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# 1260 VXI
# SWITCHING CARD

# 1260-14C
# OPEN COLLECTOR
# DIGITAL I/O MODULE

**PUBLICATION NO. 980673-012**

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2. Product model number
3. Your company and contact information

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# FOR YOUR SAFETY

Before undertaking any troubleshooting, maintenance or exploratory procedure, read carefully the **WARNINGS** and **CAUTION** notices.

This equipment contains voltage hazardous to human life and safety, and is capable of inflicting personal injury.

If this instrument is to be powered from the AC line (mains) through an autotransformer, ensure the common connector is connected to the neutral (earth pole) of the power supply.

Before operating the unit, ensure the conductor (green wire) is connected to the ground (earth) conductor of the power outlet. Do not use a two-conductor extension cord or a three-prong/two-prong adapter. This will defeat the protective feature of the third conductor in the power cord.

Maintenance and calibration procedures sometimes call for operation of the unit with power applied and protective covers removed. Read the procedures and heed warnings to avoid “live” circuit points.

Before operating this instrument:

1. Ensure the instrument is configured to operate on the voltage at the power source. See Installation Section.

2. Ensure the proper fuse is in place for the power source to operate.

3. Ensure all other devices connected to or in proximity to this instrument are properly grounded or connected to the protective third-wire earth ground.

If the instrument:

- fails to operate satisfactorily
- shows visible damage
- has been stored under unfavorable conditions
- has sustained stress

Do not operate until performance is checked by qualified personnel.

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# Chapter 1

# MODULE SPECIFICATION

## Module Specification

The 1260-14C provides 96 Open Collector (OC) I/O lines in twelve groups of 8 bits each. Each group of 8 bits (hereafter referred to as a port) can be read from or written to asynchronously using the commands READ and WRITE. Additionally, up to 12 ports may be grouped together and synchronously operated using an external clock for as many as 256 consecutive operations by using the appropriate SETUP commands. The last data previously written to or read from a port is retrieved by using the PDATAOUT command. The current state of the 1260-14C is determined by using the PSETUP command. Refer to the individual syntax descriptions for each command and the examples given later for the specifics regarding these operations.

The outputs of the 1260-14C are connected to an external voltage that provides inductive fly-back protection. If inductive loads are to be driven, the external voltage must be supplied to the module. Failure to do so may cause damage to the module's output stage. If protection for inductive voltage fly-back is unnecessary, $V_{ext}$ does not need to be supplied to the module.

The 1260-14C allows twelve separate external voltages to be supplied to the module's front panel. These external voltages are supplied to the output stages on a byte-by-byte basis. This allows some flexibility as to the OC output voltages that are supported simultaneously by the module (see the 1260-14C Block Diagram). Also, the VXIbus supplied voltages (+5V, +12V, and +24V) are used to pull up the output stage if the module is fitted with internal resistive pull-ups.

The 1260-14C includes provisions for the installation of internal pull-up resistors. This includes twelve 16-pin DIP sockets designed to accommodate standard 16-pin, eight resistor-isolated style DIP packages, such as CTS P/N 761-3-R10k or Bourns P/N 4116R-001-103. The 1260-14C contains no internal pull-up resistors at time of shipment.

It is recommended that outputs be pulled-up with 10kΩ resistors if driving standard logic gates. Internal pull-ups are limited to a minimum value of 10kΩ due to the amount of current available



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from the VXIbus supplies.

The output stage of the 1260-14C may sink up to 200mA. The limitation to this is the power dissipation in the output stages of the IC. (See Figure 1-3 for the maximum allowable package power dissipation.) If many 200mA loads are to be driven, they should be distributed across the module's outputs for improved thermal management.

It should be noted that there is no tri-state capability on the 1260-14C. Since the outputs are open collector, they are placed in a pseudo tri-state by "driving" a 1 on the relevant channel. In this way, the channels are controlled on a bit-by-bit basis rather than a byte-by-byte basis as on the standard 1260-14.

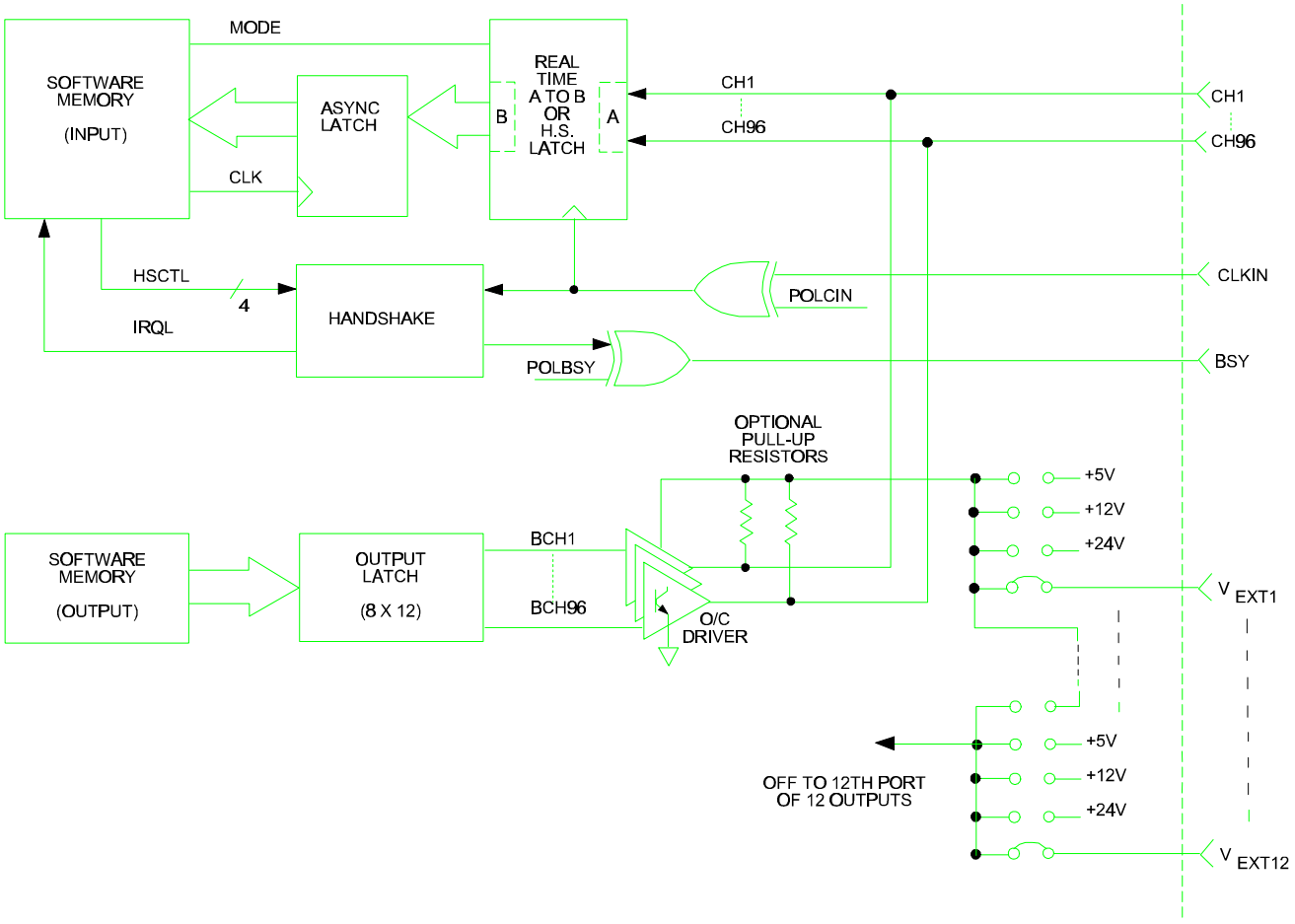



**Figure 1-1, 1260-14C Block Diagram**



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# Specifications

| | |
|---|---|
| User Connector | Two 50-pin IDC and two 60-pin IDC |
| Number of I/O Channels | 96 Channels |
| Configuration | I/O lines selected as either input or output on a pin-per-pin basis |
| Data Rate | Static to approximately 1 kHz |
| Operating Modes | Asynchronous<br>Synchronous |
| Input/Output | Open Collector* |

All outputs have inductive-load transient suppression diodes built in, and must be supplied with an external voltage source ($V_{ext}$) for this protection to be active.

***CAUTION***

**Damage to the driver's output may occur if a highly inductive load (i.e., relay coil drive) is driven without an external voltage ($V_{ext}$) being applied to the module's drive cells.**

$V_{ext}$ may differ on a port-by-port basis, or can be jumpered across all the drivers. The factory setting is to connect each port with its corresponding $V_{ext}$ pin where $V_{ext}$ (1-12) are the user's input pins to the drivers. The outputs may also be internally pulled up if fitted with DIP resistor packs (this selection is also port- wide).

***NOTE***

**$V_{ext}$ is limited to 1A per $V_{ext}$ pin used. For example, the maximum current-carrying capability of a single $V_{ext}$ pin is 1A.**

* A CMOS-compatible and LS TTL versions of the 1260-14C are also available.

Output Voltage

| | |
|---|---|
| $V_{out}$ (High) | 5.0 V <= $V_{oh}$ <= 32 V (max) |
| $V_{out}$ (Low) | $\leq$1.5 V at $I_{in\ lo}$ = 200 mA |

Input Voltage

| | |
|---|---|
| $V_{in}$ (High) | $\geq$2 V |
| $V_{in}$ (Low) | $\leq$1.5 V |



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| | |
|---|---|
| $V_{ih}$ (Max) | 32 VDC |
| Input Resistance | >500kΩ |
| Cooling Requirement | |
| Airflow | 1.2 liters/sec |
| Backpressure | 0.6mm $H_20$ |
| Power Requirement ($I_{pm}$) | |
| 5V | 2.38A (4.78A with Option 01) |
| Weight | 2.69 lbs (1.21 Kg)<br>2.97 lbs (1.34 Kg with Option 01) |
| Minimum Option 01 Firmware | |
| Revision | 17.1 |

***CAUTION***

**Damage to user's equipment or to the Digital I/O card could occur if the user enables an output driver (driver outputting a low) for a channel connected to a device that is attempting to drive the data line high.**

## Pin Configuration

The 1260-14C Digital I/O module has 96 channels, grouped as twelve 8-bit ports available at front panel connectors J1 through J4. Each port may be configured as an input or an output.

Refer to Figure 1-2 for the pin configurations of the 50 and 60 pin connectors on the front panel, and to Table 1-1 for correspondence between the physical channel assignments and the port numbers used in the command codes.

Refer to Table 1-2 for correspondence between the front panel pins and the signal names and descriptions.



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**Table 1-1, Model 1260-14C Channels and Ports**

| Channel No. | Port No. | External Pull-Up Voltage |
|---|---|---|
| 1 - 8 | 0 | $V_{ext}$ 1 |
| 9 - 16 | 1 | $V_{ext}$ 2 |
| 17 - 24 | 2 | $V_{ext}$ 3 |
| 25 - 32 | 3 | $V_{ext}$ 4 |
| 33 - 40 | 4 | $V_{ext}$ 5 |
| 41 - 48 | 5 | $V_{ext}$ 6 |
| 49 - 56 | 6 | $V_{ext}$ 7 |
| 57 - 64 | 7 | $V_{ext}$ 8 |
| 65 - 72 | 8 | $V_{ext}$ 9 |
| 73 - 80 | 9 | $V_{ext}$ 10 |
| 81 - 88 | 10 | $V_{ext}$ 11 |
| 89 - 96 | 11 | $V_{ext}$ 12 |



