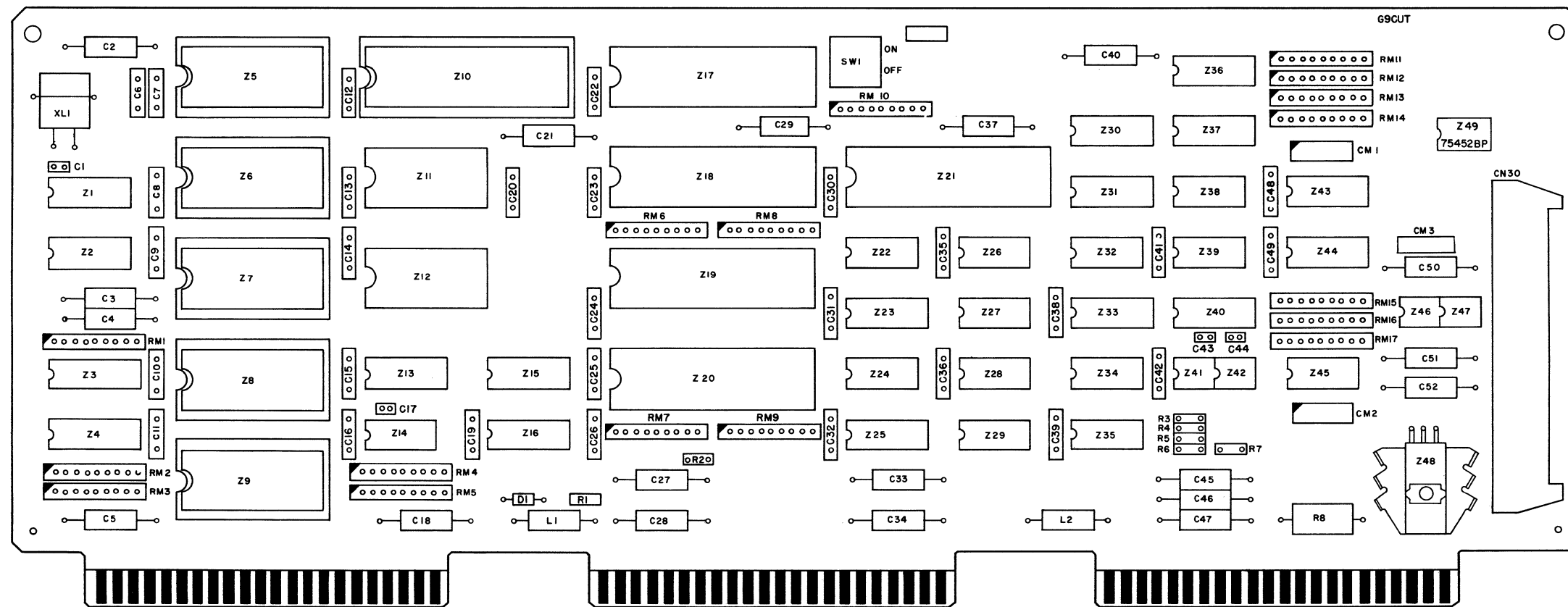


Figure 98 Qume-Type Interface Board (G9CUT)



## 158000401A Intel-Type Interface Board (G9ONT)

<u>COMPONENT DESIGNATION</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QTY</u>
C1, C5 thru C9		Capacitor, 0.01 $\mu$ Ceramic	6
C2		Capacitor, 50 $\mu$ Electrolytic	1
C3, C4		Capacitor, 0.001 $\mu$ Ceramic	2
J1		Connector, 3M 3496	1
J2		Connector, 3M 3493	1
R1, R2		Resistor, 10K 1/4W 5%	2
R3, R9 thru R12		Resistor, 1K 1/4W 5%	5
R4 thru R7, R13 thru R15, R17, R18, R21		Resistor, 200 $\Omega$ 1/4W 5%	10
R19, R20		Resistor, 330 $\Omega$ 1/4W 5%	2
Z1		IC 7432	1
Z2		IC 7420	1
Z3		IC 74145	1
Z4		IC 7437	1
Z5, Z7, Z8		IC 7404	3
Z6		IC 74174	1
Z9		IC 7474	1
Z10		IC 7486	1
Z11		IC 74132	1
Z12		IC 9602	1
Z15		IC 74H11	1
Z16		IC 74107	1

All capacitors - 10V rating or greater

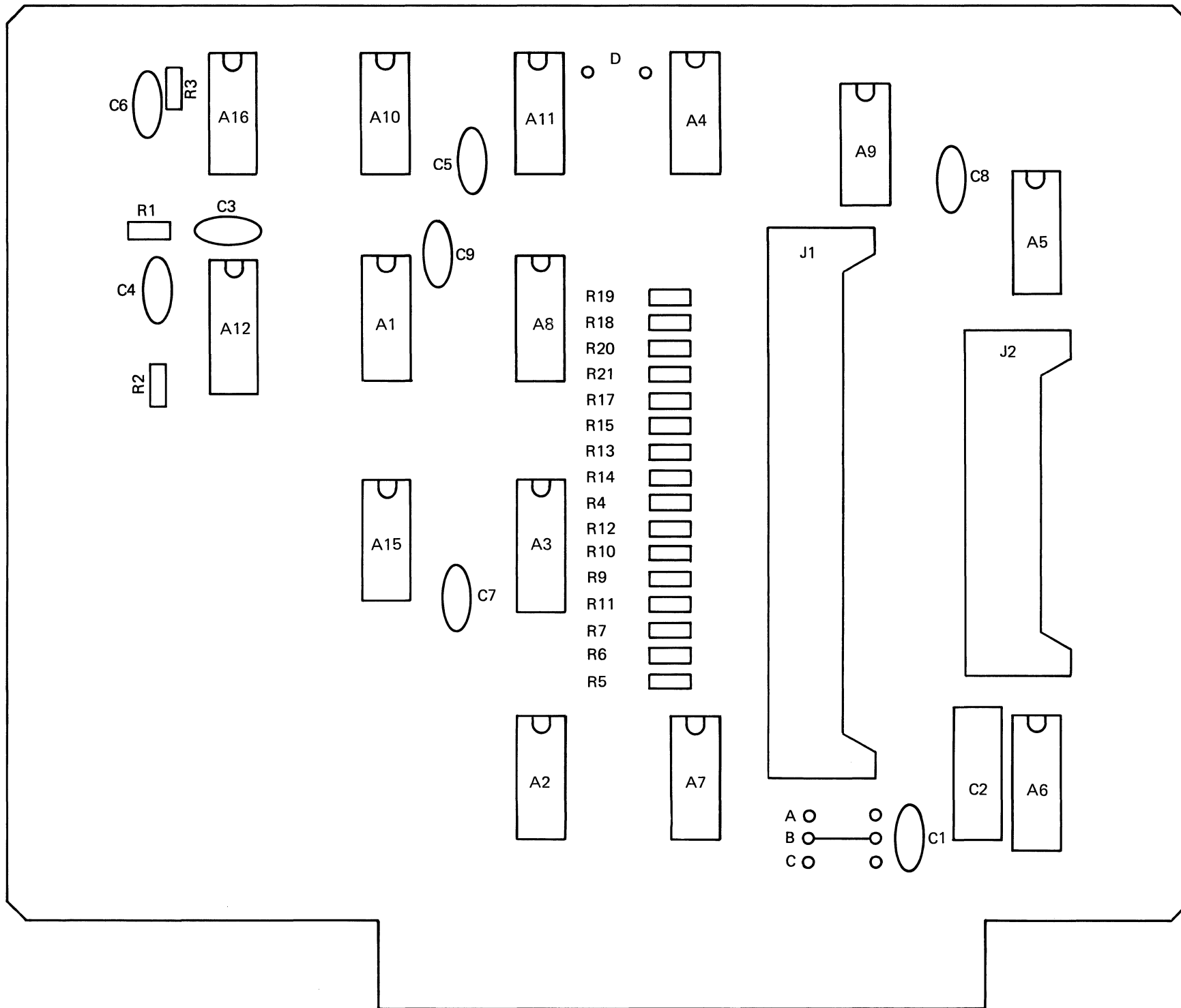


Figure 99 Intel-Type Interface Board (G9ONT)

## 136-430575-A Current Loop Interface Board (G9BMY)

<u>COMPONENT DESIGNATION</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QTY</u>
(1)	136-450575-B	G9BMY PCB	1
C1, C2	802-410007-008-0	Capacitor KCM15C0200J	2
C3	808-935590-045-A	Capacitor TMC01CH1H821K	1
C51 thru C61	808-935561-403-A	Capacitor FD3AF1H104Z	11
C81, C82, C85, C86	802-410002-059-0	Capacitor CS02H1D150M	4
C83, C84	802-410002-053-0	Capacitor CS02H1C220M	2
CN41, CN42	808-955140-103-A	Connector 1-170850-7	2
D1 thru D4	808-923009-531-A	Diode 1S953	4
D5, D6	808-923302-021-A	Diode F14C	2
PC1	808-927000-001-A	Photo Coupler PC-504	1
Q1	808-920400-781-A	Transistor 2SD78	1
Q2	808-920209-431-A	Transistor 2SC943	1
R1	802-310021-019-0	Resistor RF07Q560G	1
R2, R3	802-310021-045-0	Resistor RF07Q681G	2
R4	802-310021-041-0	Resistor RF07Q471G	1
R5	802-310021-035-0	Resistor RF07Q271G	1
R6	802-310021-011-0	Resistor RF07Q270G	1
R7	802-310021-047-0	Resistor RF07Q821G	1
R8, R9	802-310021-053-0	Resistor RF07Q152G	2
T1	808-940302-001-A	Pulse Transformer KP-51 113B8	1
Z1	808-912204-511-A	IC SN75451BP	1
Z2	808-912140-001-A	IC SN74LS00N	1
Z3	802-180009-002-0	IC 1489	1
Z4	802-180008-002-0	IC 1488	1
(2)	133-350040-0	Spacer T0-5	1
(3)	133-350039-0	Spacer T0-18	1

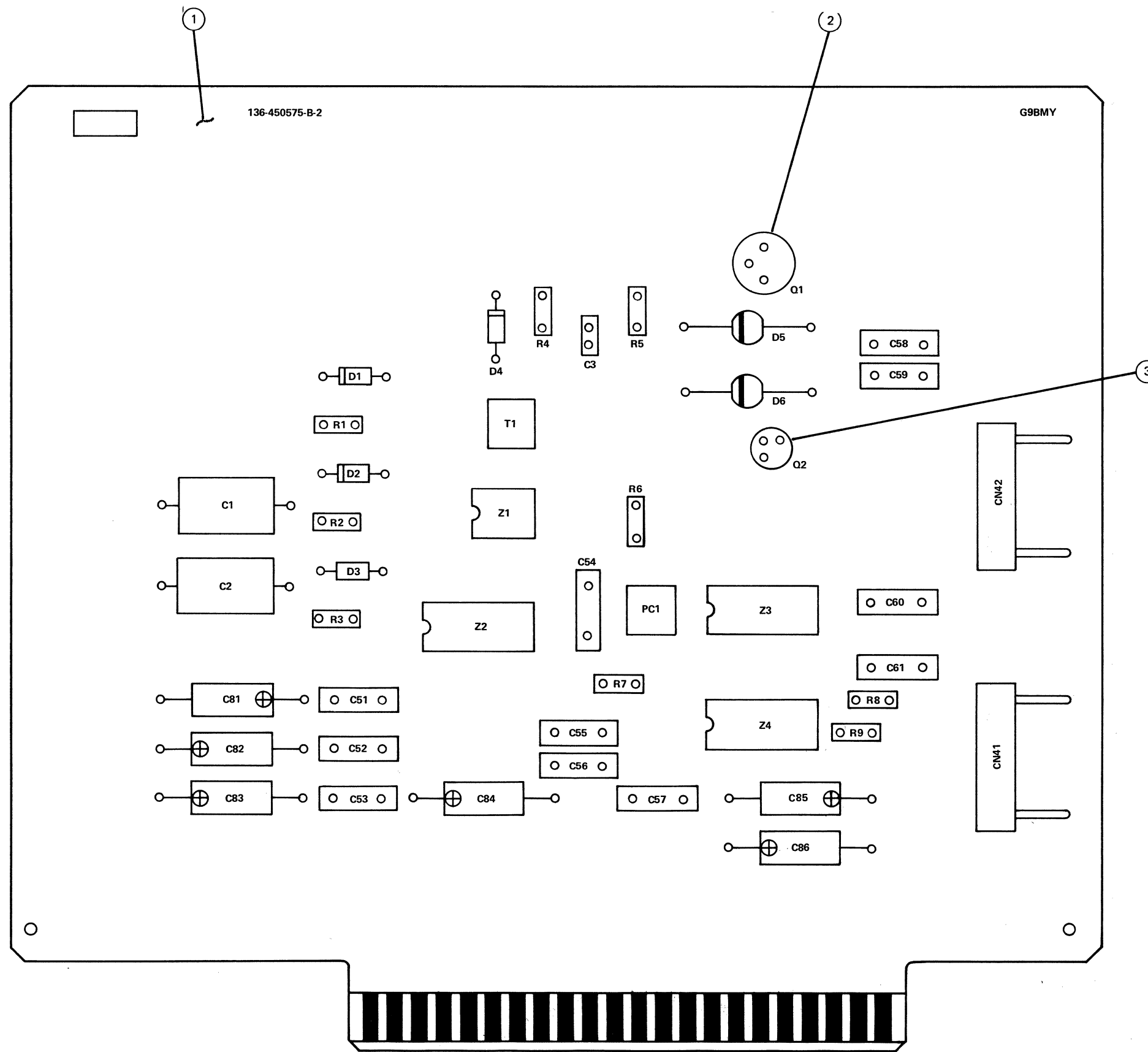


Figure 100 Current Loop Interface Board

136-431097-A Operator Control Panel Board (G9EYQ) - Used With Model 5540

<u>COMPONENT DESIGNATION</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QTY</u>
(1)	136-451097-A	G9EYQ PCB	1
C1, C3, C5, C8	802-410002-049-0	Capacitor CS02H1A330M	4
C2, C4, C7, C9	808-935561-403-A	Capacitor FD3AF1H104Z	4
C6	808-935561-564-A	Capacitor FD52AX1H103K	1
CN32, CN33	808-955130-312-A	Connector 3428-1002	2
D1 thru D12	808-923009-531-A	Diode 1S953	12
D13 thru D15	802-810019-001-0	Light Emitting Diode SR103D	3
DM1 thru DM3	808-910000-544-A	Diode Module $\mu$ PA54H	3
R1	802-310021-017-0	Resistor RF07Q470G	1
R2, R9	802-310021-049-0	Resistor RF07Q102G	2
R3 thru R6	802-310021-065-0	Resistor RF07Q472G	4
R7, R8, R10	802-310021-027-0	Resistor RF07Q121G	3
RM1	808-930391-012-A	Resistor Module 4.7Kx8	1
SW1	808-950324-008-A	DIP Switch 7-171474-8	1
SW2, SW12 thru SW14	808-950314-001-A	Switch U18J1V3GE9	4
SW3, SW7 thru SW11	808-950314-002-A	Switch U11J1V3GE9	6
SW4	808-950315-012-A	Digital Switch 2-A7MA-206-P2	1
SW5, SW6	808-950314-003-A	Switch U13J1V3GE9	2
Z1, Z3	808-912141-751-A	IC SN74LS175N	2
Z2, Z4, Z5, Z8	808-912140-031-A	IC SN74LS03N	4
Z6	808-912140-041-A	IC SN74LS04N	1
Z7	808-912140-421-A	IC SN74LS42N	1
Z9, Z10	808-912141-741-A	IC SN74LS174N	2
Z11 thru Z14	808-912204-511-A	IC SN75451BP	4
(2)	808-960402-001-A	Buzzer SMB-06	1
(3)	805-310002-008-0	SL-CPIMSx2x8x15BF	2
(4)	805-500002-0	AHEXINx3x15BF	2

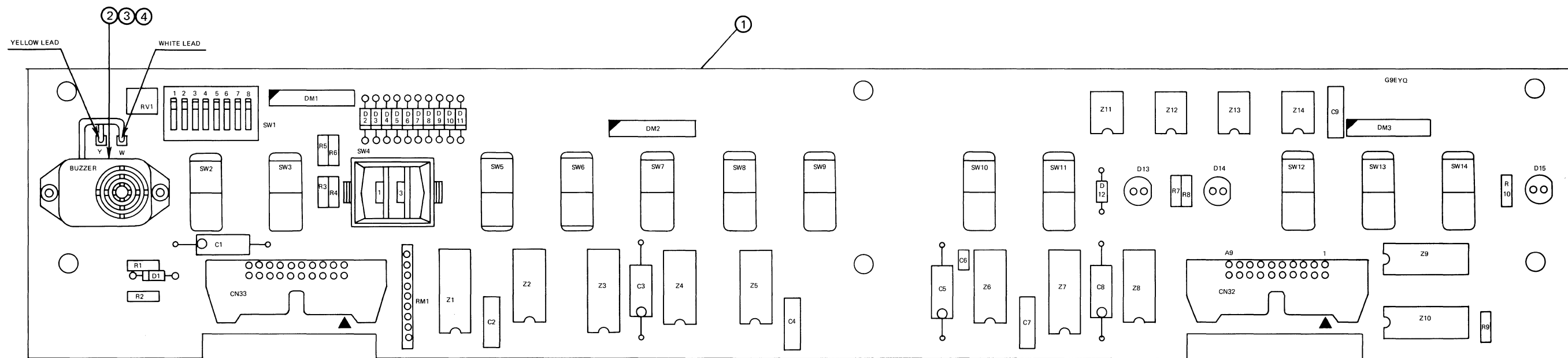


Figure 101 Operator Control Panel Board (G9EYQ) -  
Used With Model 5540

136-430935-A Control Panel Board (G9DGD) - Used On Models 5510 and 5515

<u>COMPONENT DESIGNATION</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QTY</u>
(1)	136-450934-A	G9DGD PCB	1
C1, C3, C5, C8	802-410002-049-0	Capacitor CS02H1A330M	4
C2, C4, C7, C9	808-935561-403-A	Capacitor FD3AF1H104Z	4
CN32	808-955130-312-A	Connector 3428-1002	2
D1 thru D12	808-923009-531-A	Diode 1S963	12
D14, D15	802-810010-001-0	Light Emitting Diode SR103D	2
DM1 thru DM3	808-910000-544-A	Diode Module $\mu$ PA54H	3
R1	802-310021-017-0	Resistor RF07Q470G	1
R2, R9	802-310021-049-0	Resistor RF07Q102G	2
R3 thru R6	802-310021-065-0	Resistor RF07Q472G	4
R8, R10	802-310021-027-0	Resistor RF07Q121G	2
SW1	808-950324-008-A	Dip Switch 7-171474-8	1
SW2, SW12 thru SW14	808-950314-001-A	Switch U18J1V3GE9	4
SW3, SW7 thru SW11	808-950314-002-A	Switch U11J1V3GE9	6
SW4	808-950315-012-A	Digital Switch 2-A7MA-206-P2	1
SW5, SW6	808-950314-003-A	Switch U13J1V3GE9	2
Z5, Z8	808-912140-031-A	IC SN74LS03N	4
Z6	808-912140-041-A	IC SN74LS04N	1
Z7	808-912140-421-A	IC SN74LS42N	1
Z10	808-912141-741-A	IC SN74LS174N	2
Z11 thru Z13	808-912204-511-A	IC SN75451BP	4
(2)	808-960402-001-A	Buzzer SMB-06	1
(3)	133-381001-008	Jumper Wire B	2

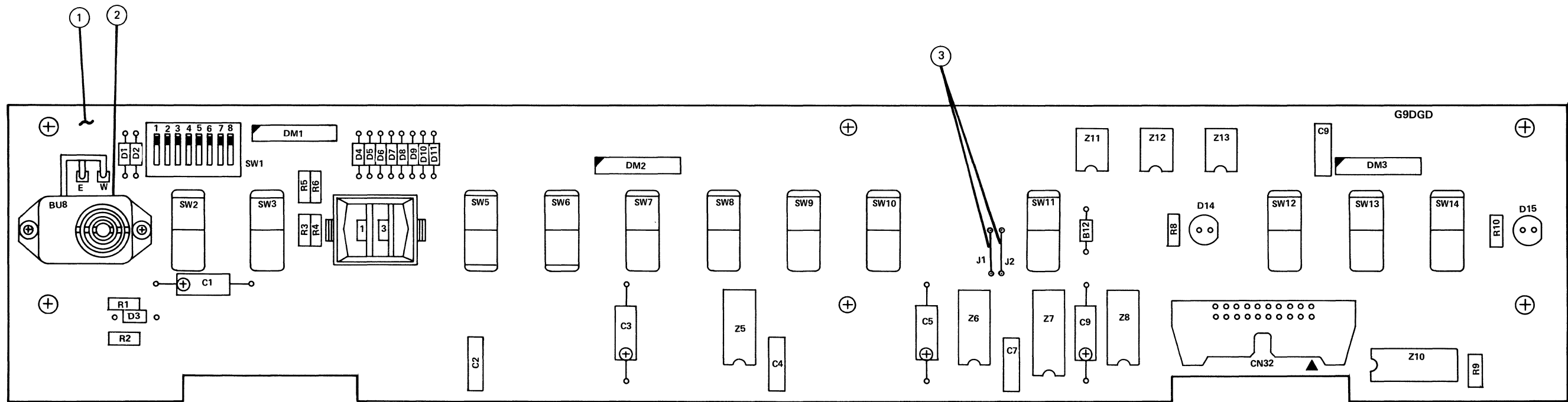


Figure 102 Operator Control Panel Board (G9DGD) -  
Used on Models 5510 and 5515



136-430570-A Power Supply Regulator (G9BMT)

<u>COMPONENT DESIGNATION</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QTY</u>
(1)	136-450570-B	G9BMT PCB	1
C1, C6 thru C9	808-935390-001-A	Capacitor CE25V6800 F	5
C2, C10 thru C12	808-935561-403-A	Capacitor FD3AF1H104Z	4
C3	808-935590-471-A	Capacitor TMC01CH103M	1
C4	808-935592-017-A	Capacitor CK45B2H222KYF	1
C5	808-935390-002-A	Capacitor CE10V47 F	1
CN11	808-955150-047-A	Connector 5142-09A	1
CN12	808-955150-045-A	Connector 5142-07A	1
D1, D2	808-924100-001-A	High Speed Diode ERD-29-02	2
D3, D4	808-923302-021-A	Diode F14C	2
Q1	808-920404-111-A	Transistor 2SD411	1
Q2	808-920209-431-A	Transistor 2SC943	1
R1, R4	802-310021-049-0	Resistor RF07Q102G	2
R2	802-310003-053-0	Resistor NES 1/2 391G	1
R3	802-310004-081-0	Resistor NW31R10J	1
R5	802-310021-063-0	Resistor RF07Q392G	1
R6	802-310021-055-0	Resistor RF07Q182G	1
R7, R8	802-310003-067-0	Resistor NES 1/2 152G	2
RC1	808-924000-001-A	Power Diode 10F2S07	1
RC2	808-924000-011-A	Power Diode 10F2R07	1
RM1	808-930391-019-A	Resistor Module (DNG-1510X)	1
Z1	808-910201-411-A	Regulator IC $\mu$ PC141C	1
Z2	808-910201-433-A	Regulator IC $\mu$ PC4312H	1
Z3	808-919179-121-A	Regulator IC $\mu$ A7912	1
(2)	808-970903-001-A	Heat Sink	1
(3)	808-970903-002-A	Heat Sink	1
(4)	808-970903-003-A	Heat Sink	1
(5)	803-070040-001-0	Wrapping Post	16
(6)	136-725135-A	MP-25 Insulator	2
(7)	136-725131-A	6K Bushing	6
(8)	136-725132-A	#36A Insulator	1
(9)	133-350039-0	Spacer A	1
(10)	136-725133-A	25K Bushing	1

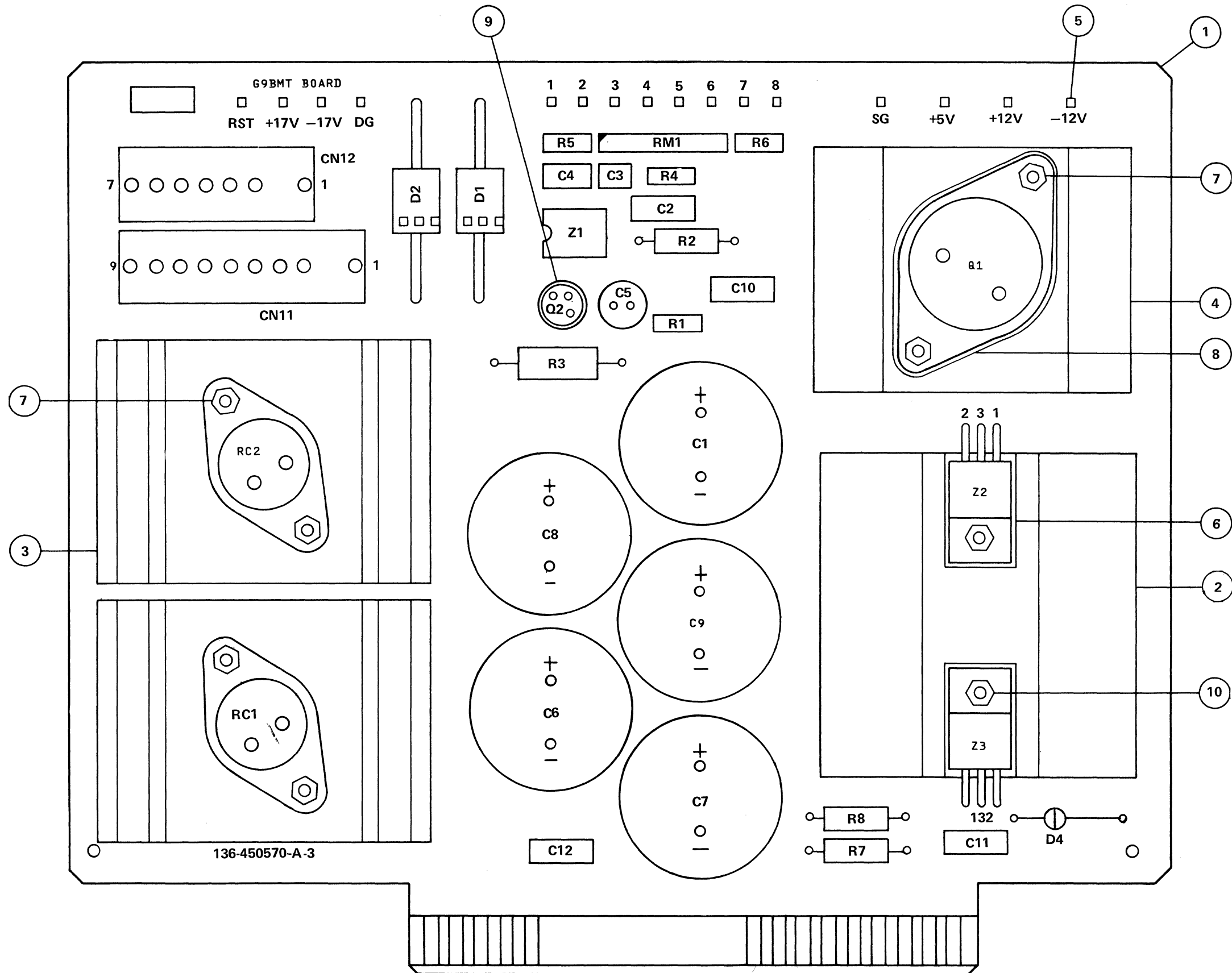
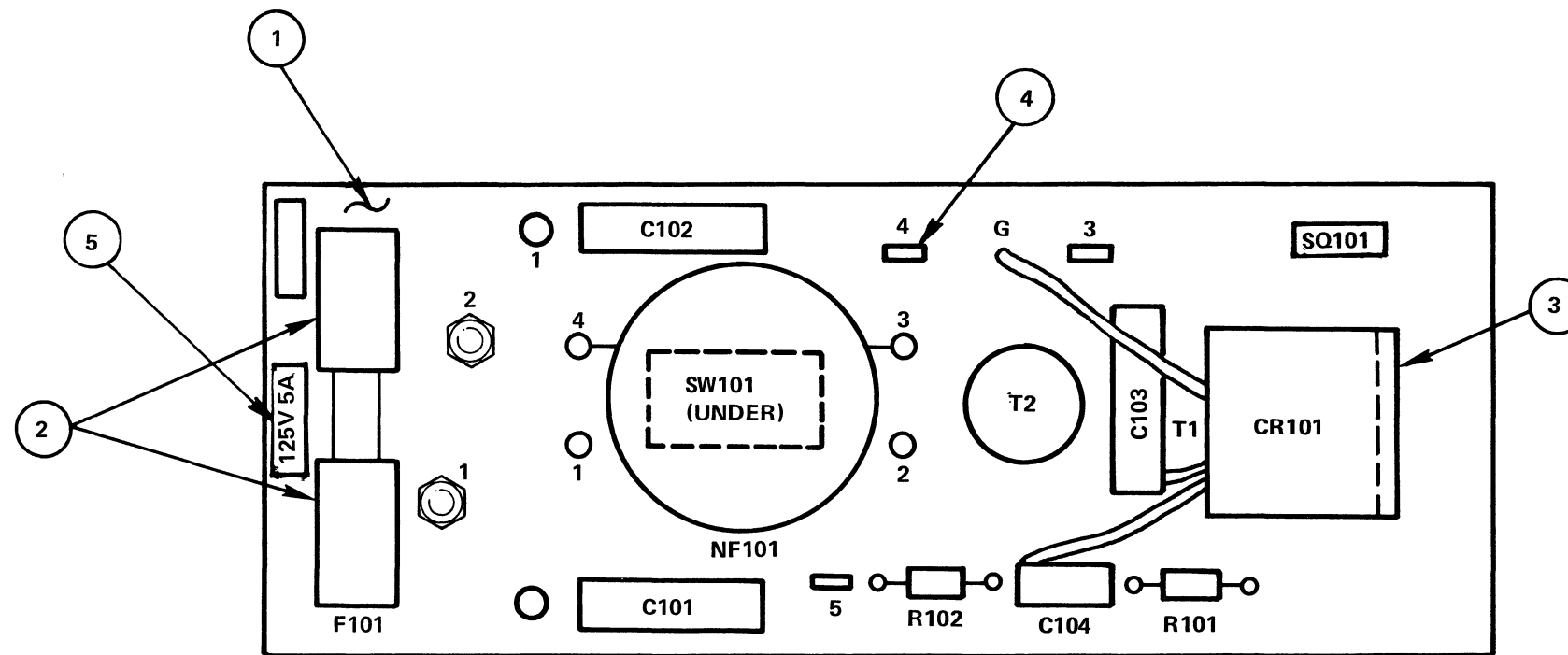


Figure 103 Power Supply Regulator (G9BMT)

136-020031-002-A Power Supply Board P1

<u>COMPONENT DESIGNATION</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QTY</u>
(1)	853013E	PC Board	1
C101 thru C103	808-935562-001-A	Capacitor DPN6410YM472P 125VAC	3
C104	808-935562-002-A	Capacitor DP6300YZ222PZ3K	1
CR101	808-926100-011-A	Triac 16AC4DIL	1
(3)	136-727078-A	Heat Sink	1
F101	808-960301-002-A	Fuse 313005	1
(2)	808-960301-091-A	Fuse Clip 102068	2
NF101	808-940601-001-A	Line Choke NFC-Y55	1
R101	802-310003-023-0	Resistor NES 1/2 220G	1
R102	802-310003-039-0	Resistor NES 1/2 101G	1
SW101	808-950314-007-A	Switch U11J1V3QE-9	1
(4)	808-955140-630-A	Fasten 60284-2	3
(5)	136-700792-A	Label 94C15620	1
SQ101	808-927005-002-A	Surge Absorber ENB-461D14A	1



POWER SUPPLY BOARD P1

Figure 104 Power Supply Board P1

## 136-020032-002-A Power Supply Board P2

<u>COMPONENT DESIGNATION</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QTY</u>
(1)	853014E	PC Board	1
(2)	804-171001-120-A	Tin-Plated Wire	0.2M
C51 thru C54	808-935361-007-A	Capacitor ECE-T200H470B	4
C55	808-935901-001-A	Capacitor 0.1 $\mu$ F 400VAC W	1
(4)	136-727079-A	Capacitor Band	1
J2B	808-955150-047-A	Connector Flat Wafer Assy 5142-09AG	1
L51	808-940303-001-A	Inductance TFM10424	1
R51, R52	802-310003-099-0	Resistor NES 1/2 333G	2
R53, R54	808-930162-001-A	Resistor W5P 2.2K	2
(3)	136-727080-A	Spacer	4
RC51	808-924103-011-A	Diode Stack S25VB40	1
(5)	136-727081-A	Spacer	1
T51	808-940502-001-A	Constant Voltage Transformer FRT-12685-1	1
TH51, TH52	808-927003-001-A	Power Thermistor 6D-22	2

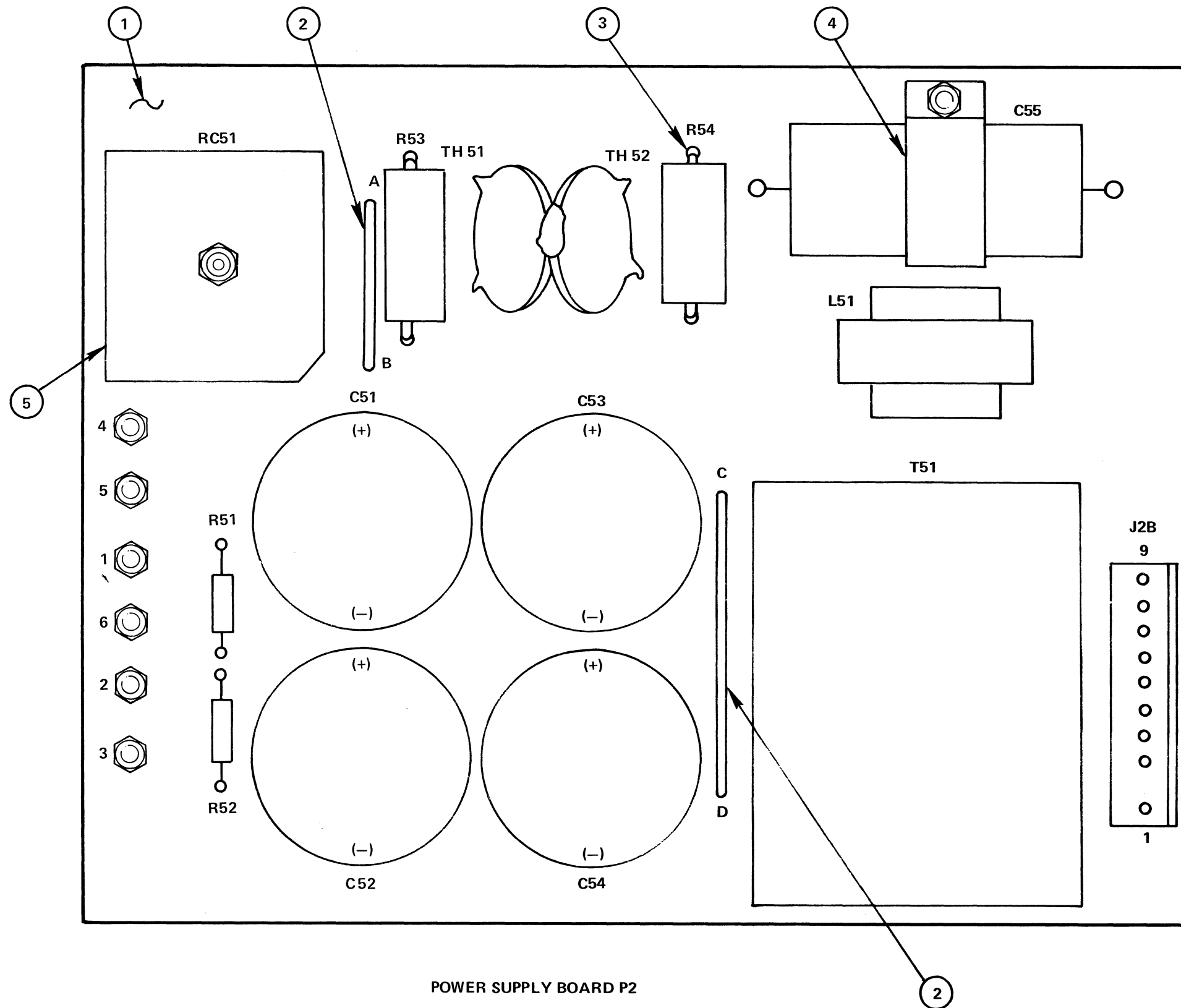
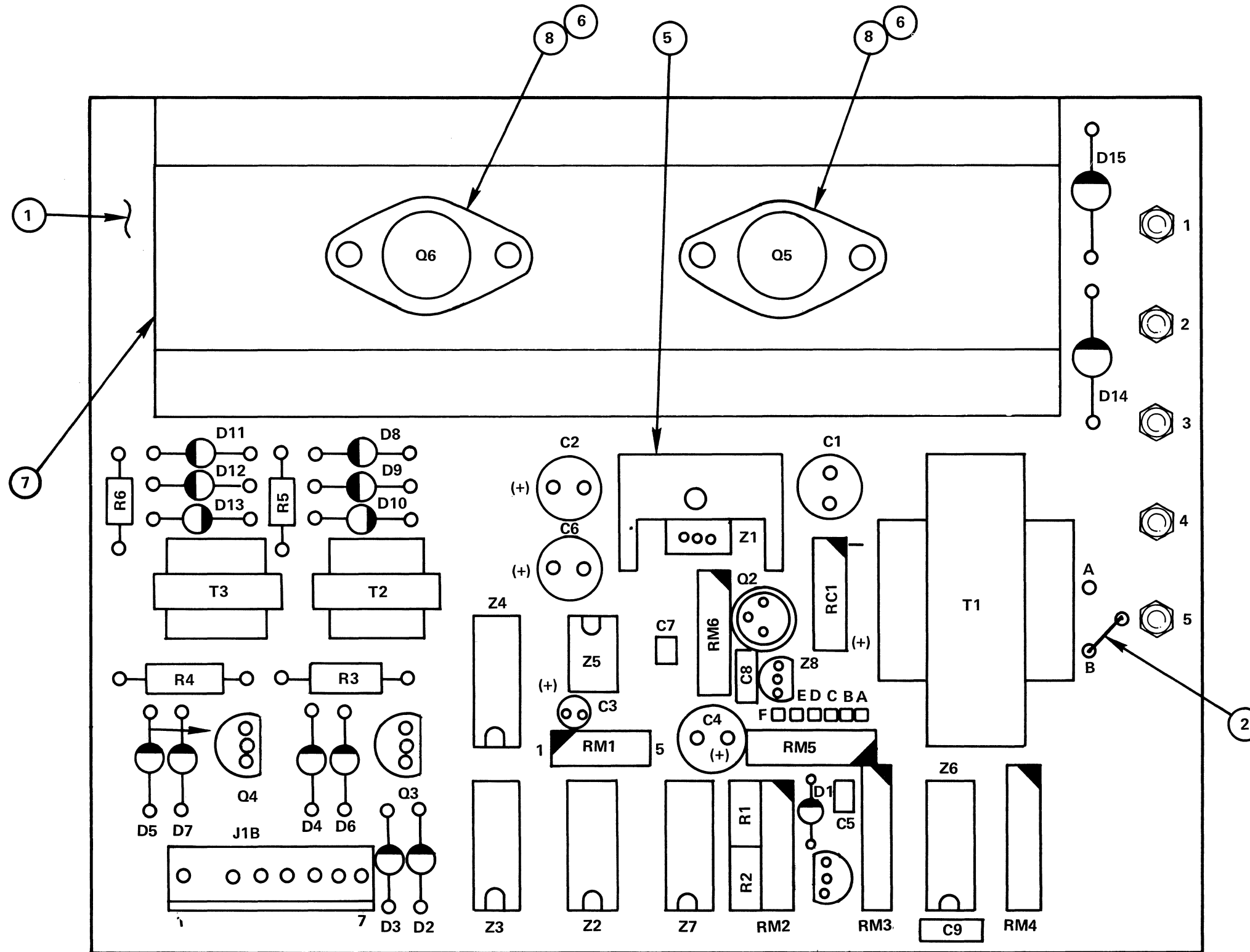


Figure 105 Power Supply Board P2

136-020033-002-A Power Supply Board P3

<u>COMPONENT DESIGNATION</u>	<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QTY</u>
(1)	853015E	PC BOARD	1
C1	808-935361-005-A	Capacitor ECEA25V220L	1
C2, C6	808-935361-003-A	Capacitor ECEA16V220LU	2
C3	808-935361-006-A	Capacitor ECEA50V3R3LU	1
C4	808-935361-004-A	Capacitor ECEA25V100L	1
C5	808-935161-002-A	Capacitor MFL5002-104K	1
C7	808-935161-003-A	Capacitor 602M1003222G	1
D1 thru D7	808-923302-011-A	Diode F14B	7
D8, D11	808-923330-011-A	Diode F114D	2
D9, D10, D12, D13	808-923330-001-A	Diode F114B	4
D14, D15	808-924102-001-A	Diode U06E	2
J1B	808-955150-045-A	Connector Assy, Flat Wafer 5142-07AG	1
Q1, Q2	808-920006-031-A	Transistor 2SA603	2
Q3, Q4	808-920290-081-A	Transistor 2SC1008	2
Q5, Q6	808-920218-651-A	Transistor 2SC1865	2
(5)	808-970903-014-A	Heat Sink	1
(6)	136-725134-A	TO-66 Insulator	2
R1	802-310021-009-0	Resistor RF07Q220G	1
R2	802-310021-049-0	Resistor RF07Q102G	1
R3, R4	808-930461-001-A	Resistor ERG-2ANJ68	2
R5, R6	802-310003-023-0	Resistor NES 1/2 220G	2
RC1	808-924103-001-A	Diode Stack SlvB10	1
MR1	808-930338-001-A	Resistor Module 6002	1
MR2	808-930338-002-A	Resistor Module 7502	1
MR3	808-930338-003-A	Resistor Module 7501	1
MR4	808-930338-004-A	Resistor Module 6000	1
MR5	808-930338-005-A	Resistor Module 6001	1
MR6	808-930338-006-A	Resistor Module 7503	1
T1	808-940303-002-A	Transformer TFM10425	1
(2)	804-171001-065-A	Tin-Plated Wire	0.02M
T2, T3	808-940303-004-A	Pulse Transformer TFM10427	2
Z1	805-910201-431-A	Regulator IC $\mu$ PC14305H	1
(7)	808-970903-015-A	Heat Sink	1
Z2	808-912100-721-A	IC SN7472N	1
Z3, Z4	808-912100-101-A	IC SN7410N	2
Z5	808-914120-061-A	IC MC1455P1	1
Z6, Z7	808-921000-001-A	Transistor Module FT5713M	2
Z8	808-912254-301-A	IC TL430CLP	1
(8)	136-727082-A	Bushing	4
C8, C9	808-935161-001-A	Capacitor MFL5002-473K	2



POWER SUPPLY BOARD P3

Figure 106 Power Supply Board P3



SYMBOL	INDUSTRY PART NUMBER	SYMBOL	INDUSTRY PART NUMBER	SYMBOL	INDUSTRY PART NUMBER
<p>EMITTER</p> <p>BASE</p> <p>COLLECTOR CONNECTED TO CASE (BOTTOM VIEW)</p>	2SD411 2SD535 2SD297 2SC1865 2SB550	<p>BLUE POINT</p> <p>RED POINT</p>	2B2DM	<p>ANODE</p> <p>CATHODE</p>	F114B F114D
<p>EMITTER</p> <p>BASE</p> <p>COLLECTOR</p> <p>(BOTTOM VIEW)</p>	2SD504 2SD78 2SC1008  2SA603 2SC943	<p>S-TYPE</p> <p>BASE →</p> <p>→ TERMINAL</p> <p>R-TYPE</p> <p>BASE →</p> <p>→ TERMINAL</p>	10F2S07 10F2R07	<p>1 2 3 4 5 6 7</p> <p>1 2 3 4 5 6 7</p> <p>1 2 3 4 5 6 7</p>	$\mu$ PA54H   $\mu$ PA64H
<p>EMITTER</p> <p>COLLECTOR</p> <p>BASE</p> <p>(FRONT VIEW)</p>	2SD560	<p>ANODE</p> <p>CATHODE</p>	ERD29-02	<p>14 8</p> <p>1 7</p> <p>14 13 12 11 10 9 2</p> <p>1 2 3 4 5 6 7</p> <p>(TOP VIEW)</p>	FT5713M
<p>EMITTER</p> <p>COLLECTOR</p> <p>BASE</p> <p>(FRONT VIEW)</p>	2SD558	<p>ANODE</p> <p>CATHODE</p>	UF-2	<p>14 8</p> <p>1 7</p> <p>14 13 12 11 10 9 2</p> <p>1 2 3 4 5 6 7</p> <p>(TOP VIEW)</p>	FT5713M
<p>TERMINAL 2</p> <p>TERMINAL 1</p> <p>GATE</p> <p>(TOP VIEW)</p>	16AC4DIL	<p>ANODE</p> <p>CATHODE</p>	F14B F14C U06E	<p>14 8</p> <p>1 7</p> <p>14 13 12 11 10 9 2</p> <p>1 2 3 4 5 6 7</p> <p>(TOP VIEW)</p>	FT5713M
<p>TERMINAL 2</p> <p>TERMINAL 1</p> <p>GATE</p> <p>(TOP VIEW)</p>	16AC4DIL	<p>ANODE</p> <p>CATHODE</p>	1S953 1S954	<p>14 8</p> <p>1 7</p> <p>14 13 12 11 10 9 2</p> <p>1 2 3 4 5 6 7</p> <p>(TOP VIEW)</p>	FT5713M
<p>TERMINAL 2</p> <p>TERMINAL 1</p> <p>GATE</p> <p>(TOP VIEW)</p>	16AC4DIL	<p>ANODE</p> <p>CATHODE</p>	RD5.1E-B RD3.6E-B RD5AM RD6AM RD7AM	<p>14 8</p> <p>1 7</p> <p>14 13 12 11 10 9 2</p> <p>1 2 3 4 5 6 7</p> <p>(TOP VIEW)</p>	FT5713M
<p>TERMINAL 2</p> <p>TERMINAL 1</p> <p>GATE</p> <p>(TOP VIEW)</p>	S25VB40	<p>ANODE</p> <p>CATHODE</p>		<p>14 8</p> <p>1 7</p> <p>14 13 12 11 10 9 2</p> <p>1 2 3 4 5 6 7</p> <p>(TOP VIEW)</p>	FT5713M
<p>TERMINAL 2</p> <p>TERMINAL 1</p> <p>GATE</p> <p>(TOP VIEW)</p>	S25VB40	<p>ANODE</p> <p>CATHODE</p>		<p>14 8</p> <p>1 7</p> <p>14 13 12 11 10 9 2</p> <p>1 2 3 4 5 6 7</p> <p>(TOP VIEW)</p>	FT5713M

Figure 107 Electronic Symbols

## CHAPTER 7

### LOGIC AND SCHEMATIC DRAWINGS

#### 7.1 LOGIC AND SCHEMATIC DIAGRAM NOTATION

The conventions used on the diagrams in this chapter to denote signal source and destination, test points, ground designation, pull up voltage etc. are shown in Schematic Designations diagram just before the schematics.

#### 7.2 DRAWING INDEX

The logic and schematic diagrams are arranged in numerical sequence and are listed below. The PCB designations are as follows:

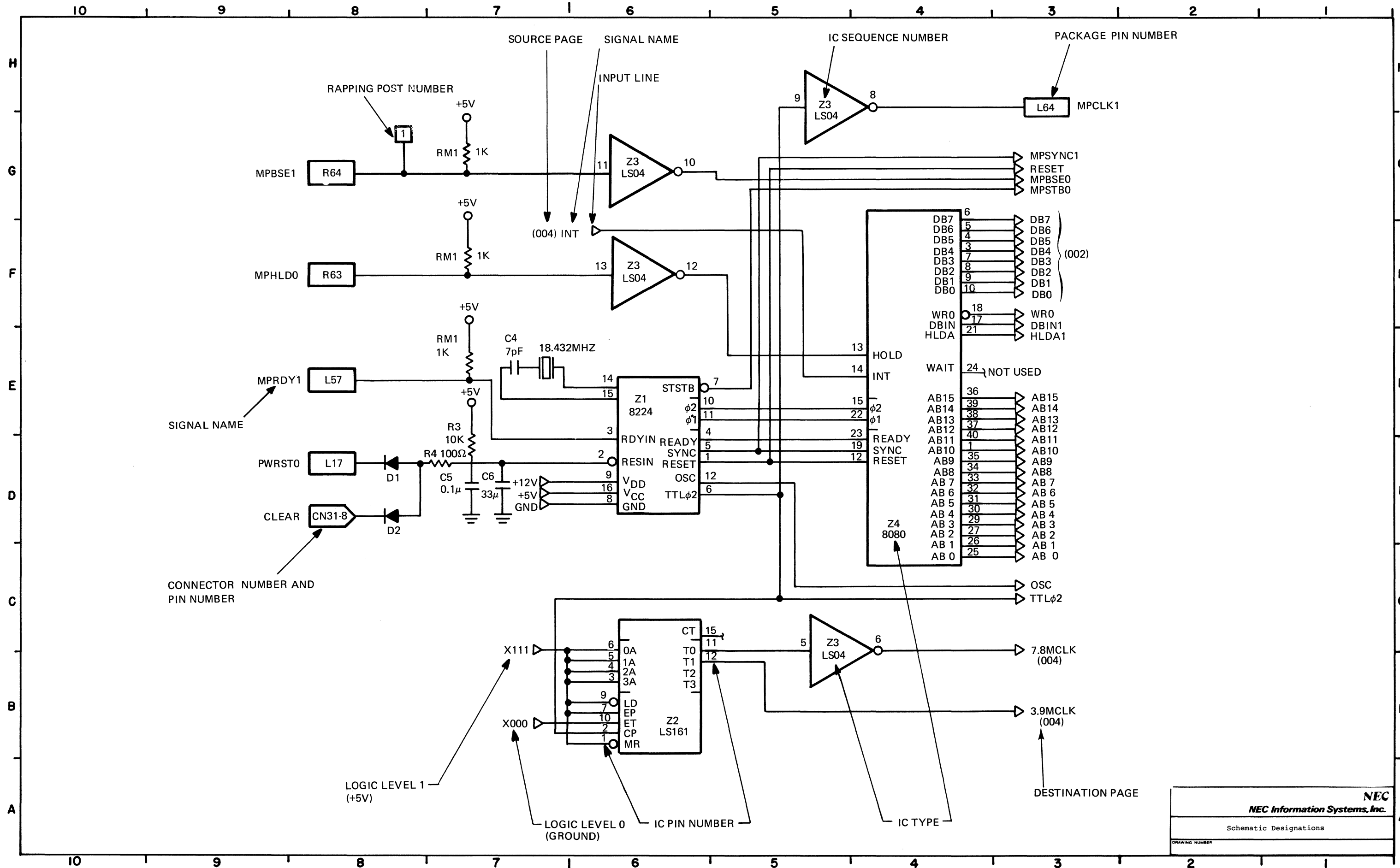
G9BMT	-	Power Supply Regulator Board
G9BMY	-	Current Loop Interface Board
G9BNA	-	Centronics-Type Interface
G9BNB	-	5530 Microprocessor Logic Board (Used With G9BNA)
G9BND	-	5530 Operator Control Panel Board
G9BNF	-	5520, 5525 Operator Control Panel Board
G9CUL	-	Mother Board
G9CUM	-	Driver Board
G9CUN	-	Servo Board
G9CUP	-	5500D Microprocessor Logic Board (Diablo-Type Interface)
G9CUQ	-	5500B Microprocessor Logic Board (8080 8-Bit Naked Interface)
G9CUR	-	5510, 5520 Microprocessor Logic (RS-232-C Interface)
G9CUT	-	5530 Qume-Type Interface Board
G9DGD	-	5510 and 5515 Operator Control Panel Board
G9DWH	-	5515, 5525 RS-232-C Interface Board
G9DWJ	-	5540 RS-232-C Interface Board
G9EYQ	-	5540 Operator Control Panel Board
G9ONT	-	5500N Ontel-Type Interface Board

#### DRAWING NUMBER

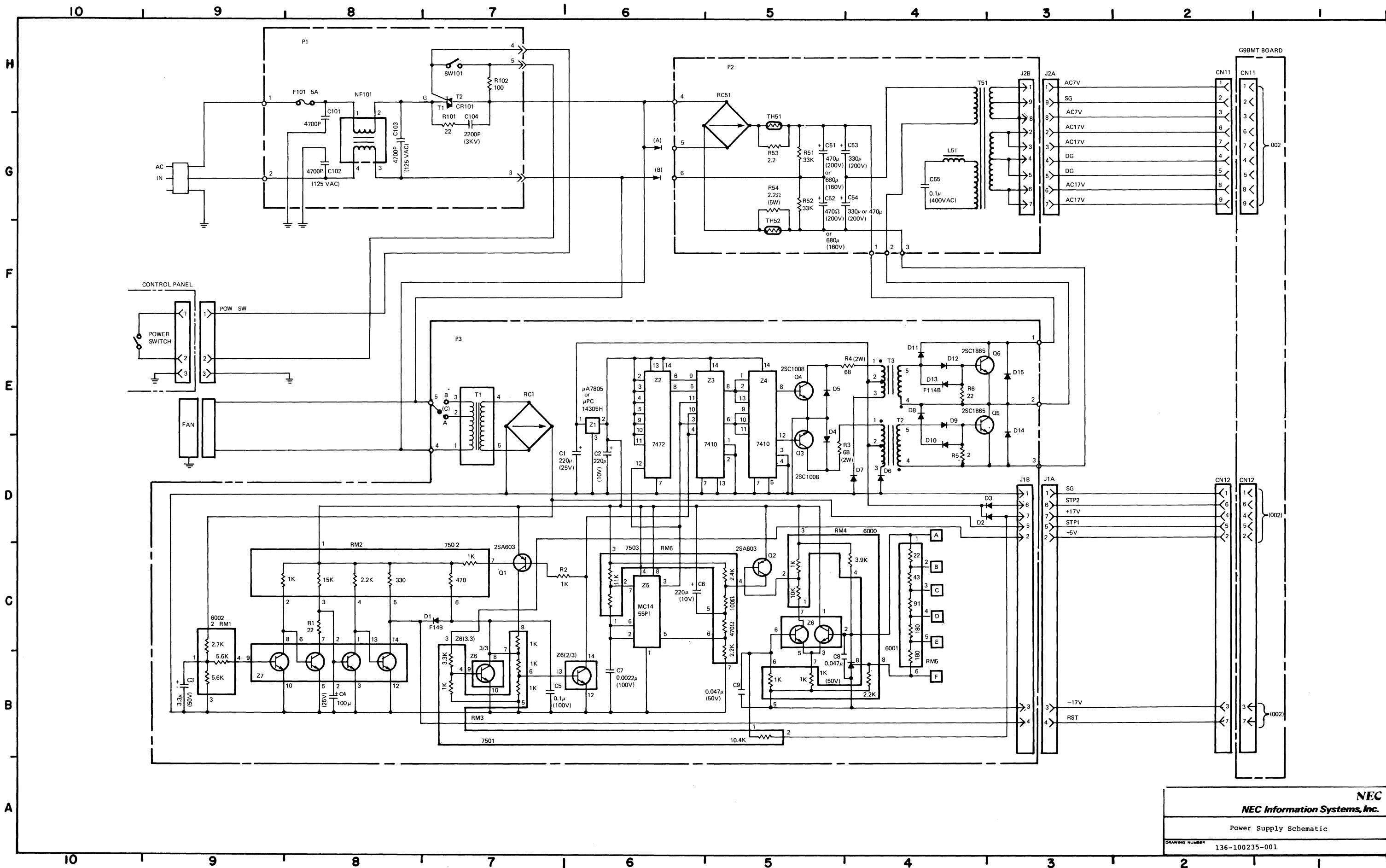
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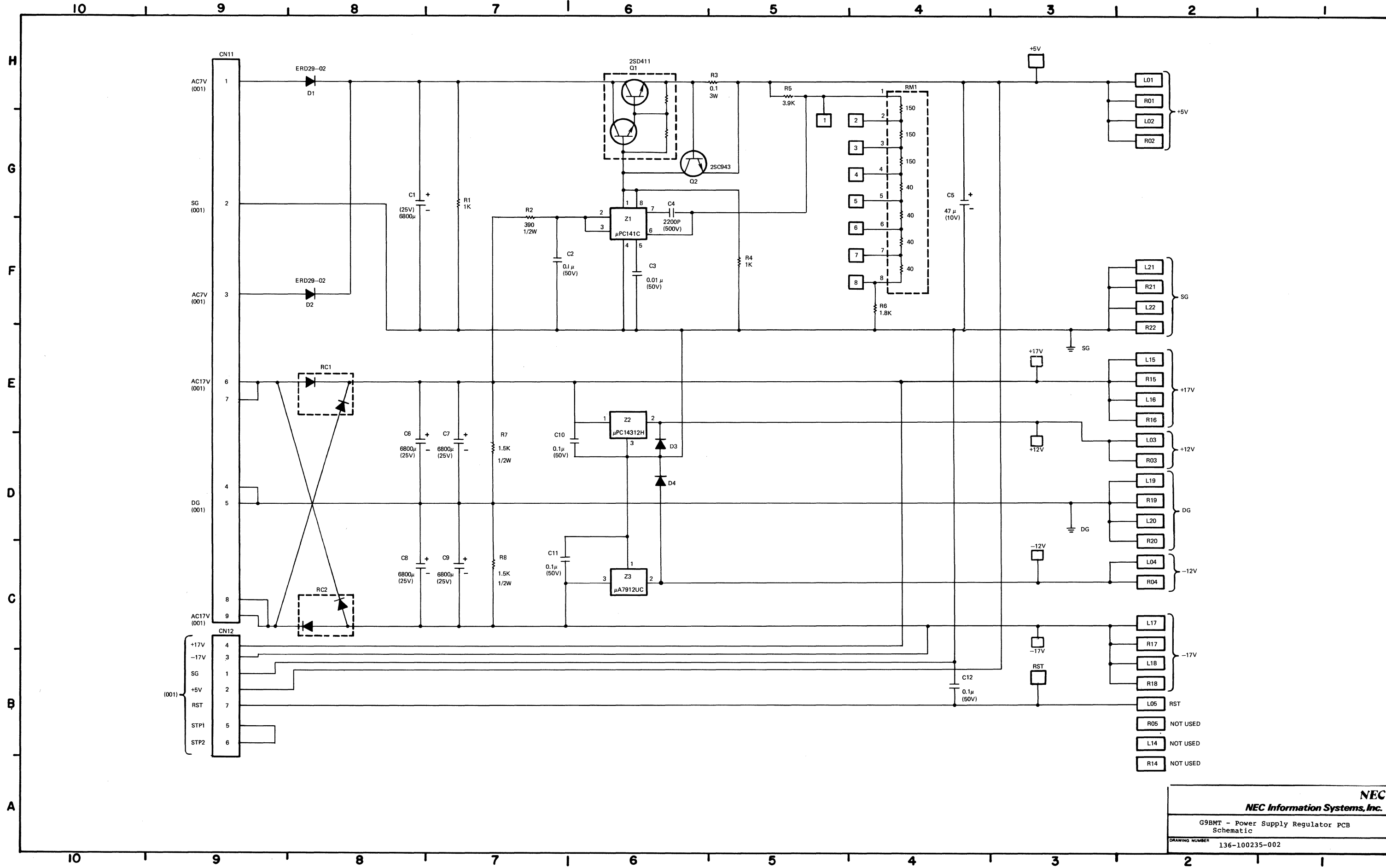
	Schematic Designations
136-100235-001	Power Supply Schematic
136-100235-002	G9BMT - Power Supply Regulator PCB Schematic
136-100235-003	DC Power Distribution Diagram
136-100235-004	G9CUN - Sense Amplifier Logic
136-100235-005	G9CUN - Spacing Control Logic
136-100235-006	G9CUN - Selection Control Logic
136-100235-007	G9CUN - Command Compensation Logic
136-100235-008	G9CUN - Velocity Detect Logic
136-100235-009	G9CUN - Count Pulse Logic
136-100235-010	G9CUN - Selection Home/Vertical Logic
136-100235-011	G9CUN - Transducer Drive Logic
136-100235-012	G9CUM - Spacing & Rotation Motors Drive Logic
136-100235-013	G9CUM - Vertical & Ribbon Change Magnet Driver Logic
136-100235-014	G9CUM - Line Feed Motor Logic
136-100235-015	G9CUM - Ribbon Feed Motor Logic
136-100235-016	G9CUM - Hammer Driver Logic
136-100235-017	G9CUM - Driver Interlock Logic
136-100235-018	G9CUM - Power Filters Schematic
136-100235-019	G9CUL - Motherboard Interface Schematic
136-100235-021	G9BNB - 5530 Microprocessor Logic (Centronics)
136-100235-022	G9BNB - 5530 Microprocessor Logic (Centronics)
136-100235-023	G9BNB - 5530 Microprocessor Logic (Centronics)
136-100235-024	G9BNB - 5530 Microprocessor Logic (Centronics)
136-100235-025	G9BNB - 5530 Microprocessor Logic (Centronics)
136-100235-026	5530 Control Panel Interface Drawing
136-100235-027	G9BND - Control Panel PCB Schematic (5530)
136-100235-033	Interface Cable Schematic, CNIFC to G9CUR
136-100235-034	G9CUR - 5510/5520 Microprocessor Logic (RS-232-C & Current Loop)
136-100235-035	G9CUR - 5510/5520 Microprocessor Logic (RS-232-C & Current Loop)
136-100235-036	G9CUR - 5510/5520 Microprocessor Logic (RS-232-C & Current Loop)
136-100235-037	G9CUR - 5510/5520 Microprocessor Logic (RS-232-C & Current Loop)
136-100235-038	G9CUR - 5510/5520 Microprocessor Logic (RS-232-C & Current Loop)
136-100235-039	G9CUR - 5510/5520 Microprocessor Logic (RS-232-C & Current Loop)
136-100235-040	G9CUR - 5510/5520 Microprocessor Logic (RS-232-C & Current Loop)
136-100235-041	G9CUR - 5510/5520 Microprocessor Logic (RS-232-C & Current Loop)

<u>DRAWING NUMBER</u>	<u>TITLE</u>
136-100235-042	G9CUR - 5510/5520 Microprocessor Logic (RS-232-C & Current Loop)
136-100235-044	G9BNF - Operator Control Panel Schematic (5510/5520)
136-100235-045	Current Loop Interface Cable, CNIFC to G9BMY
136-100235-046	G9BMY - Current Loop Interface Board Logic
136-100235-047	Current Loop Interface Cable, G9BMY to G9CUR
136-100235-048	5510/5520 Control Panel Interface Drawing
136-100235-049	Keyboard Logic
136-100235-050	G9CUQ - 5500B Microprocessor Logic (8080 8-Bit Naked Interface)
136-100235-051	G9CUQ - 5500B Microprocessor Logic (8080 8-Bit Naked Interface)
135-100235-052	G9CUQ - 5500B Microprocessor Logic (8080 8-Bit Naked Interface)
136-100235-053	G9CUQ - 5500B Microprocessor Logic (8080 8-Bit Naked Interface)
136-100235-054	G9CUQ - 5500B Microprocessor Logic (8080 8-Bit Naked Interface)
136-100235-055	G9CUP - 5500D Microprocessor Logic
136-100235-056	G9CUP - 5500D Microprocessor Logic
136-100235-057	G9CUP - 5500D Microprocessor Logic
136-100235-058	G9CUP - 5500D Microprocessor Logic
136-100235-059	G9CUP - 5500D Microprocessor Logic
136-100235-060	G9BNA - Centronics-Type Interface Board Logic
136-100235-061	G9BNA - Centronics-Type Interface Board Logic
136-100235-062	Centronics-Type Interface Cable, CNIFC to G9BNA
136-100235-063	Centronics-Type Interface Cable, G9BNA to G9BNB
136-100235-072-A	G9CUT - Qume-Type Interface Logic
136-100235-073-A	G9CUT - Qume-Type Interface Logic
136-100235-074-A	G9CUT - Qume-Type Interface Logic
136-100235-075-A	G9CUT - Qume-Type Interface Logic
136-130242-A	G9CUL - Mother Board Wiring List
136-440590-A	G9BND - Operator Control Panel PCB Schematic (5530)
136-440935	G9DGD - Control Panel Schematic (5510 with Remote/Local Switch)
136-440990-A	G9DWJ - 5540 Microprocessor Logic (RS-232-C)
136-441097	G9EYQ - 5540 Operator Control Panel Logic 5500D, 5500B, 5500Q, 5500N Cabling Diagrams 5510, 5515 Cabling Diagrams 5520, 5525 Cabling Diagrams 5530 Cabling Diagram 5540 Cabling Diagram





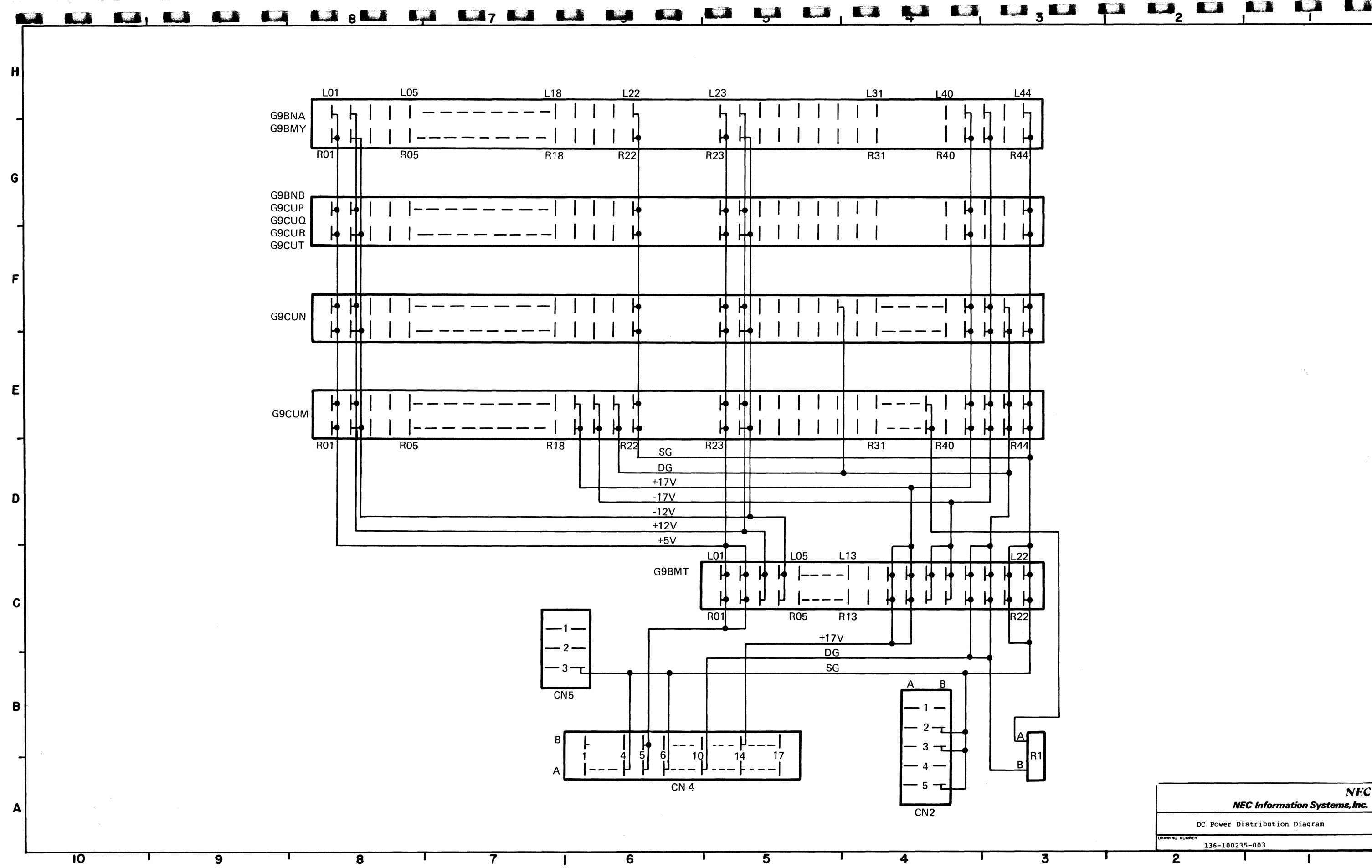




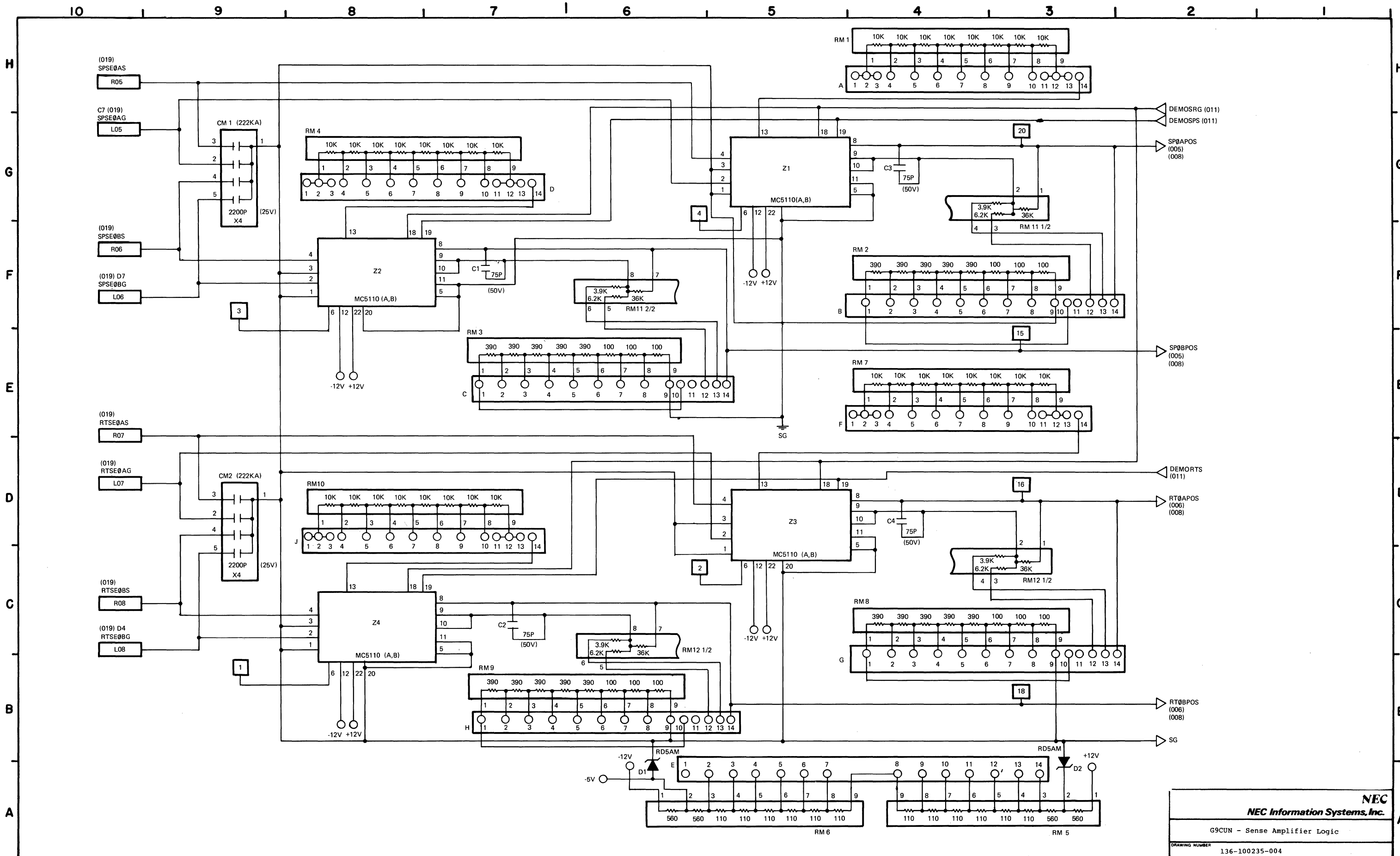
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**NEC Information Systems, Inc.**

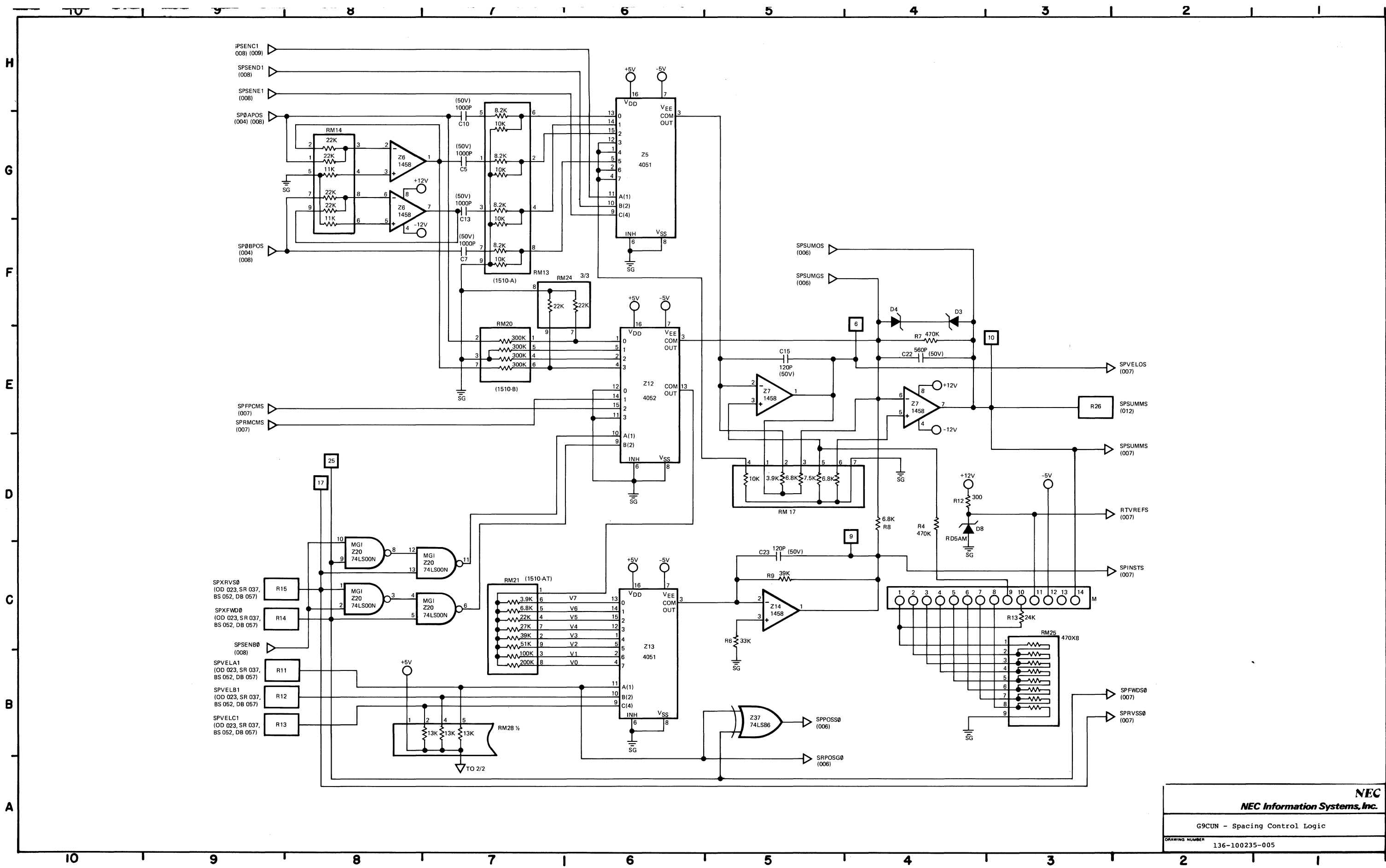
G9BMT - Power Supply Regulator PCB  
Schematic

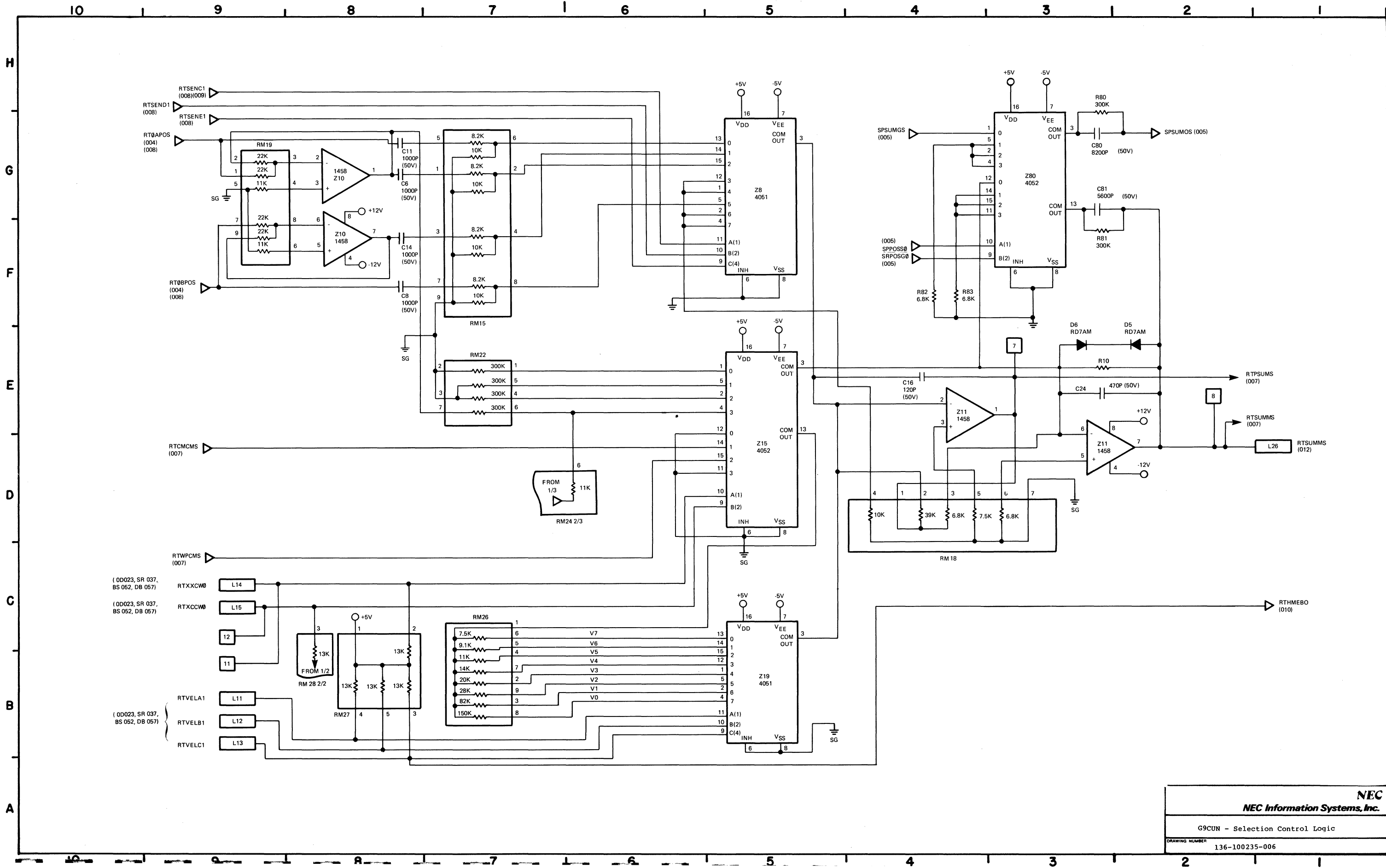
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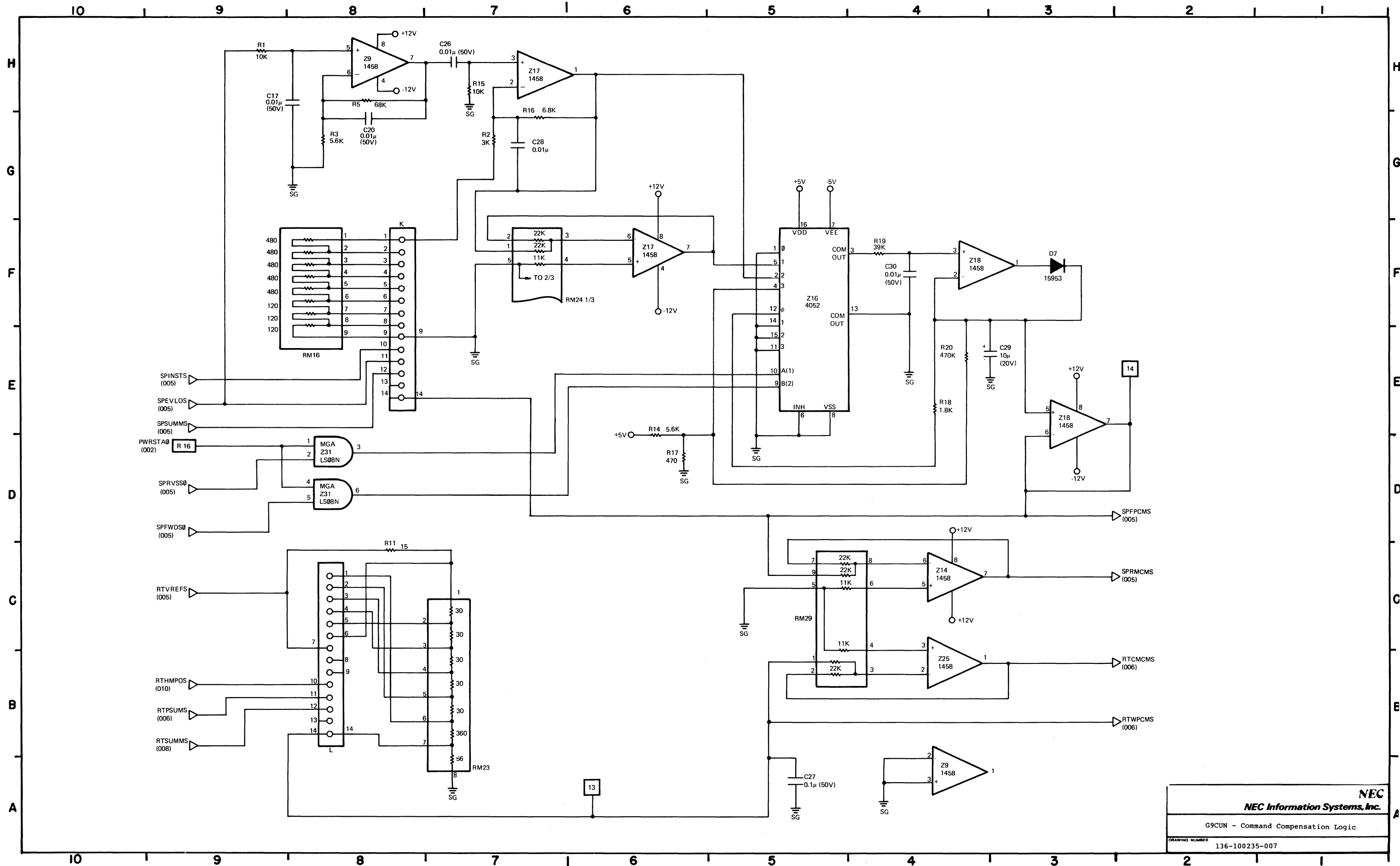