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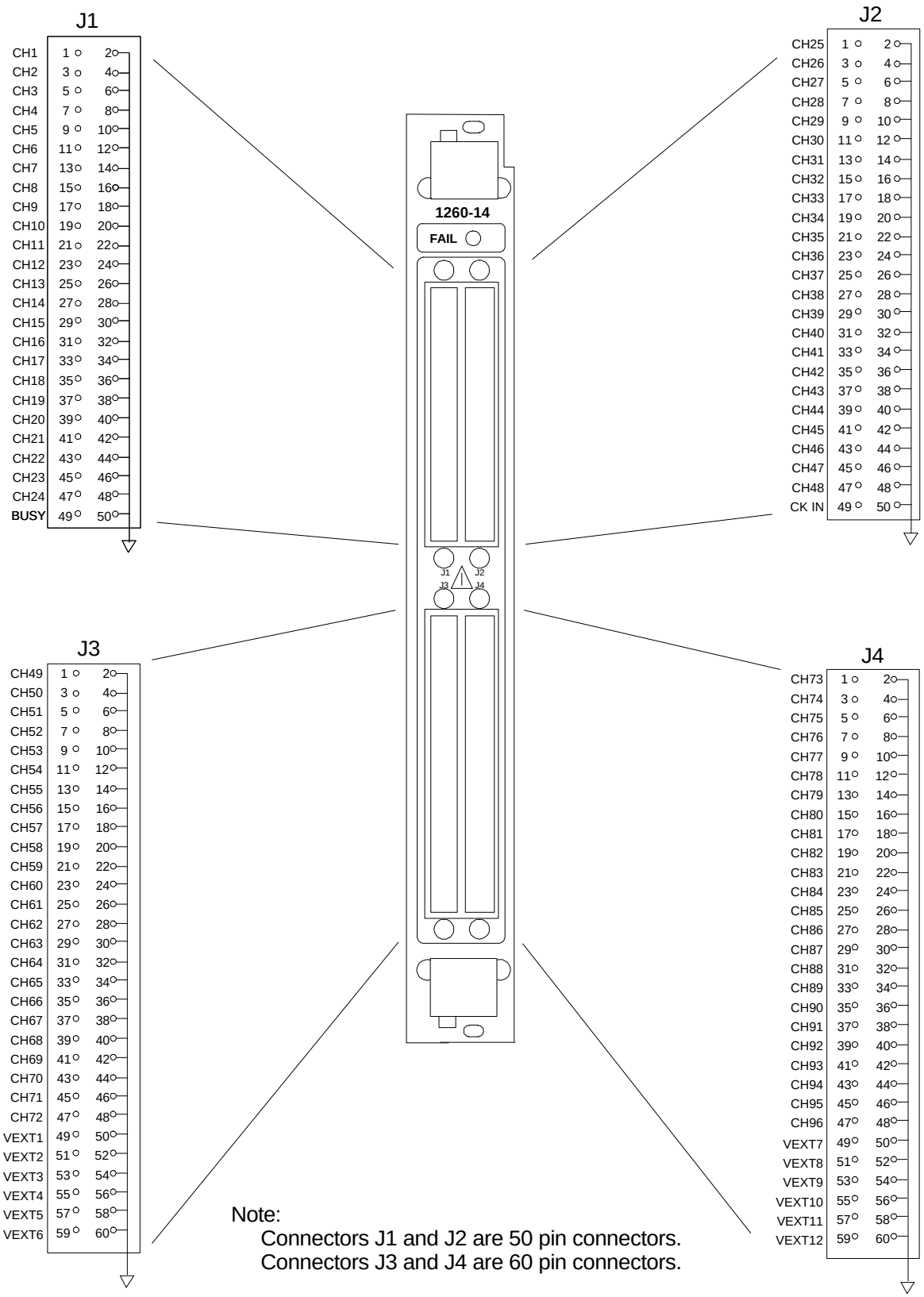



**Figure 1-2, Model 1260-14C Front Panel and Pin Configuration**



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**Table 1-2, Model 1260-14C Pins, Signals and Descriptions**

| J1 Pin | Row A Signal | Description |
|---|---|---|
| 1 | CH1 | Channel 1 I/O |
| 3 | CH2 | Channel 2 I/O |
| 5 | CH3 | Channel 3 I/O |
| 7 | CH4 | Channel 4 I/O |
| . | . | . |
| . | . | . |
| . | . | . |
| 45 | CH23 | Channel 23 I/O |
| 47 | CH24 | Channel 24 I/O |
| 49 | BSY | BUSY Handshake output |

| J1 Pin | Row B Signal | Description |
|---|---|---|
| 2 | GND | Channel 1 RTN |
| 4 | GND | Channel 2 RTN |
| 6 | GND | Channel 3 RTN |
| 8 | GND | Channel 4 RTN |
| . | . | . |
| . | . | . |
| . | . | . |
| 44 | GND | Channel 22 RTN |
| 46 | GND | Channel 23 RTN |
| 48 | GND | Channel 24 RTN |
| 50 | GND | BUSY Signal return |



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**Table 1-2, Model 1260-14C Pins, Signals and Descriptions (continued)**

| J2 Pin | Row A Signal | Description |
|---|---|---|
| 1 | CH25 | Channel 25 I/O |
| 3 | CH26 | Channel 26 I/O |
| 5 | CH27 | Channel 27 I/O |
| 7 | CH28 | Channel 28 I/O |
| . | . | . |
| . | . | . |
| . | . | . |
| 45 | CH47 | Channel 47 I/O |
| 47 | CH48 | Channel 48 I/O |
| 49 | CLKIN | CLKIN Handshake input |

| J2 Pin | Row B Signal | Description |
|---|---|---|
| 2 | GND | Channel 25 RTN |
| 4 | GND | Channel 26 RTN |
| 6 | GND | Channel 27 RTN |
| 8 | GND | Channel 28 RTN |
| . | . | . |
| . | . | . |
| . | . | . |
| 44 | GND | Channel 46 RTN |
| 46 | GND | Channel 47 RTN |
| 48 | GND | Channel 48 RTN |
| 50 | GND | CLKIN Signal return |



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**Table 1-2, Model 1260-14C Pins, Signals and Descriptions (continued)**

| J3 Pin | Row A Signal | Description |
|---|---|---|
| 1 | CH49 | Channel 49 I/O |
| 3 | CH50 | Channel 50 I/O |
| 5 | CH51 | Channel 51 I/O |
| 7 | CH52 | Channel 52 I/O |
| . | . | . |
| . | . | . |
| . | . | . |
| 45 | CH71 | Channel 71 I/O |
| 47 | CH72 | Channel 72 I/O |
| 49 | $V_{ext}$ 1 | External Voltage 1 |
| 51 | $V_{ext}$ 2 | External Voltage 2 |
| 53 | $V_{ext}$ 3 | External Voltage 3 |
| 55 | $V_{ext}$ 4 | External Voltage 4 |
| 57 | $V_{ext}$ 5 | External Voltage 5 |
| 59 | $V_{ext}$ 6 | External Voltage 6 |

| J3 Pin | Row B Signal | Description |
|---|---|---|
| 2 | GND | Channel 49 RTN |
| 4 | GND | Channel 50 RTN |
| 6 | GND | Channel 51 RTN |
| 8 | GND | Channel 52 RTN |
| . | . | . |
| . | . | . |
| . | . | . |
| 44 | GND | Channel 70 RTN |
| 46 | GND | Channel 71 RTN |
| 48 | GND | Channel 72 RTN |
| 50 | GND | $V_{ext}$ 1 RTN |
| 52 | GND | $V_{ext}$ 2 RTN |
| 54 | GND | $V_{ext}$ 3 RTN |
| 56 | GND | $V_{ext}$ 4 RTN |
| 58 | GND | $V_{ext}$ 5 RTN |
| 60 | GND | $V_{ext}$ 6 RTN |



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**Table 1-2, Model 1260-14C Pins, Signals and Descriptions (continued)**

| J4 Pin | Row A Signal | Description |
|---|---|---|
| 1 | CH73 | Channel 73 I/O |
| 3 | CH74 | Channel 74 I/O |
| 5 | CH75 | Channel 75 I/O |
| 7 | CH76 | Channel 76 I/O |
| . | . | . |
| . | . | . |
| . | . | . |
| 45 | CH95 | Channel 95 I/O |
| 47 | CH96 | Channel 96 I/O |
| 49 | $V_{ext}$ 7 | External Voltage 7 |
| 51 | $V_{ext}$ 8 | External Voltage 8 |
| 53 | $V_{ext}$ 9 | External Voltage 9 |
| 55 | $V_{ext}$ 10 | External Voltage 10 |
| 57 | $V_{ext}$ 11 | External Voltage 11 |
| 59 | $V_{ext}$ 12 | External Voltage 12 |

| J4 Pin | Row B Signal | Description |
|---|---|---|
| 2 | GND | Channel 73 RTN |
| 4 | GND | Channel 74 RTN |
| 6 | GND | Channel 75 RTN |
| 8 | GND | Channel 76 RTN |
| . | . | . |
| . | . | . |
| . | . | . |
| 44 | GND | Channel 94 RTN |
| 46 | GND | Channel 95 RTN |
| 48 | GND | Channel 96 RTN |
| 50 | GND | $V_{ext}$ 7 RTN |
| 52 | GND | $V_{ext}$ 8 RTN |
| 54 | GND | $V_{ext}$ 9 RTN |
| 56 | GND | $V_{ext}$ 10 RTN |
| 58 | GND | $V_{ext}$ 11 RTN |
| 60 | GND | $V_{ext}$ 12 RTN |



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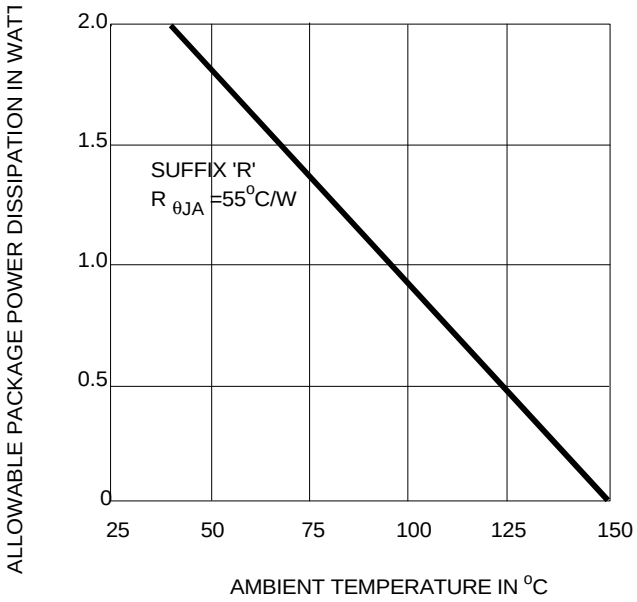



**Figure 1-3 Allowable Package Power Dissipation of Output Stage**

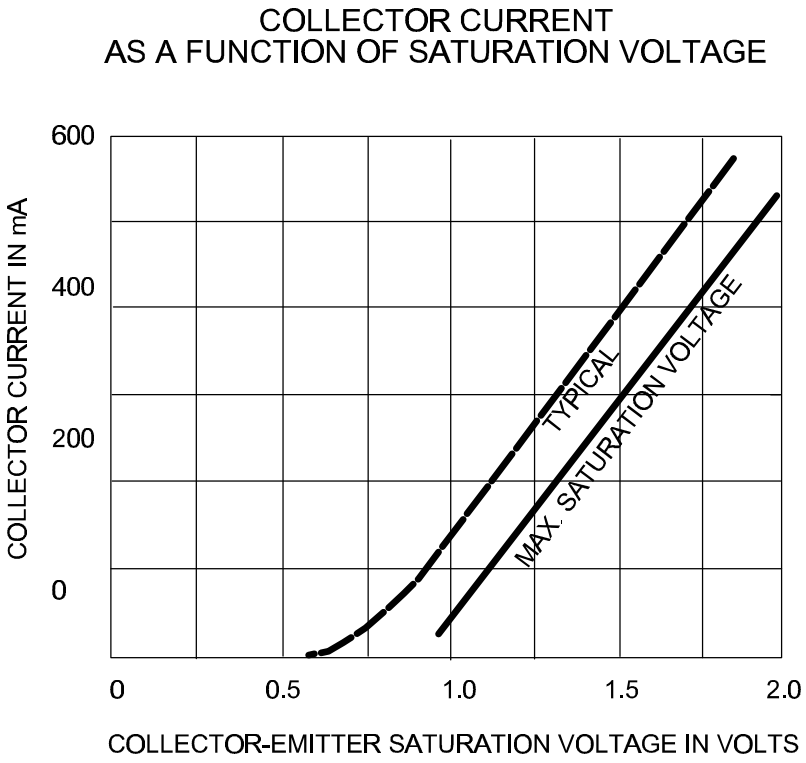



**Figure 1-4, $V_{ce}$ (sat) as a Function of Collector Current**



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# Chapter 2

# INSTALLATION INSTRUCTIONS

## Unpacking and Inspection

1. Before unpacking the 1260-14C, check the exterior of the shipping carton for any signs of damage. All irregularities should be noted on the shipping bill.
2. Remove the module from its carton, preserving the factory packaging as much as possible.
3. Inspect the module for any defect or damage. Immediately notify the carrier if any damage is apparent.
4. Have a qualified person check the instrument for safety before use.

***CAUTION***

**Proper ESD handling procedures must always be used when packing, unpacking or installing any 1260 Series cards. Failure to do so may cause damage to the unit.**

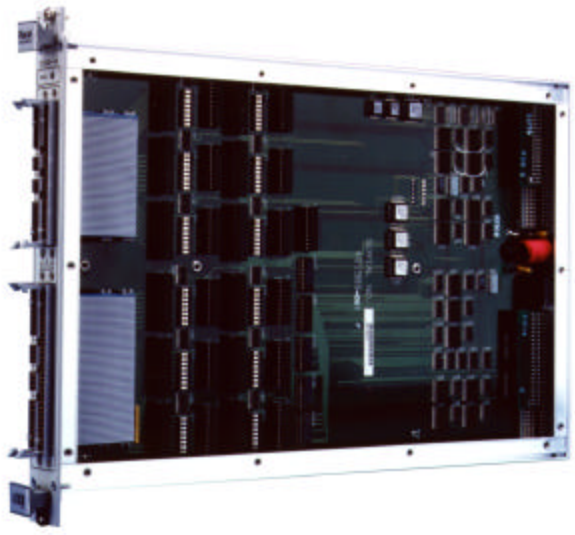


**Figure 2-1, 1260-14C**



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## Reshipment Instructions

1. Use the original packaging when returning the 1260-14C module to Racal Instruments for calibration or servicing. The original shipping carton and the module's foam will provide the necessary support for safe reshipment.

2. If the original packaging is unavailable, wrap the module in plastic sheeting and use plastic spray foam to surround and protect the module.