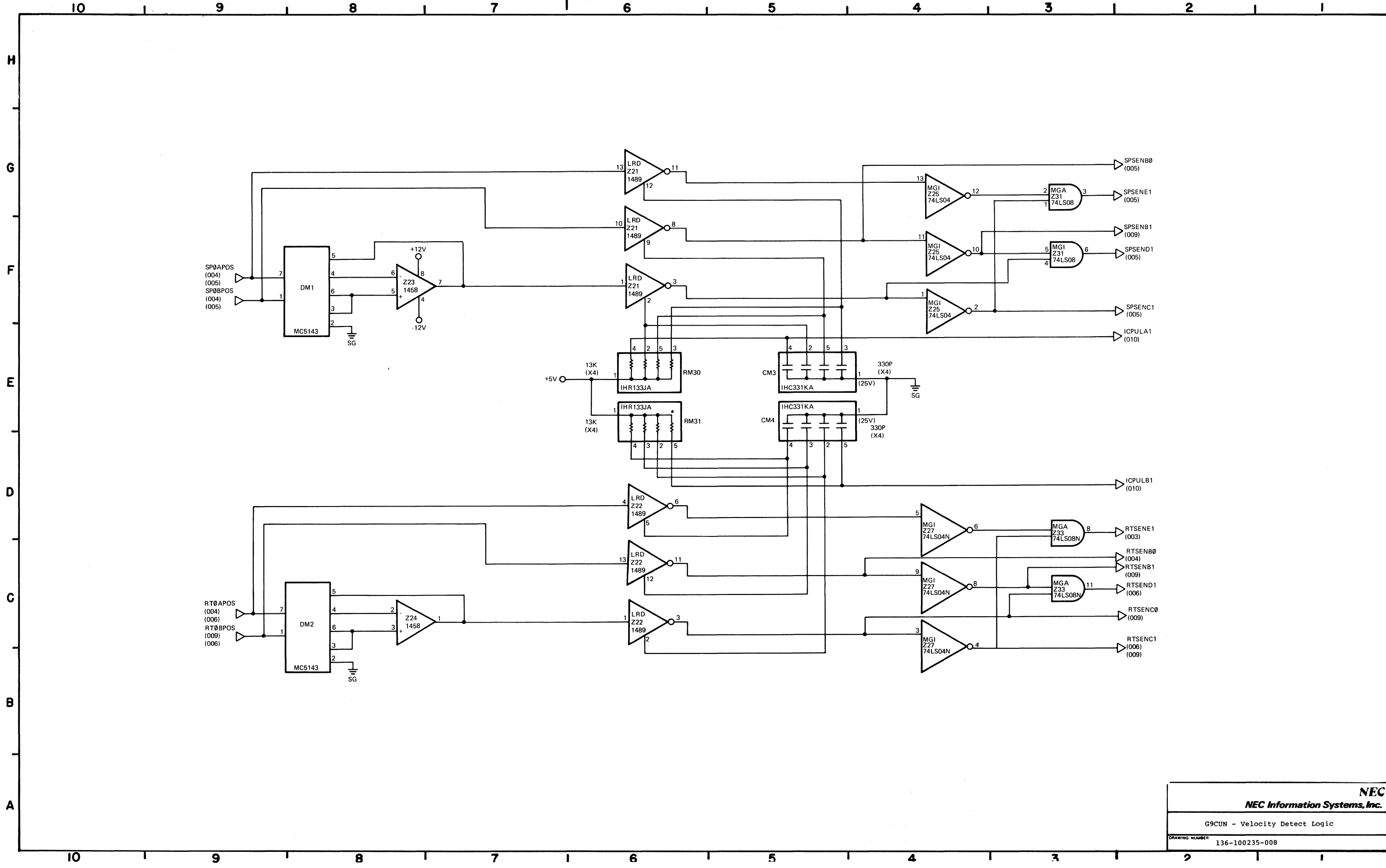


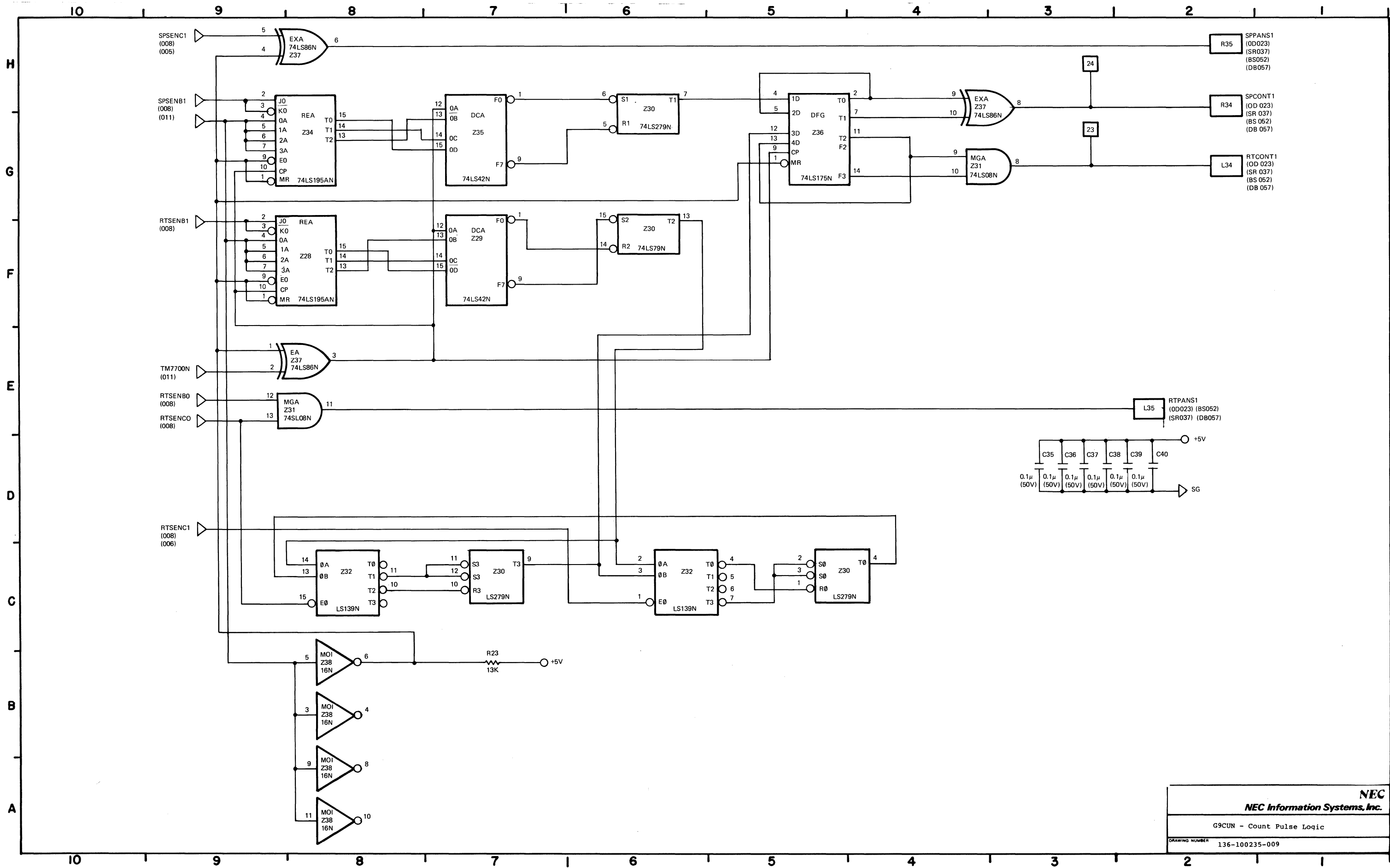


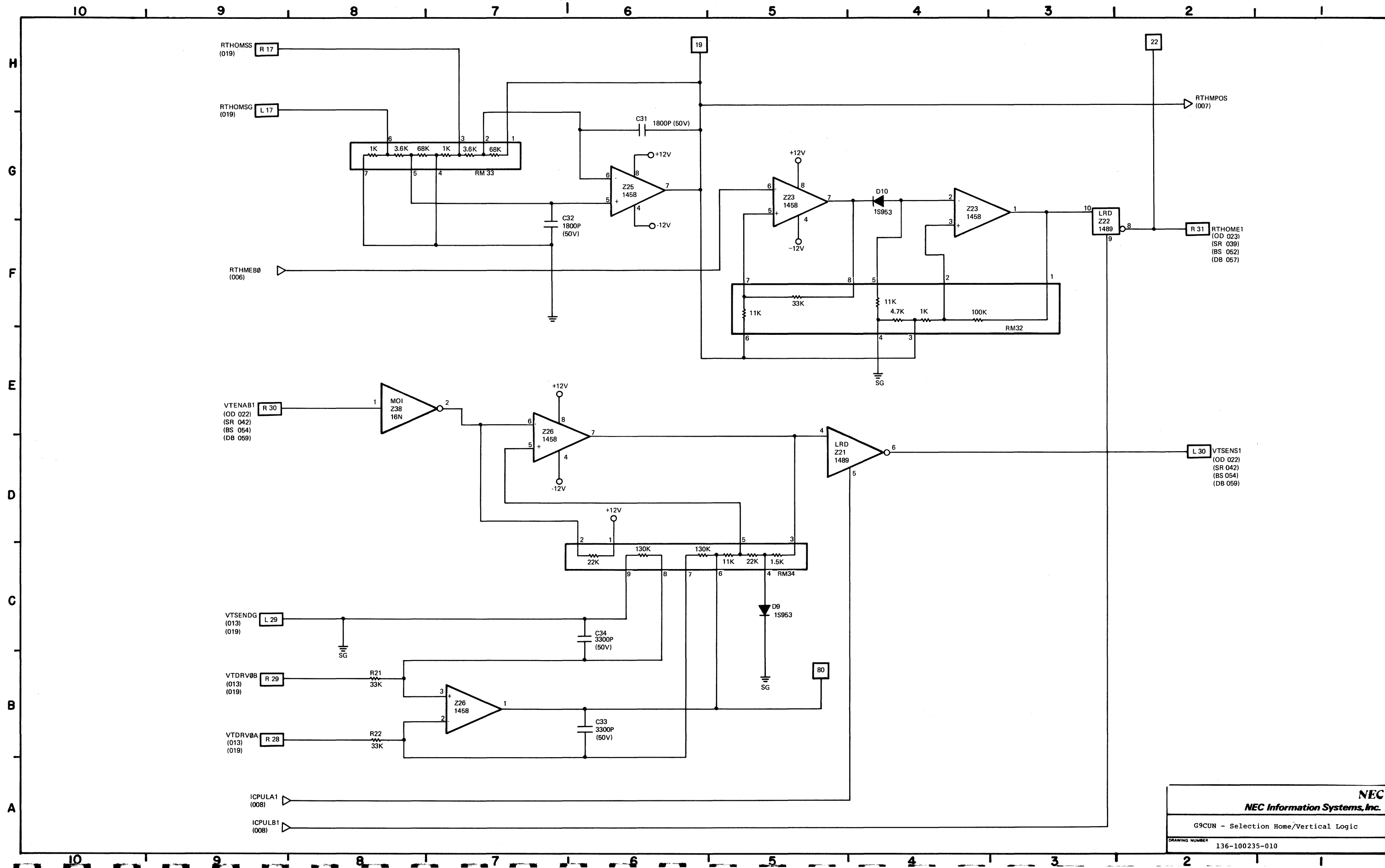


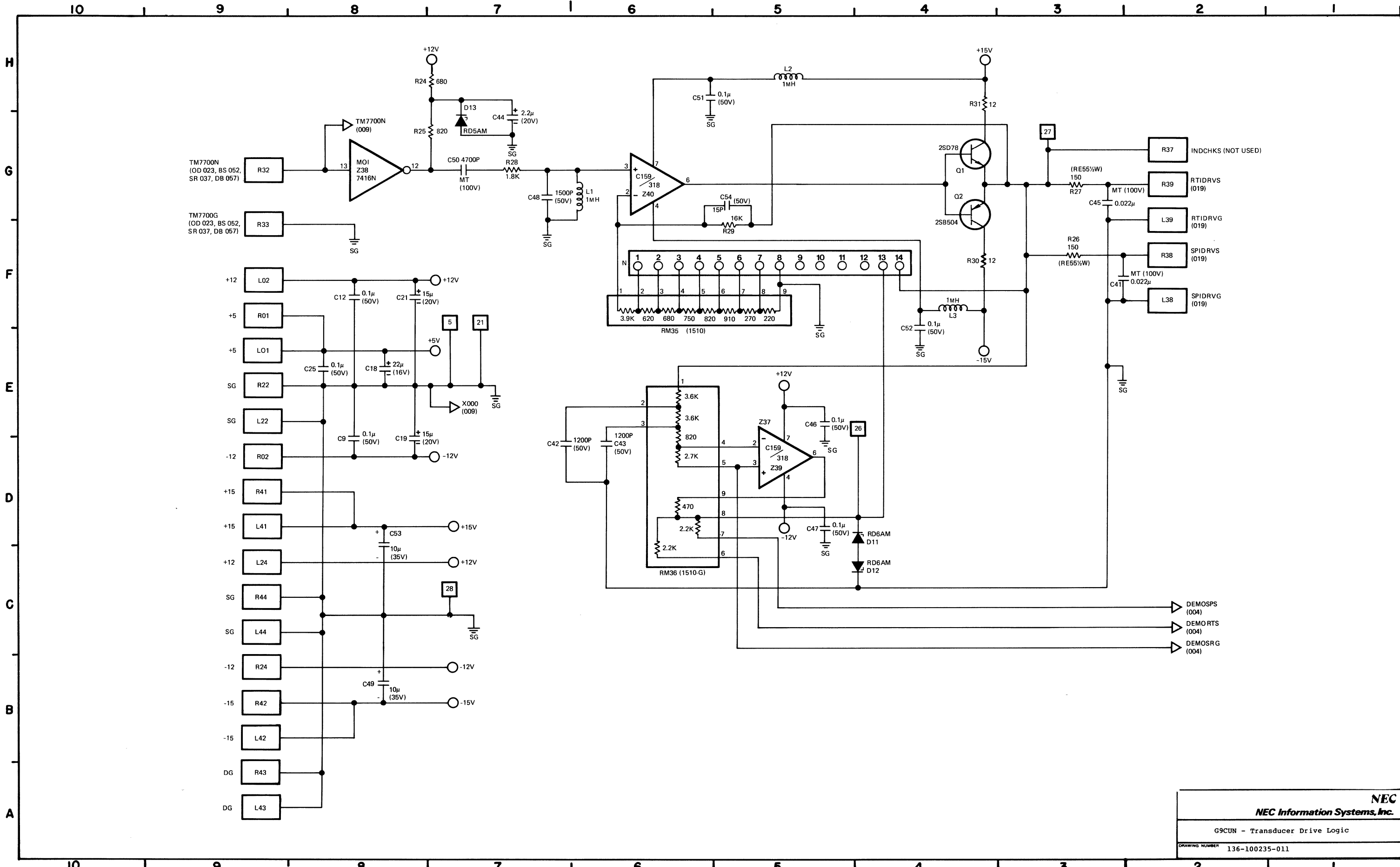




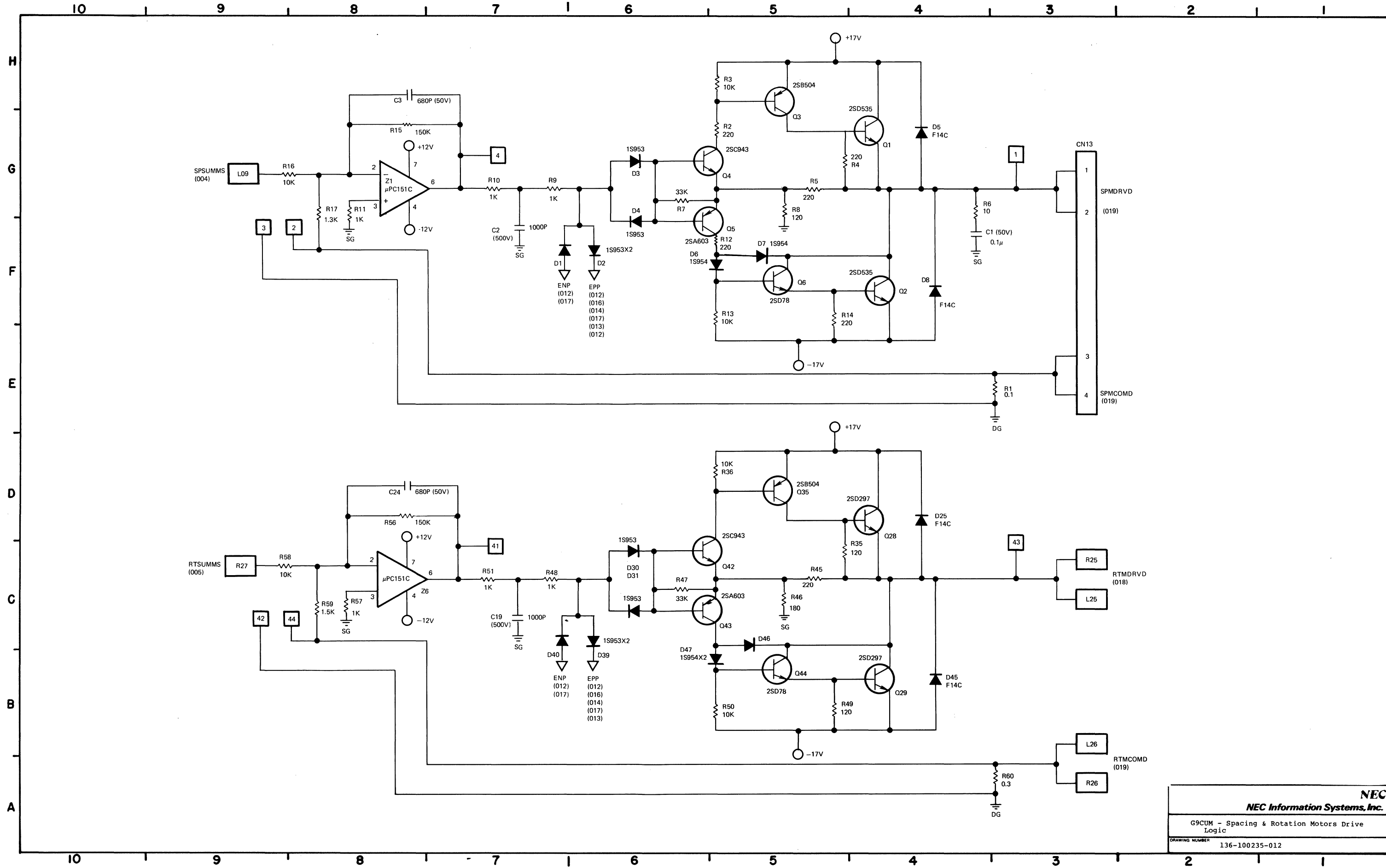


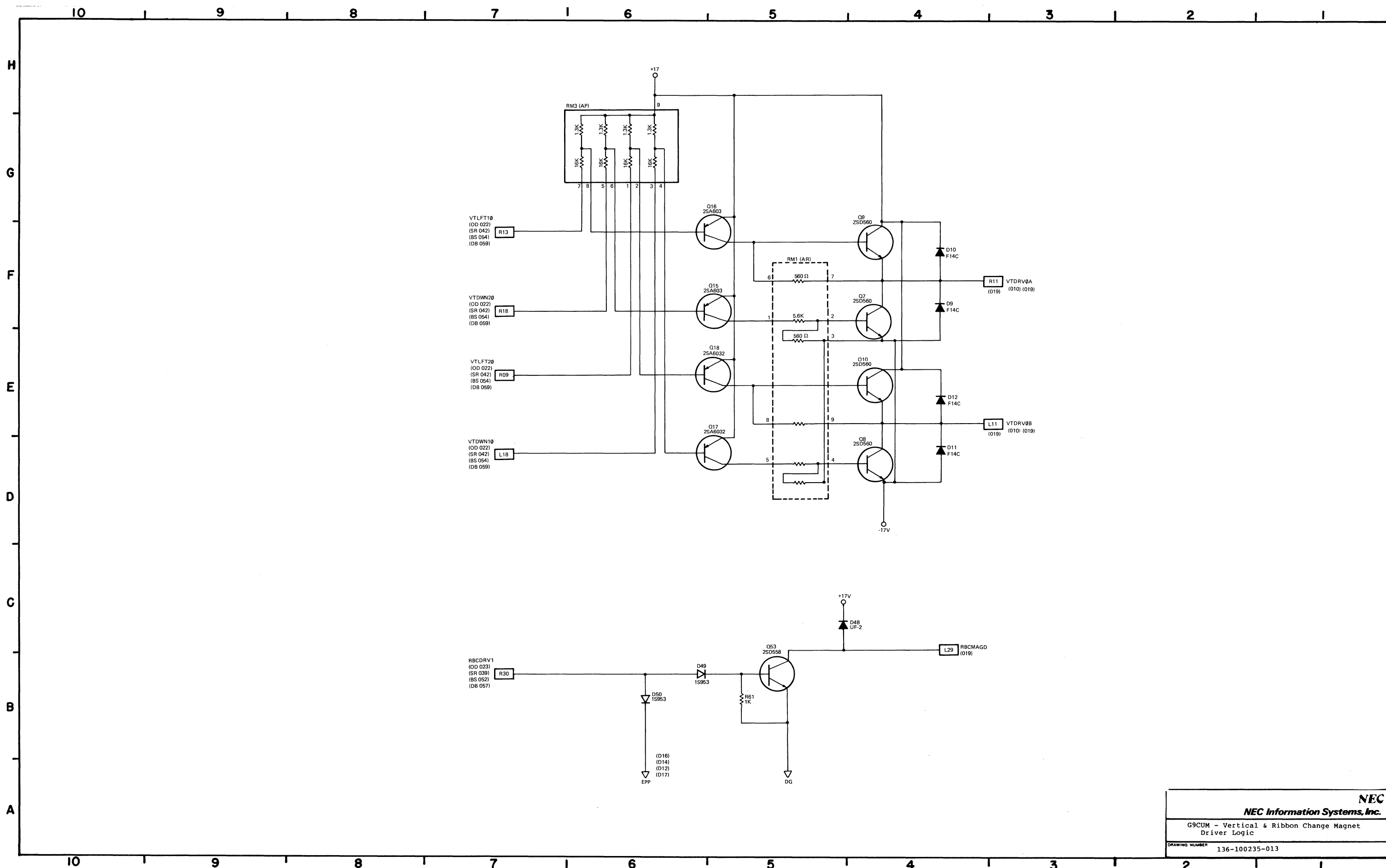




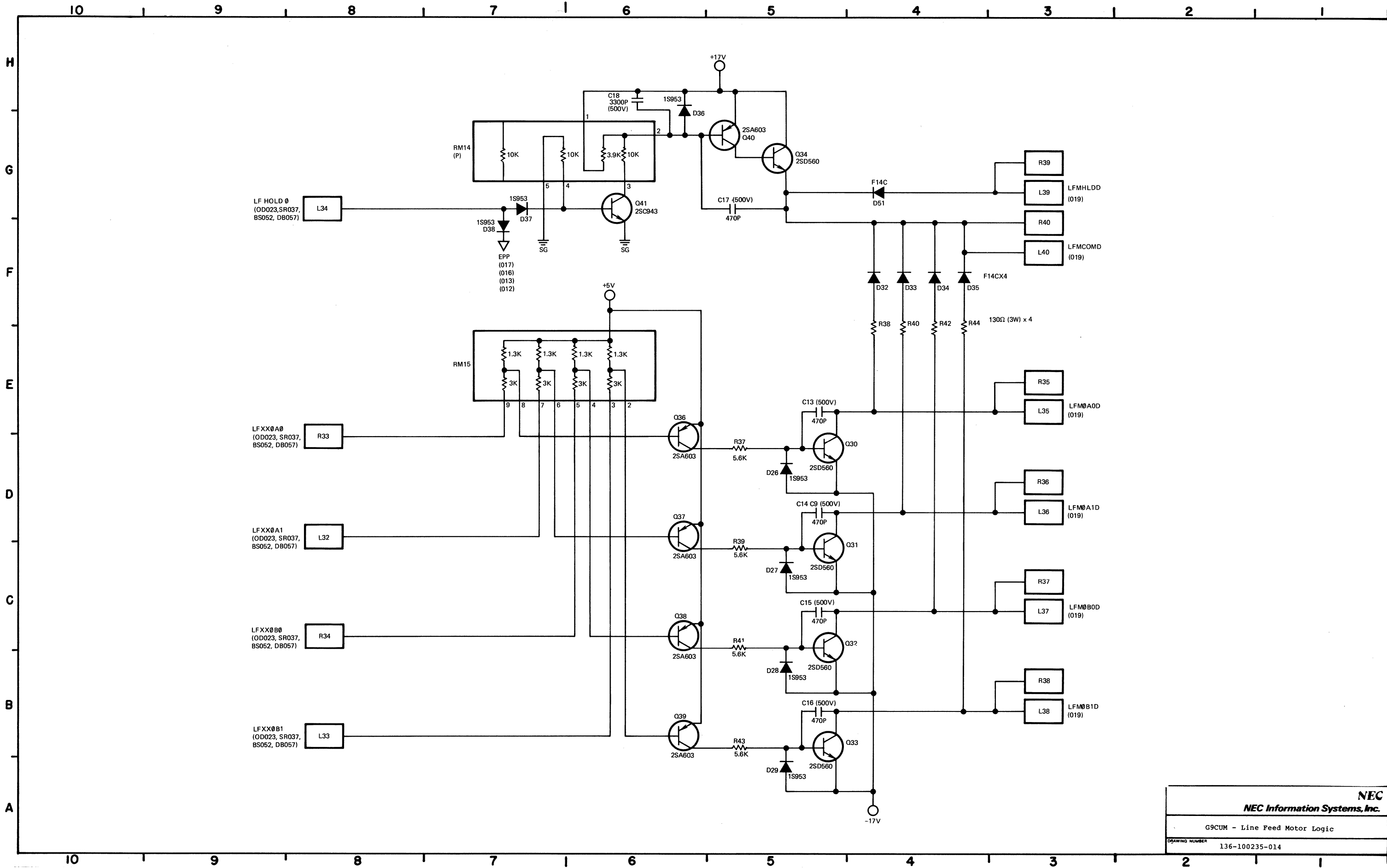


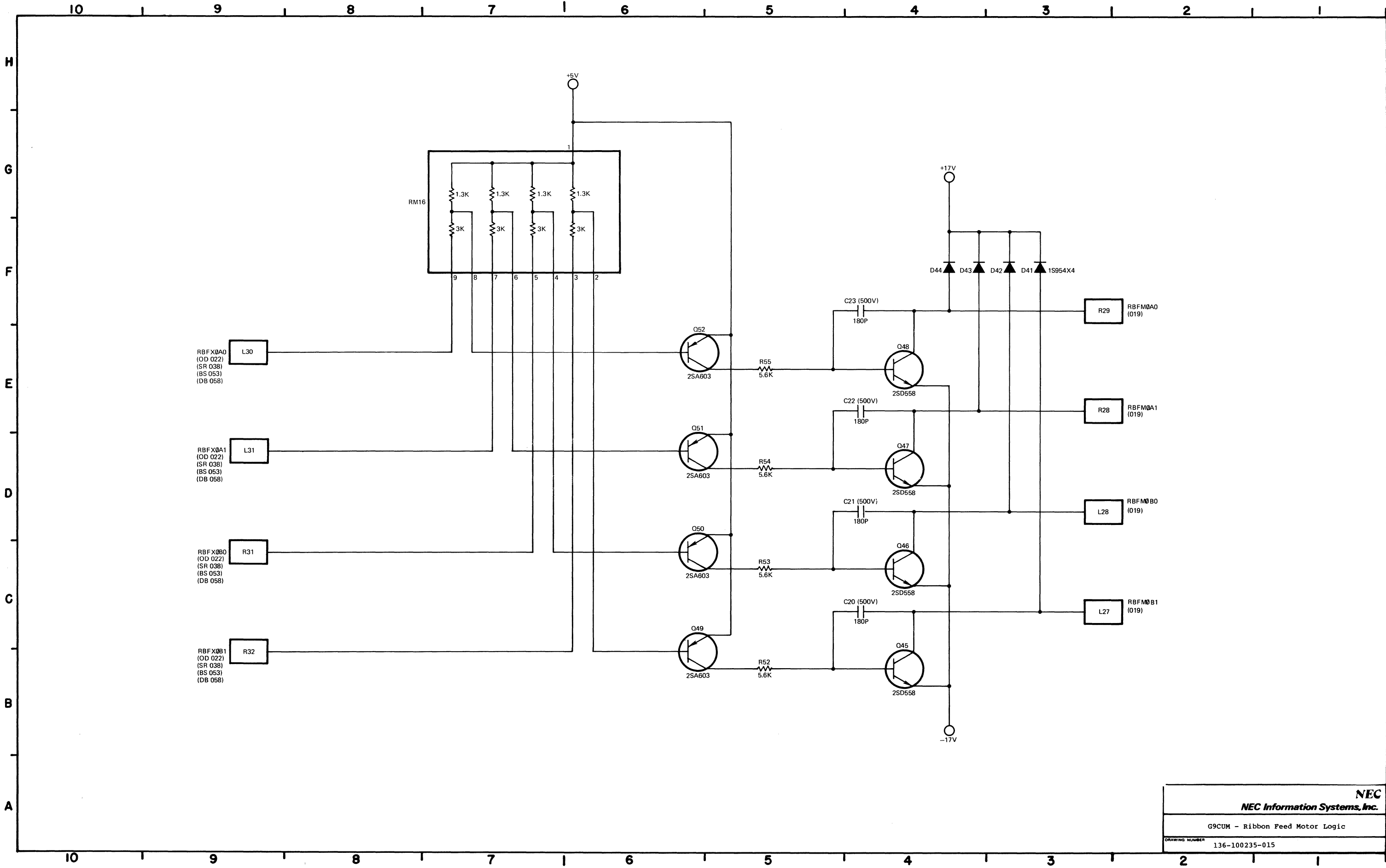


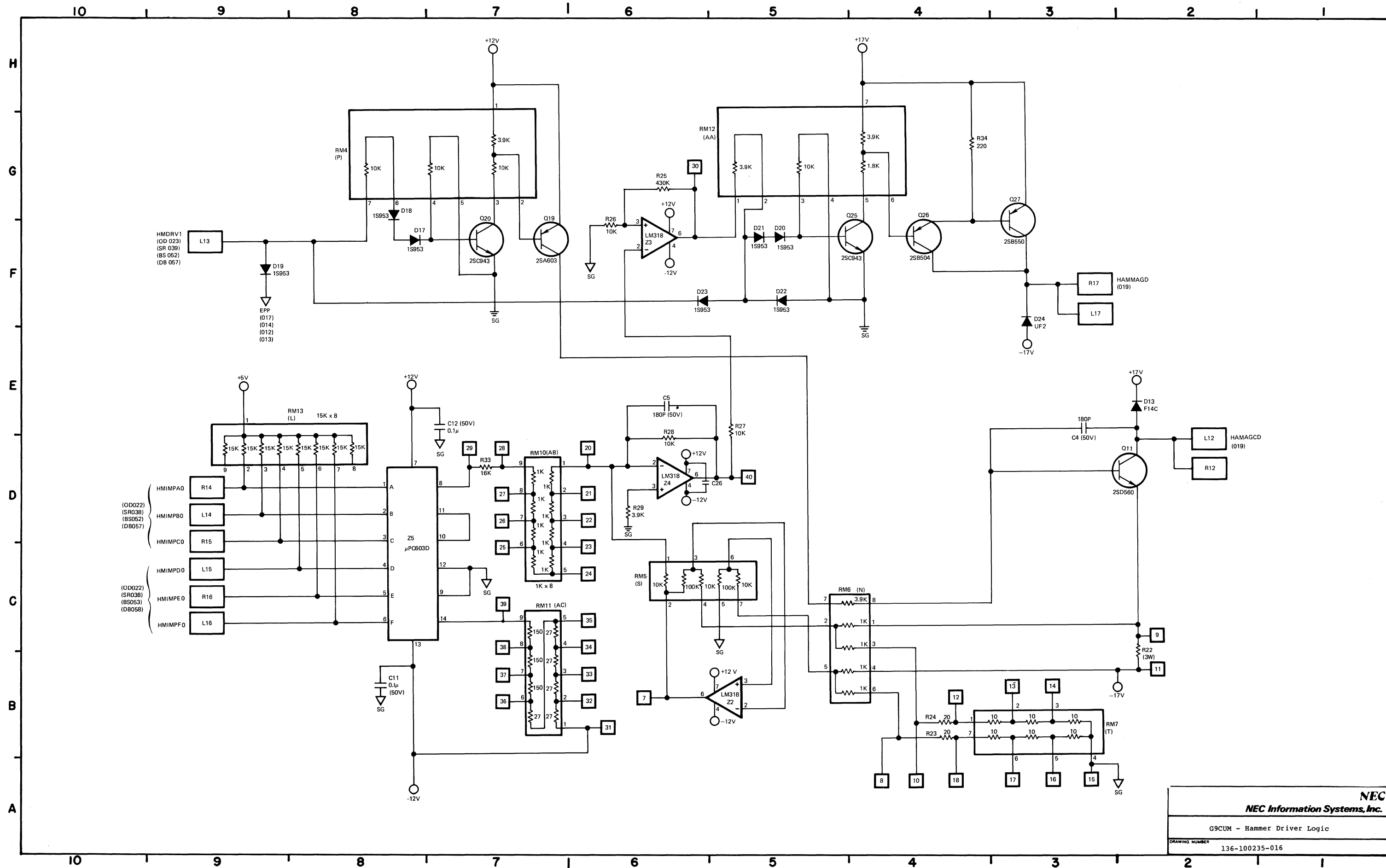




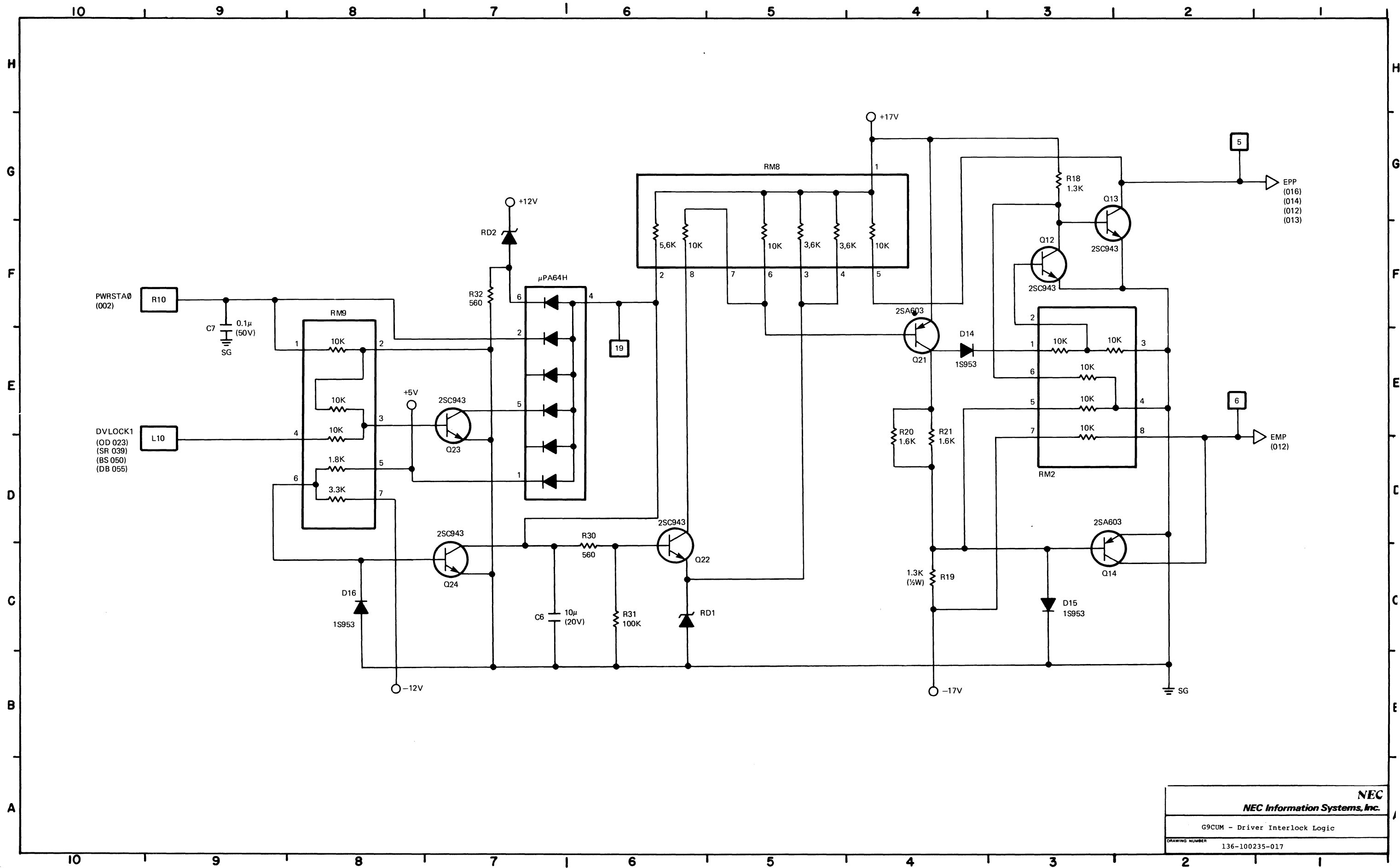
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**NEC Information Systems, Inc.**  
 G9CUM - Vertical & Ribbon Change Magnet  
 Driver Logic  
 DRAWING NUMBER 136-100235-013

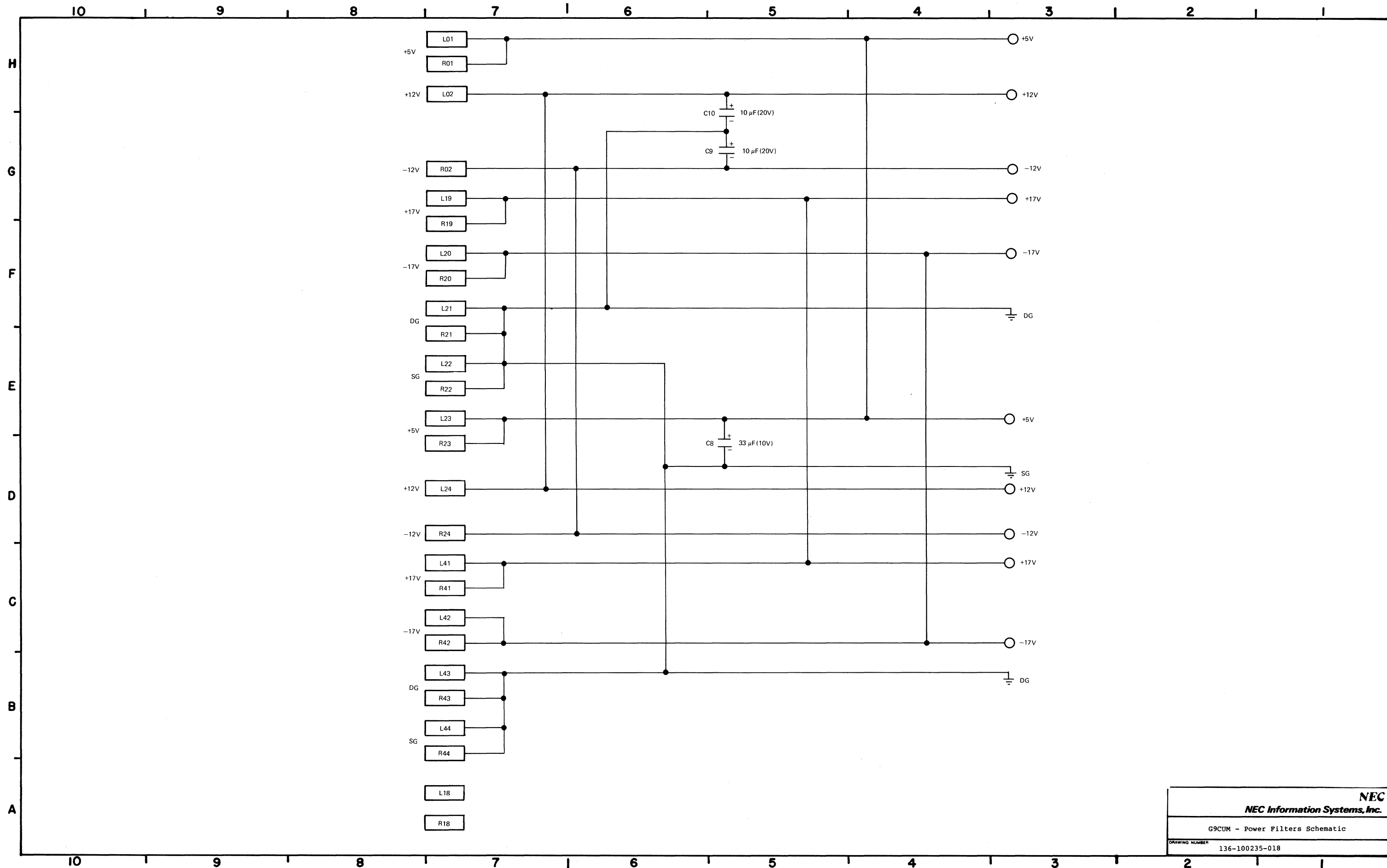


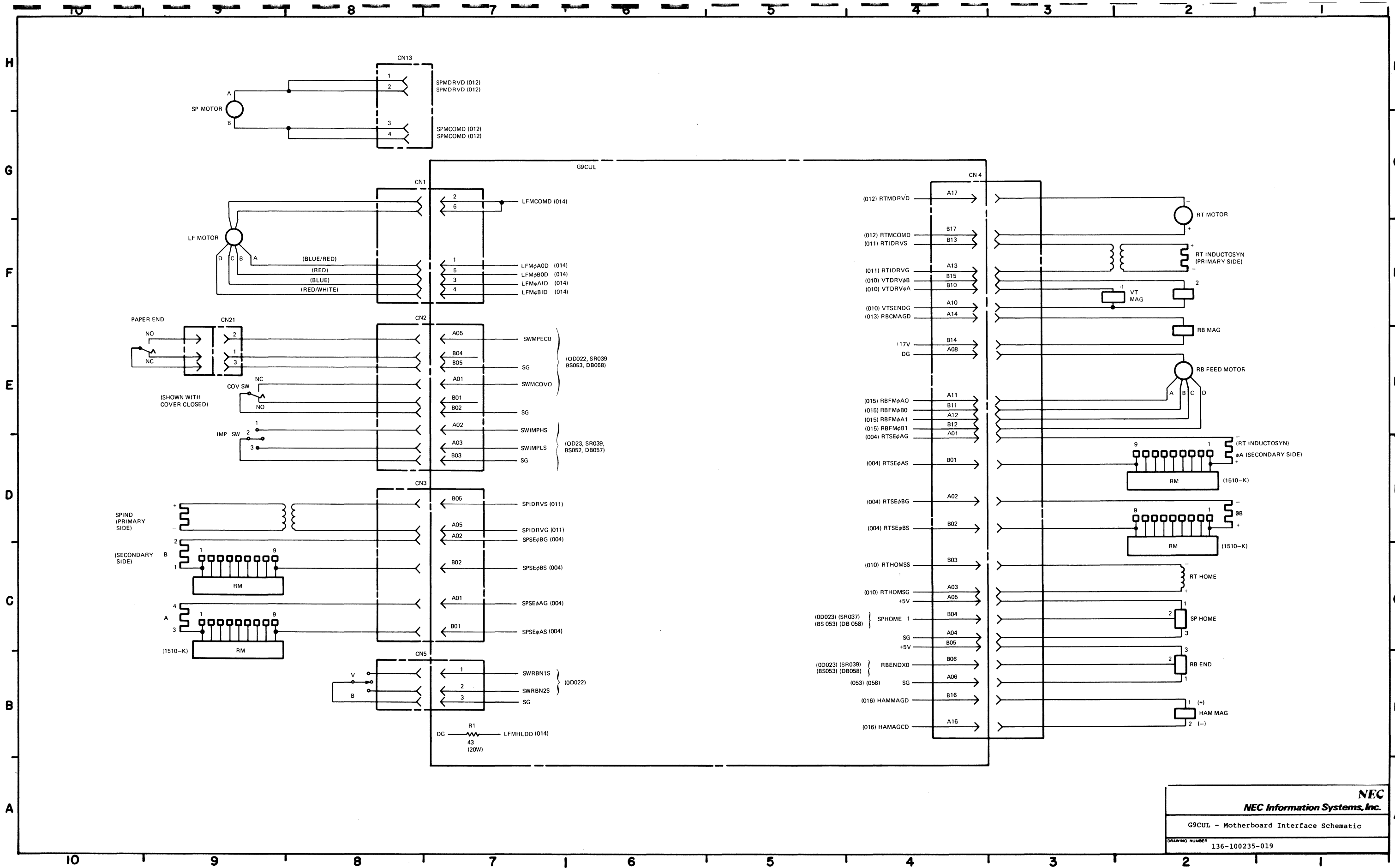




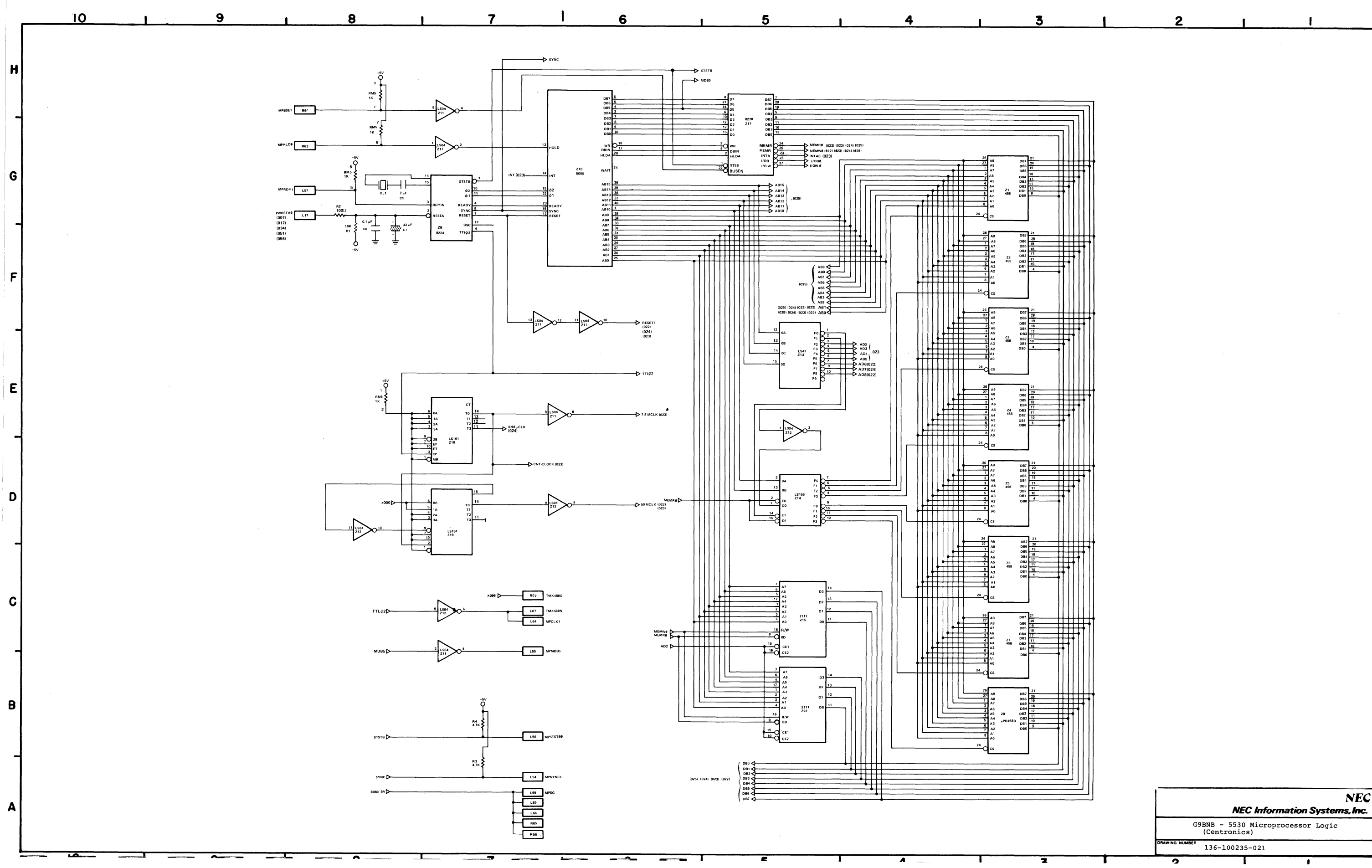
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 G9CUM - Hammer Driver Logic  
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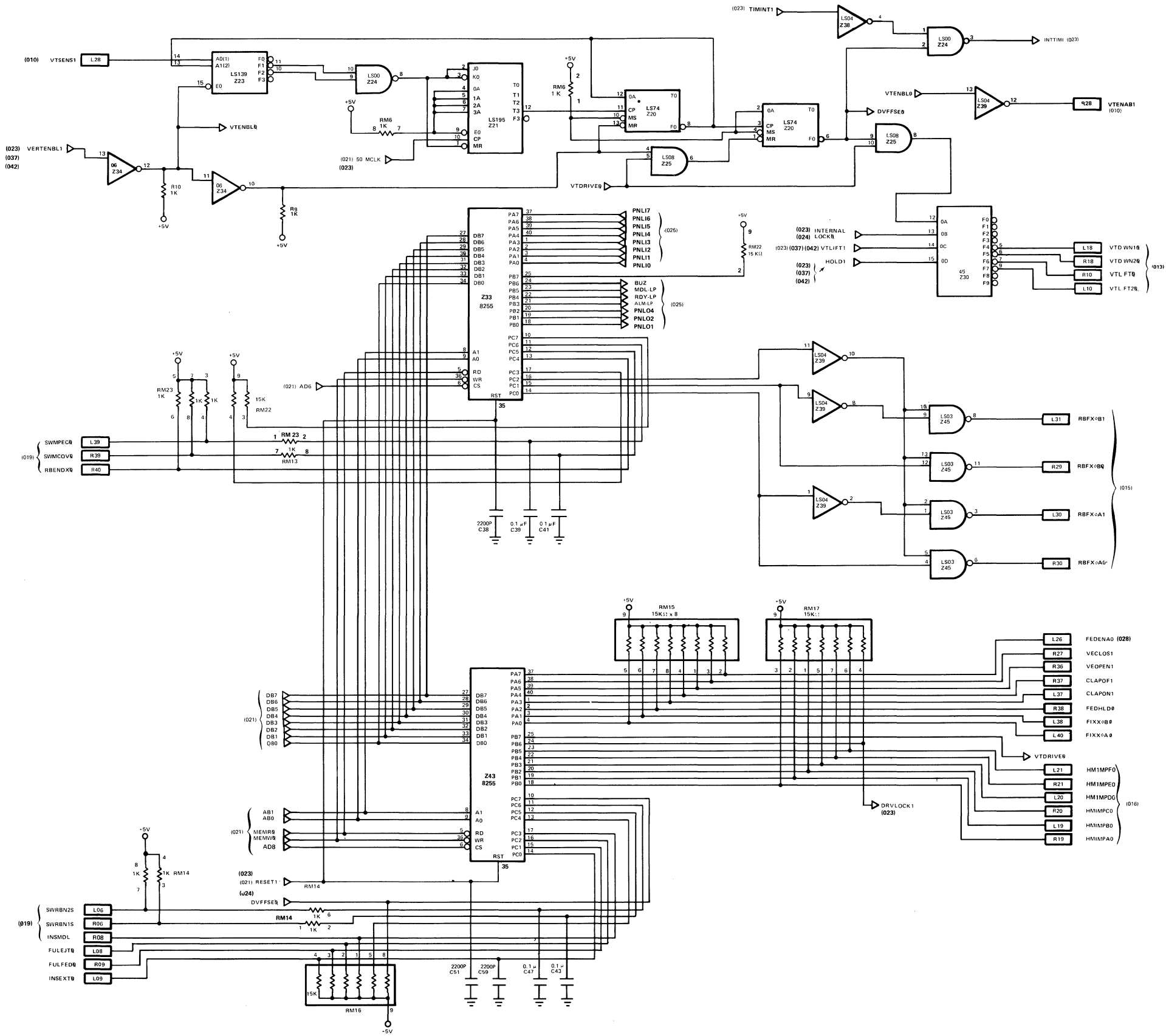