3. Reship in either the original or a new shipping carton.

## Option 01 Installation

Installation of the Option 01 into the 1260-14C is described in the Installation section of the 1260 Series VXI Switching Cards Manual (RII P/N 980673-999).

## Module Installation

Installation of the 1260-14C Digital I/O Module into a VXIbus mainframe, including the setting of DIP switches, is described in the Installation section of the 1260 Series VXI Switching Cards Manual (RII P/N 980673-999). The ID byte DIP switches, SW1-5 and SW1-6, should be set to OFF.



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# Chapter 3

# MODULE SPECIFIC SYNTAX

## Asynchronous and Synchronous Modes of Operation

Each port on the 1260-14C can operate in either an asynchronous or a synchronous mode. The number of synchronous mode ports is modified by using the SETUP SYNC command. The default after power-up or reset is for all ports to be in the asynchronous mode. The current operating mode of the ports is determined at any time with the PSETUP command. See the syntax description of the PSETUP and SETUP SYNC commands for details and examples.

## Asynchronous Mode

The asynchronous mode allows data to be read from or written to a port in response to a READ or WRITE command. The following restrictions apply to all asynchronous operations:

Those ports defined as asynchronous cannot participate in synchronous operations.

Asynchronous commands are not allowed on any port while synchronous operations are armed and waiting for clocks.

Asynchronous WRITE commands are valid on synchronous ports to allow the synchronous port to be preset to a starting value. Asynchronous READ commands are not allowed on synchronous ports.



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## Synchronous Mode

The synchronous mode of operation allows data to be read from or written to a port in response to a clock edge. Typically, this is done by:

1. Defining the test parameters and data via the various SETUP commands.

2. Arming the test via the SETUP <address>.ARM ON command.

3. Applying a series of TTL clock inputs to the CLKIN line until the last operation on all ports has been completed, causing the test to automatically disarm. It is also possible to manually disarm the test before it has completed all of the test vectors. This is done via the SETUP <address>.ARM OFF command.

4. Reading back the results using the PDATAOUT command.

The following restrictions apply to all synchronous operations:

Synchronous ports are always grouped together and are always the lowest numbered ports; i.e., the first synchronous port is always port 0; the second is always port 1, etc.

All ports not specified as synchronous are asynchronous by default.

A port may read or write during synchronous operations, but not both.

Once a synchronous test is set up, it must be armed before the unit enables the handshake lines.

Synchronous operations cannot be set up once the 1260-14C is armed.

There is a maximum of 256 synchronous operations (referred to as vectors) per port.

All synchronous ports are clocked simultaneously; i.e., if five synchronous ports are defined, the first active edge of the clock causes the appropriate action to occur on all five ports.

Synchronous ports support the asynchronous WRITE command, but not the asynchronous READ command.



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## Synchronous Mode Handshaking

The module has a two-line handshake available for use in the synchronous mode. The first is the BUSY line, which is set by the 1260-14C when it is busy processing, and the second is the CLKIN line which the user toggles to clock the next synchronous operation. The user specifies the polarity of the BUSY line and the active edge of the CLKIN line by using the appropriate SETUP command. (Refer to Figure 3-1 for timing diagrams of the input and output handshaking modes available.) Both the BUSY and CLKIN lines are valid only when a synchronous operation is defined and armed.

***NOTE***

**Both the BUSY and the CLKIN lines are valid only when synchronous operations are defined and armed. Changes on the CLKIN line are ignored by the 1260-14C when the card is not armed. Spurious outputs on the BUSY line should also be ignored unless the unit is armed.**



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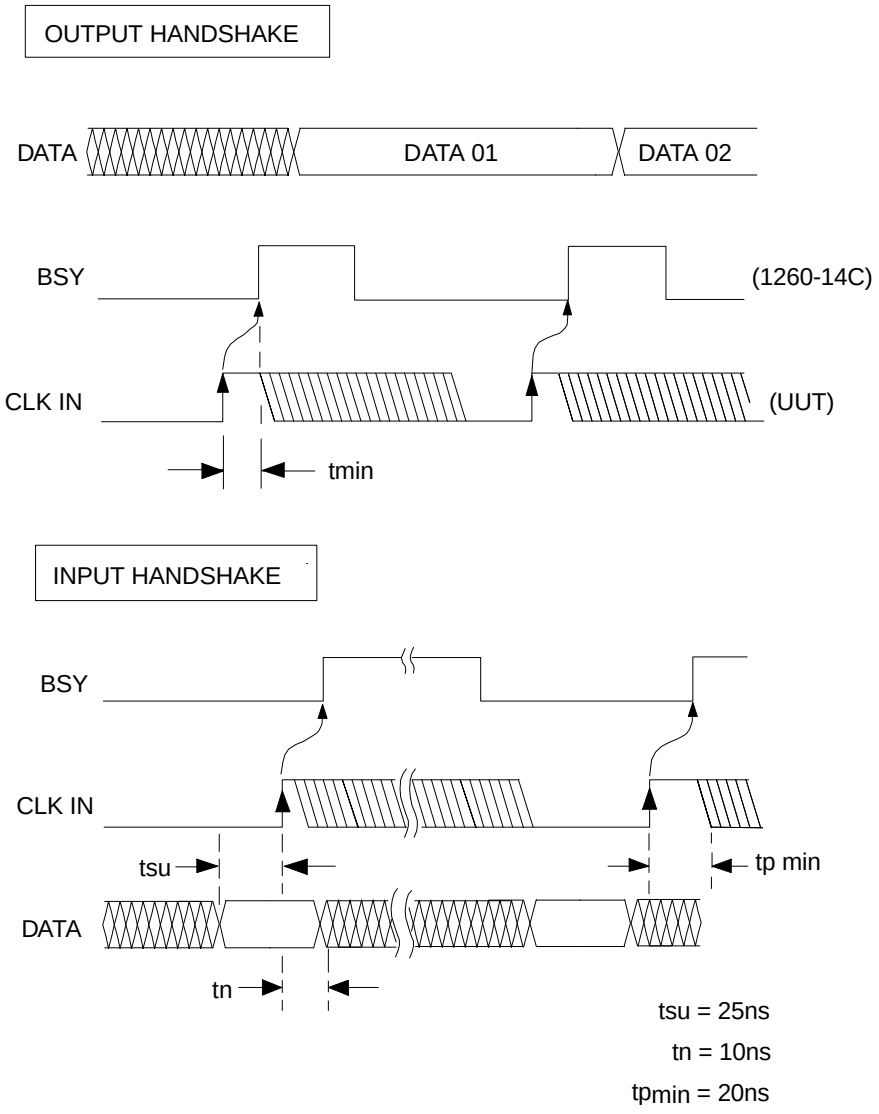



**Figure 3-1, Model 1260-14C Input and Output Handshake Modes**



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## Module Specific Syntax

The 1260-14C Digital I/O module supports the PDATAOUT, PSETUP, READ, RESET, SETUP, and WRITE commands. The general form of the module specific syntax for the 1260-14CC Digital I/O module is:

Command address.parameters

where:

command is one of the 1260-14C module specific commands.

Address is the module address set by SW1 on the 1260-14C (1-12).

Parameters are the command specific parameters and data.

***NOTE***

**The address used here is <u>not</u> the VXIbus defined logical address of the Master. It is a designation unique to the 1260 Series and is used by the 1260 Option 01 to identify individual 1260 modules. This switch setting is a requirement, since a single Option 01 can control multiple 1260 Series modules. This address corresponds to the binary value of the switch setting of SW1 on the switching module PCB, and can take on the values from 1 to 12.**

## Syntax Notations and Conventions

The following syntax notations and conventions are used throughout the manual:

All terms in upper case letters are used directly in the command syntax, although case is not important in the actual command string sent to the Option 01.

All items in brackets ( [ ] ) are optional.

All lower case letters within greater/less than pairs ( < > ) are to be replaced by numeric values, as specified in the syntax description.

A vertical bar ( | ) represents the "or" function, and specifies that the user must select only one of the items separated by bars.

All lines must be terminated by an ASCII line feed <LF>, EOI or both.



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Write data may be in either decimal, hexadecimal, or binary format. Non-decimal numbers must be preceded with "H" for hex, or "B" for binary.

# Definition of Commands

## PDATAOUT Command

Syntax: PD[ATAOUT] <address>[.<ports>][,<address>[.<ports>],...]

<address>::= Module address of the 1260-14C (1-12)

<ports>::= One or more consecutive ports to return data from. A single port is specified as a decimal number from 0 to 11. A group of ports is specified as two decimal numbers from 0 to 11 separated by a hyphen, (-), with the lower numbered port to the left and the higher numbered port to the right. For example, the command string PD 1.3-5 would return values for ports 3, 4 and 5.

Description: The PDATAOUT command will cause the module specified by the logical address to return the data associated with each requested port. The format of the return data is as follows:

<address>. 1260-14C DIGITAL INPUT/OUTPUT MODULE <CR><LF>
<address>. [<port>:<data>,...]<CR><LF>
<address>.END<CR><LF>

where:

<address>::= A three digit module address. (001-012)
<data>::= From 0 to 256 pieces of data in eitherdecimal, hexadecimal or binary format.
<port>::= A 2-digit number specifying the port to associate with the data that follows.



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***NOTE***

**There is a space following the period on each line except for the line containing the END string. This allows the user to detect when the last line of a multiple line reply has occurred by looking at the fifth character of each line to see if it is a space or an ASCII "E". This convention is true for all commands returning multiple line outputs.**

Output data for the specified modules and ports are in the same order as requested in the command. Each port's data is preceded with the port number and a colon. The type and format of the data returned will depend on how the port is defined and the last operation performed on the port. This is determined as follows:

If the port is defined as a synchronous mode read port, the command will return the data from the most recent synchronous test, using the same data width and format that was specified when the test was defined. If the port has been defined as synchronous but no test has been run since the port was defined, no values are returned (e.g., "001. 07:").

If the port is defined as a synchronous mode write port, the command will return the most recent write data loaded for this port, using the same data width and format used to load the data. If no data is loaded, no values are returned (e.g., "001. 07:").

If the port is defined as an asynchronous port, the command will return the results of the most recent READ or WRITE command, using the same data width and format used in that command. If no READ or WRITE commands have been sent, no values are returned (e.g., "001. 07:").

Example:

Assume that port 0 is a synchronous mode byte-wide (8 bit) port that read in the hex values 9f, 7f, 3f and 1f during vectors 1-4 of the last synchronous test. Port 1 is a synchronous mode byte-wide port that wrote out the decimal values 21, 31, 41 and 51 during vectors 1-4 during the last synchronous test. Port 2, along with port 3, is an asynchronous word-wide (16-bit) port that was last used to read a hex 7AA6. Port 4 is an asynchronous byte-wide



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port that was last used to write a binary 10101101.

The command:

PD 1.0-4

would return the following data:

001. 1260-14C DIGITAL INPUT/OUTPUT MODULE<CR><LF>
001. 00:9F,7F,3F,1F<CR><LF>
001. 01:21,31,41,51<CR><LF>
001. 02:7AA6<CR><LF>
001. 04:10101101<CR><LF>
001.END<CR><LF>

## PSETUP command

Syntax: PS[ETUP] <address>

<address>::= Module address of the 1260-14C (1-12)

Description: This command will cause the module to return the condition of all the setup variables for the 1260-14C at the specified module address. The following is a sample output from a PSETUP command for a 1260-14C at module address 1, showing the power-up default condition for the setup variables:

001. 1260-14C DIGITAL INPUT/OUTPUT MODULE
001. ENABLE
001. SYNC 0
001. BUSY POS
001. CLKIN POS
001. ARM OFF
001.END

***NOTE***

**Since the "ENABLE" command is not supported on the 1260-14C, the "ENABLE" entry in the PSETUP response is meaningless and should be ignored.**



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## READ command

Syntax:

Byte: READ <address>.<ports>[,Y][,B | ,H]
Word: READ <address>.<ports>,W[,B | ,H]
Bit: READ <address>.<ports>,X<bit>[,X<bit>...]
Fast: READ <address>.<ports>,Z,[,H]

<address>::= Module address of the 1260-14C (1-12)

<ports>::= One or more consecutive ports to read from. A single port is specified as a decimal number from 0 to 11. A group of ports is specified as two decimal numbers from 0 to 11 separated by a hyphen, (-), with the least significant port to the right and the most significant port to the left. For example, the command READ 1.3-5,Y would return values for ports 3, 4 and 5.

<bit>::= The individual bit number (0-7) to read in the bit mode. The user may specify multiple bits by separating each X<bit> with commas. Bit 0 is the LSB and bit 7 the MSB.

A "B" specifies that the output format for the data is binary. Note that this format is unavailable in the fast byte mode to keep the output on a single 80-character line.

An "H" specifies that the output format for the data is hexadecimal.

A "Y" causes a byte-wide (8-bit) read of the port. This is the default if no width is specified. See Example 1 above for a sample of a byte-wide READ command.

A "W" causes a word-wide (16-bit) read of a pair of ports. Word-wide operations are specified on even-numbered ports only, and read the least significant 8 bits from the even port and the most significant 8 bits from the following odd-numbered port.

Description: This command performs an asynchronous read from a single port or a group of consecutive ports. No handshaking is required for this operation. This command will only read those ports defined as asynchronous ports. It will not read from a synchronous port. A read from a write-enabled port will return the value that the port is currently driving. As soon as the command is received, an immediate read of the specified port(s) occurs. The data for each requested port is sent to the user in the order of lowest to highest port, and with the exception of the fast mode, data is returned in a form identical to that of a PDATAOUT.

Read operations may be performed as either a bit, byte or word-



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wide operation, with byte-wide being the default. In addition, on firmware revisions 18.1 and beyond, there is a byte-wide fast output mode available that reduces the output string size, significantly cutting down on the data transfer time from the 1260 Option 01 to the Slot 0 controller. Data is formatted in either decimal, hexadecimal or binary, with the default being decimal. The width and format of the output are specified as follows:

Example 1:

Assume that ports 5-11 are defined as asynchronous and are tri-stated, port 5 is sensing a 23, port 6 is sensing a 0, port 7 is sensing 127 and the user sends the following command:

READ 1.5-7,Y

The user would read back:

001. 1260-14C DIGITAL INPUT/OUTPUT MODULE<CR><LF>
001. 05: 23<CR><LF>
001. 06: 0<CR><LF>
001. 07: 127<CR><LF>
001.END<CR><LF>

Example 2:

Assume that all ports are defined as asynchronous and are tri-stated, port 0 is sensing a hex 1e, port 1 is sensing a hex c7, port 2 is sensing a hex d3, port 3 is sensing a hex a0 and the user sends the following command:

READ 1.0-2,W,H

The user would read back:

001. 1260-14C DIGITAL INPUT/OUTPUT MODULE<CR><LF>
001. 00: C71E<CR><LF>
001. 02: A0D3<CR><LF>
001.END<CR><LF>

An "X" causes a bit-wide read of the port. Any combination of the 8 bits from X0-X7 may be read simultaneously. The output will contain the status of each bit in binary format and in the same order as specified in the command.



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Example 3:

Assume that ports 7-11 are defined as asynchronous and are tri-stated, port 7 is sensing a binary 10001010, port 8 is sensing a 01111101, and the user sends the following command:

READ 1.7-8,X7,X3,X1,X0

The user would read back:

001. 1260-14C DIGITAL INPUT/OUTPUT MODULE<CR><LF>
001. 07: 1110<CR><LF>
001. 08: 0101<CR><LF>
001.END<CR><LF>

A "Z" causes a byte-wide (8 bit) read of the port, but instead of using the PDATAOUT format for returning the data, it uses a shorter single line output to reduce the amount of time needed to transfer the read data. It is identical to the standard byte width read with the exception that binary formatting is not available, and the output contains no header line, END line, module address or port numbers. All the output line contains is the port data separated by commas. Data is returned in least significant port to most significant port order. This type of read is only available on firmware revisions 18.1 or later.

Example 4:

Assume that ports 5-11 are defined as asynchronous and are tri-stated, port 5 is sensing a hex 7f, port 6 is sensing a hex 01, port 7 is sensing a hex c3 and the user sends the following command:

READ 1.5-7,Z,H

The user would read back:

7F,01,C3<CR><LF>



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## RESET command

Syntax: RES[ET]

Description: The RESET command resets the 1260-14C card to the power-up state. Specifically, the following attributes are programmed after the RESET command is executed:

| | |
|---|---|
| BUSY Polarity | Positive |
| CLKIN Polarity | Positive |
| Synchronous Ports | None (SYNC 0) |
| Arm | Off |
| All Ports | Tri-stated |

## SETUP ARM command

Syntax: SE[TUP] <address>.AR[M],ON | OFF

<address>::= Module address of the 1260-14C (1-12)

Description: This command is used to arm and disarm the synchronous handshake mode. Setup data may only be modified while ARM is OFF. Synchronous data transfers may only take place when ARM is ON. Once the card is armed, any attempts to send a setup command other than a SETUP <address>.ARM,OFF will cause an error.

The completion of the last synchronous READ/WRITE operation in a test automatically sets the ARM mode to OFF. The CLKIN signal used to cause data transfers is ignored as long as ARM is OFF.

Each time the ARM is set to ON, synchronous READ/WRITE operations restart at the first location in the port's buffer. This means that if the user sets up a port to output five data items, resetting the ARM causes the first data item to be transferred at the next occurrence of the CLKIN signal. This is regardless of where in the buffer the test had been when the ARM was set to OFF. PDATAOUT commands are not recognized until ARM is OFF. The default power-up condition of ARM is OFF.

Example:

This command sets ARM mode to ON within the module at address 1.

```
SETUP 1.ARM,ON
```



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## SETUP BUSY command

Syntax: SE[TUP] <address>.BU[SY],POS | NEG

<address>::= Module address of the 1260-14C (1-12)

Description: This command defines the polarity of the BUSY handshake line. Setting the polarity to POS causes the BUSY line to be set HIGH when the 1260-14C is busy processing during synchronous operation. Setting the polarity to NEG causes the BUSY line to be set LOW when the module is busy. The default power-up condition is POS.

***NOTE***

**The BUSY line is only valid when synchronous operations are defined and armed. Spurious signals at other times should be ignored by the user.**

Example:

This command sets the polarity of the BUSY signal to negative within the module at address 2.

```
SETUP 2.BUSY,NEG
```

## SETUP CLKIN command

Syntax: SE[TUP] <address>.CL[KIN],POS | NEG

<address>::= Module address of the 1260-14C (1-12)

Description: This command defines the active edge of the CLKIN handshake signal. Setting CLKIN to POS causes the module to trigger on the positive (or rising) edge of the CLKIN signal. Setting the polarity to NEG causes the module to trigger on the negative (or falling) edge of the CLKIN signal. The default power-up condition is POS.

***NOTE***

**The CLKIN line is only monitored when synchronous operations are defined and armed. Spurious signals at other times will be ignored.**



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Example:

This command sets the active edge of the CLKIN signal to negative within the module at address 3.

SETUP 3.CLKIN, NEG

## SETUP RD command

Syntax:
Byte: SE[TUP] <address>.RD,<port>[,Y][,B | ,H], <vectors>
Word: SE[TUP] <address>.RD,<port>,W[,B | ,H], <vectors>
Bit: SE[TUP] <address>.RD,<port>,X<bit> [,X<bit>...],<vectors>

<address>::= Module address of the 1260-14C (1-12)
<port>::= Synchronous port number that is being defined (0-11)
<vectors>::= The number of synchronous reads to perform (0-256)
<bit>::= Bit number to be read in the bit mode (0-7)

A ”B” specifies that the output format for the data is binary. Note that this format is unavailable in the fast byte mode to keep the output on a single 80-character line.

A “H” specifies that the output format for the data is hexadecimal.

A “Y” causes a byte-wide (8 bit) read of the port. This is the default is no width is specified. See Example 1 above for a sample of a byte-wide READ command.

A “W” causes a word-wide (16 bit) read for a pair of ports. Word-wide operations are specified on even-numbered ports only, and read the least significant 8 bits from the even port and the most significant 8 bits from the following odd-numbered port.

Description: This command sets up a synchronous port to perform a buffered read operation and clears that ports buffer of any previous values. Once a synchronous test is armed, data is clocked into the port by each active edge of CLKIN and the results stored in a buffer for up to a maximum of 256 vectors. A vector count of 0 implies that the port is to do nothing during this test. Once a test has been defined for a synchronous port, the test may be started and stopped at any time using the SETUP ARM ON/OFF commands. It should be noted that it is the user’s responsibility to ensure that the appropriate ports are tri-stated before starting the synchronous test.

After the final data transfer has occurred for all synchronous ports, the ARM is automatically disabled, allowing the user to retrieve the buffered data via the PDATAOUT command. This is also allowed



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after a synchronous test is disarmed manually via the SETUP ARM OFF command.

Example 1:

Assume that ports 0 and 1 are defined as synchronous and the user sends the following commands:

```
SETUP 1.RD 0,Y,H,10
SETUP 1.RD 1,22
```

During the next synchronous test, port 0 would read 10 vectors worth of byte-wide information and store it in hexadecimal format. Port 1 would read 22 vectors of byte-wide information and store it in decimal format.

Read operations may be performed as either bit, byte or word width operations, with byte width being the default. Data will be formatted either in decimal, hexadecimal or binary, with the default being decimal. The width and format of the output are specified as follows:

Example 2:

Assume that ports 0-3 are synchronous ports, ports 2 and 3 were previously defined as synchronous word-wide read ports and the user sends the following commands:

```
SETUP 1.RD 0,W,5
SETUP 1.RD 2,Y,7
```

The first command would cause the module to perform a word-wide read of five vectors worth of data from ports 0 and 1 during the next synchronous test. The second command would cause a byte-wide read of 7 vectors worth of data from port 2 during the next synchronous test, and would disable port 3 from participating in subsequent tests until redefined.

An "X" specifies a bit-wide read of the port. Any combination of the 8 bits from X0-X7 may be specified, but only the selected bits are stored when the user runs the synchronous test. The buffer will contain the status of the bits requested at each vector in the same order as specified in the command. If the port was previously read using a word width, the data associated with the companion port will be cleared, and the port will be disabled in future synchronous operations until redefined.

Example 3:



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Assume that port 0 is a synchronous port and the user sends the following command:

SETUP 1.RD 0,X5,X7,X1,10

This command would cause the module to perform a bit-wide read of bits 5, 7 and 1 for ten vector on port 0 during the next synchronous test.

## SETUP SYNC command

Syntax: SE[TUP] <address> .SY[NC],<number of ports>

<address>::= Module address of the 1260-14C (1-12)

<number of ports>::= Number of ports to make synchronous (0-12)

Description: This command specifies the number of ports that will have the synchronous mode enabled. Note that the user may not specify which ports are synchronous and which are asynchronous. Instead, the synchronous ports are always grouped together starting at port 0; i.e., the first synchronous port is always port 0; the second is always port 1, etc.

Example:

Assume the user sends the following command:

SETUP 1.SYNC,5

This would cause the digital I/O card with the module address of 1 to define the 5 ports from port 0 to port 4 as synchronous ports. The remaining 7 ports from port 5 to port 11 would become asynchronous.

On power-up, the synchronous mode is disabled for all ports. When the SYNC command is given, those ports that change configuration from asynchronous to synchronous, or vice versa, are re-initialized. This causes any old format, mode, or read/write data to be removed. Consequently, all new synchronous ports should be programmed with a SETUP <address>.RD or SETUP <address>.WR command before they are used in synchronous operations.

Only those ports defined as synchronous may perform data transfers utilizing the CLKIN and BUSY handshake lines.

The asynchronous WRITE command will work normally on a synchronous port, but the READ command will not. This allows



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the user to preset the value of the port prior to the beginning synchronous operations. Note that this may only be done while the synchronous mode is not armed.

## SETUP WR command

Syntax: Byte: SE[TUP] <address>.WR,<port>[,Y][,<byte>,...,<byte>]
Word: SE[TUP] <address>.WR,<port>[,W][,<word>,...,<word>]
Bit: SE[TUP] <address>.WR,<port>[,X][,<bits>;...;<bits>]

<address>::= Module address of the 1260-14C (1-12)

<port>::= Synchronous port number that is being defined (0-11)

<byte>::= An 8 bit value specified as either decimal format (0-255), hexadecimal format (H0-HFF) or binary format (B0-B11111111). Note that the "H" is required in front of hex values and the "B" is required in front of binary values.

<word>::= A 16-bit value specified in either decimal format (0-65535), hexadecimal format (H0-HFFFF) or binary format (B0-B1111111111111111). Note that the "H" is required in front of hex values and the "B" is required in front of binary values.

<bits>::= Specifies up to eight single bit transitions in the form Lx|Hx,...Lx|Hx where x specifies which bit number to write high (Hx) or low (Lx), and x may take the values from 0-7. For example, SETUP 5.WR 1,X,L1,L3;H0,H1 would cause bits 1 and 3 in port 1 to go low in vector 1 followed by bits 0 and 1 going high in vector 2.

A ”B” specifies that the output format for the data is binary. Note that this format is unavailable in the fast byte mode to keep the output on a single 80-character line.

A “H” specifies that the output format for the data is hexadecimal.

A “Y” causes a byte-wide (8 bit) read of the port. This is the default is no width is specified. See Example 1 above for a sample of a byte-wide READ command.

A “W” causes a word-wide (16-bit) read for a pair of ports. Word-wide operations are specified on even-numbered ports only, and read the least significant 8-bits from the even port and the most significant 8-bits from the following odd-numbered port.



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Description: This command sets up a single synchronous port to perform a buffered write operation. Up to 256 data vectors can be set up ahead of time in the port's buffer. Once a synchronous test is armed, data from the buffer is clocked out of the port by each active edge of CLKIN until either the last data item for each synchronous port has been clocked, automatically disarming the test, or the user disarms the test manually using the SETUP ARM,OFF command. The last value on the port will remain there until either another synchronous test is run, the user performs an asynchronous WRITE on the port, or the user resets the module. It should be noted that it is the user's responsibility to ensure that the appropriate ports are write-enabled before starting the synchronous test.