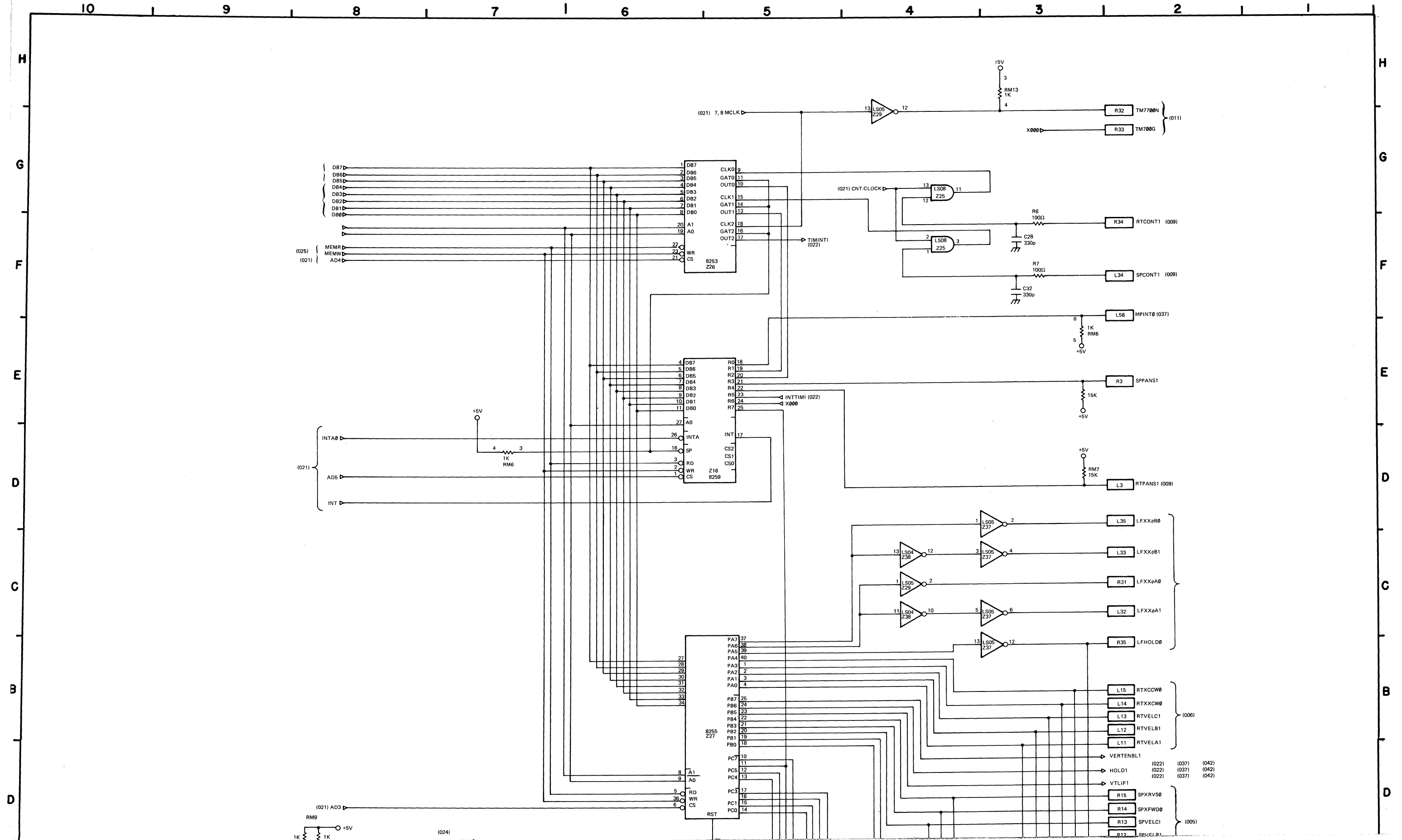


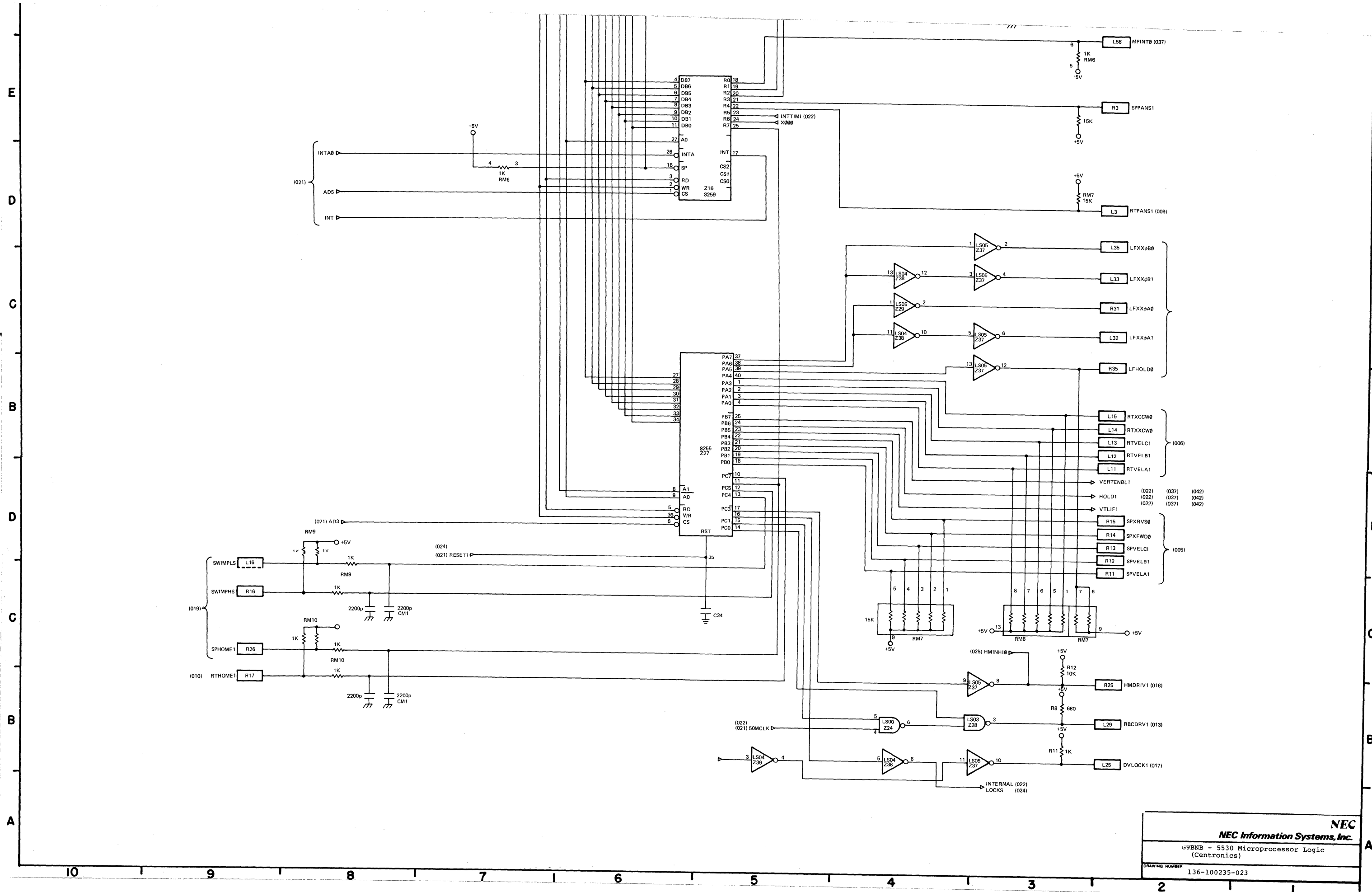


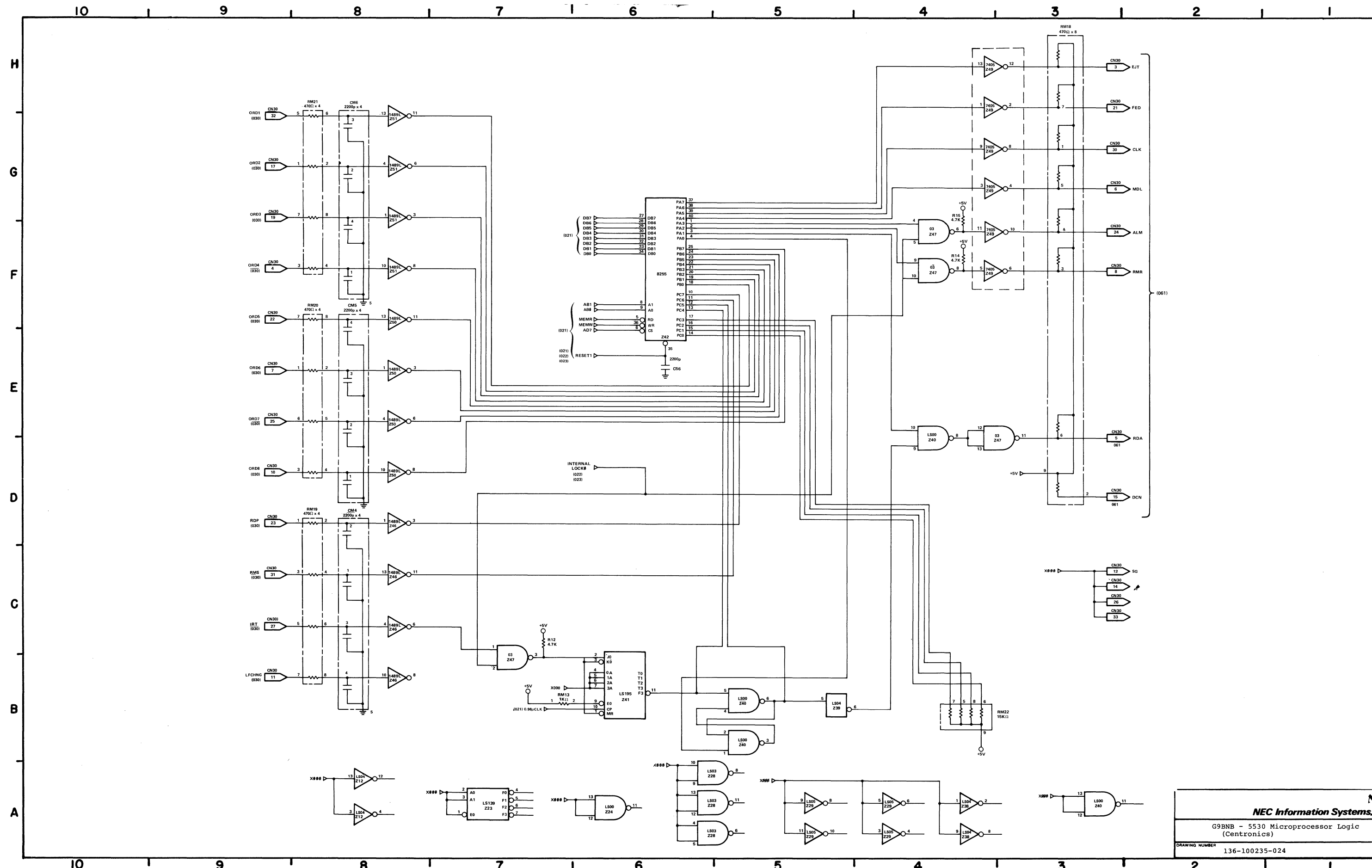


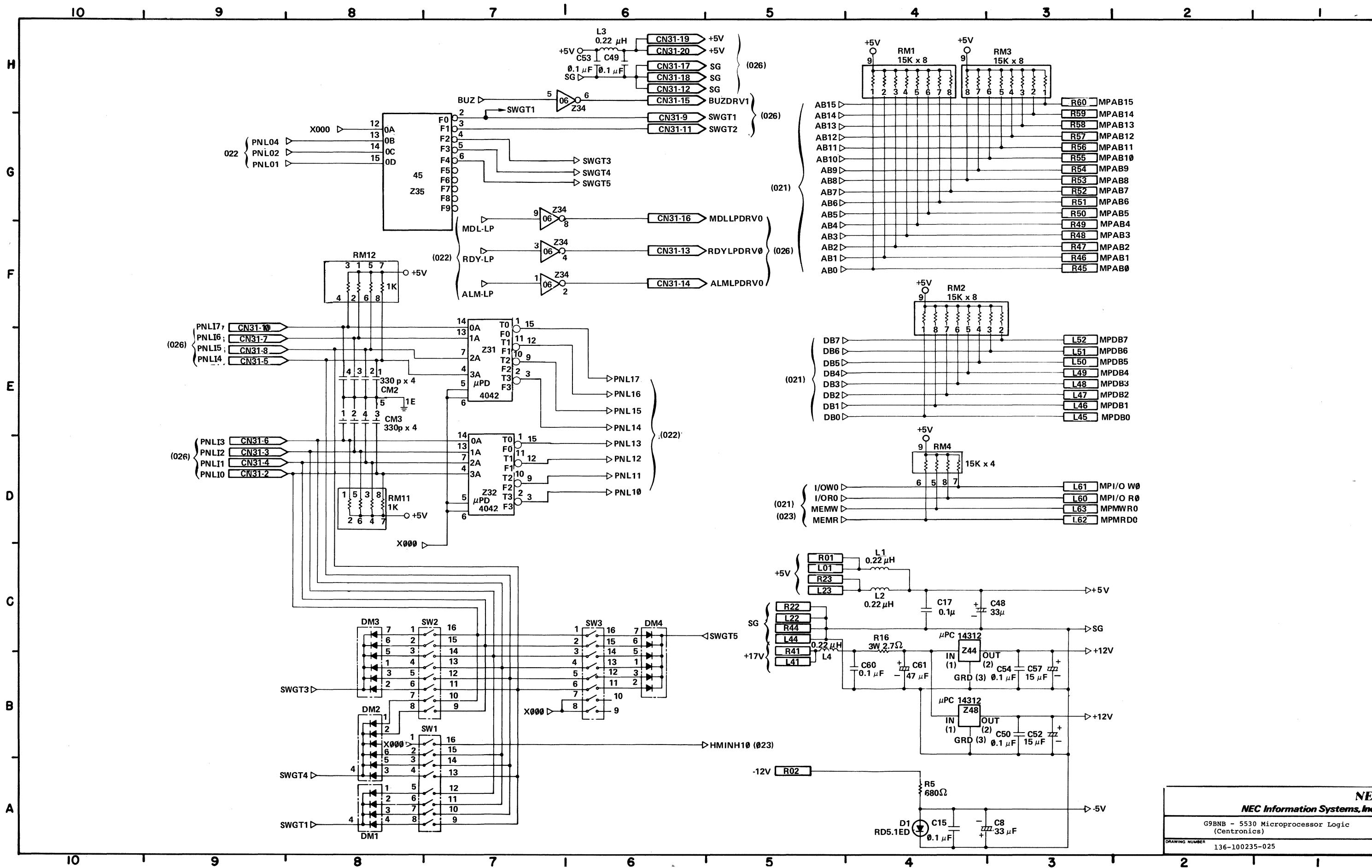


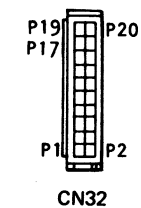
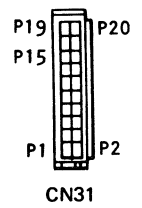
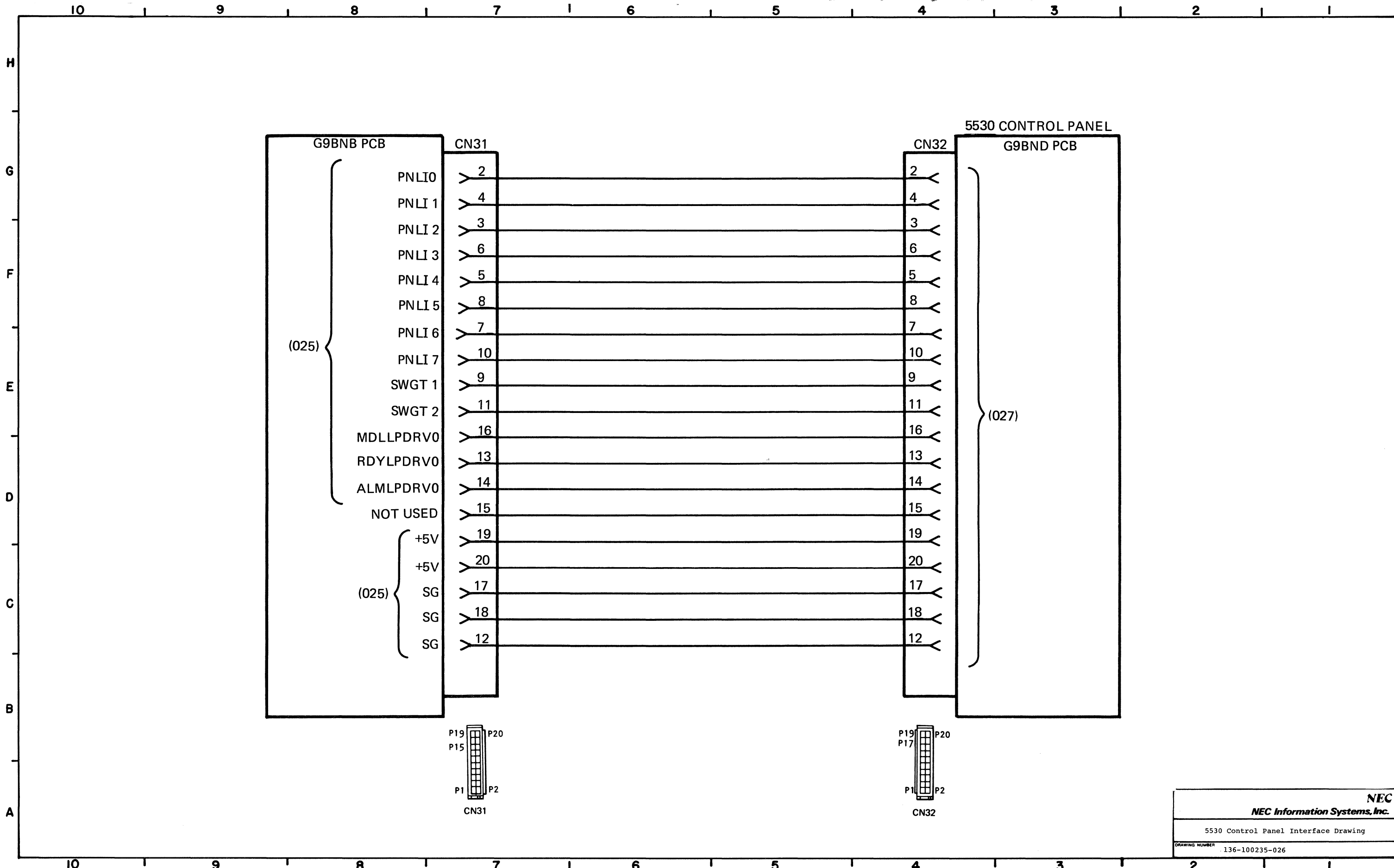


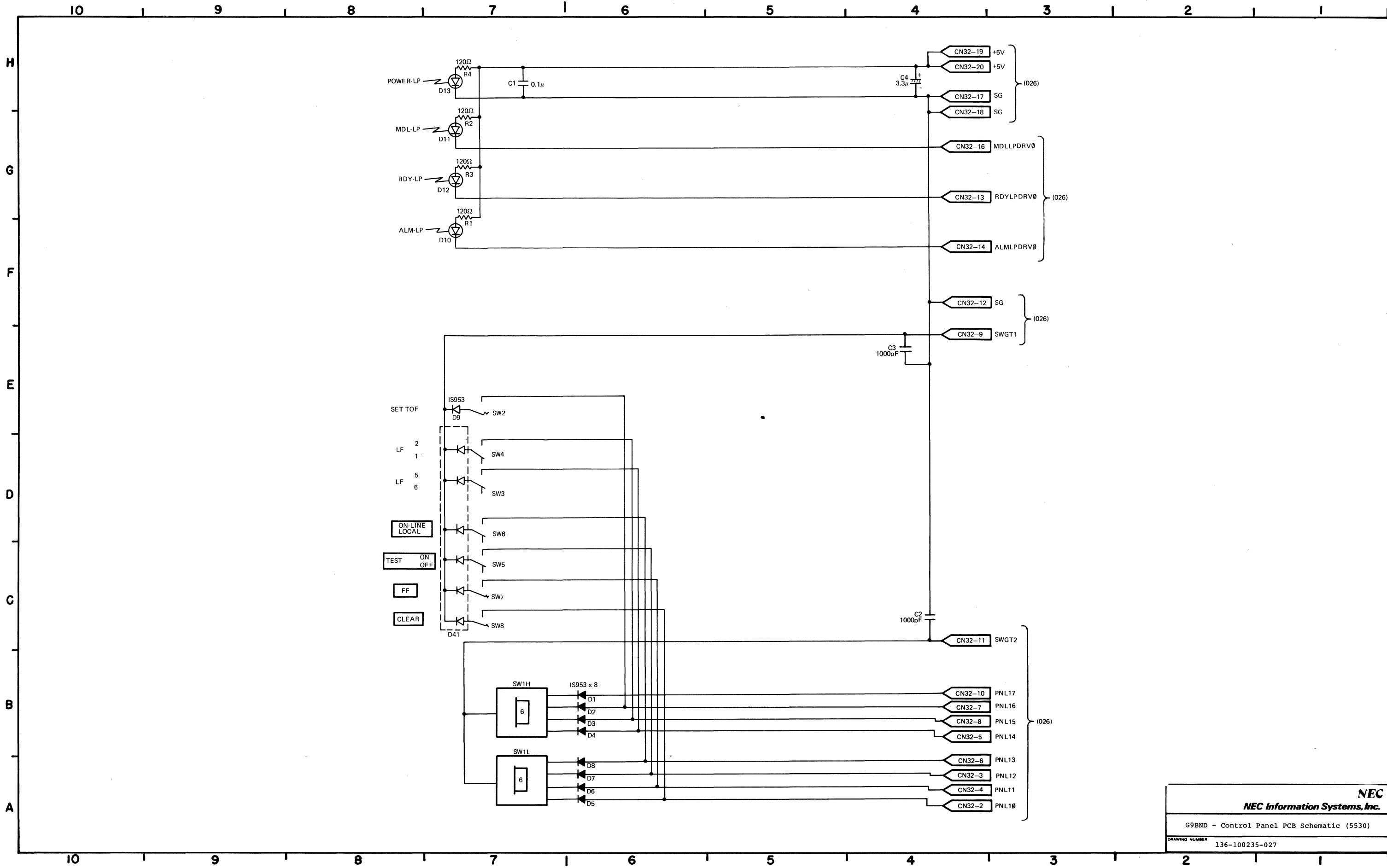




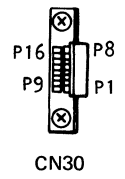
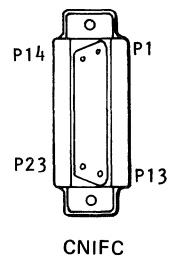
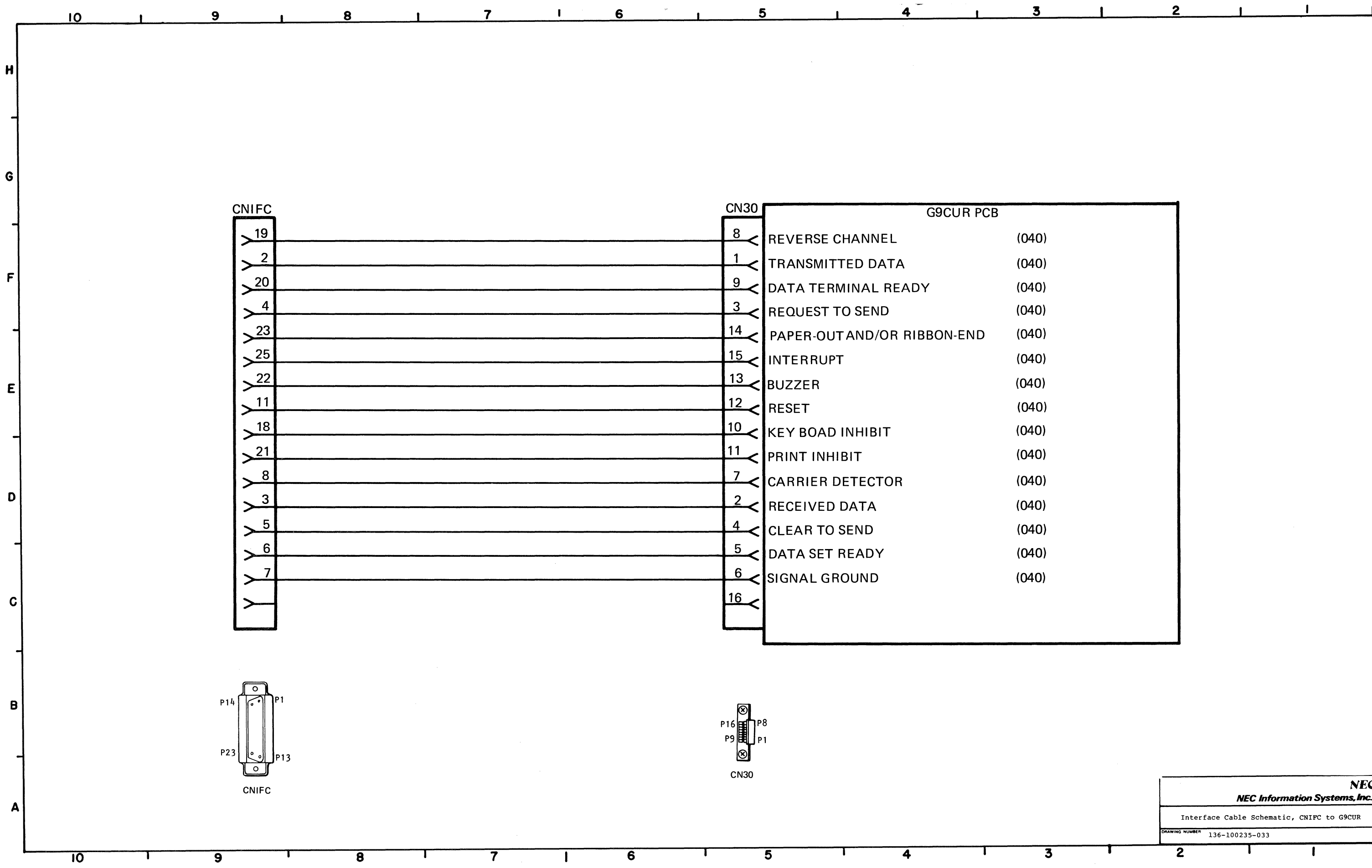