Write commands may be specified either as bit, byte or word-wide operations. When a width change is requested by using either the "W", "X" or "Y" width designator, the port's buffer is cleared of all previous data and the new data is loaded starting at vector 1. If there is no width designator, the port remains in its current mode, and the new data is appended to the existing data in the buffer for up to a maximum of 256 vectors of data. This means that multiple statements may be used to load a given port's buffer by specifying a width for the first SETUP WR statement, and not specifying a width for subsequent statements.

Example 1:

Assume the user sends the following three statements to the module:

```
SETUP 1.WR 0,Y,7,15,23
                                    SETUP 1.WR 0,255
                                    SETUP 1.WR 0,100
```

The first SETUP statement would set up port 0 to perform byte-wide operations and would clear the port 0 buffer of any previous values. It would then load a 7 in vector 1, a 15 in vector 2, and a 23 in vector 3. The second SETUP statement would leave the buffer intact, and would load a 255 in vector 4. The final SETUP statement would load a 100 in vector 5. Once the test was armed, port 0 would be actively driving a 7 after the first clock, a 15 after the second, etc. and would end the test driving a 100.

The data that is loaded in the buffer remains there until either the port is re-initialized by a SETUP WR or a WRITE command, the port is redefined to be a read port, the port is redefined to be an asynchronous port, or the unit is reset. This means that it is possible to arm and run a test multiple times without having to reload the write data.

Bit, byte and word-wide operations cannot be mixed in a port. Only



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one width may be active at a time and is specified as follows:

A "Y" specifies a byte-wide (8-bit) write to a port. If the port was previously defined using a word width, the data associated with the companion port will be cleared, and the port will be disabled in future synchronous operations until redefined. When a port is first defined as synchronous, it defaults to byte-wide operations, so it is only necessary to specify a byte width if the user is changing from a different width, or wishes to clear the buffer. See Example 1 above for a sample of a byte-wide synchronous write setup.

A "W" specifies a word-wide (16 bit) write to a pair of ports. Word-wide operations are specified on even-numbered ports only, and place the least significant 8 bits in the even port and the most significant 8 bits in the following odd-numbered port. Word sized operations may not be mixed with bit or byte operations in either the even or odd port. If either the even or the odd port is redefined as a byte-wide or a bit-wide port, both ports will have their buffers cleared and the matching odd or even companion port will be disabled in future synchronous operations until redefined.

Example 2:

Assume that ports 0-3 are synchronous ports, ports 2 and 3 were previously defined as synchronous word-wide write ports and the user sends the following commands:

SETUP 1.WR 0,W,H5F01,H6F02,H7F03
SETUP 1.WR 2,Y,16,8,4,2,1

The first command would clear the buffers for ports 0 and 1, and would cause the module to perform a word wide write of three vectors to ports 0 and 1 during the next synchronous test, finishing the test with the value of hex 03 in port 0 and hex 7F in port 1. The second command would clear the buffers for ports 2 and 3 and would cause a byte-wide write of five vectors to port 2 during the next synchronous test, finishing the test with a value of 1 in port 2. Port 3 would be disabled from participating in subsequent tests until redefined.

An "X" specifies a bit-wide write to a port. Any of the 8 bits from 0-7 may be set to 0 (Low) or 1 (High) by using the form Lx or Hx, where x is the bit to modify. Multiple bits may be modified by separating the bit transitions with commas. Multiple vectors may be set up by separating the changes for each vector with semicolons. Bits that are not modified remain in their previous states. If the port was previously defined using a word width, the data associated with the companion port will be cleared, and the port will be disabled in future synchronous operations until redefined.



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Example 3:

Assume the user sends the following two statements to the module and the current value of port 0 is a binary 00000000:

SETUP 1.WR 0,X,H3;H1,L3;H5,H7

SETUP 1.WR 0,L1,L7

The first SETUP statement will first clear the buffer for port 0, then specify that bit 3 will go high in vector 1, bit 1 will go high and bit 3 will go low in vector 2, and bits 5 and 7 will go high in vector 3. The second SETUP statement will leave the buffer intact and will specify that in vector 4, bits 1 and 7 will go low. Once the test is armed, port 0 would be actively driving a binary 00001000 after the first clock, a 00000010 after the second, a 10100010 after the third and a 00100000 after the last clock.

## WRITE command

Syntax: Byte: WR[ITE] <address>.<ports>[,Y][,<byte>,..., <byte>]

Word: WR[ITE] <address>.<ports>[,W][,<word>,..., <word>]

Bit: WR[ITE] <address>.<ports>[,X][,<bits>;.....;<bits>]

<address>::= Module address of the 1260-14C (1-12)

<ports>::= One or more consecutive ports to write to. A single port is specified as a decimal number from 0 to 11. A group of ports is specified as two decimal numbers from 0 to 11 separated by a hyphen, (-), with the least significant port to the right and the most significant port to the left. For example, the command WR 1.3-5,Y,0,1,2 would write a 0 in port 3, a one in port 4 and a 2 in port 5. Data may be specified in decimal, hexadecimal or binary.

<byte>::= An 8-bit value specified as either decimal format (0-255), hexadecimal format (H0-HFF) or binary format (B0-B11111111). Note that the "H" is required in front of hex values and the "B" is required in front of binary values.

<word>::= A 16-bit value specified in either decimal format (0-65535), hexadecimal format (H0-HFFFF) or binary format (B0-B1111111111111111). Note that the "H" is required in front of hex values and the "B" is required in front of binary values.

<bits>::= Specifies up to eight single bit transitions in



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the form Lx|Hx,...Lx|Hx where x specifies which bit number to write high (Hx) or low (Lx), and x may take the values from 0-7. For example, WR 1.1-2,X,L1,L3;H0,H1 would cause bits 1 and 3 to go low in port 1 and bits 0 and 1 to go high in port 2.

A ”B” specifies that the output format for the data is binary. Note that this format is unavailable in the fast byte mode to keep the output on a single 80-character line.

A “H” specifies that the output format for the data is hexadecimal.

A “Y” causes a byte-wide (8 bit) read of the port. This is the default if no width is specified. See Example 1 above for a sample of a byte-wide READ command.

A “W” causes a word-wide (16 bit) read for a pair of ports. Word-wide operations are specified on even-numbered ports only, and read the least significant 8 bits from the even port and the most significant 8 bits from the following odd-numbered port.

Description: This command performs an asynchronous write to a single port or a group of consecutive ports. No handshaking is required for this operation. The command is primarily used to write to asynchronous ports, but may be used to preset synchronous ports to a known value before starting synchronous operations.



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***NOTE***

**Care should be used not to change the width when writing to a synchronous port if the port has already had its width defined and data loaded into the buffer. In this case, the user should not specify a width, and should format the WRITE data in the same size that the synchronous port was defined at. Failure to do so will cause the port to change its width designation, and will clear the data in the buffer.**

As soon as the command is received, an immediate write to the specified ports occurs. A port may be written to when tri-stated, but the value will not become present on the port until after it is write-enabled. The data is written one data item per port, and the number of ports must match the number of data items. The first data item corresponds to the lowest significant port and the last data item corresponds to the highest significant port.

Example 1:

Assume that ports 5-11 are defined as asynchronous and the user sends the following command:

WR 1.5-7,Y,23,0,127

At the end of command execution, port 5 would be actively driving a 23, port 6 would be driving 0 and port 7 would be driving 127.

Write operations may be performed as either a bit, byte or word-wide operation. If no width is specified, it remains unchanged from its previous setting, and the data must be specified in the same form as used in the most recent WRITE or SETUP WR statement for each port. If no width has ever been specified, the default is byte-wide. Bit, byte and word-wide operations cannot be mixed in a port. Only one width is active at a time and is specified as follows.

A "Y" causes a byte-wide (8 bit) write to the ports. When writing to a synchronous port that was previously defined or written to using a word width, the data buffer associated with the companion port will be cleared and the port will be disabled in future synchronous operations until it is redefined. When a port is first defined as synchronous or asynchronous, it defaults to byte-wide operations, so it is only necessary to specify the byte width if the user is changing from a different width, or wishes to clear the synchronous write buffer. See Example 1 above for a sample of a



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byte-wide asynchronous write.

A "W" causes a word-wide (16 bit) write to pairs of ports. Word-wide operations are specified on even-numbered ports only, and place the least significant 8 bits in the even port and the most significant 8 bits in the following odd-numbered port. Word-wide operations may not be mixed with bit or byte-wide operations in either the even or odd port.

Example 2:

Assume that ports 5-11 are defined as asynchronous and the user sends the following command:

WR 1.8,W,H23A7

At the end of command execution, port 8 would be actively driving a hex 23 and port 9 would be driving hex A7.

An "X" specifies a bit-wide write to the ports. Any of the 8 bits within a port may be set to 0 (Low) or 1 (High) by using the form Lx or Hx, where x is the bit (0-7) to modify within the byte. Multiple bits within a port may be modified by separating the bit transitions with commas. Multiple ports may be modified by separating the changes for each port with semicolons. Bits that are not modified remain in their previous states. When writing to a synchronous port that was previously defined or written to using a word width, the data buffer associated with the companion port will be cleared and the port will be disabled in future synchronous operations until it is redefined.

Example 3:

Assume that all ports are asynchronous, the current value of port 0 and port 1 is a binary 00000000 and the user sends the following statements to the module:

WR 1.0-1,X,H3;H1,H7

WR 1.0-1,L3,H5;L1,H6

After the execution of the first command, port 0 would be actively driving a binary 00001000 and port 1 would be driving a 10000010. After the second command, port 0 would be driving a 00100000 and port 2 would be driving a 11000000. Note that in the second command, there was no width specified since it was not required.



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## Synchronous Mode Example

The following is an example of an 8-vector synchronous read/write operation using a 1260-14C at address 1:

| | |
|---|---|
| 1. SE 1.SY,2<CR><LF> | Sets up ports 0 and 1 for SYNC mode; ports 2-11 will be in ASYNC mode. |
| 2. SE 1.RD 0,8<CR><LF> | Tells the module to read data into first eight buffer locations of port 0 when clocked. |
| 3. SE 1.WR 1,Y,1,2,3,4<CR><LF> | Sets port 1 into the byte mode and loads write data into its first four buffer locations. |
| 4. SE 1.WR 1,5,6,7,8<CR><LF> | Loads write data into the next four buffer locations of port 1. |
| 5. WR 1.1,0<CR><LF> | Presets the value of port 1 to zero. |

Now the 1260-14C has the write data in the first eight buffer locations for port 1.

| | |
|---|---|
| 6. SE 1.AR, ON<CR><LF> | Enable SYNC handshake of READ/WRITE. |

Eight handshakes occur using the CLKIN and BUSY lines, each one causing a READ/WRITE to/from ports 0/1 for the eight programmed buffer locations. The eighth clock input causes the 1260-14C to disarm and stops all handshaking until the unit is rearmed.

| | |
|---|---|
| 7. PD 1.0<CR><LF> | Reads the data from the 1260-14C. |

Repeat Steps 3-7 to reprogram and run using a new set of WRITE data, or repeat Steps 5-7 to re-execute the same test.



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# Chapter 4
# DRAWINGS


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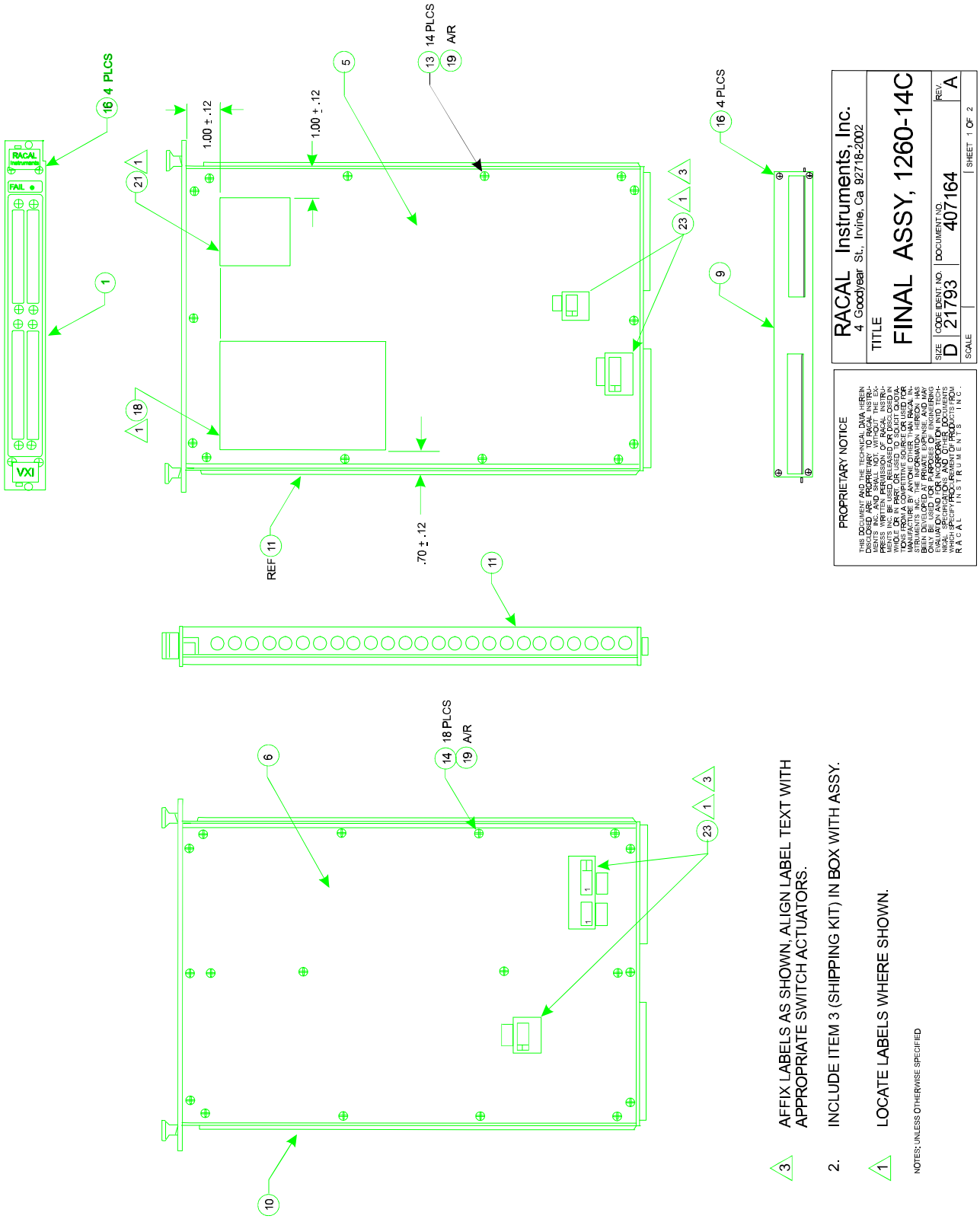



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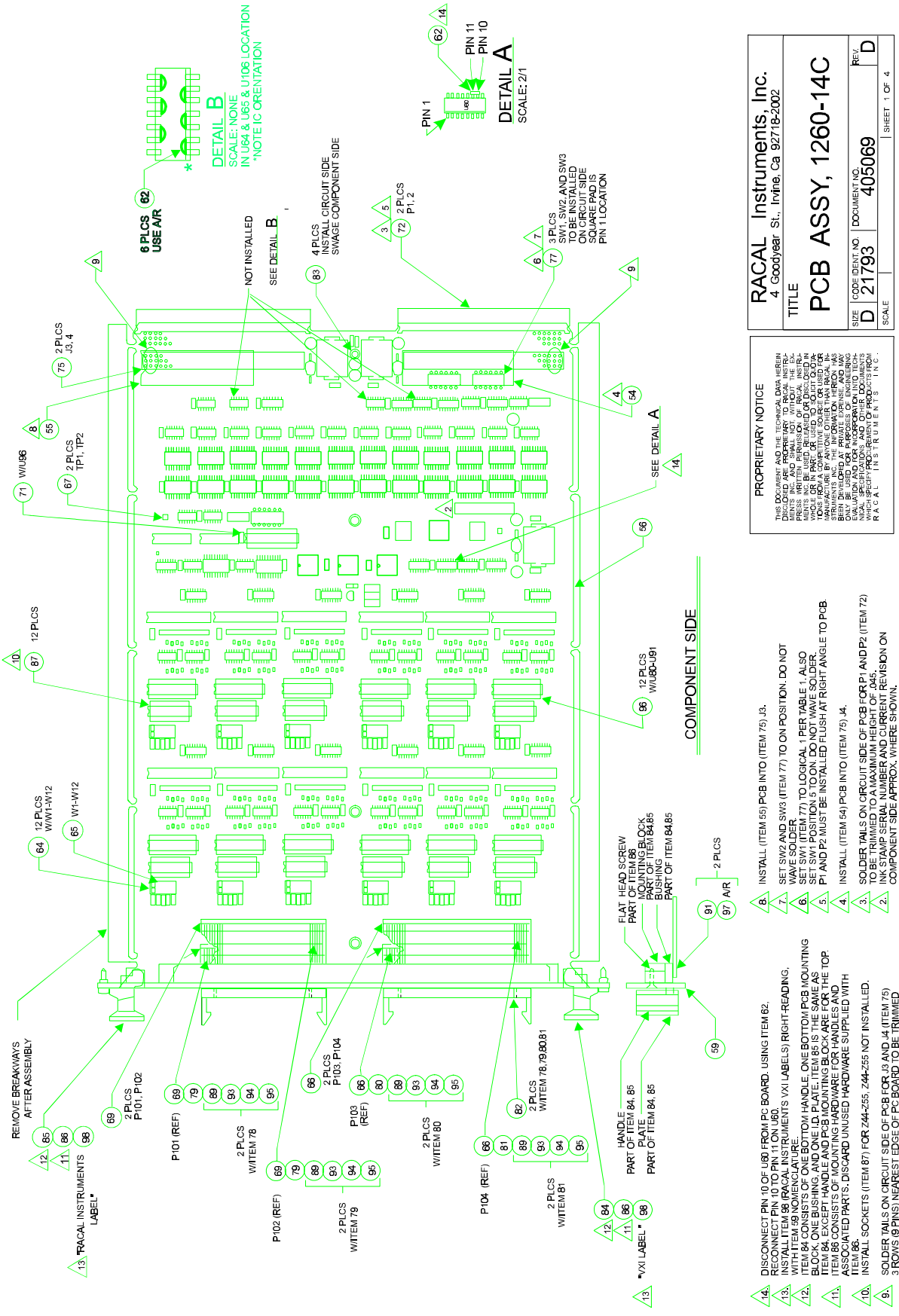


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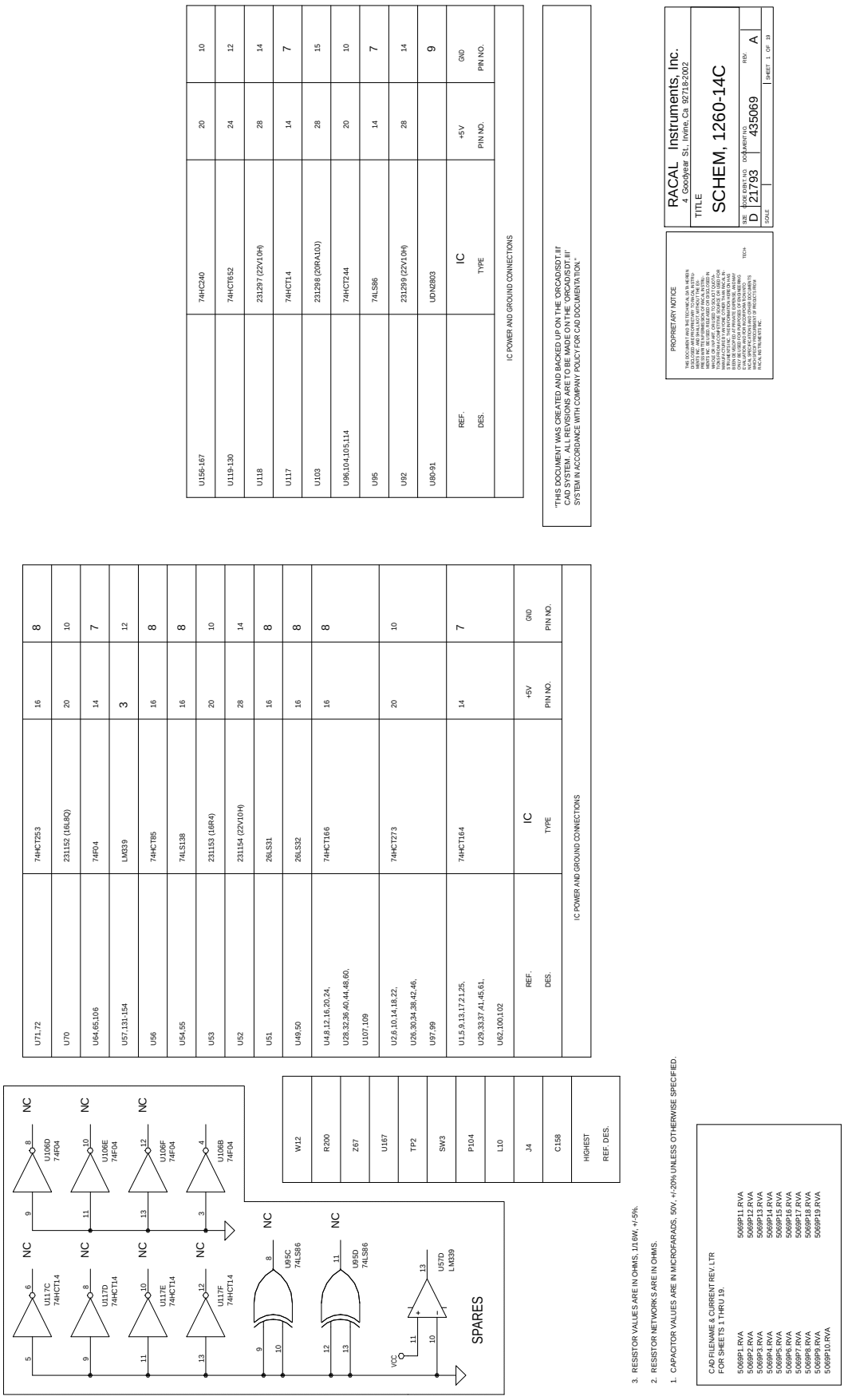



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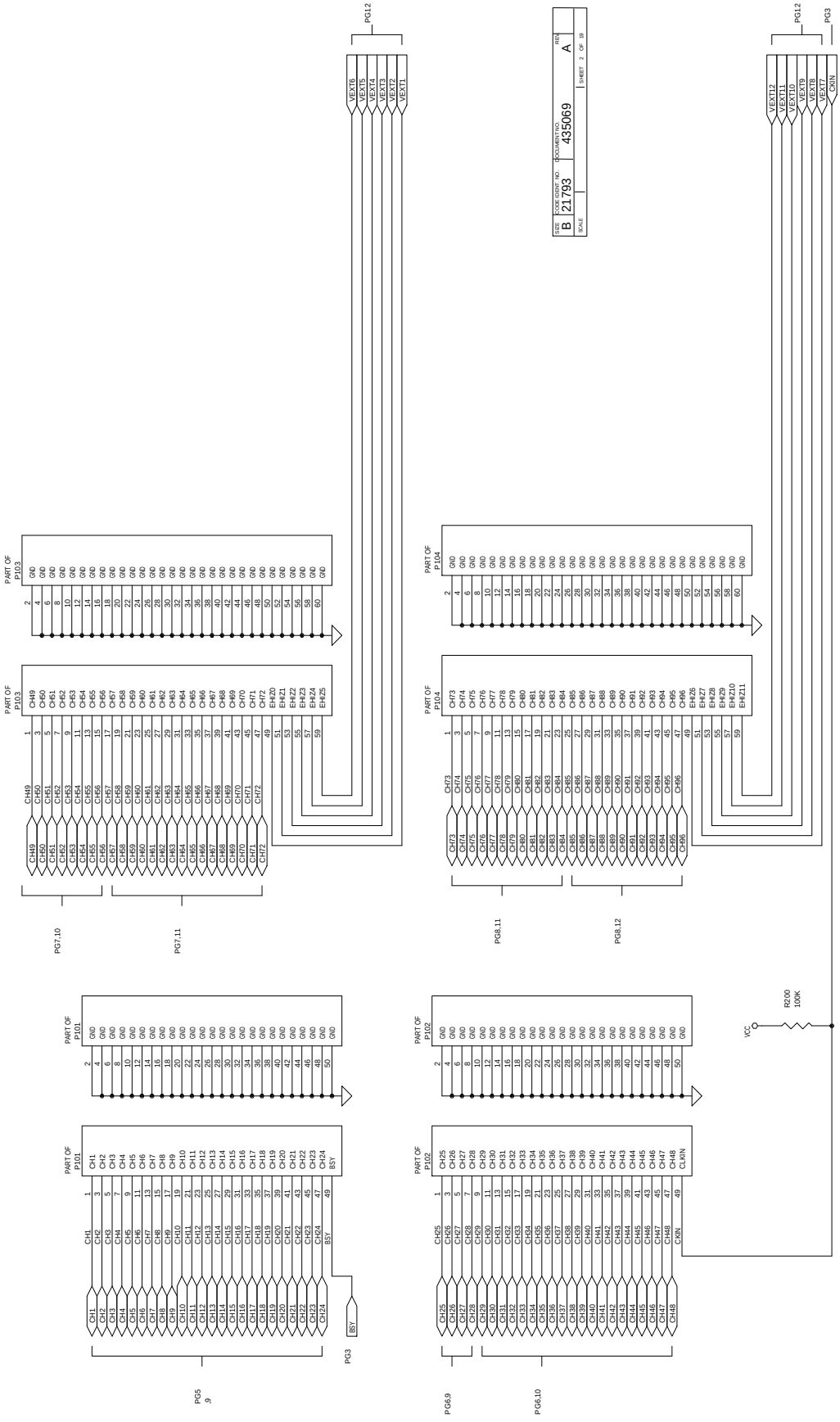