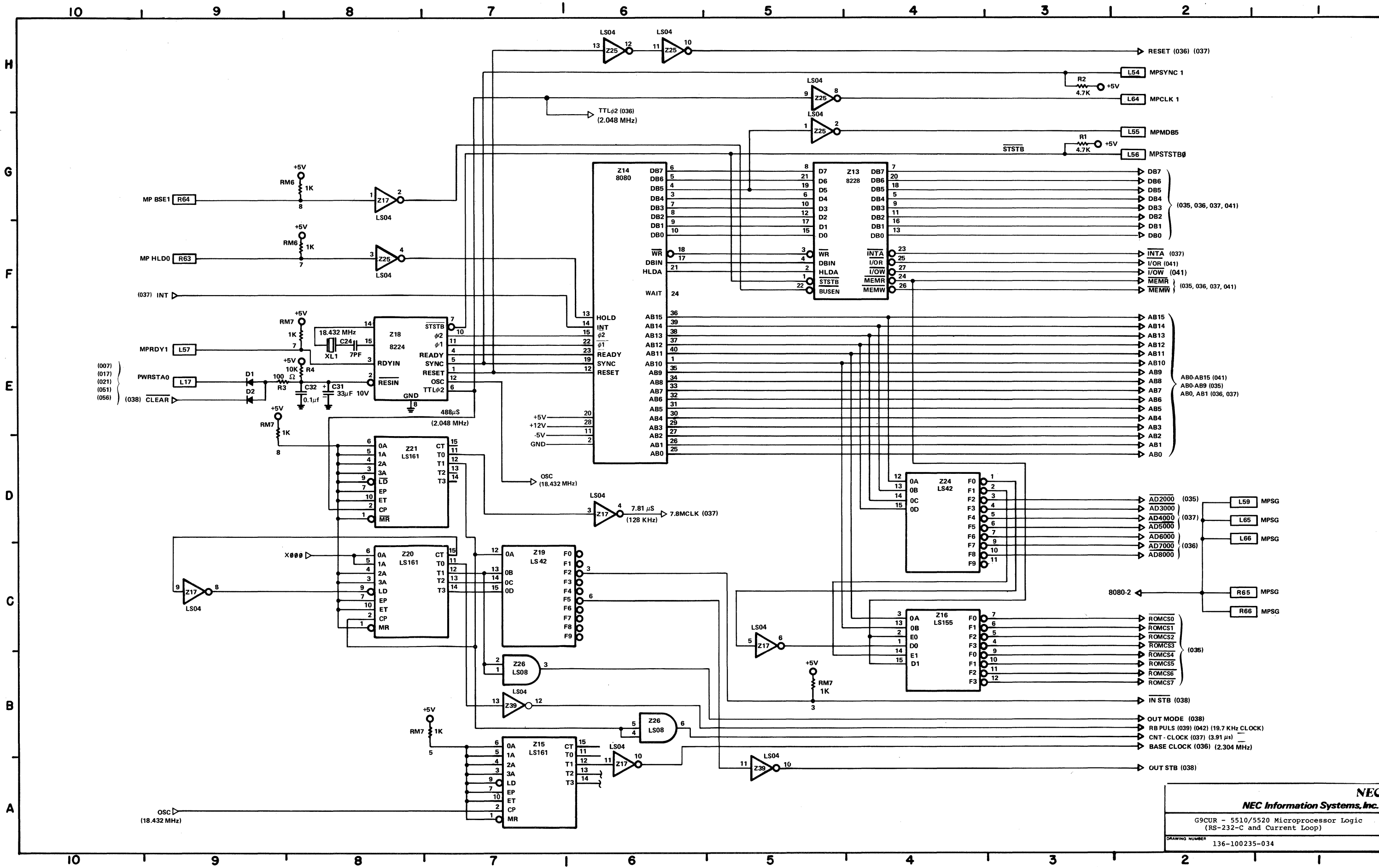


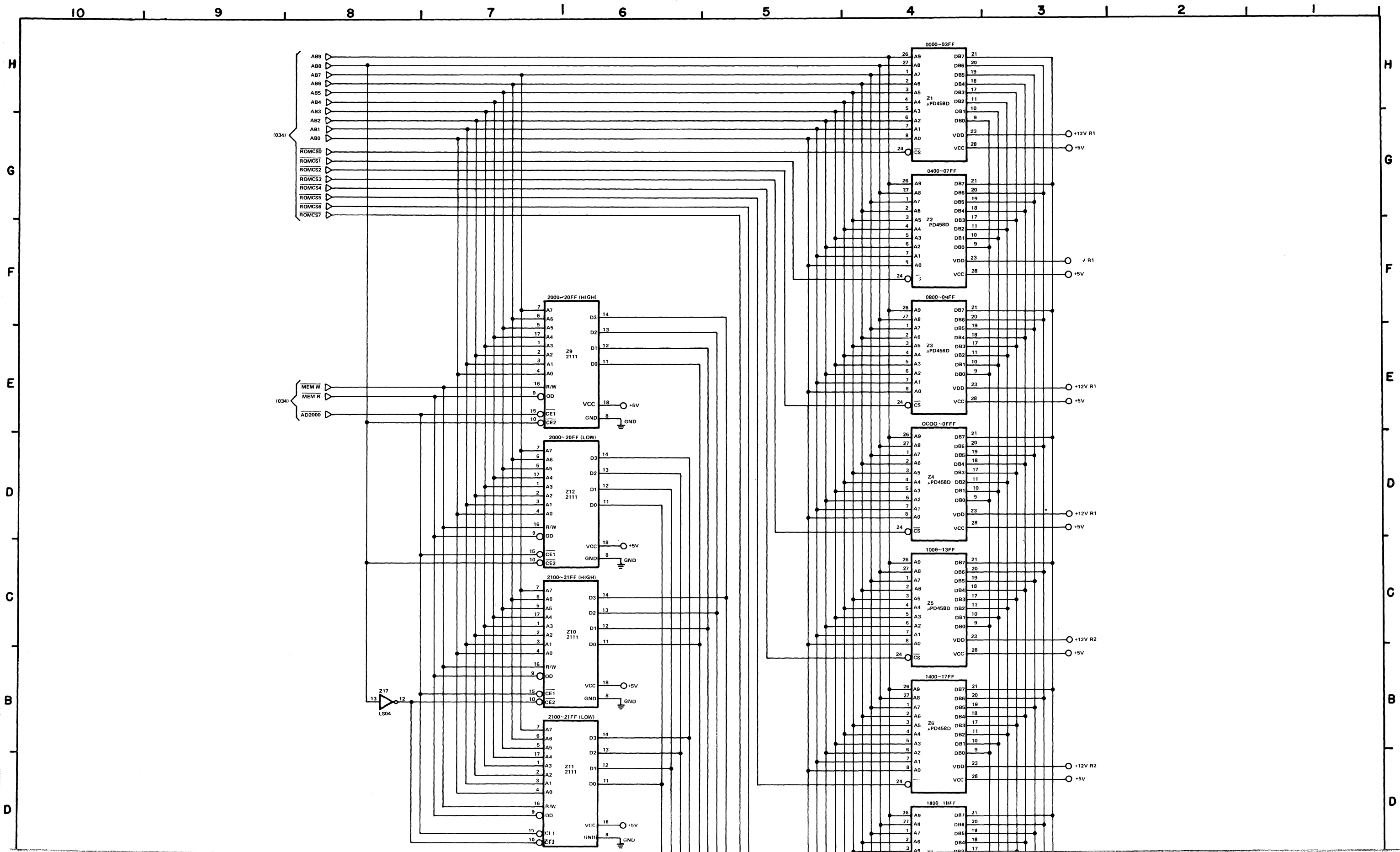


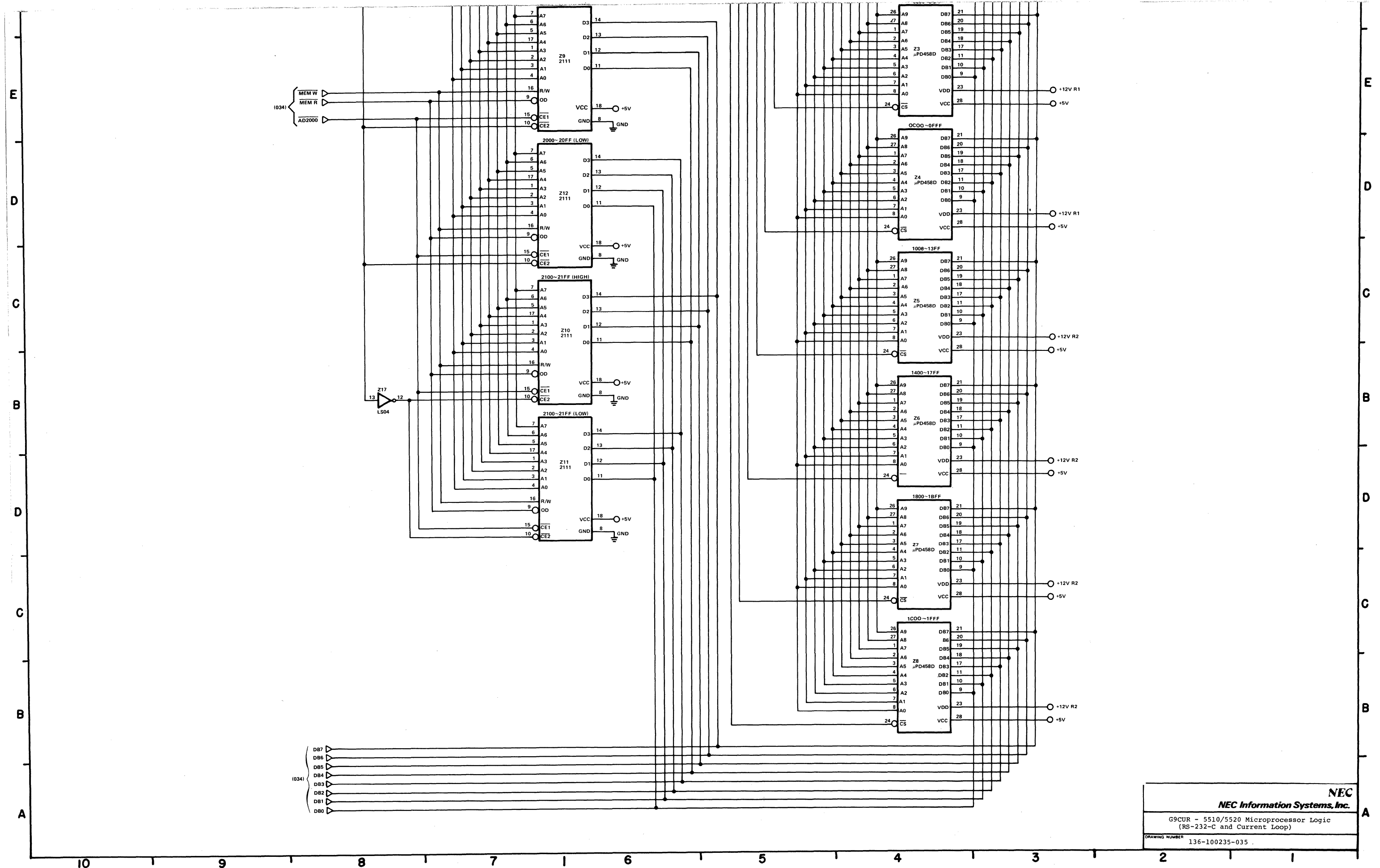




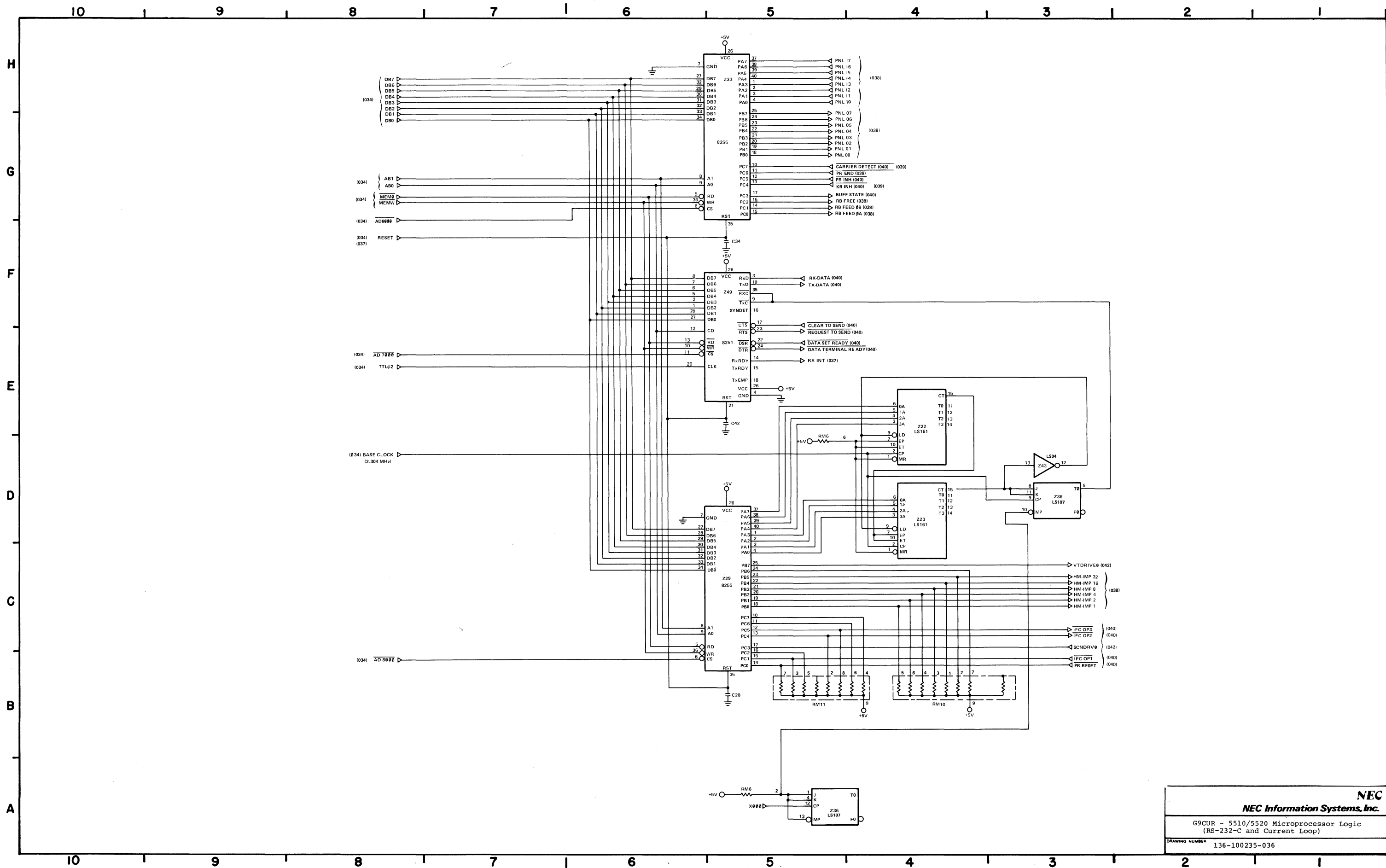


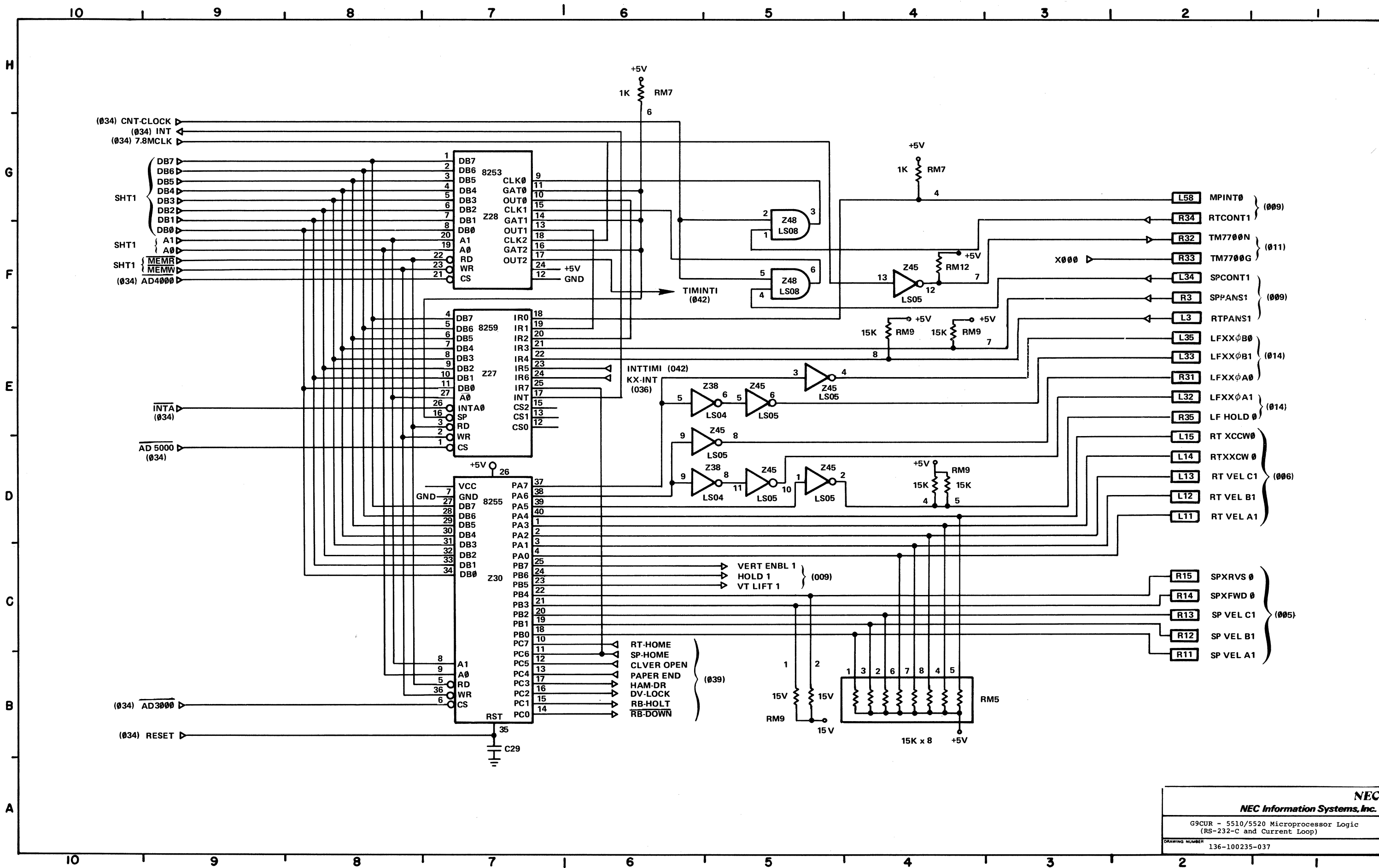


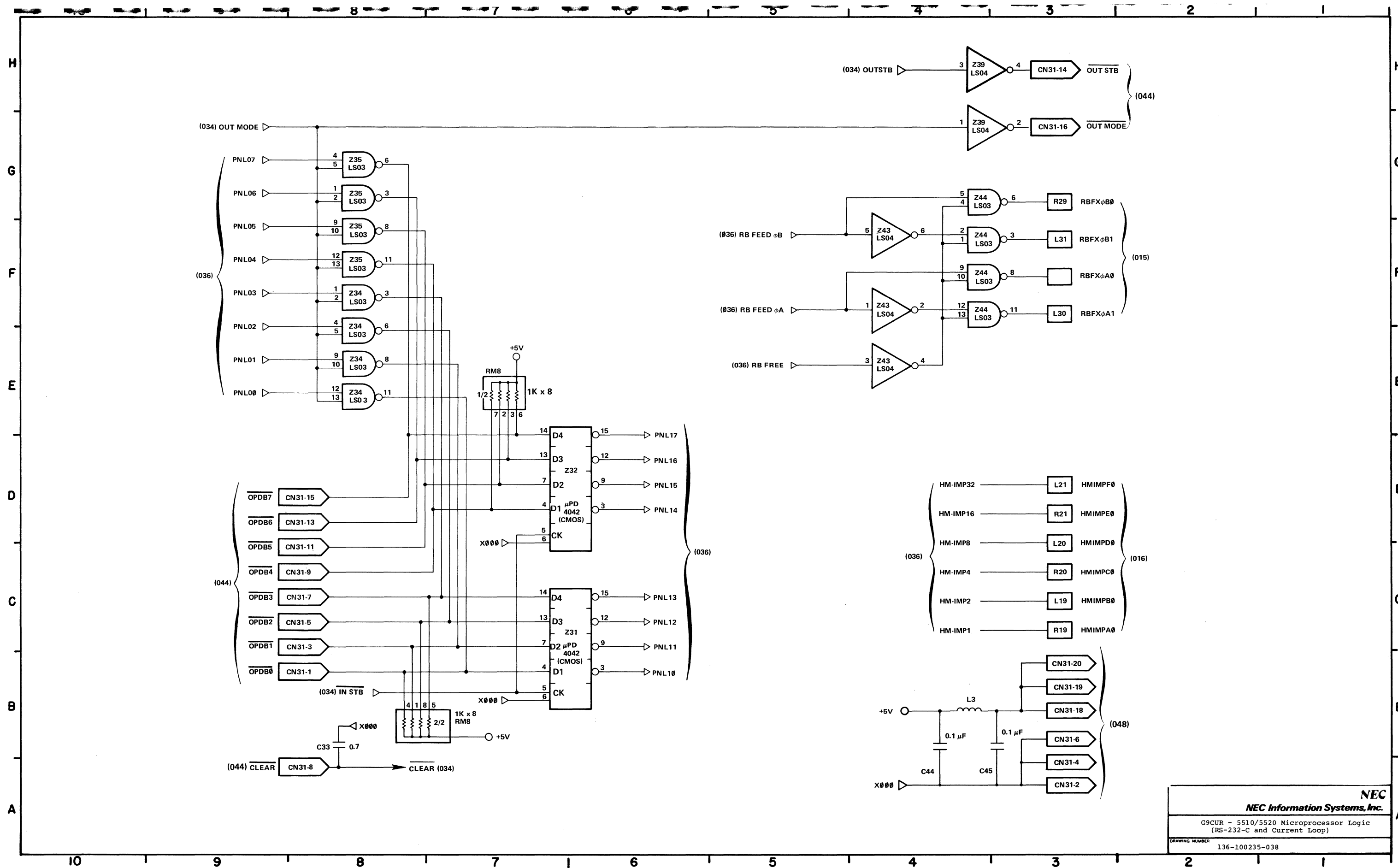


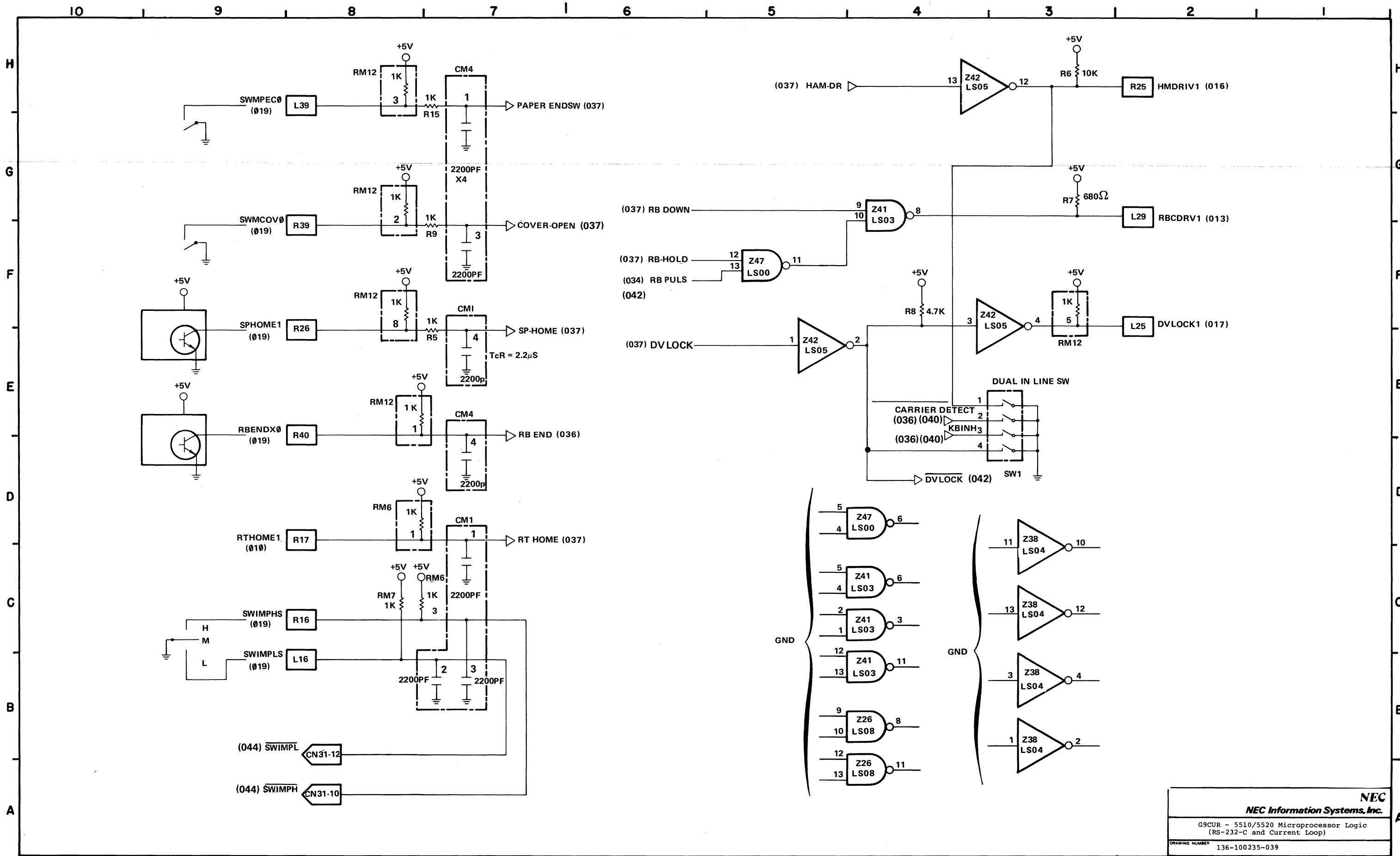


**NEC**  
**NEC Information Systems, Inc.**  
 G9CUR - 5510/5520 Microprocessor Logic  
 (RS-232-C and Current Loop)  
 DRAWING NUMBER 136-100235-035

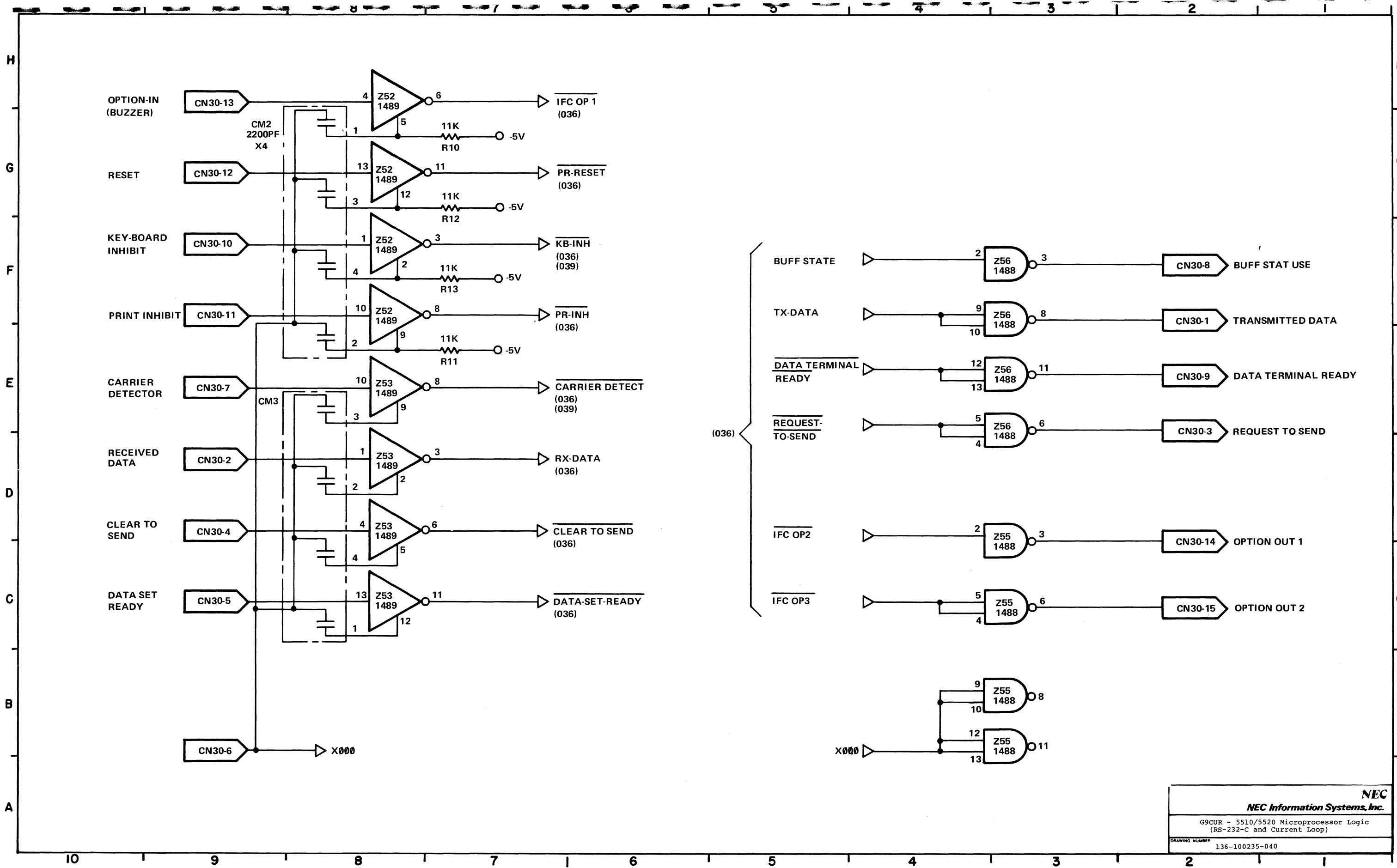


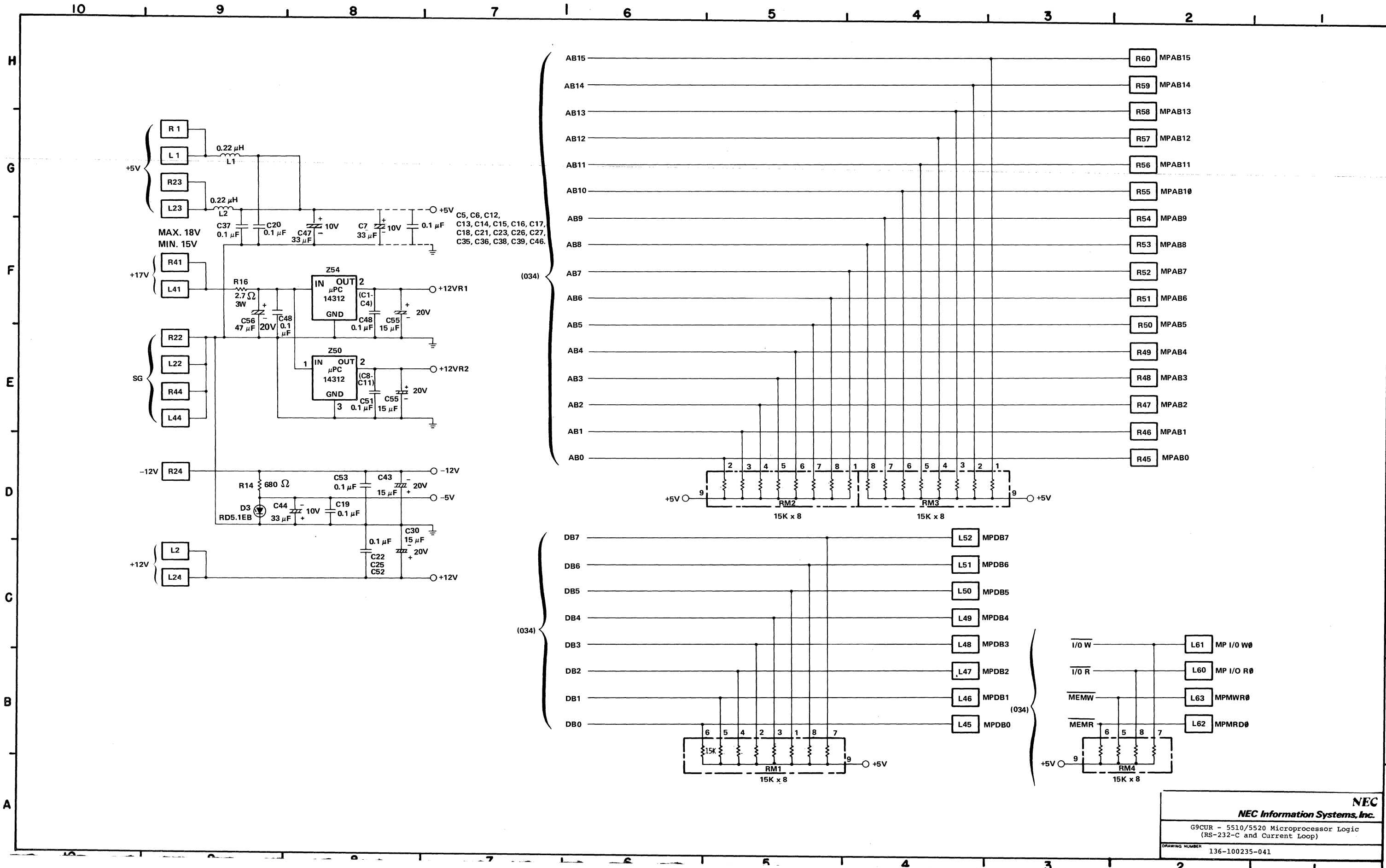


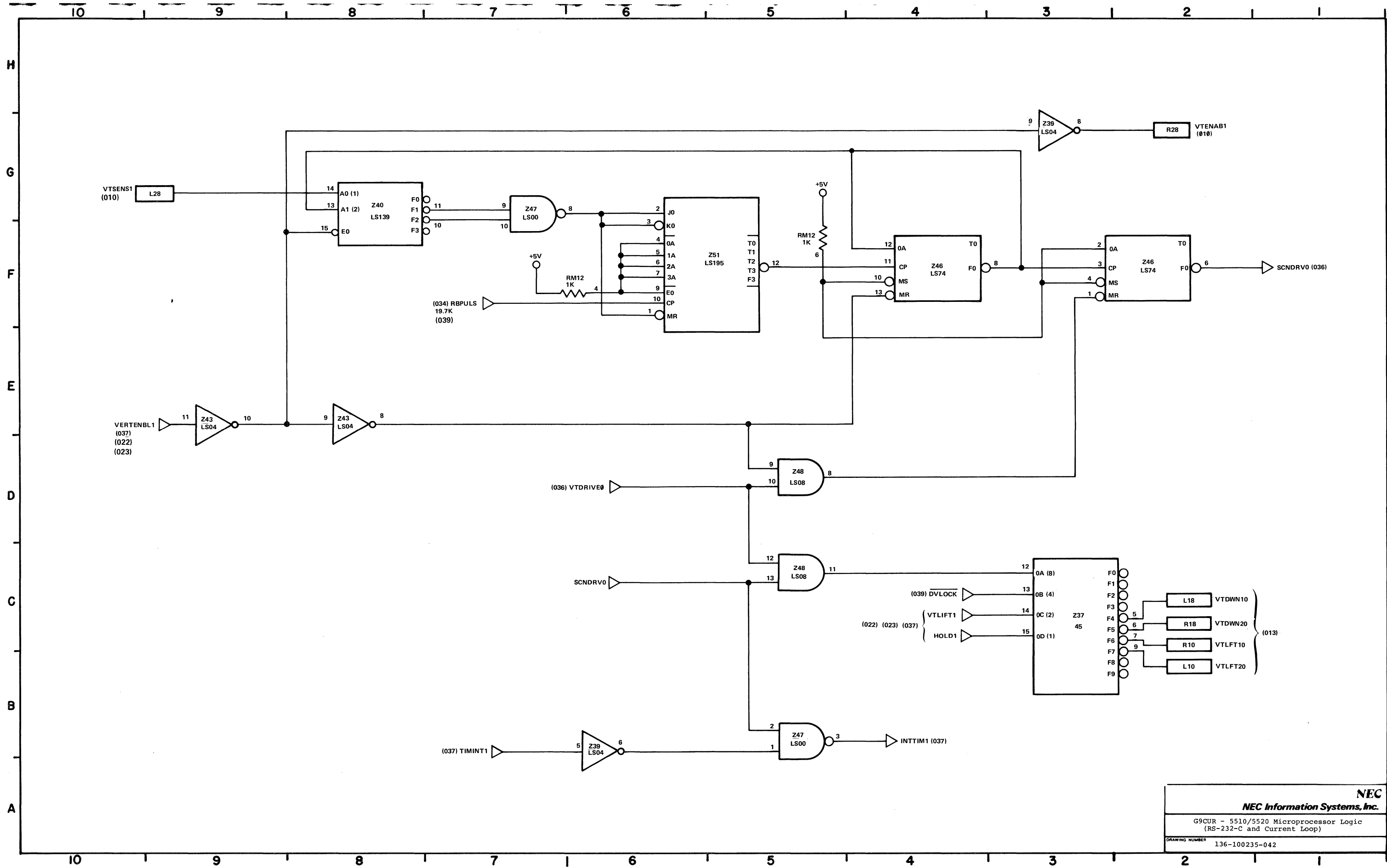


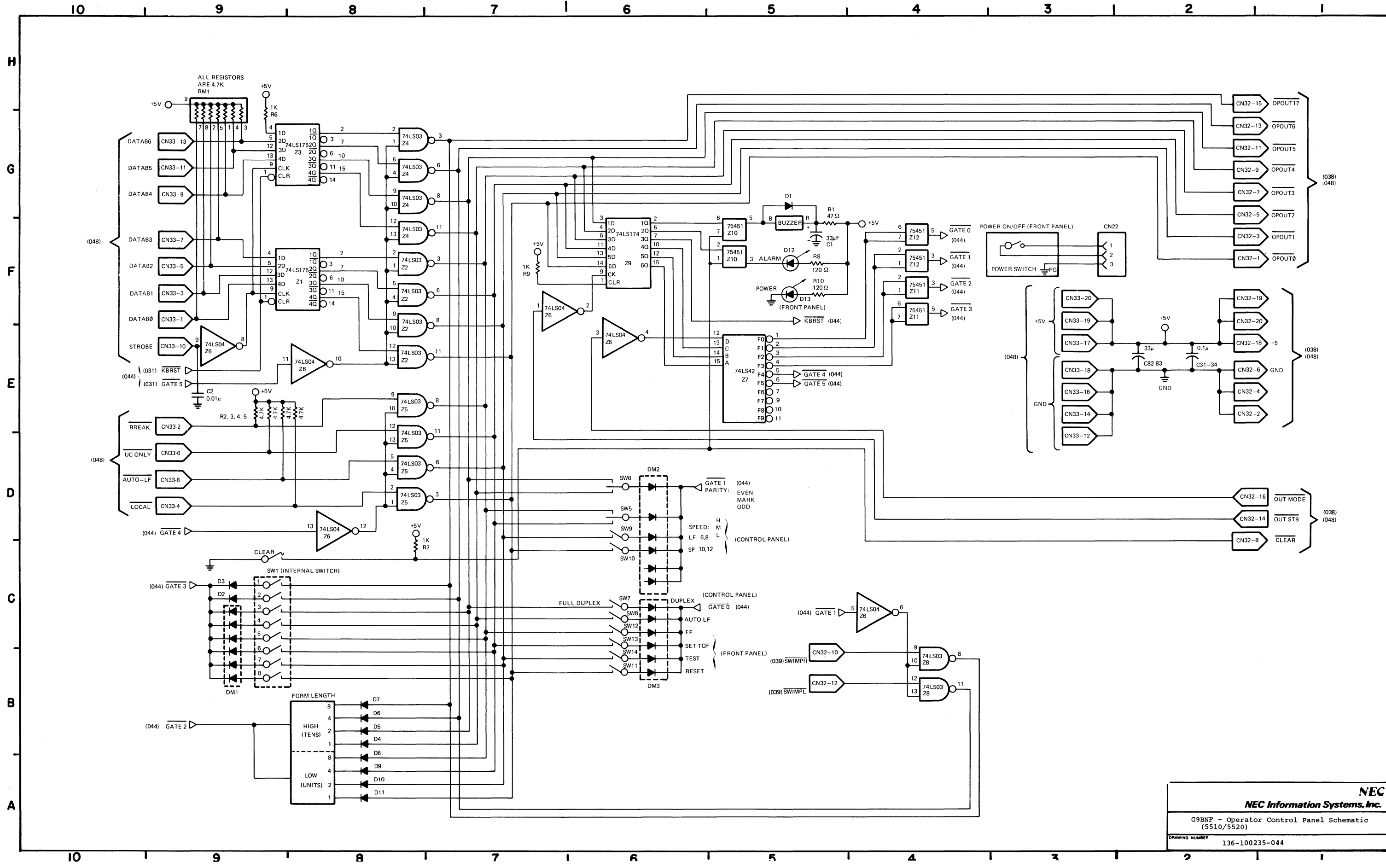


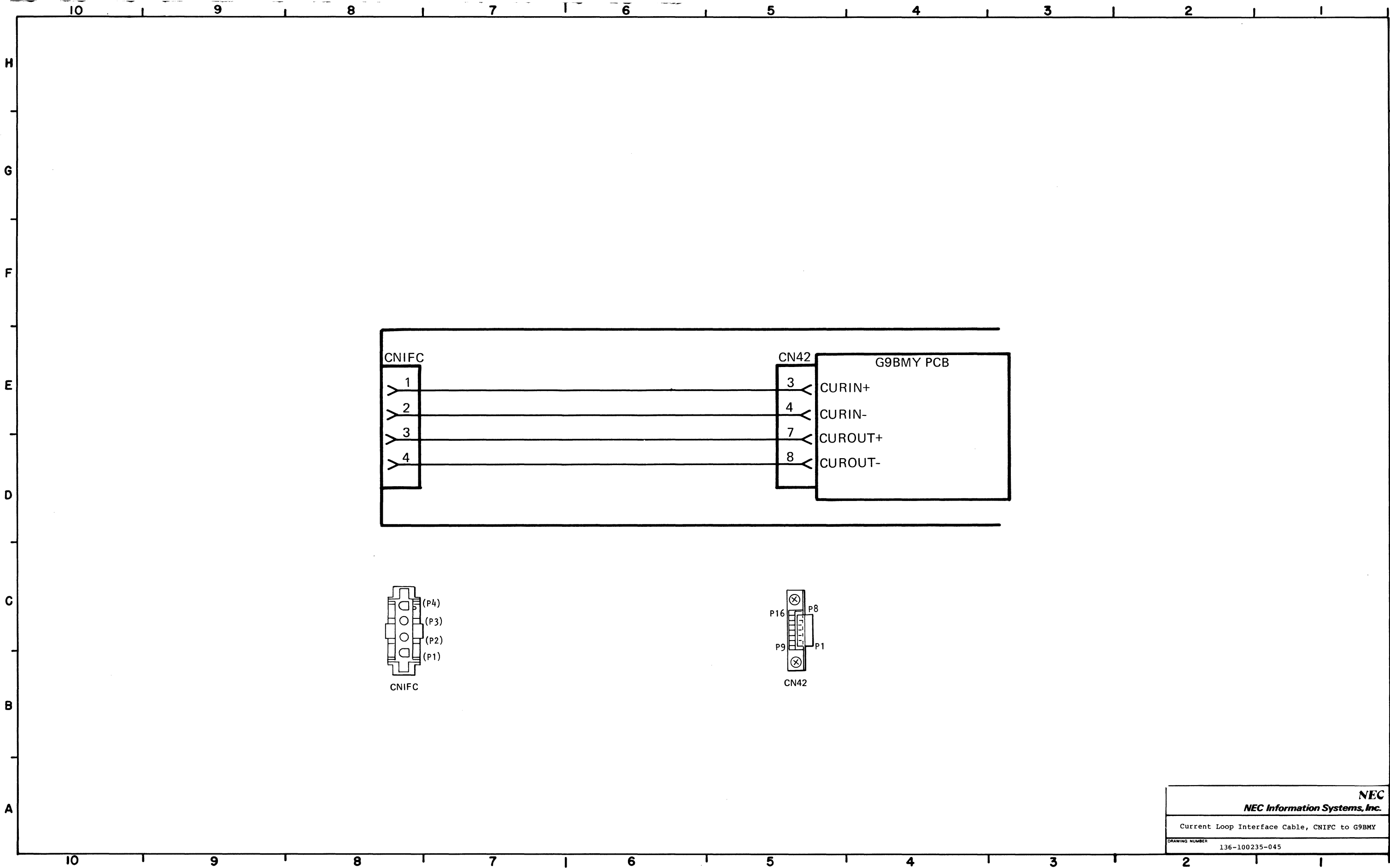


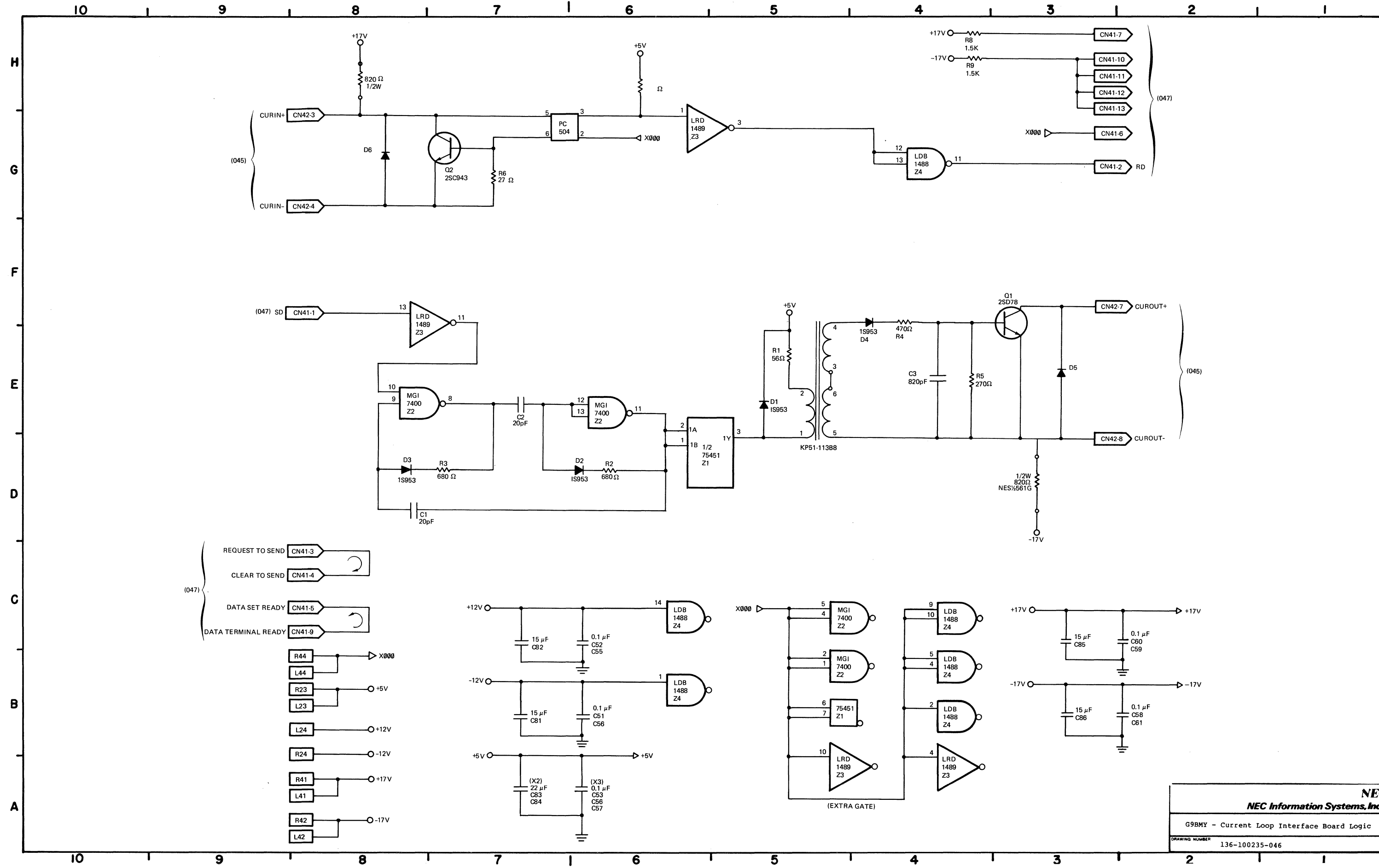






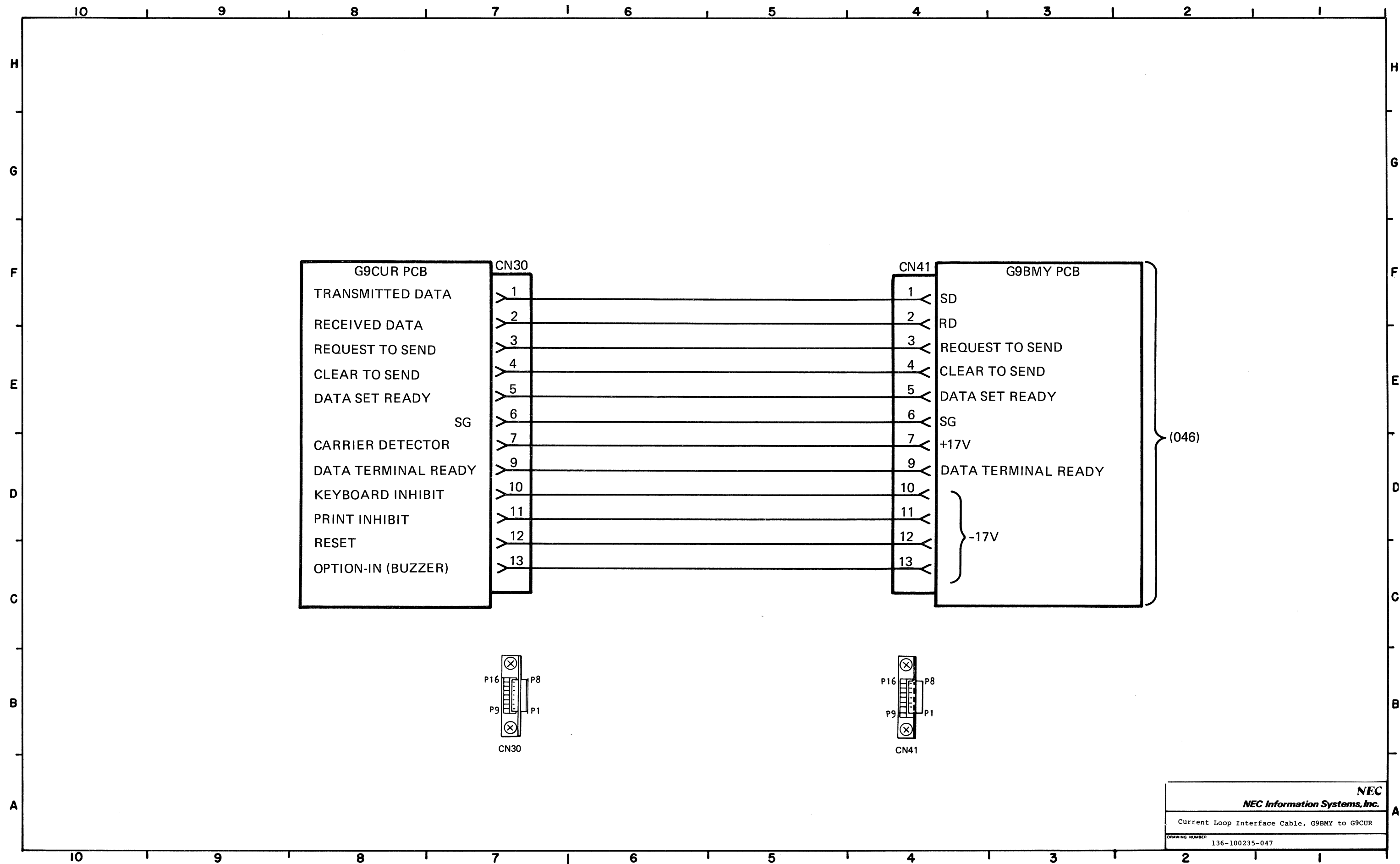


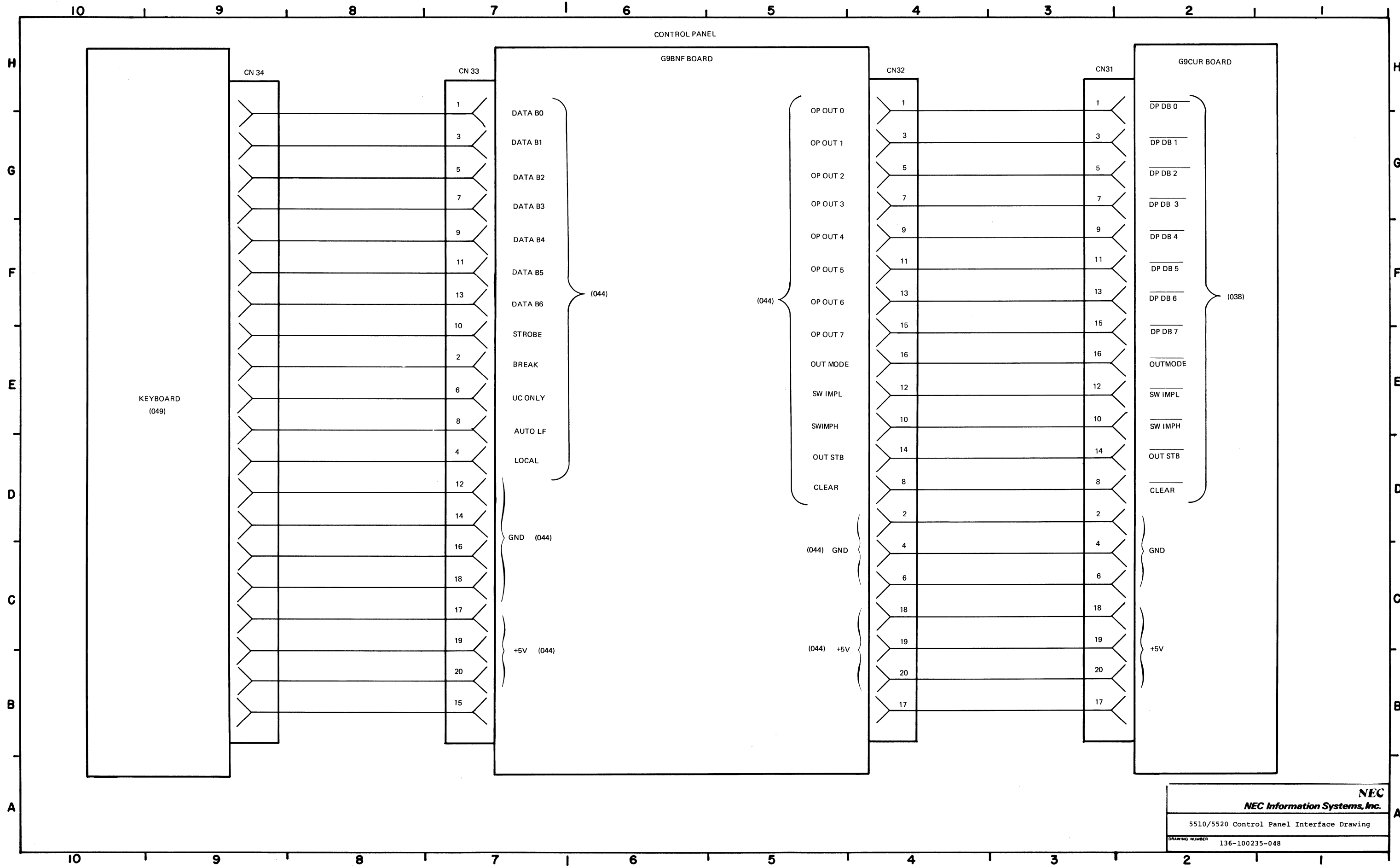




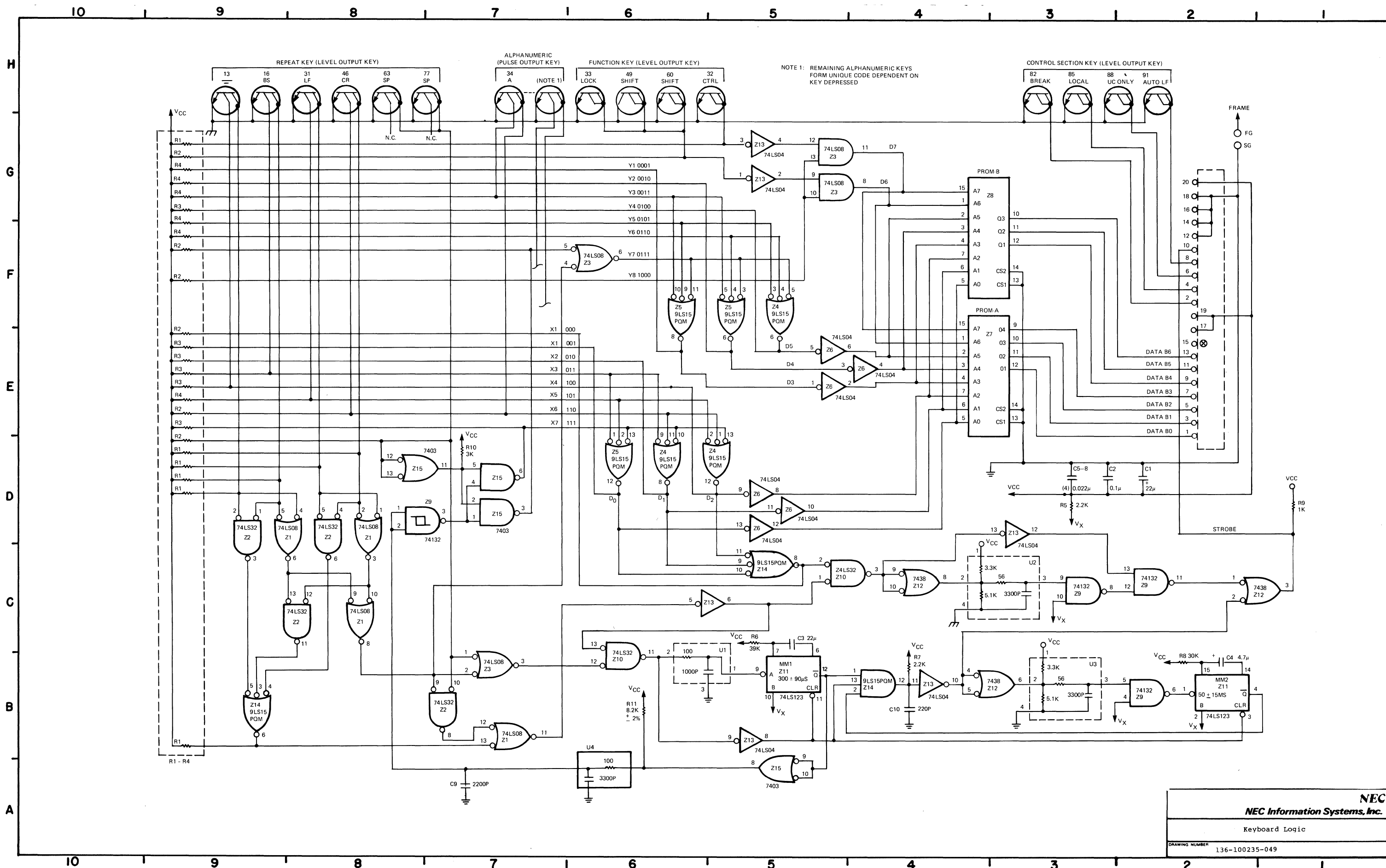
- (047)
- REQUEST TO SEND CN41-3
  - CLEAR TO SEND CN41-4
  - DATA SET READY CN41-5
  - DATA TERMINAL READY CN41-9

- R44
- L44
- R23
- L23
- L24
- R24
- R41
- L41
- R42
- L42

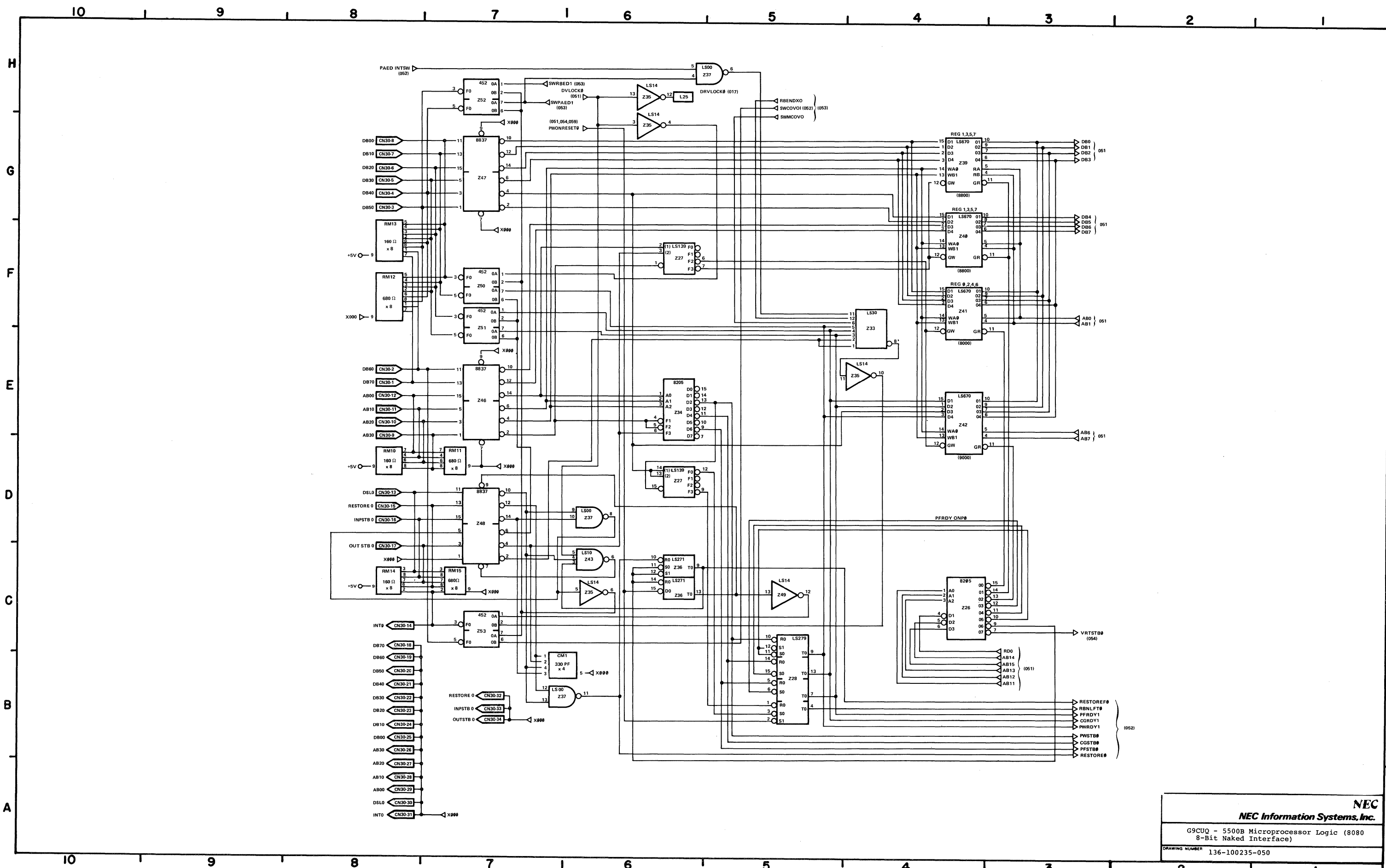


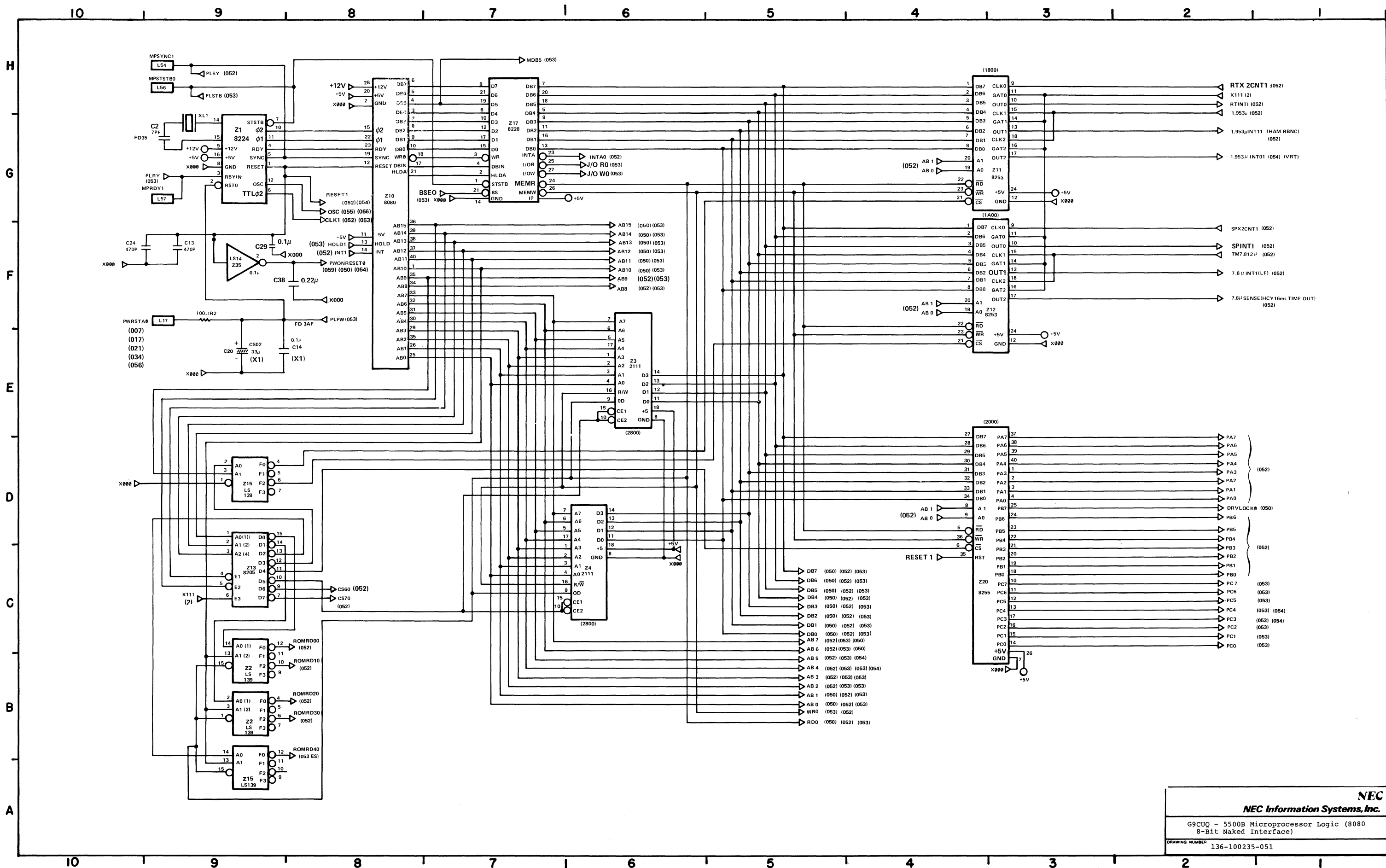


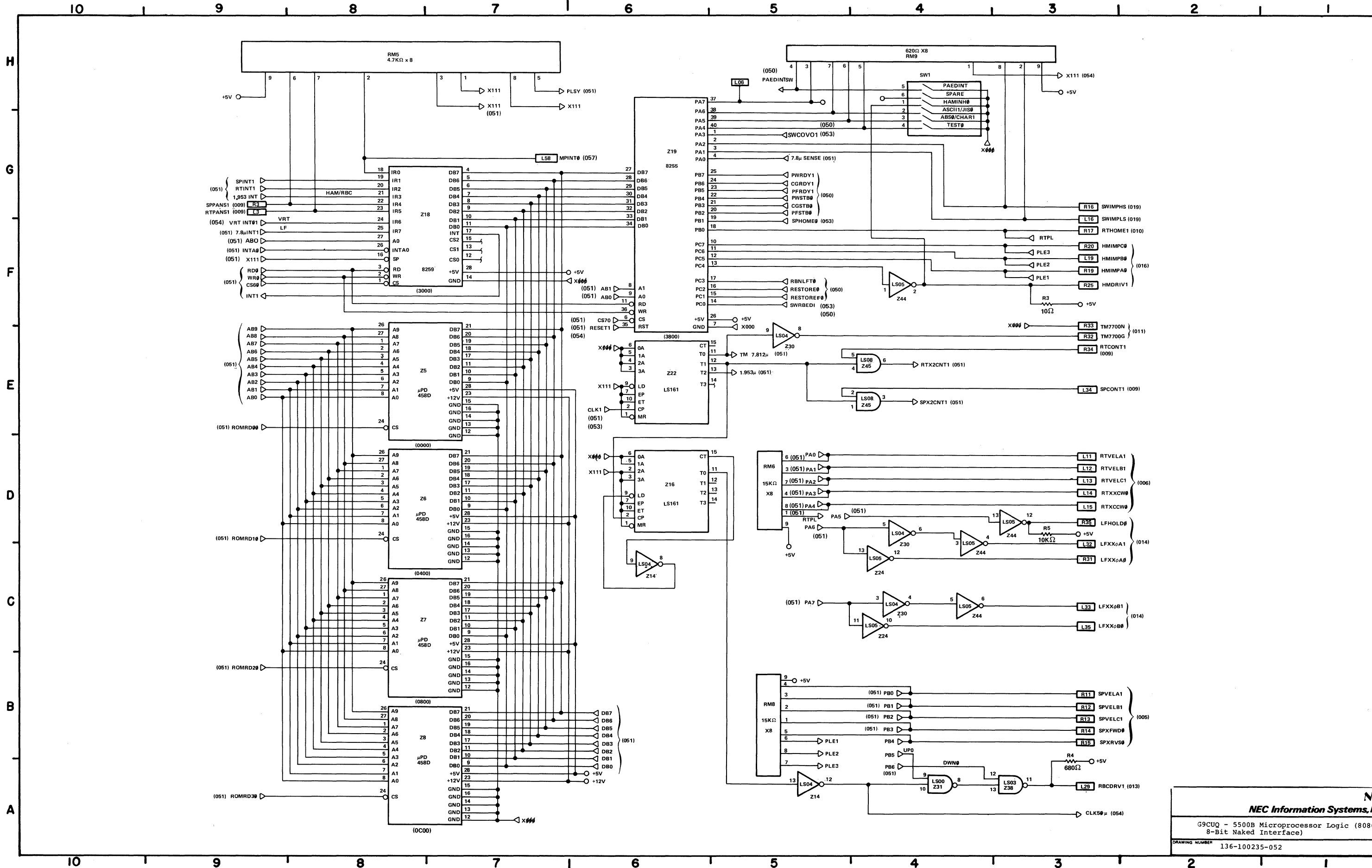


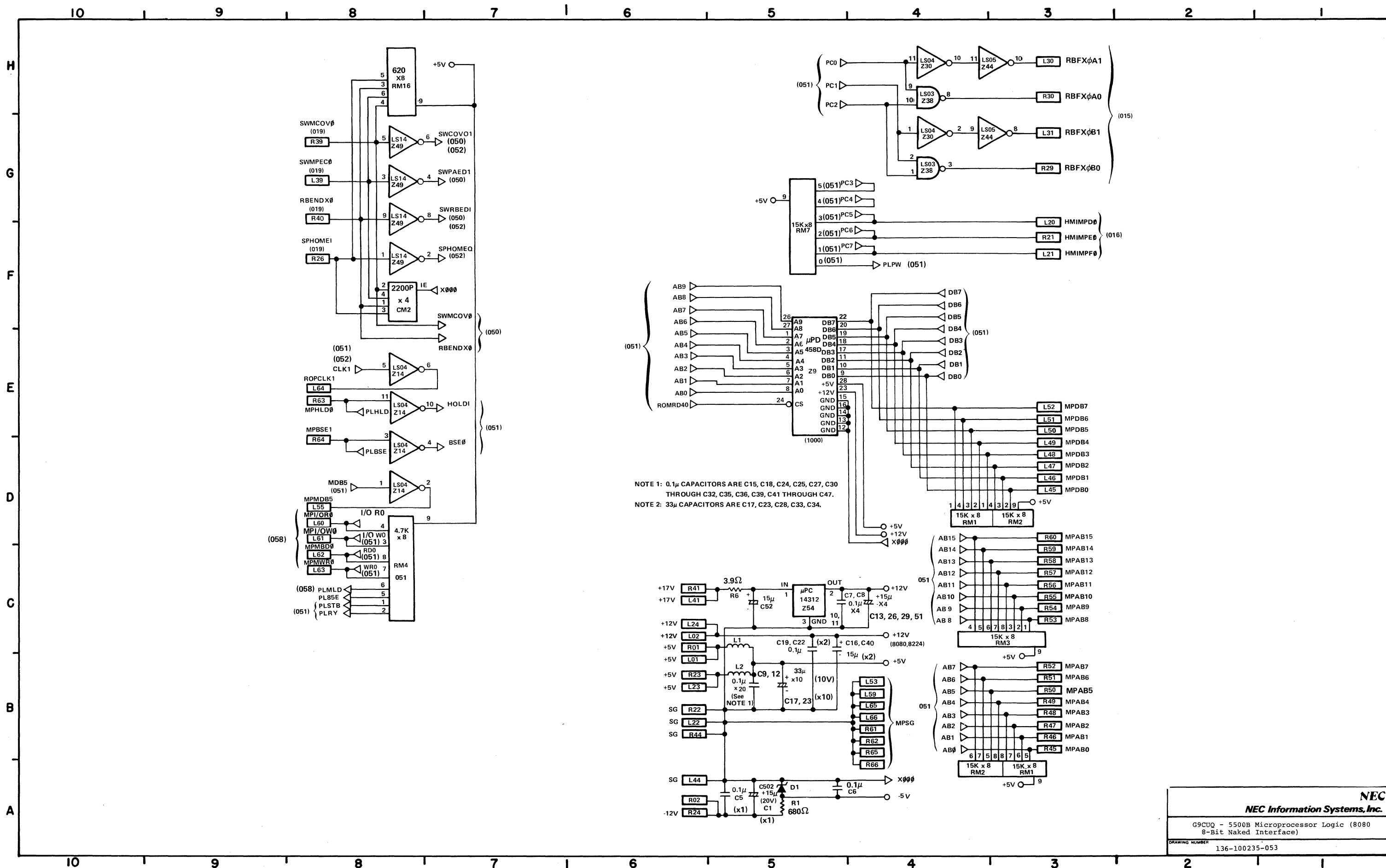


NOTE 1: REMAINING ALPHANUMERIC KEYS FORM UNIQUE CODE DEPENDENT ON KEY DEPRESSED

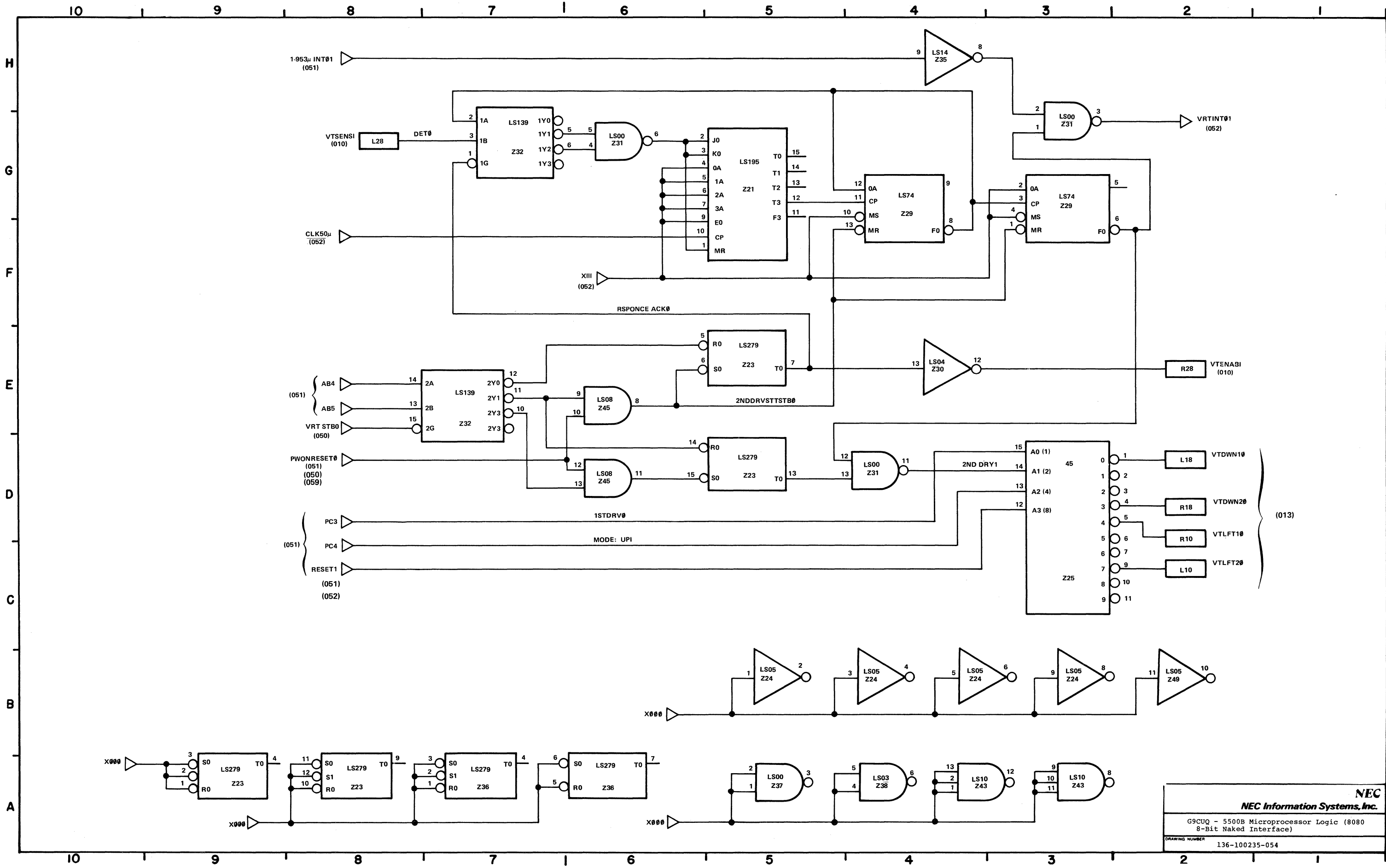


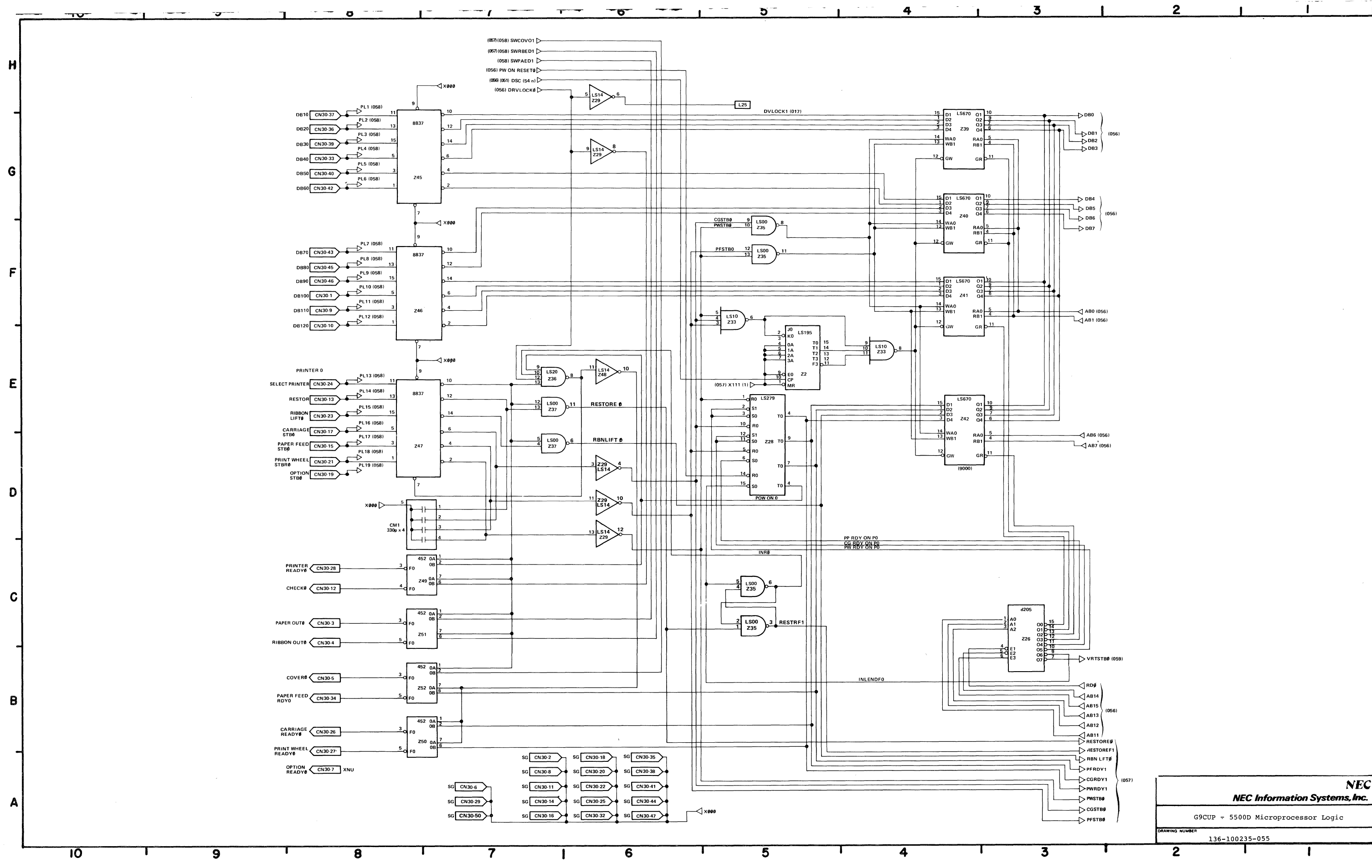






NOTE 1: 0.1μ CAPACITORS ARE C15, C18, C24, C25, C27, C30 THROUGH C32, C35, C36, C39, C41 THROUGH C47.  
 NOTE 2: 33μ CAPACITORS ARE C17, C23, C28, C33, C34.

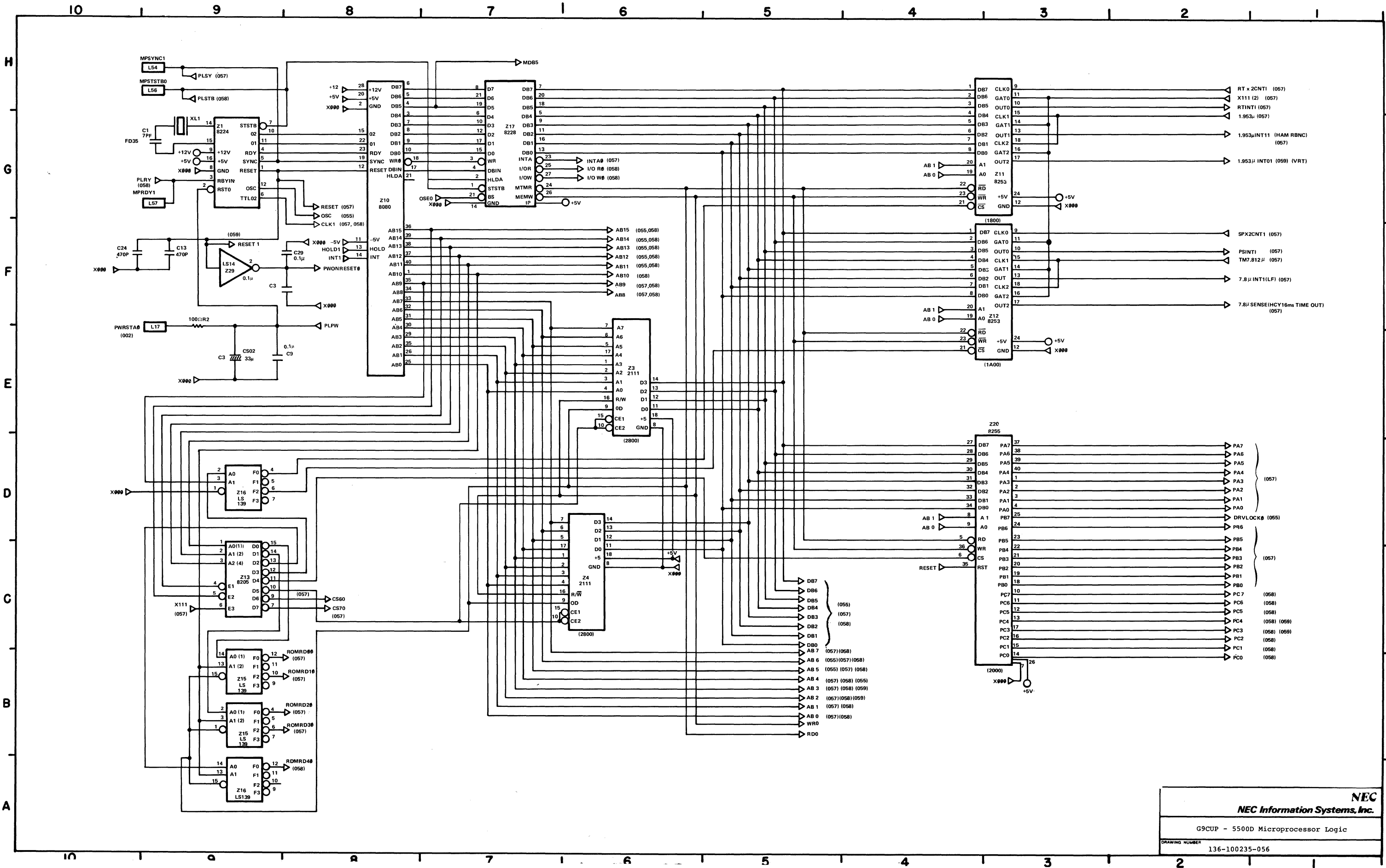




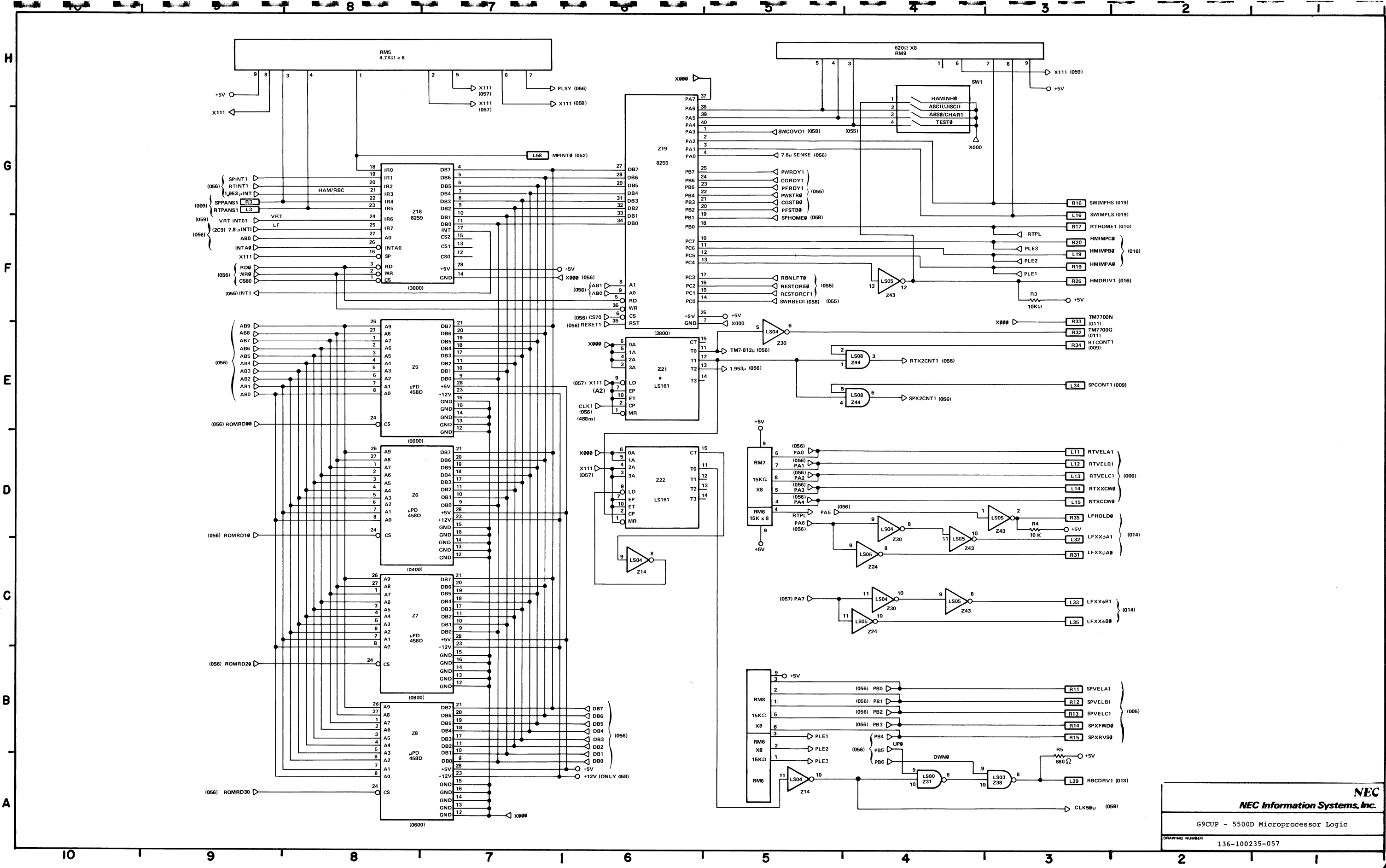
**NEC**  
NEC Information Systems, Inc.