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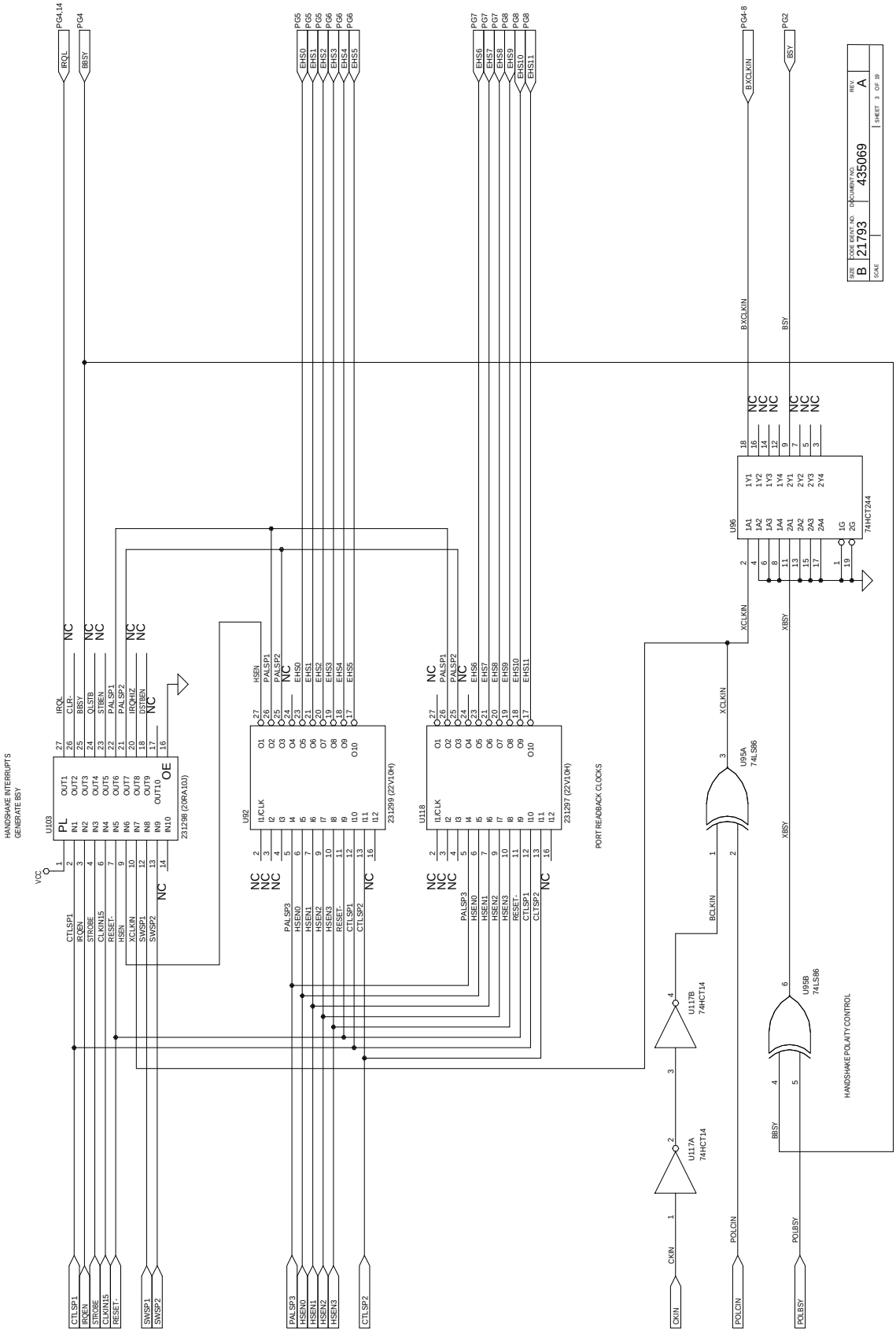



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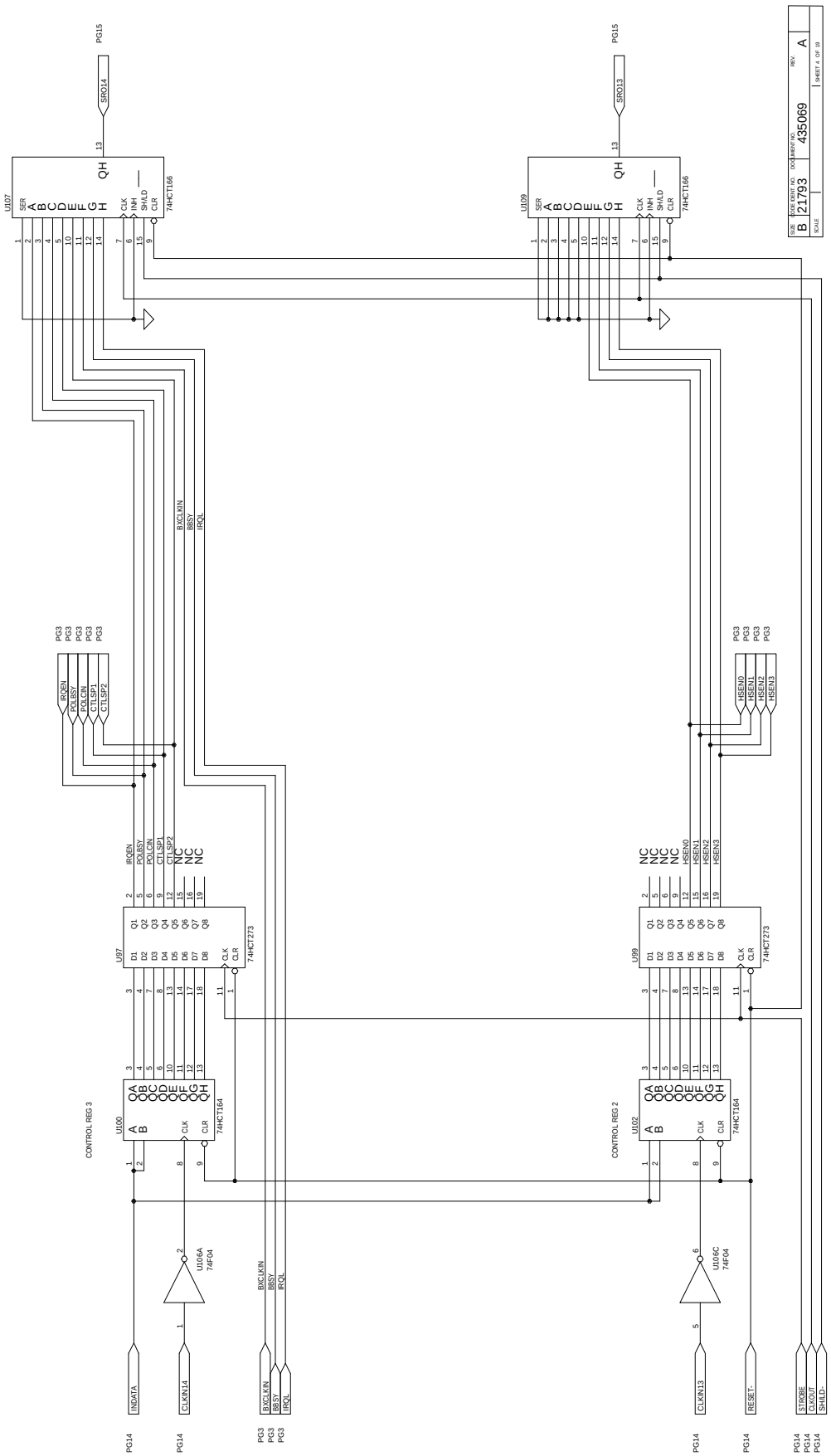


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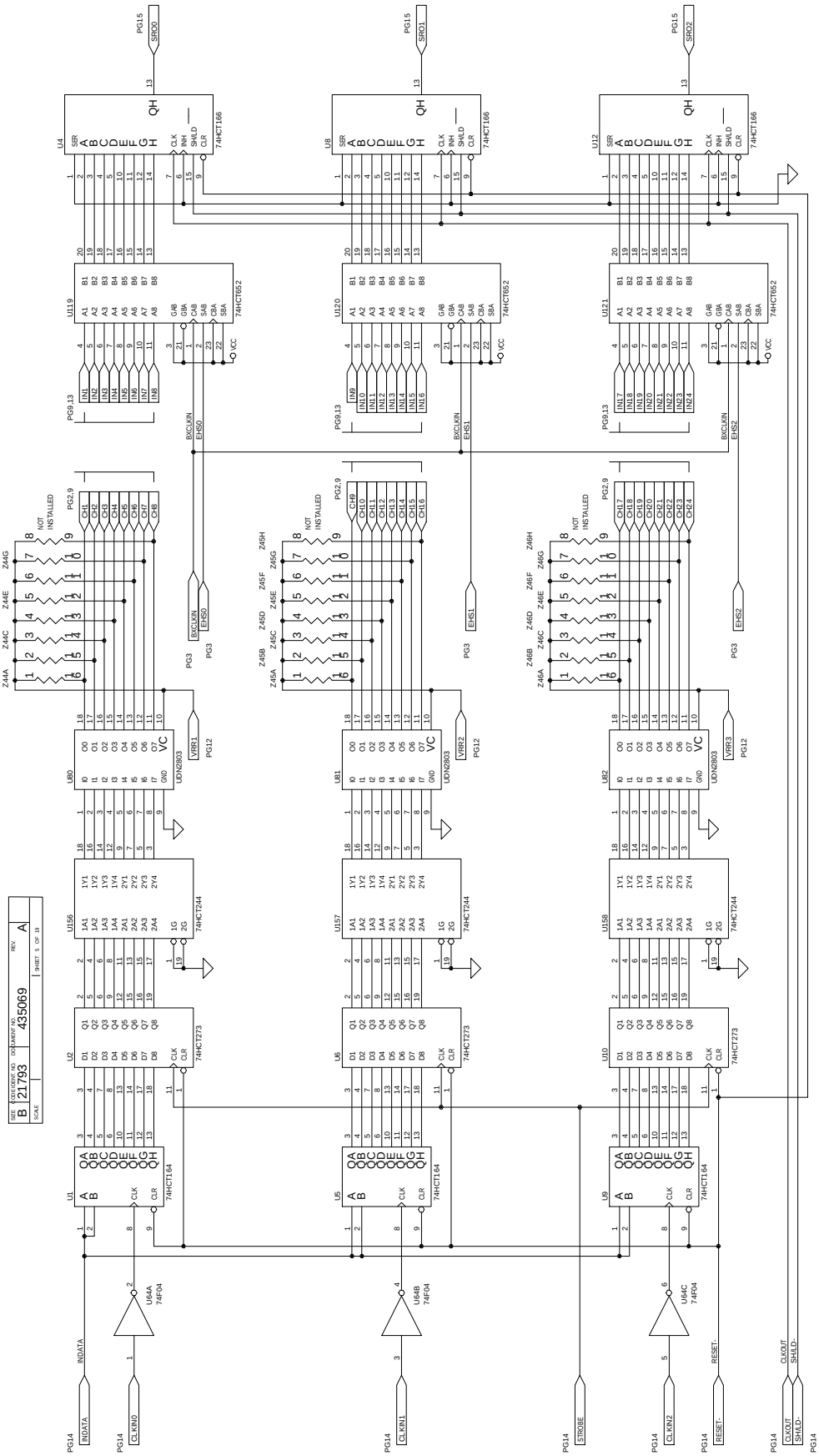



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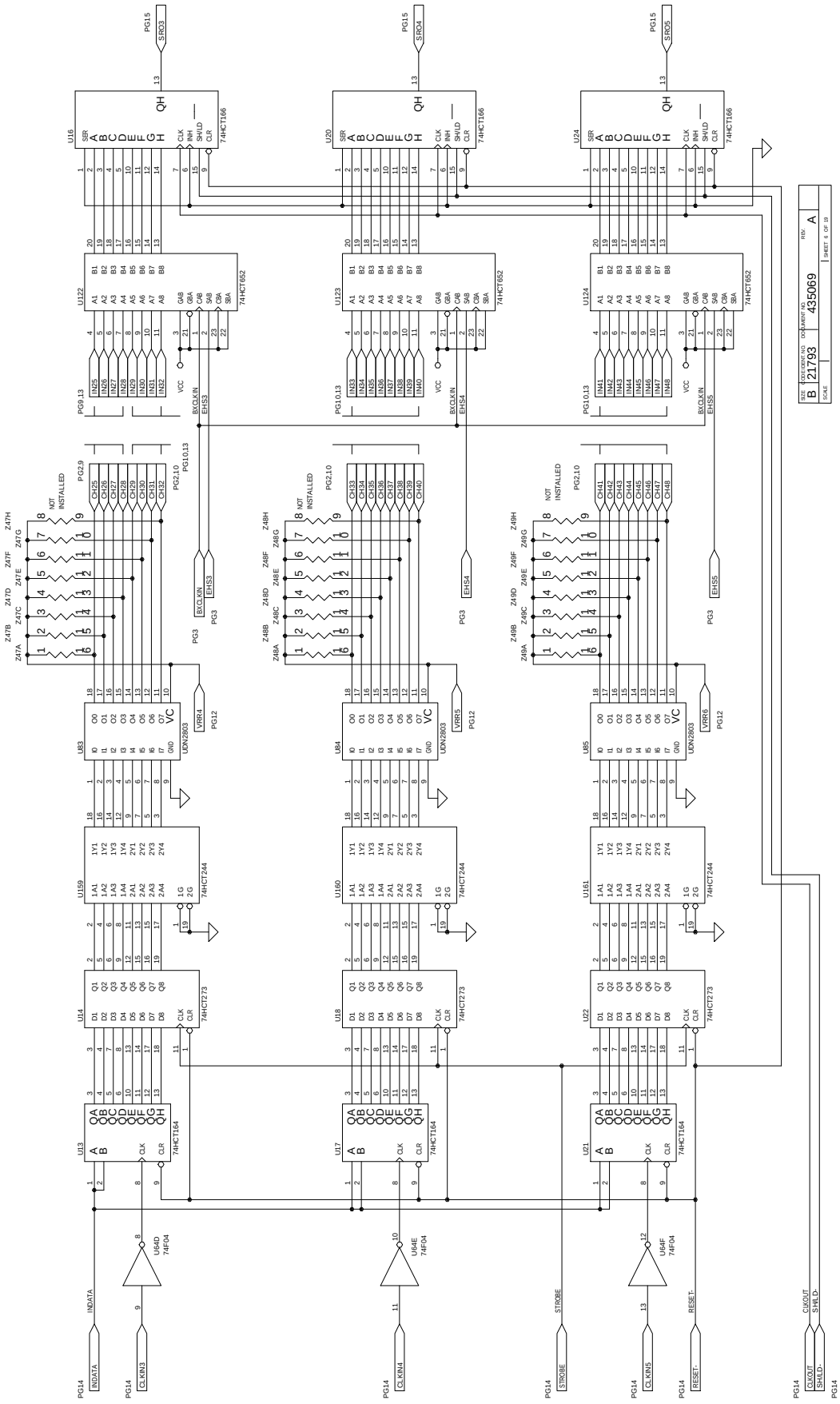