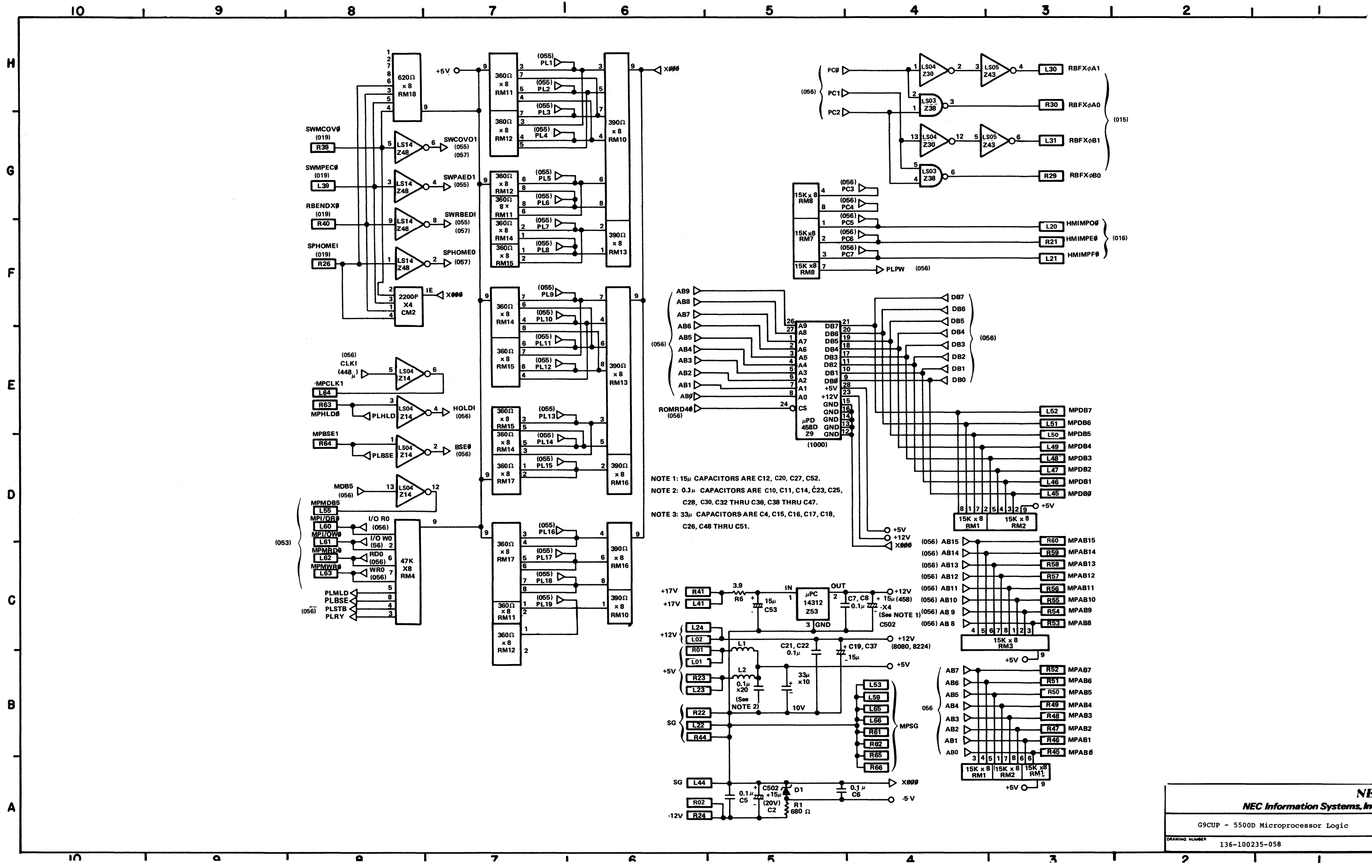
G9CUP - 5500D Microprocessor Logic

DRAWING NUMBER 136-100235-055

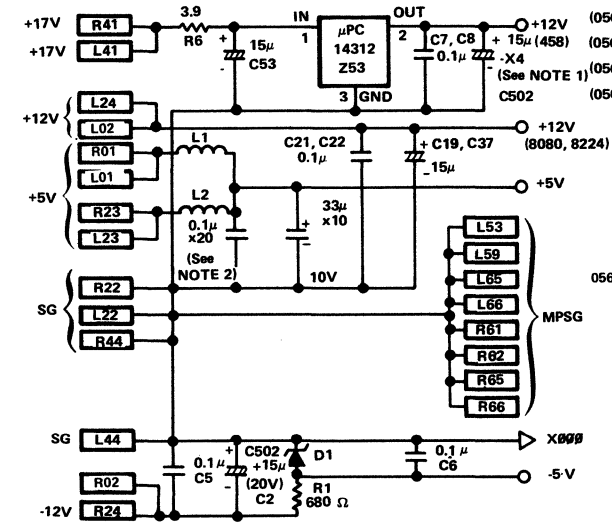


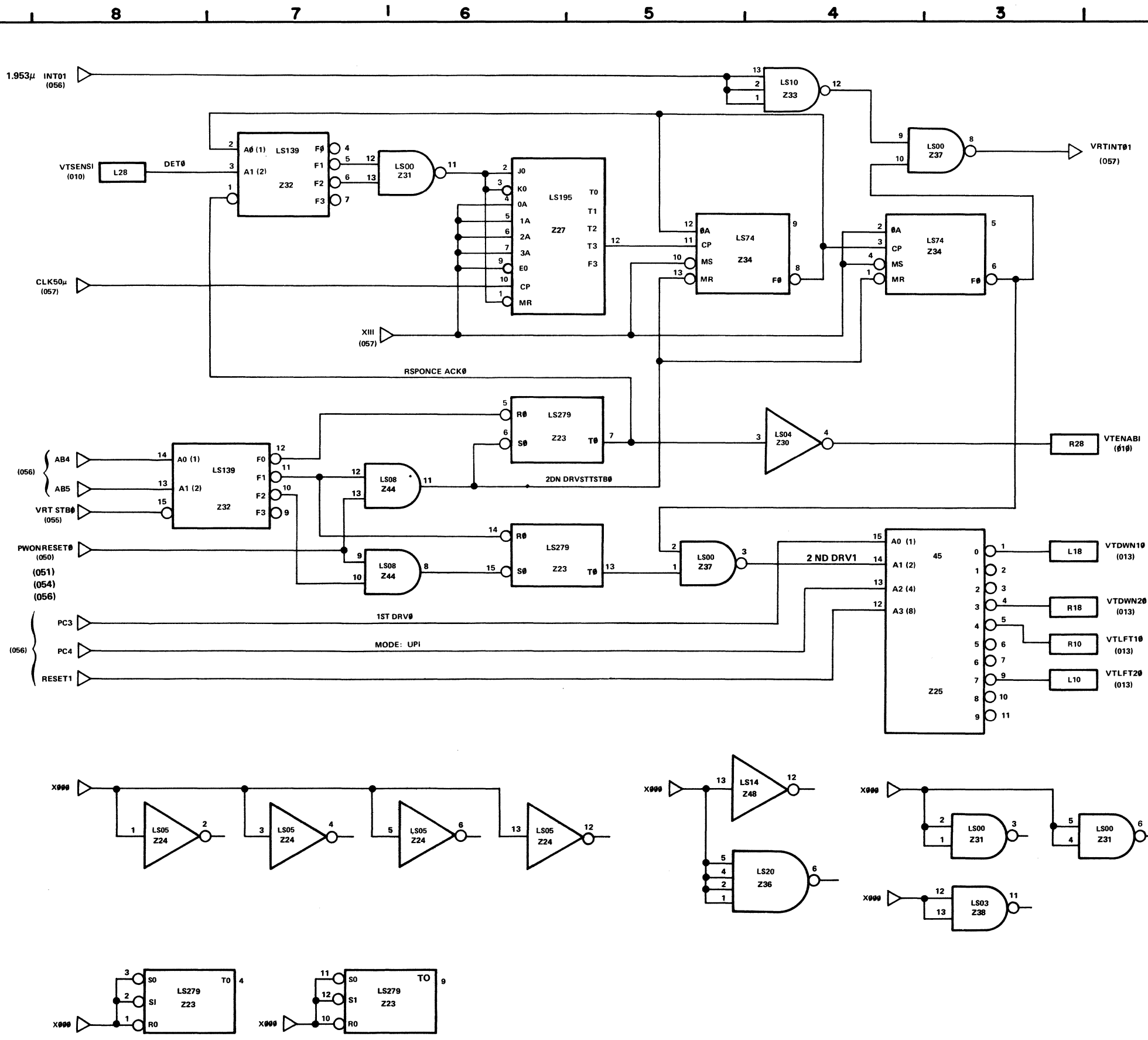


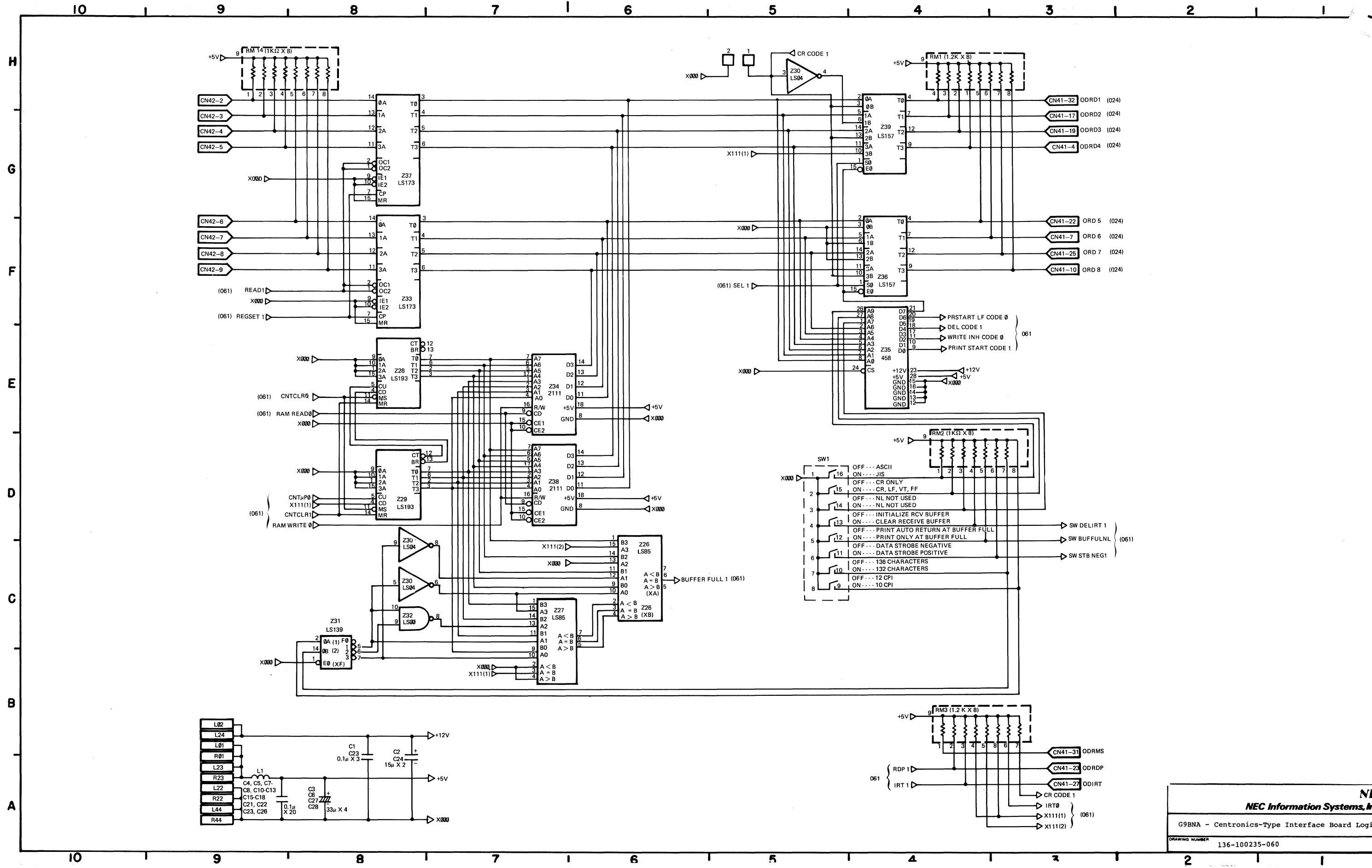


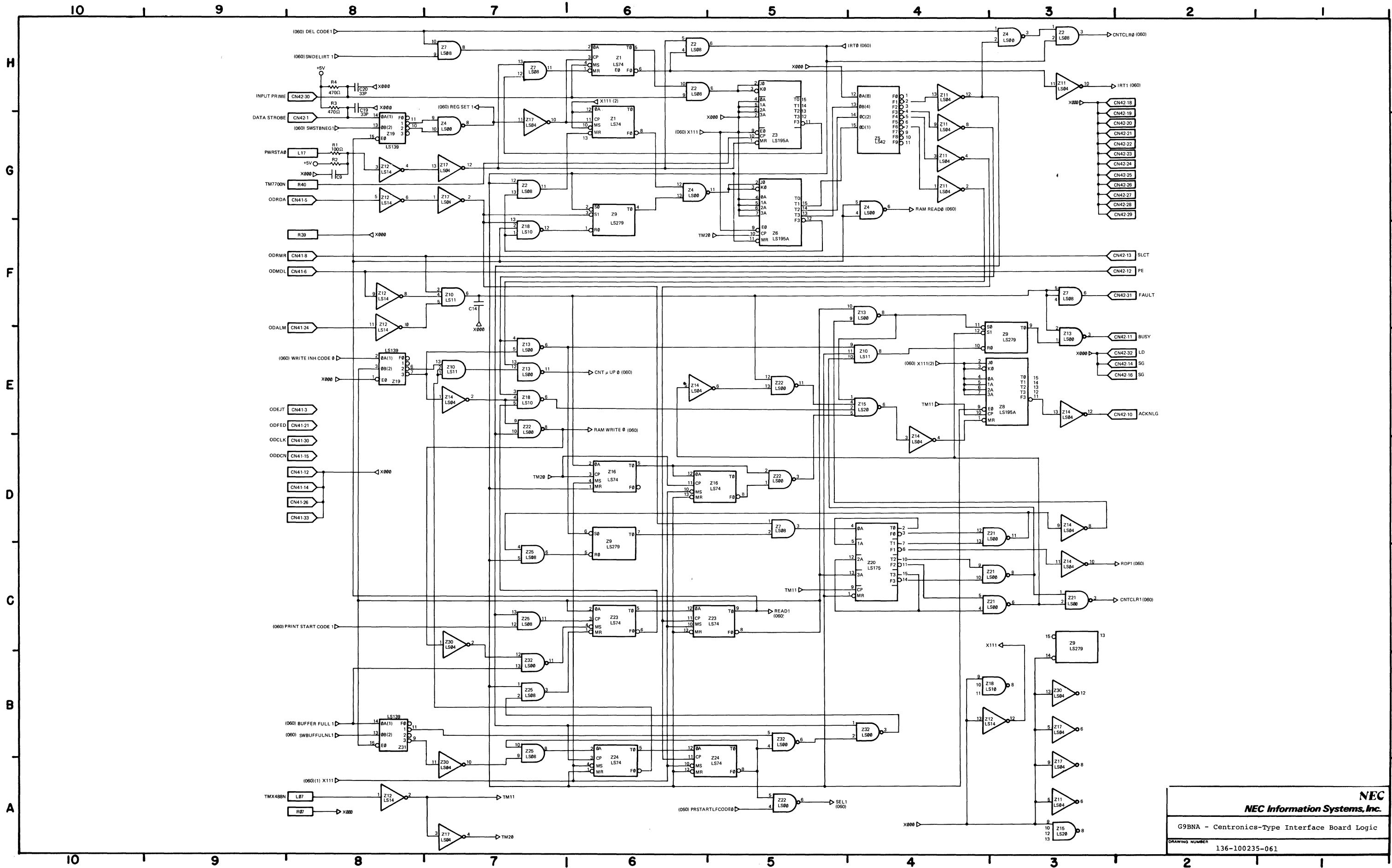


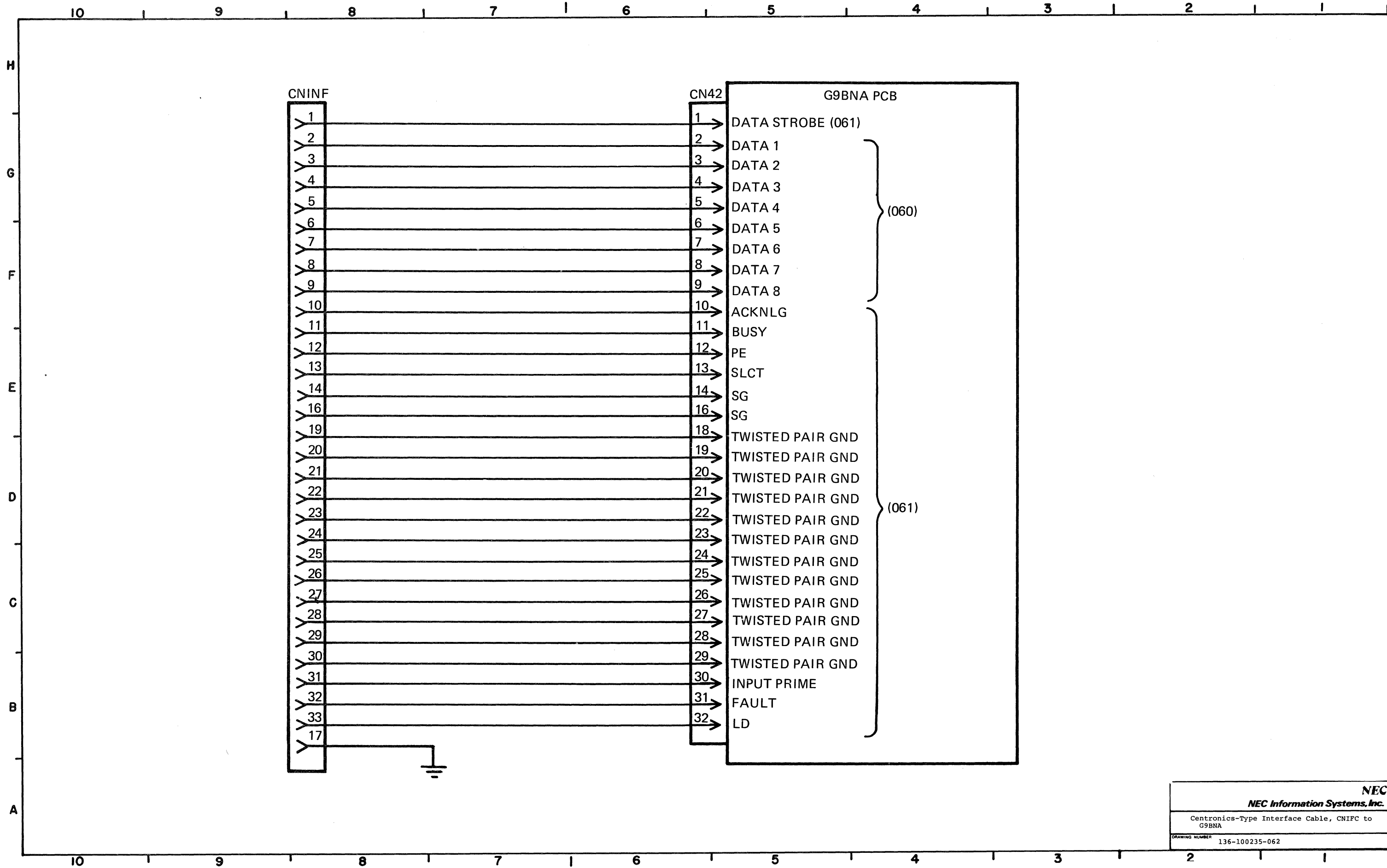
NOTE 1: 15μ CAPACITORS ARE C12, C20, C27, C52.  
 NOTE 2: 0.1μ CAPACITORS ARE C10, C11, C14, C23, C25, C28, C30, C32 THRU C36, C38 THRU C47.  
 NOTE 3: 33μ CAPACITORS ARE C4, C15, C16, C17, C18, C26, C48 THRU C51.

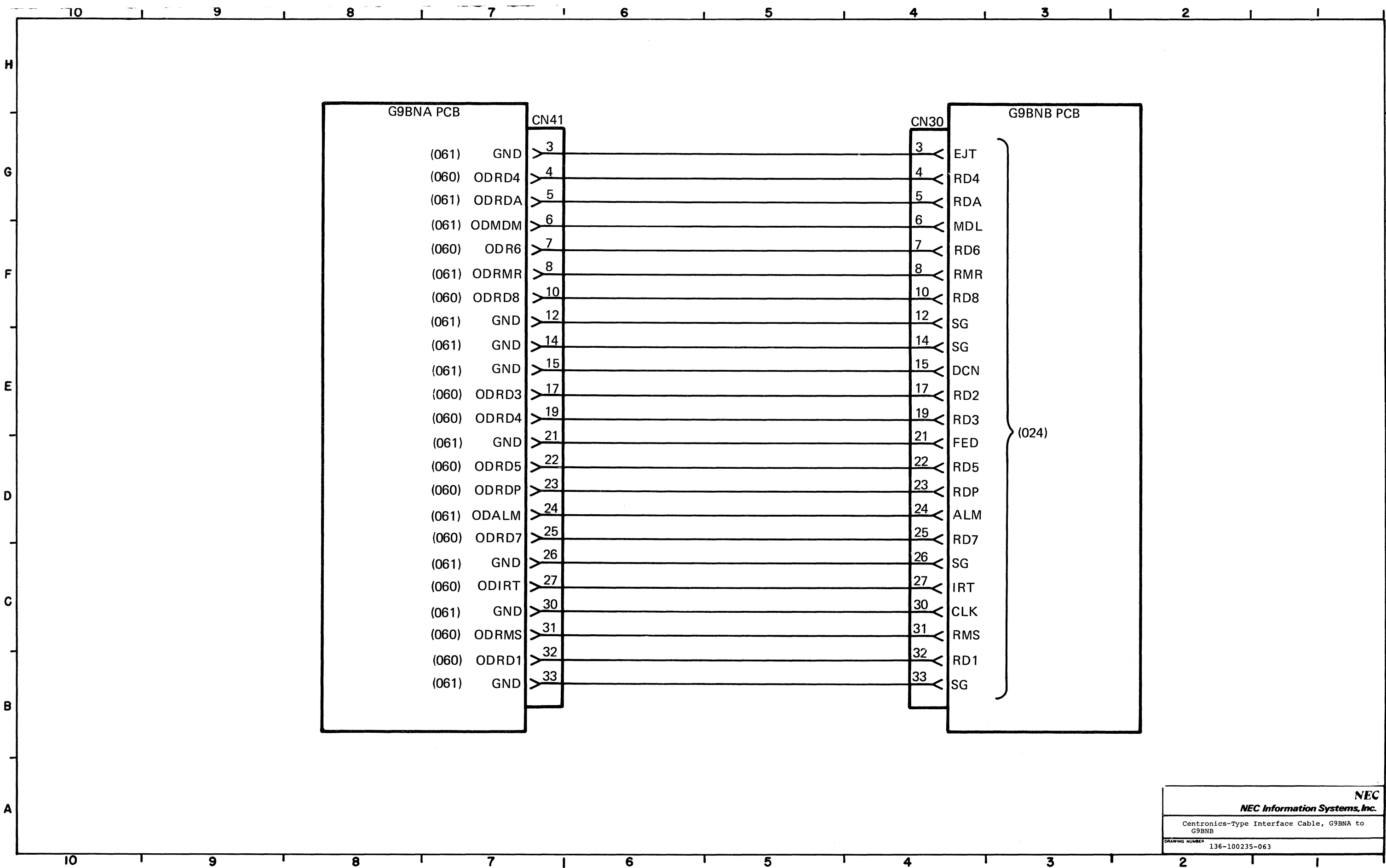


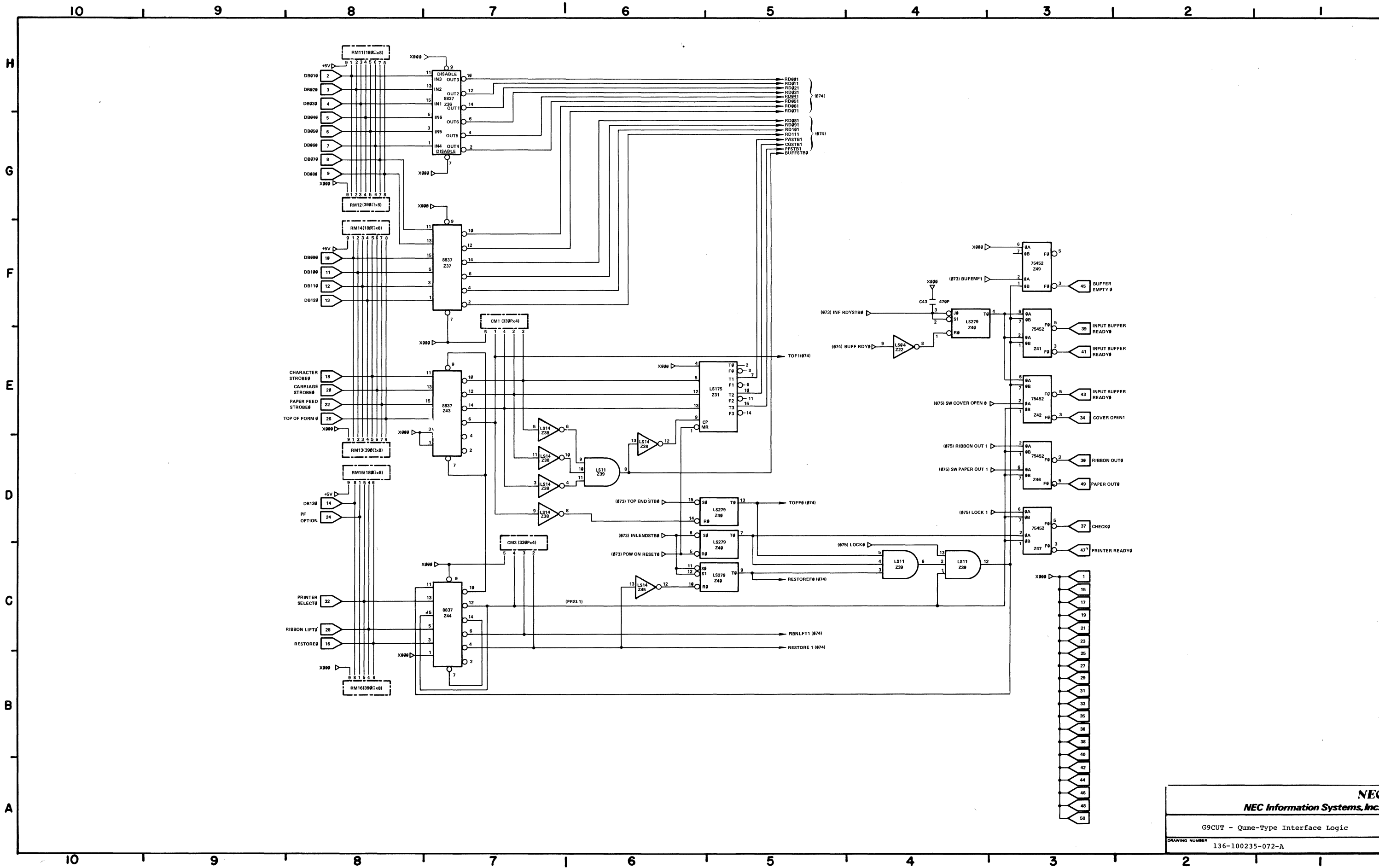




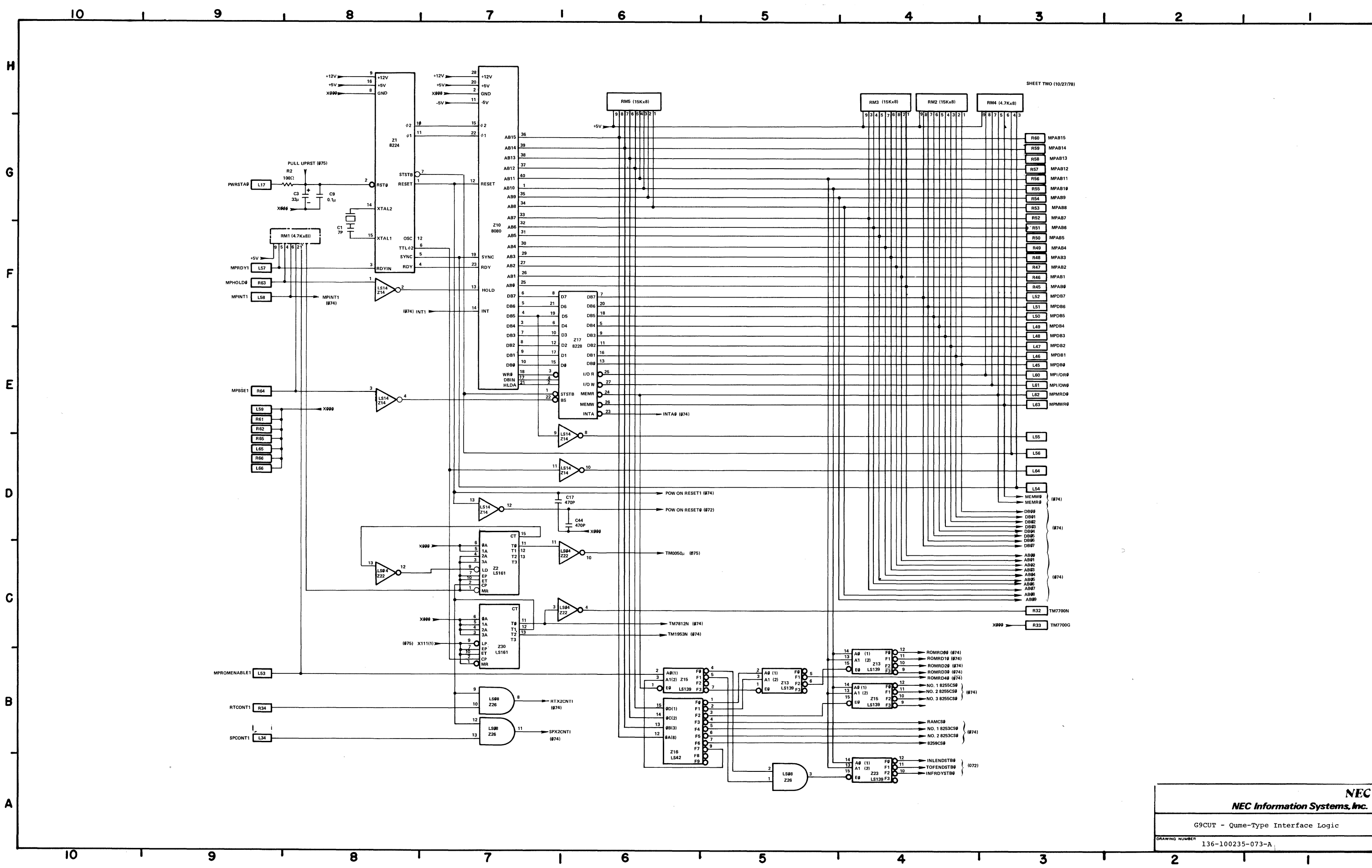




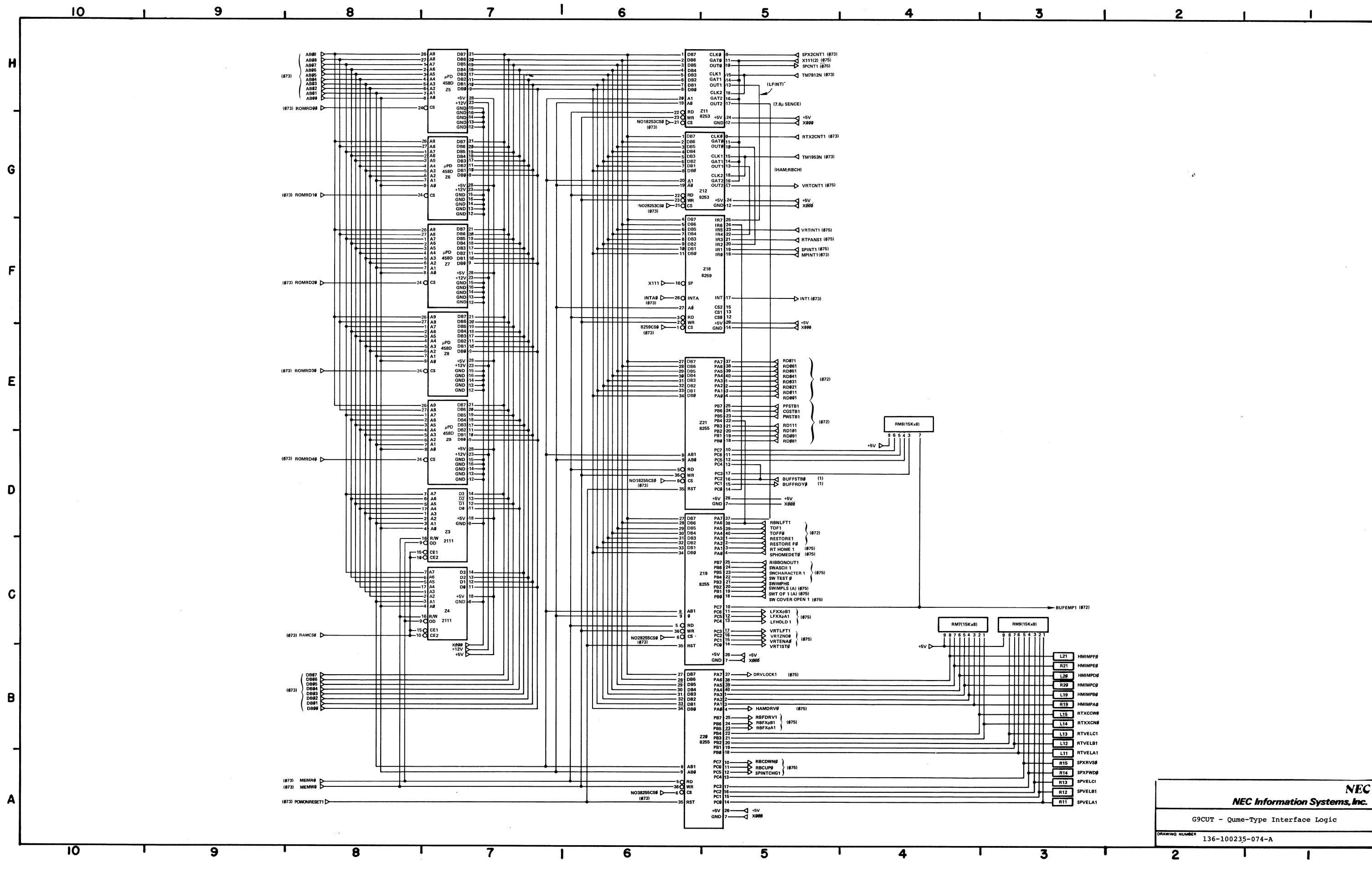


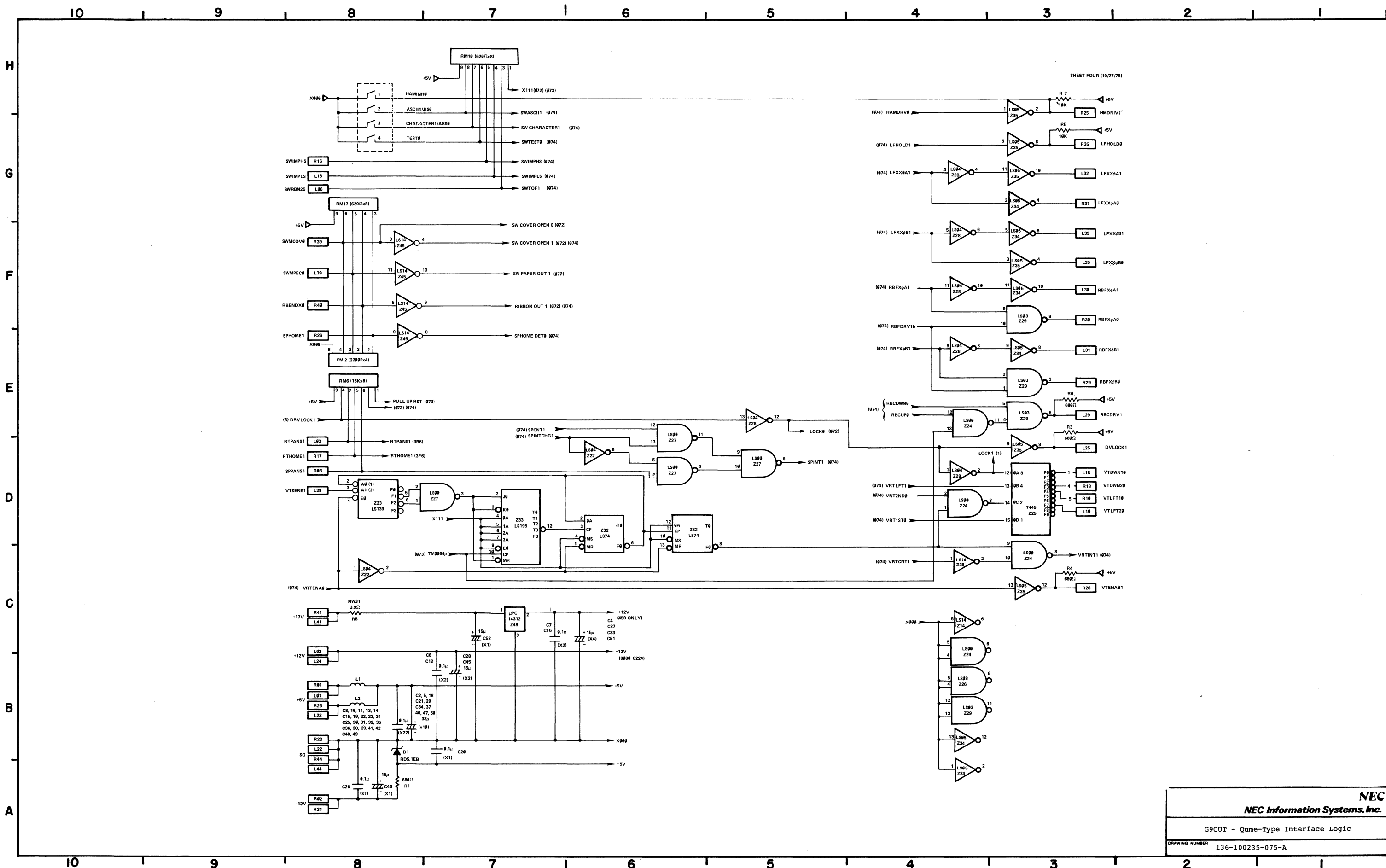






SHEET TWO (10/27/78)





NO.	SIGNAL NAME	FROM	TO
1	DVLOCK1	W-L25	U-L10
2			
3	SPPANS1	W-R03	V-R35
4	RTPANS1	W-L03	V-L35
5	SWIMPHS	W-R16	CN2-A02
6	SWIMPLS	W-L16	CN2-A03
7	RTHOME1	W-R17	V-R31
8	TM7700G	W-R33	V-R33
9	TM7700G	V-R33	A-R39
10	TM7700N	W-R32	V-R32
11	TM7700N	V-R32	A-R40
12	HMDRIV1	W-R25	U-L13
13	RTCONT1	W-R34	V-L34
14	SPCONT1	W-L34	V-R34
15	RTVELA1	W-L11	V-L11
16	RTVELB1	W-L12	V-L12
17	RTVELC1	W-L13	V-L13
18	RTXXCW0	W-L14	V-L14
19	RTXXCW0	W-L15	V-L15
20	LFHOLD0	W-R35	U-L34
21	LFXXφA1	W-L32	U-232
22	LFXXφA0	W-R31	U-R33
23	LFXXφB1	W-L33	U-L33
24	LFXXφB0	W-L35	U-R34
25	SPVELA1	W-R11	V-R11
26	SPVELB1	W-R12	V-R12
27	SPVELC1	W-R13	V-R13
28	SPXFWDO	W-R14	V-R14
29	SPXRVS0	W-R15	V-R15
30	RBCDRV1	W-L29	U-R30
31	SWMCOV0	W-R39	CN2-A01
32			
33	SWMPECO	W-L39	CN2-A05
34			
35	RBENDX0	W-R40	CN4-B06
36			

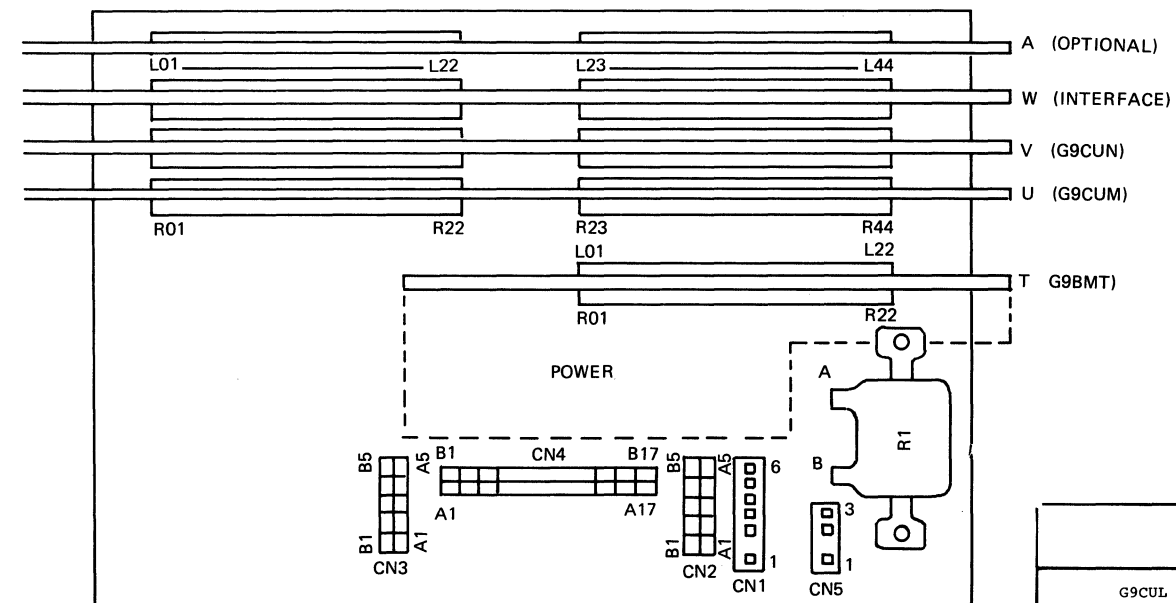
NO.	SIGNAL NAME	FROM	TO
37	SPHOME1	W-R26	CN4-B04
38			
39	RBFXφA1	W-L30	U-L31
40	RBFXφA0	W-R30	U-L30
41	RBFXφB1	W-L31	U-R32
42	RBFXφB0	W-R29	U-R31
43	VTSENS1	W-L28	V-L30
44	VTENAB1	W-R28	V-R30
45			
46	HMIMPA0	W-R19	U-R14
47	HMIMPB0	W-L19	U-L14
48	HMIMPC0	W-R20	U-R15
49	HMIMPDO	W-L20	U-L15
50	HMIMPE0	W-R21	U-R16
51	HMIMPF0	W-L21	U-L16
52	SWRBN1S	W-R06	CN5-1
53	SWRBN2S	W-L06	CN5-2
54			
55	RTSEφAS	V-R07	CN4-B01
56	RTSEφAG	V-L07	CN4-A01
57	RTSEφBS	V-R08	CN4-B02
58	RTSEφBG	V-L08	CN4-A02
59	RTHOMSS	V-R17	CN4-B03
60	RTHOMSG	V-L17	CN4-A03
61	SPSUMMS	V-R26	U-L09
62	RTSUMMS	V-L26	U-R27
63	SPSEφBS	V-R05	CN3-B01
64	SPSEφBG	V-L05	CN3-A01
65	SPSEφAS	V-R06	CN3-B02
66	SPSEφAG	V-L06	CN3-A02
67	RTIDRVS	V-R39	CN4-B13
68	RTIDRVG	V-L39	CN4-A13
69	SPIDRVS	V-R38	CN3-B05
70	SPIDRVG	V-L38	CN3-A05
71			
72	VTSENDG	V-L29	CN4-A10

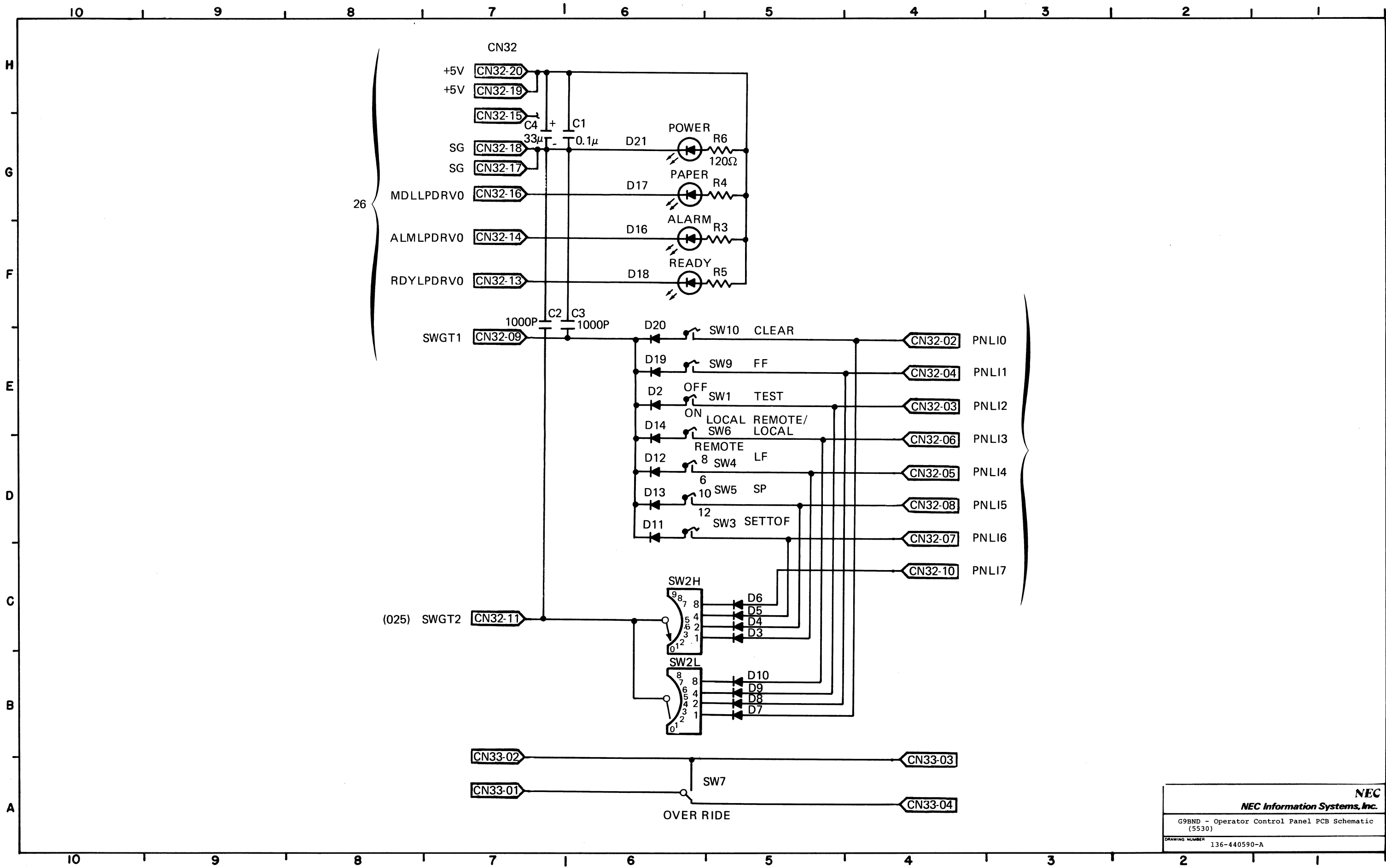
NO.	SIGNAL NAME	FROM	TO
73	VTDRVφA	V-R28	U-R11
74	VTDRVφA	U-R11	CN4-B10
75	VTDRVφB	V-R29	U-L11
76	VTDRVφB	U-L11	CN4-B15
77	PWRSTA0	T-L05	U-R10
78	PWRSTA0	U-R10	V-R16
79	PWRSTA0	V-R16	W-L17
80	PWRSTA0	W-L17	A-L17
81	LFMHLDD	U-R39	R1-A
82	LFMHLDD	U-R39	U-L39
83			
84	RBCMAGD	U-L29	CN4-A14
85	RTMDRVD	U-R25	CN4-A17
86	RTMDRVD	U-R25	U-L25
87	RTMCOMD	U-R26	CN4-B17
88	RTMCOMD	U-R26	U-L26
89	HAMMAGD	U-R17	CN4-B16
90	HAMMAGD	U-R17	U-L17
91	HAMAGCD	U-R12	CN4-A16
92	HAMAGCD	U-R12	U-L12
93	RBFMφA0	U-R29	CN4-A11
94	RBFMφB0	U-L28	CN4-B11
95	RBFMφA1	U-R28	CN4-A12
96	RBFMφB1	U-L27	CN4-B12
97			
98	LFMCOMD	U-R40	CN1-06
99	LFMCOMD	U-L40	CN1-02
100	LFMCOMD	U-L40	U-R40
101	LFMφB1D	U-R38	CN1-04
102	LFMφB1D	U-R38	U-L38
103	LFMφA0D	U-R35	CN1-01
104	LFMφA0D	U-R35	U-L35
105	LFMφA1D	U-R36	CN1-03
106	LFMφA1D	U-R36	U-L36
107	LFMφB0D	U-R37	CN1-05
108	LFMφB0D	U-R37	U-L37

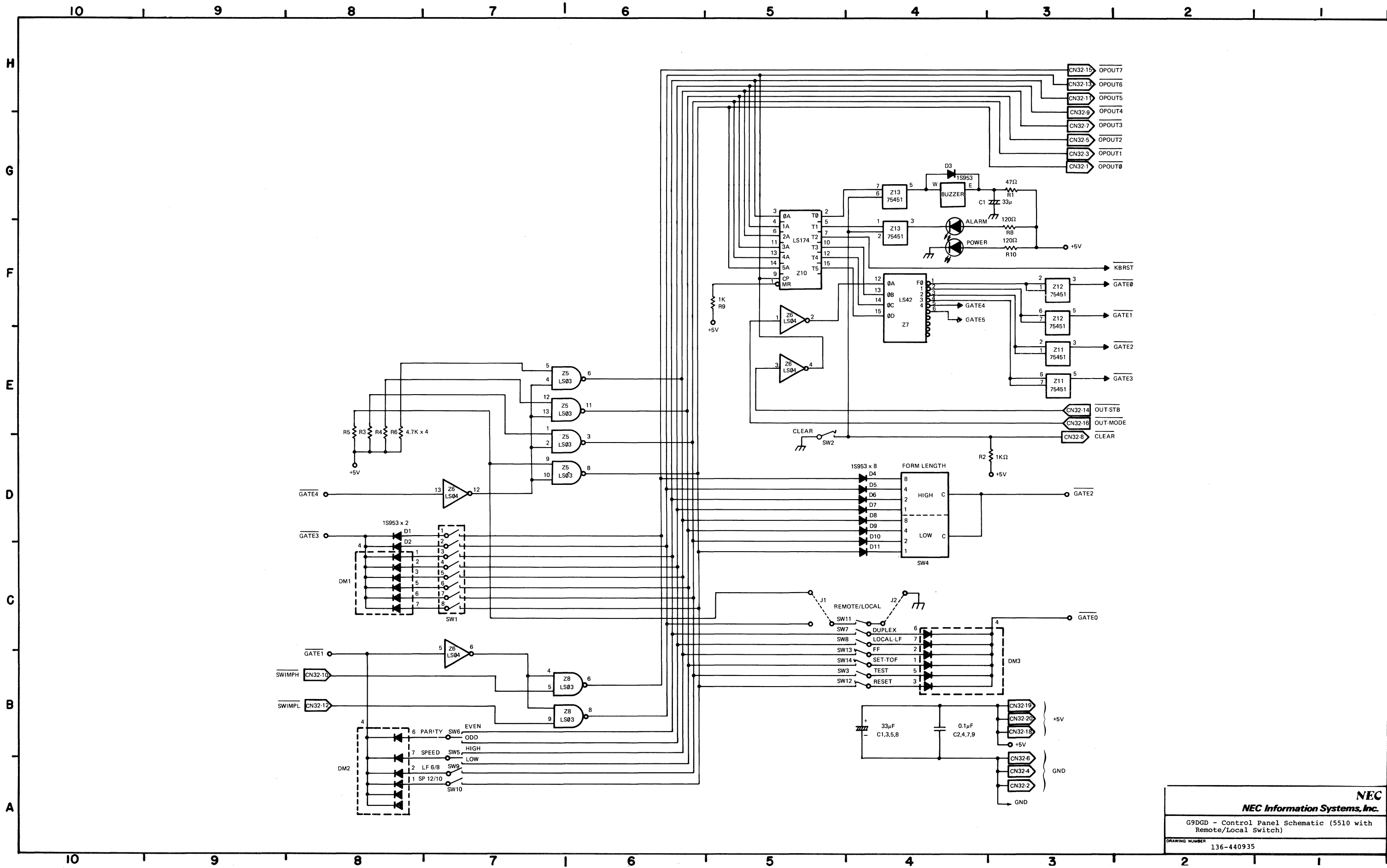
NO.	SIGNAL NAME	FROM	TO
109	VTLFT10	W-R10	U-R13
110	VTLFT20	W-L10	U-R09
111	VTDWN10	W-L18	U-L18
112	VTDWN20	W-R18	U-R18
113			
114			
115			
116			
117			
118	XNU1	W-L27	V-L31
119	XNU2	W-L36	V-L32
120	XNU3	W-R04	A-R04
121	XNU4	W-L04	A-L04
122	XNU5	W-R05	A-R05
123	XNU6	W-L05	A-L05
124			
125			
126	TMX488G	W-R07	A-R07
127	TMX488N	W-L07	A-L07
128	INSMDL	W-R08	A-R08
129	FULEJT	W-L08	A-L08
130	FULFED	W-R09	A-R09
131	INSEXT0	W-L09	A-L09
132			
133			
134	FEDENA	W-L26	A-L26
135	VECL0S	W-R27	A-R27
136	VEOPEN	W-R36	A-R36
137	CLAPOF	W-R37	A-R37
138	CLAPON	W-L37	A-L37
139	FEDHLD	W-R38	A-R38
140	FIXXφB0	W-L38	A-L38
141	FIXXφA0	W-L40	A-L40
142			
143			
144			

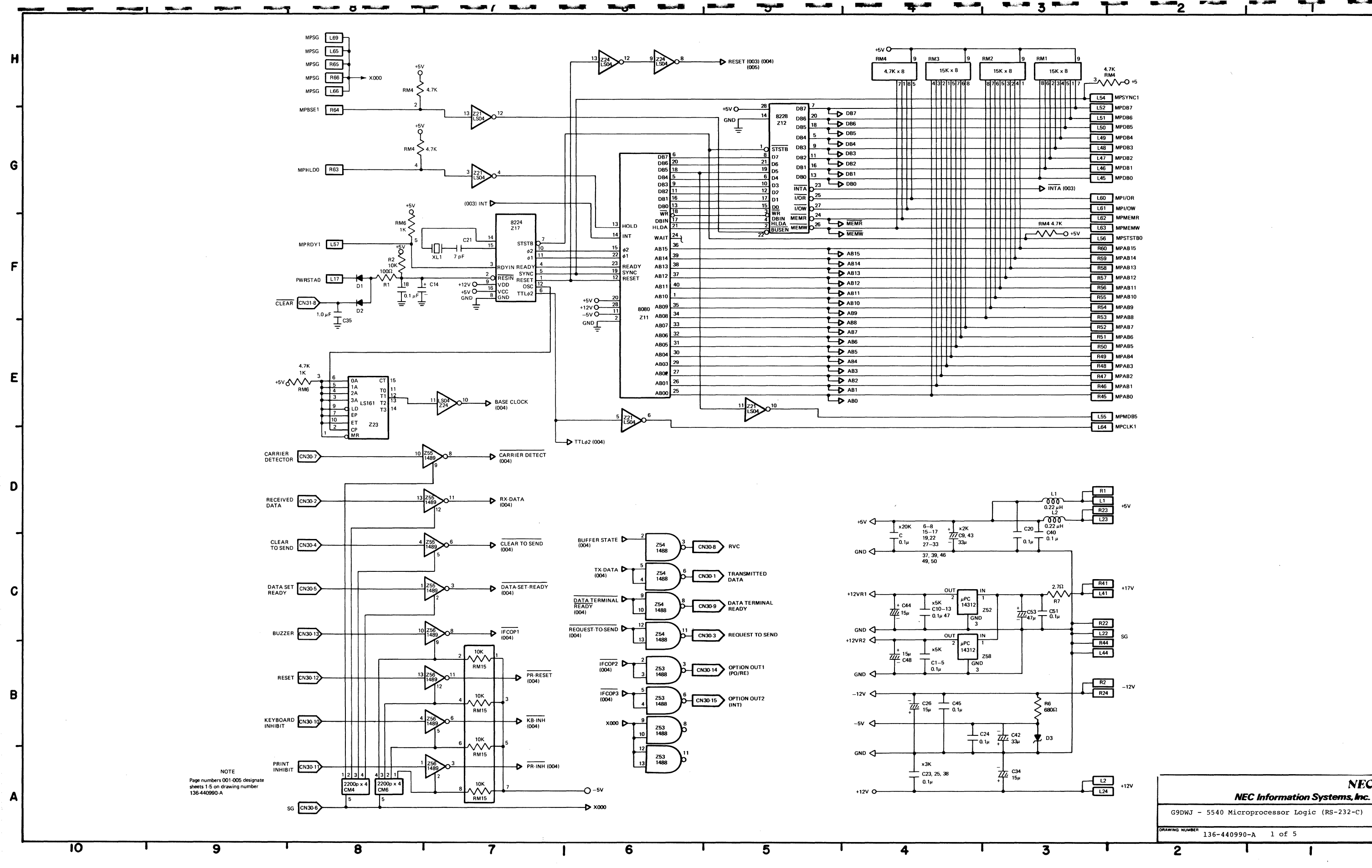
DC POWER

NO.	SIGNAL NAME	T	U	V	W	A	CN4	CN2	CN5	R1
1	+5V	R01, L01 R02, L02	R01, L01 R23, L23	R01, L01 R23, L23	R01, L01 R23, L23	R01, L01 R23, L23	A05, B05			
2	+12V	R03, L03	L02, L24	L02, L24	L02, L24	L02, L24				
3	-12V	R04, L04	R02, R24	R02, R24	R02, R24	R02, R24				
4	+17V	R15, L15 R16, L16	R19, L19 R41, L41	R41, L41	R41, L41	R41, L41	B14			
5	-17V	R17, L17 R18, L18	R20, L20 R42, L42	R42, L42		R42, L42				
6	DG	R19, L19 R20, L20	R21, L21 R43, L43	L29 R43, L43		R21, L21 R43, L43	A08, A10			B
7	SG	R21, L21 R22, L22	R22, L22 R44, L44	R22, L22 R44, L44	R22, L22 R44, L44	R22, L22 R44, L44	A04, A06	B02, B03 B05	3	
8										

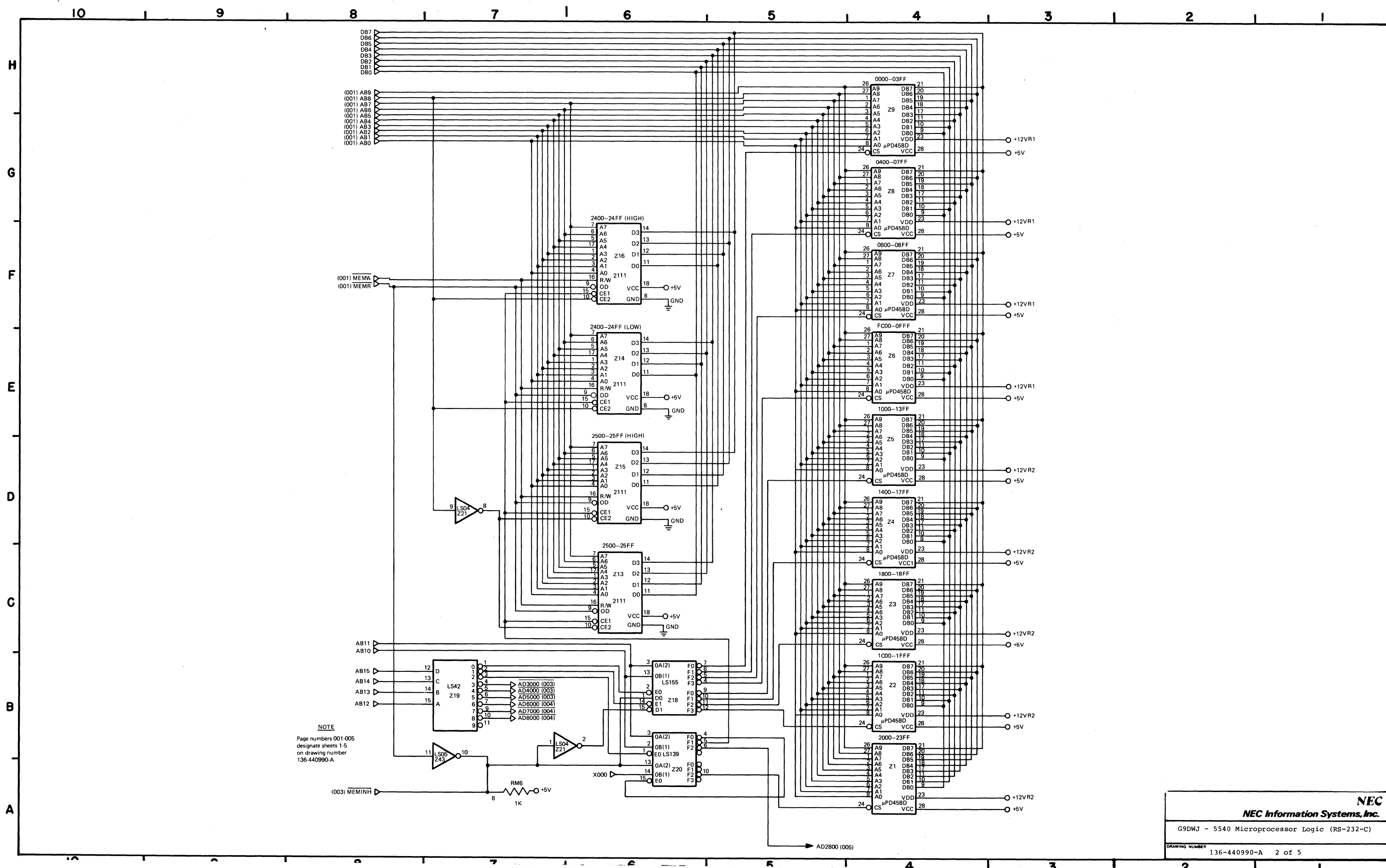






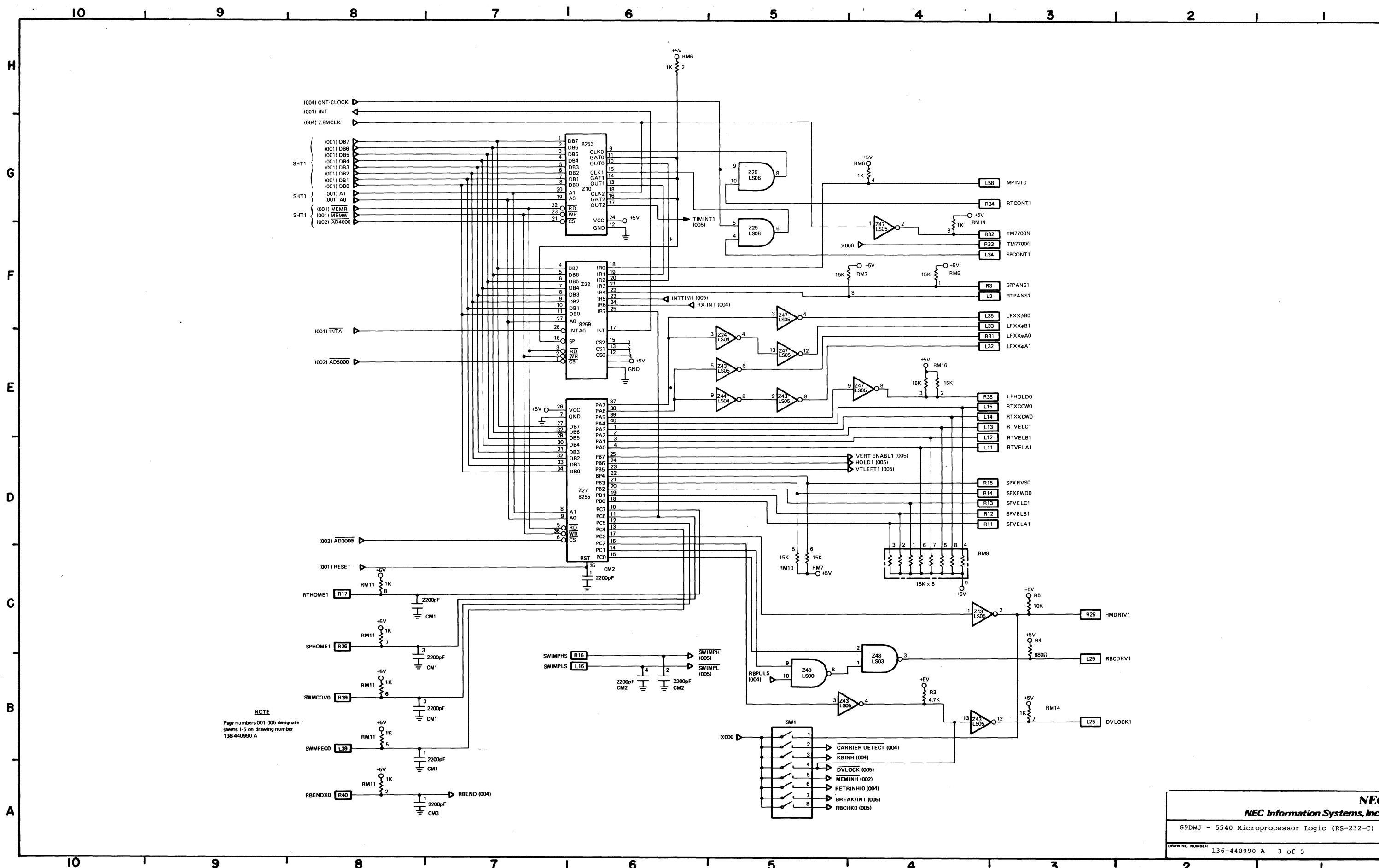


NOTE  
 Page numbers 001-005 designate  
 sheets 1-5 on drawing number  
 136-440990-A

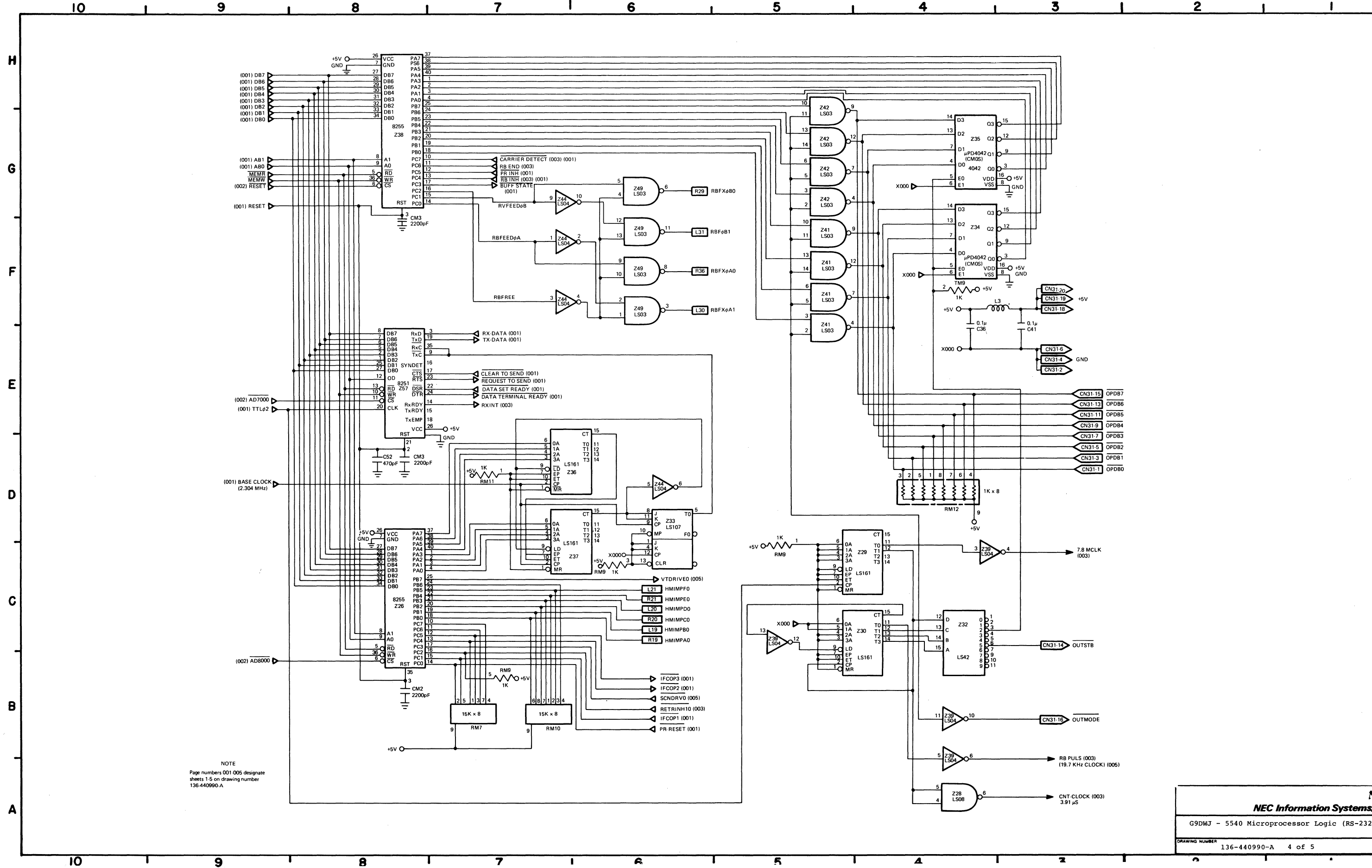


NOTE  
 Page numbers 001-005  
 designate sheets 1-5  
 on drawing number  
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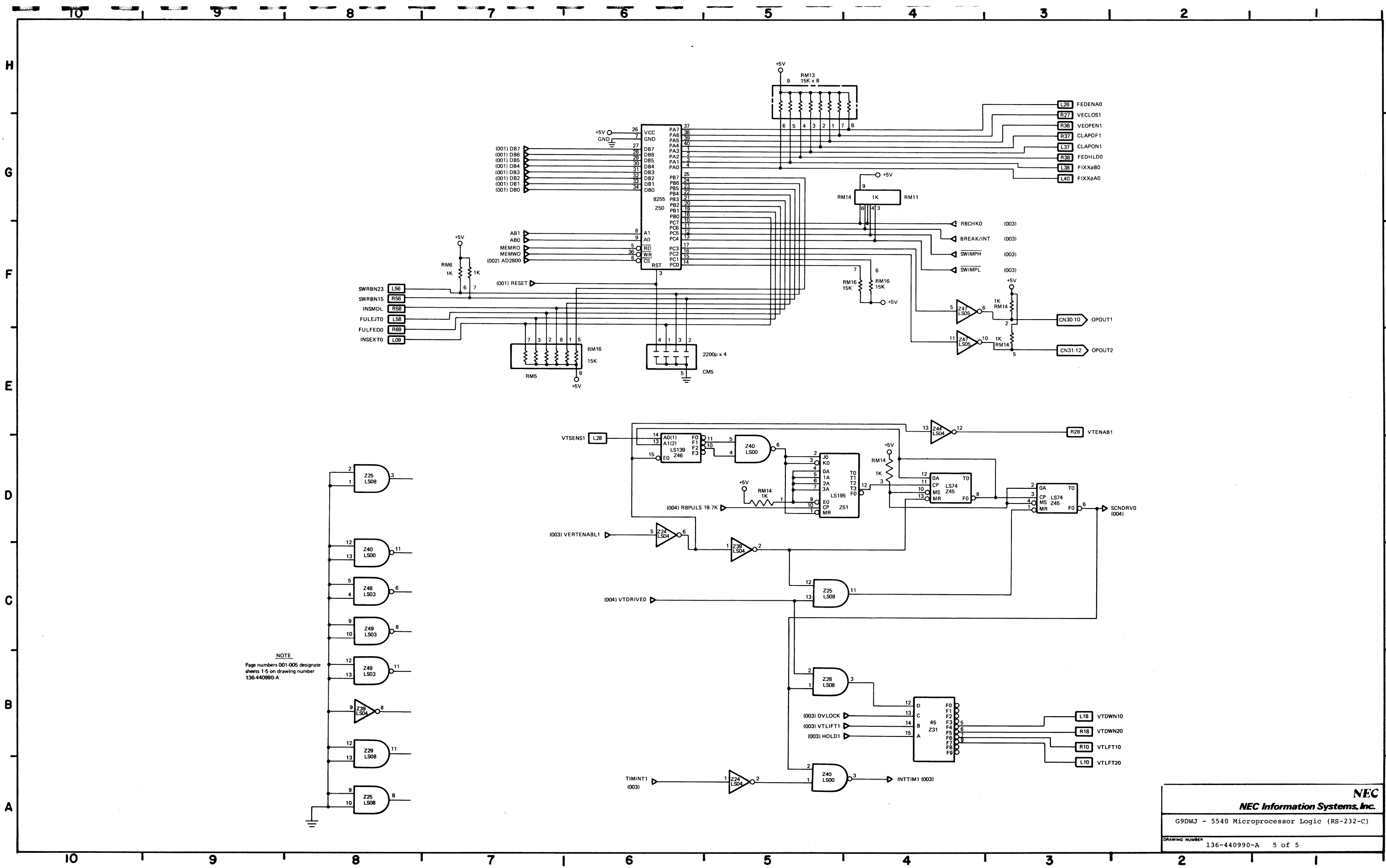




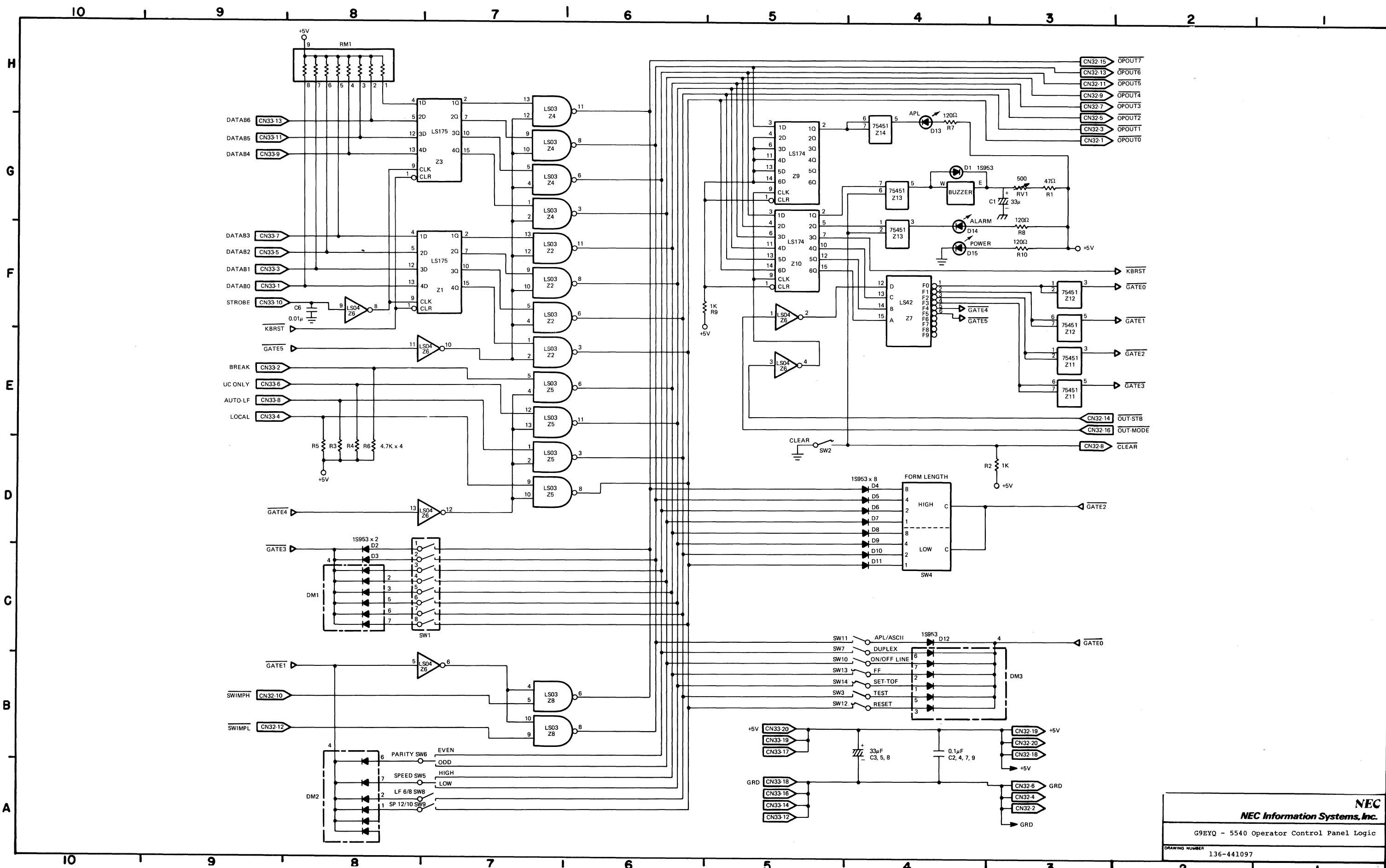
NOTE  
Page numbers 001-005 designate  
sheets 1-5 on drawing number  
136-440990-A

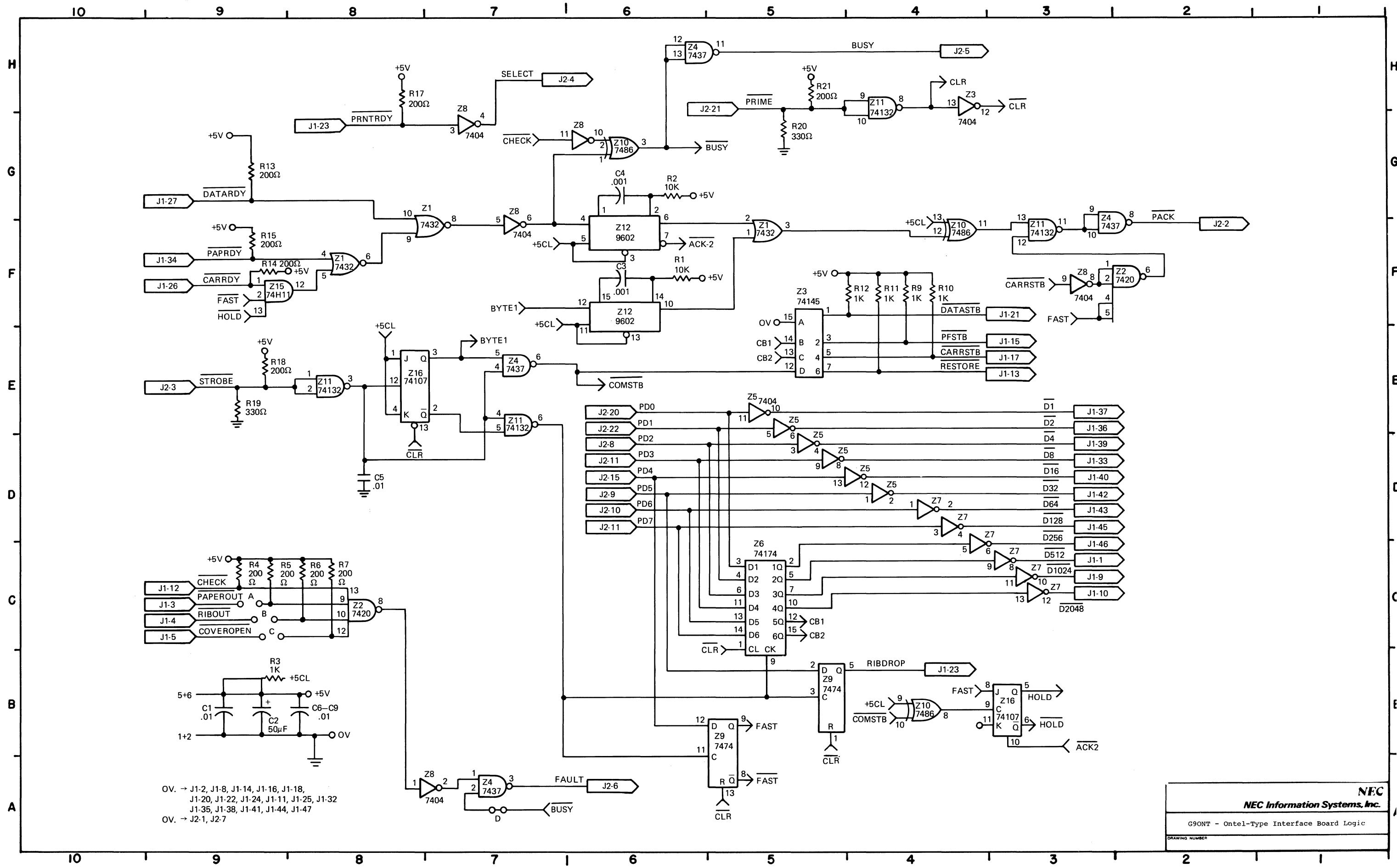


NOTE  
 Page numbers 001-005 designate  
 sheets 1-5 on drawing number  
 136-440990-A



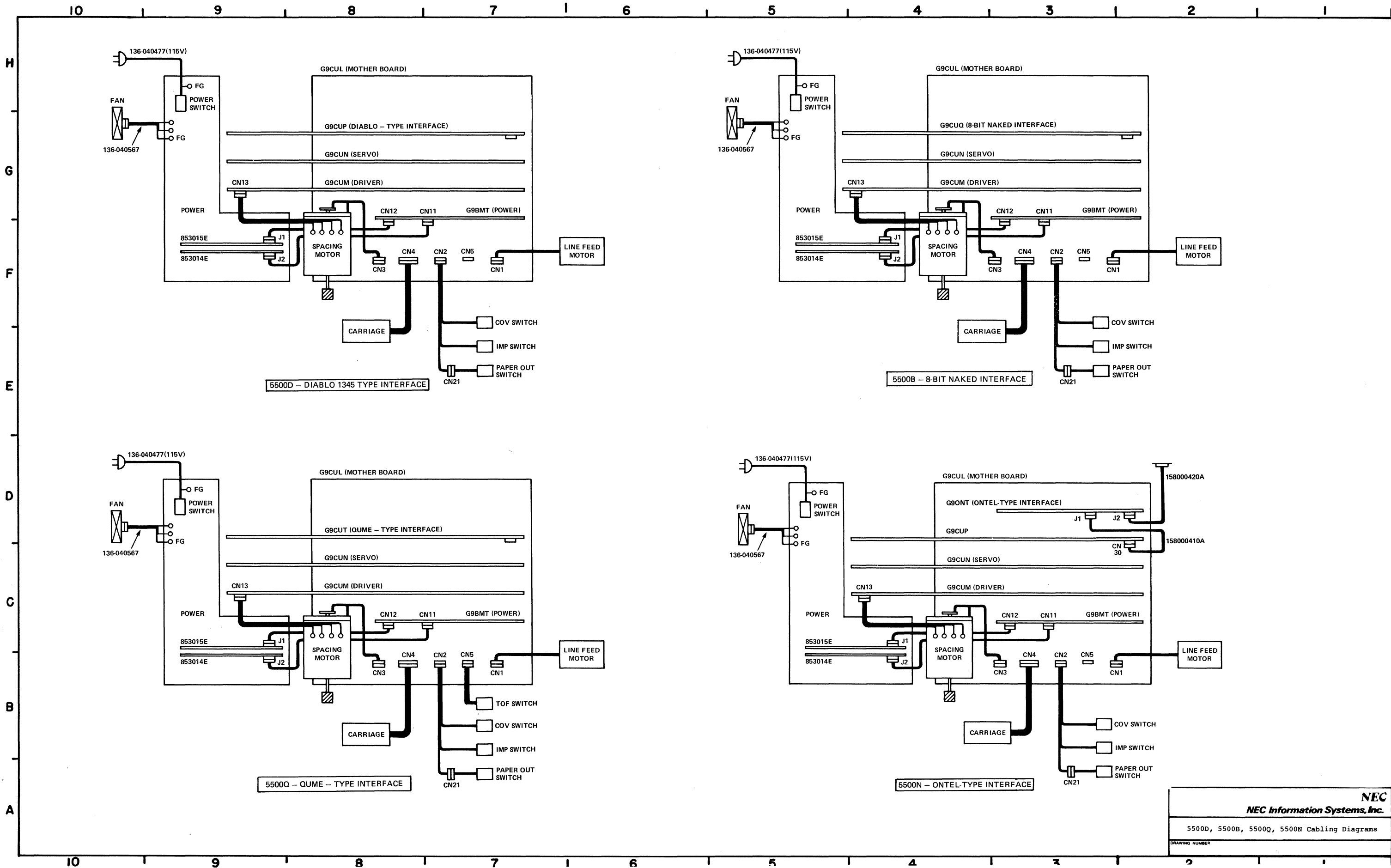
NOTE  
 Page numbers 001-005 designate  
 sheets 1-5 on drawing number  
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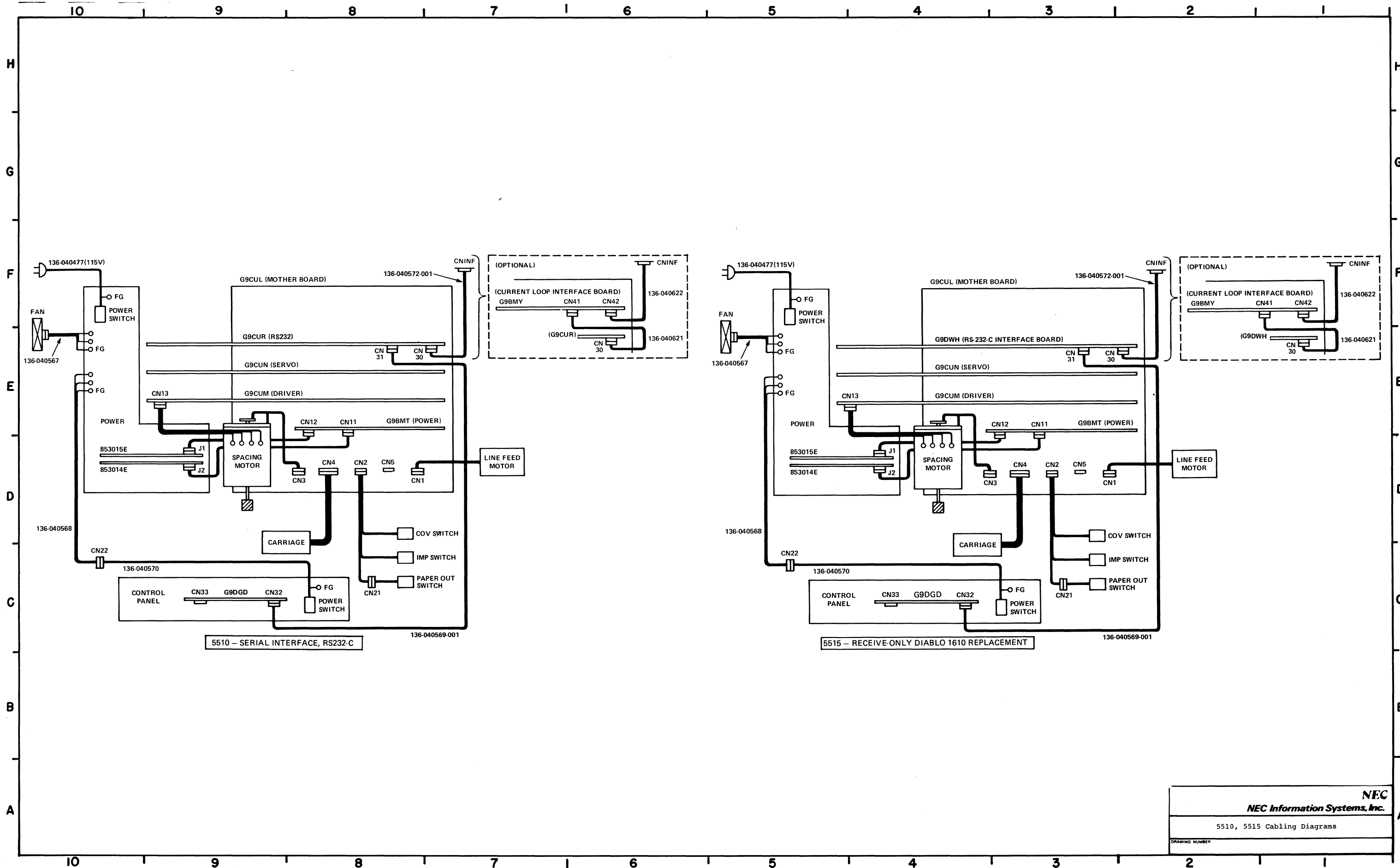


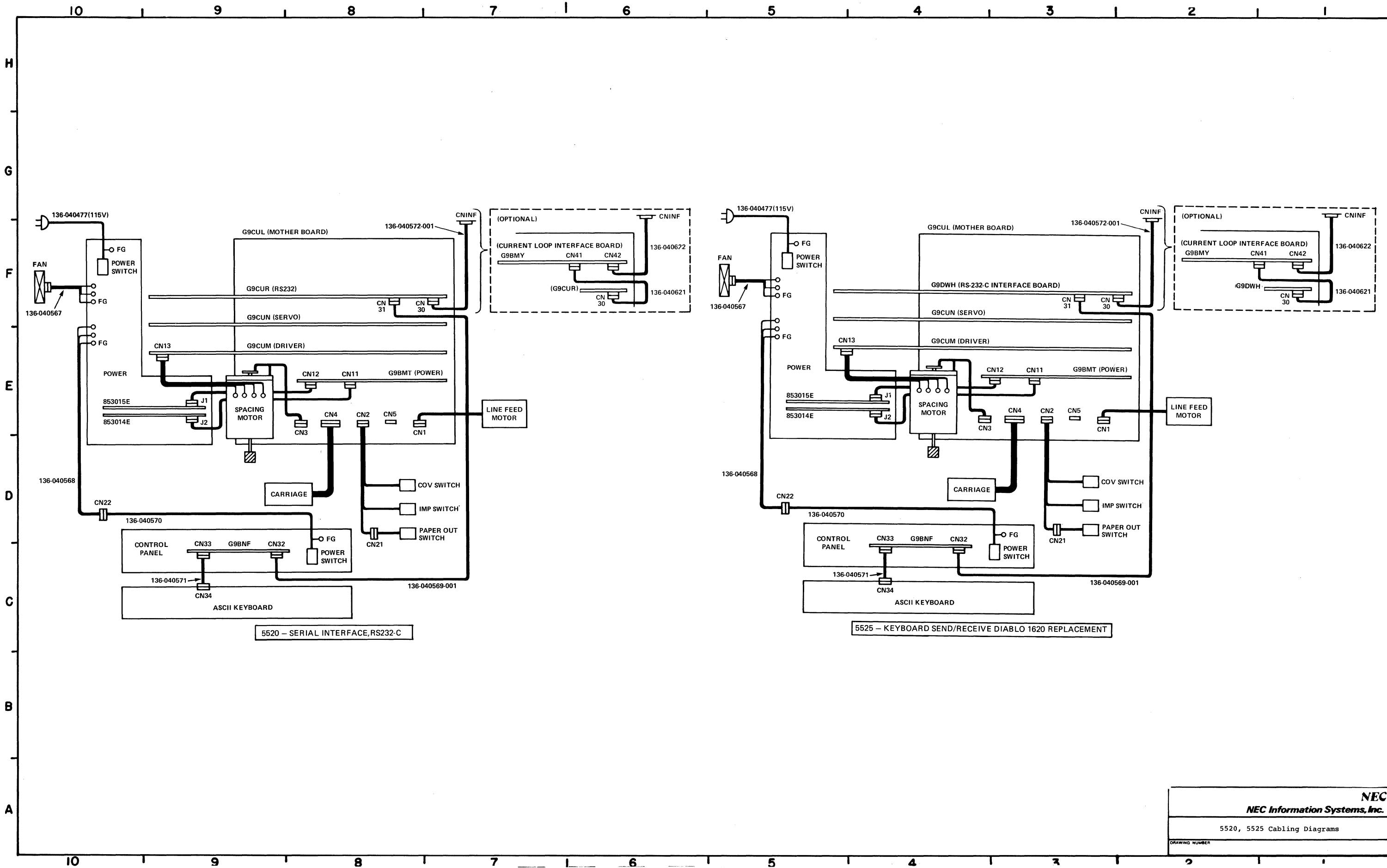


OV. → J1-2, J1-8, J1-14, J1-16, J1-18,  
 J1-20, J1-22, J1-24, J1-11, J1-25, J1-32,  
 J1-35, J1-38, J1-41, J1-44, J1-47  
 OV. → J2-1, J2-7

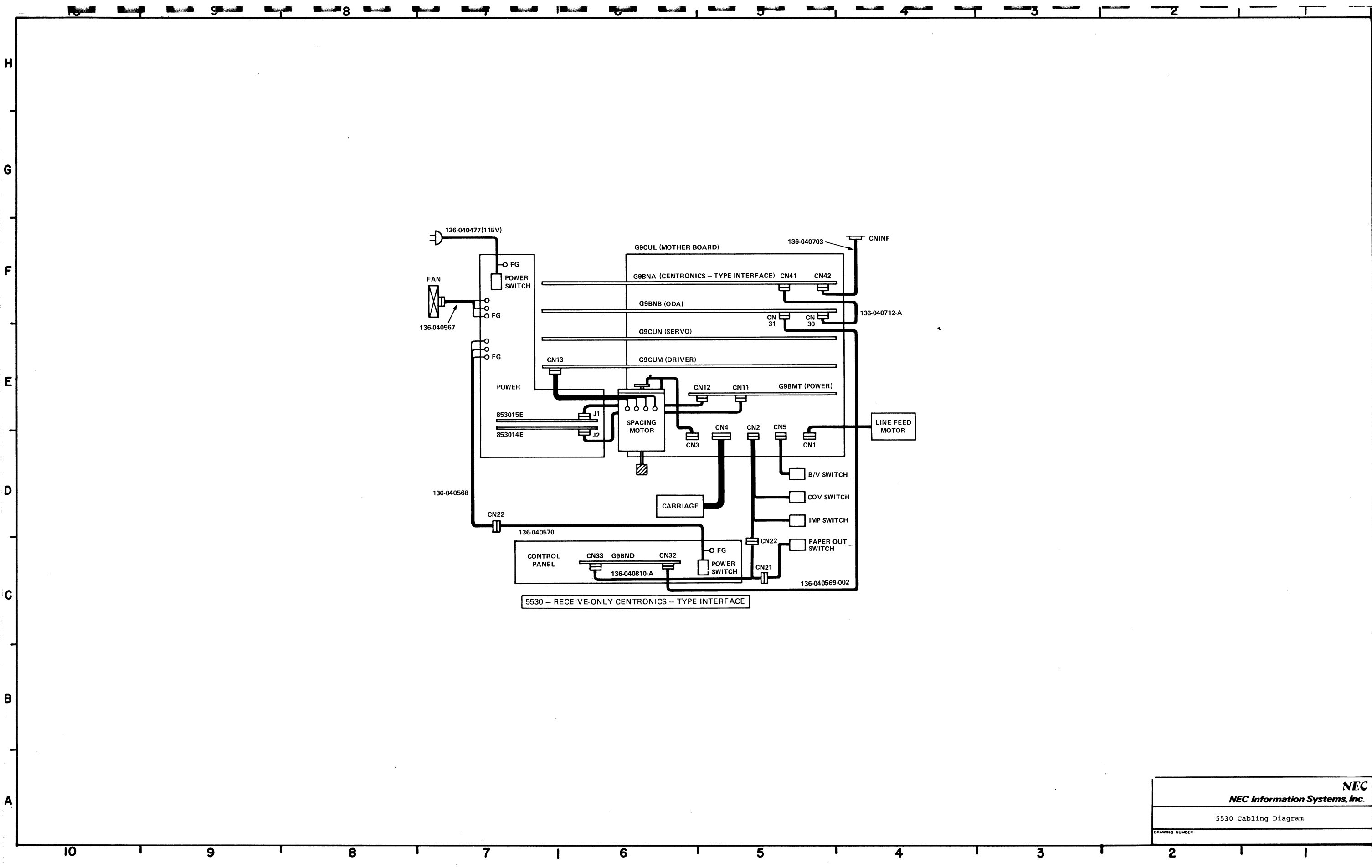
**NEC**  
**NEC Information Systems, Inc.**  
 G9ONT - Ontel-Type Interface Board Logic  
 DRAWING NUMBER

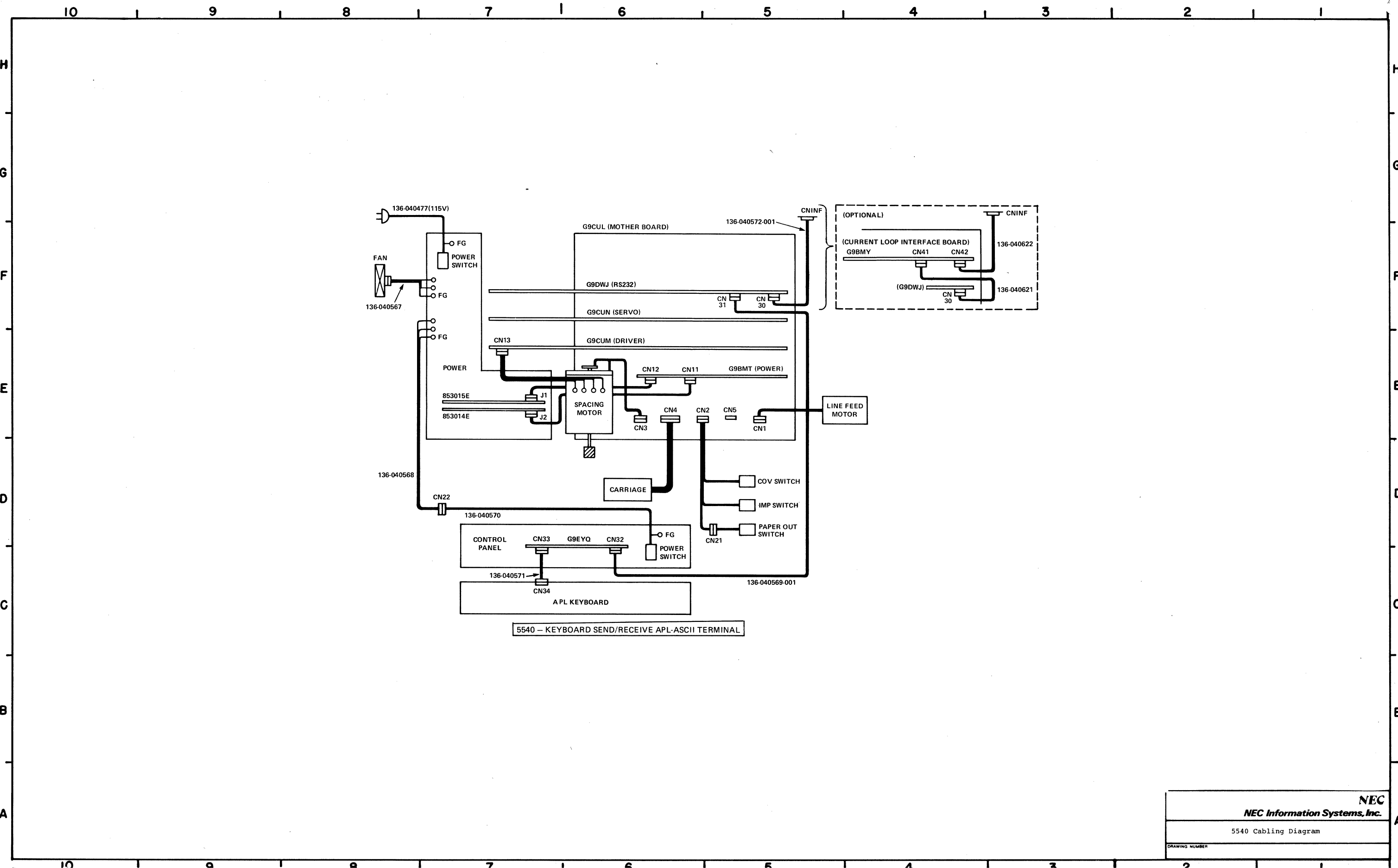


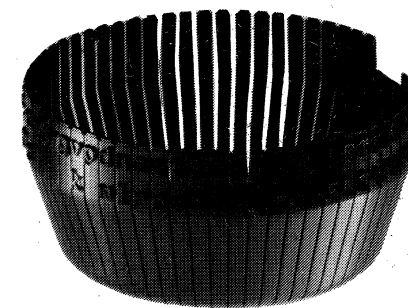












**NEC**

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