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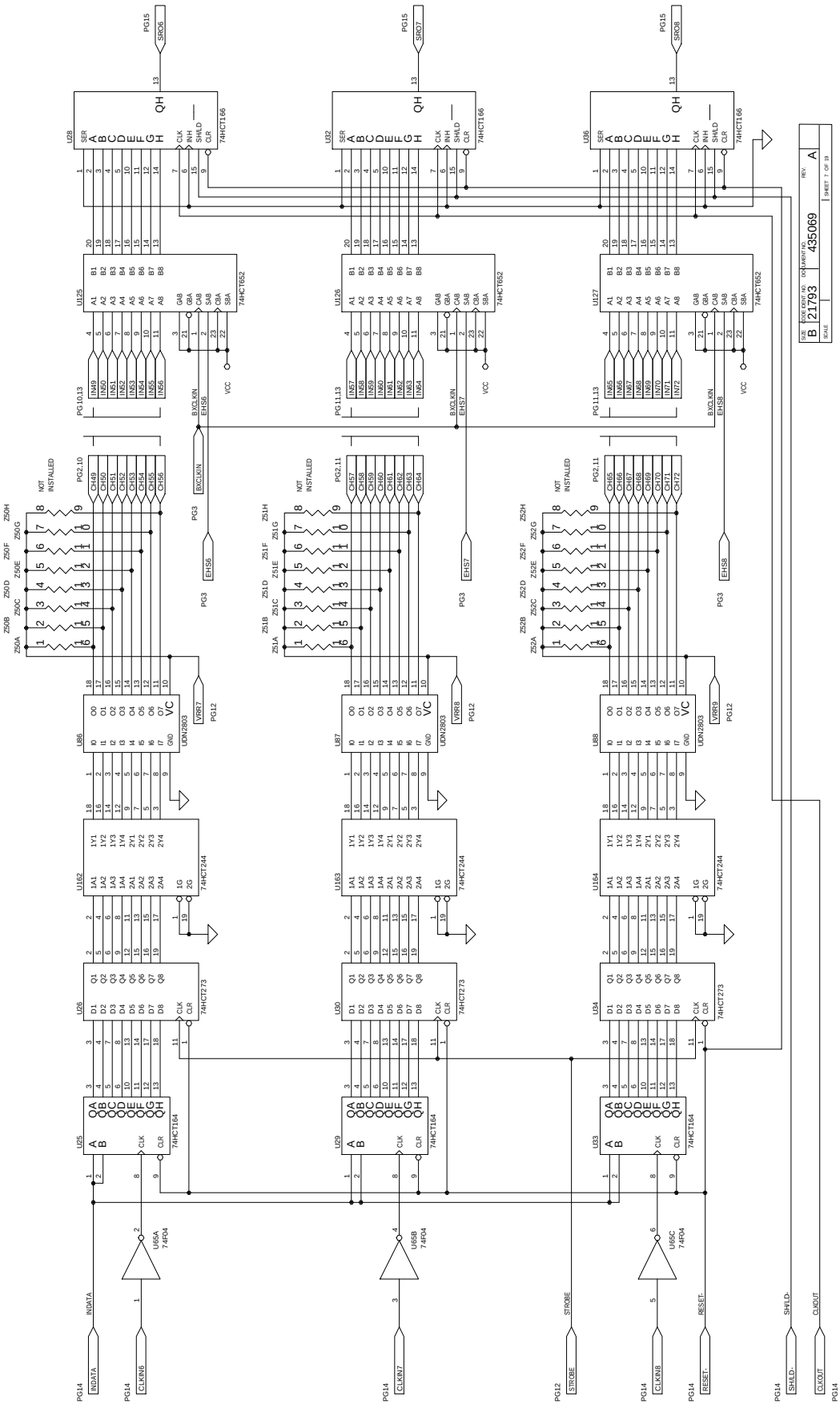


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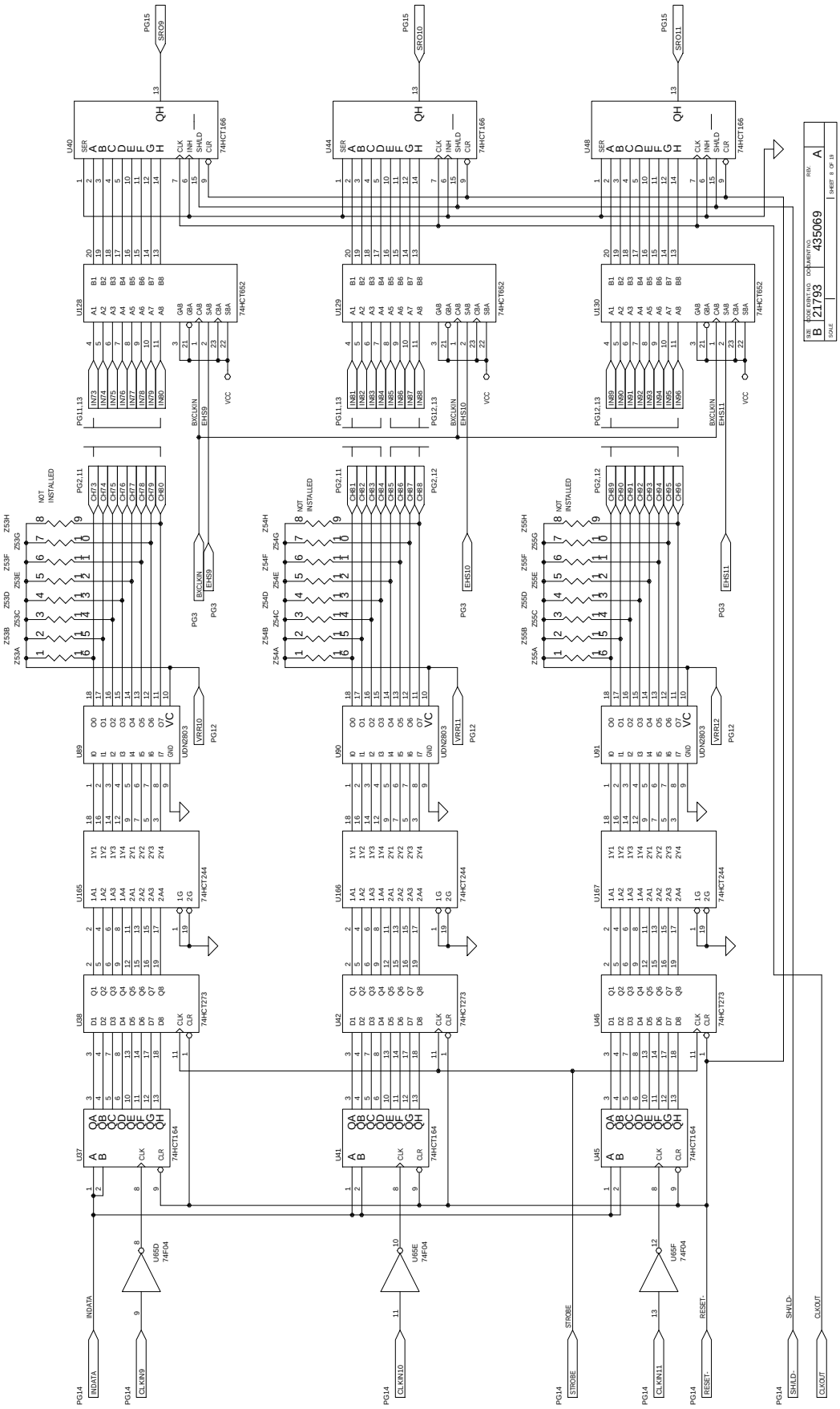


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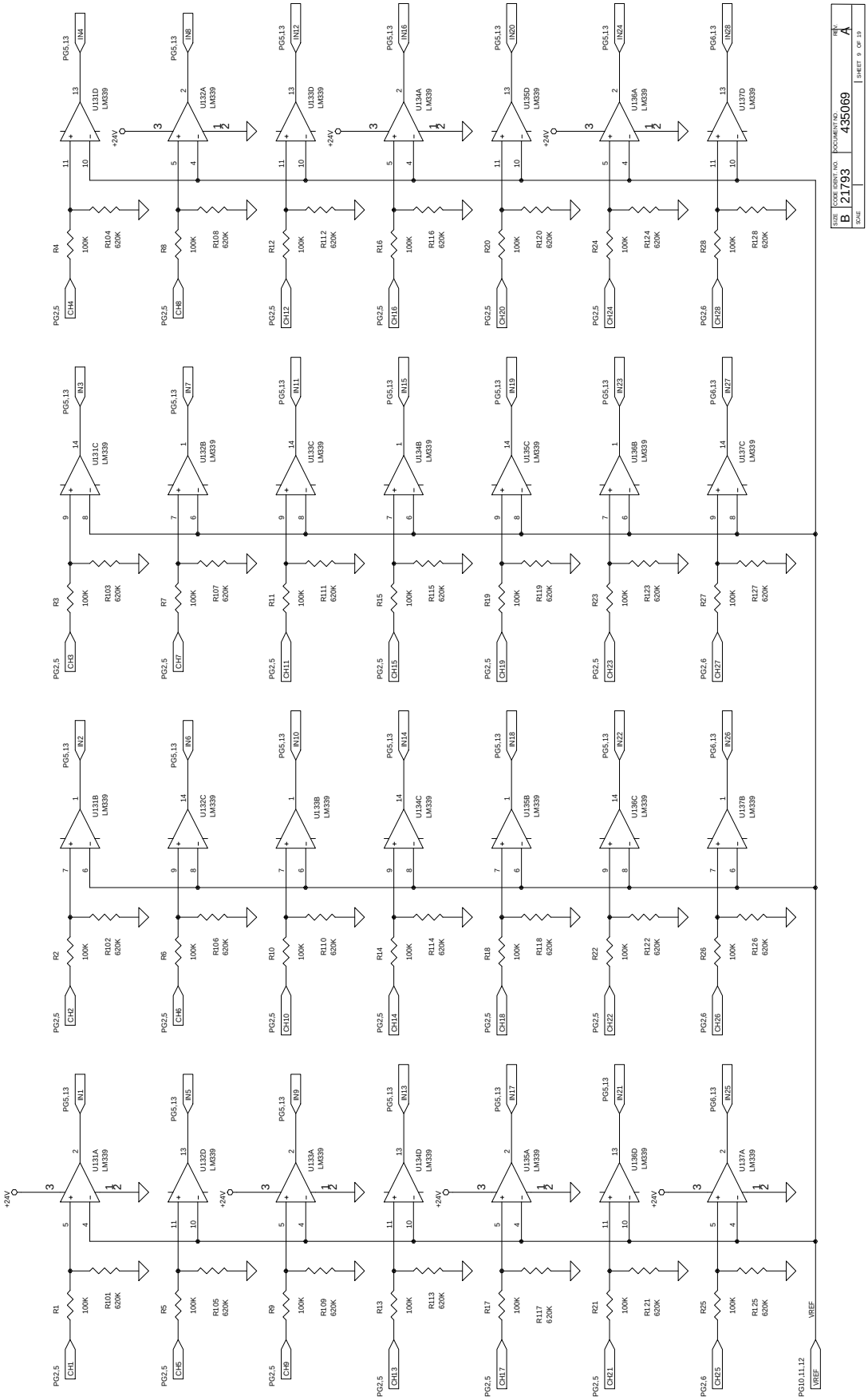


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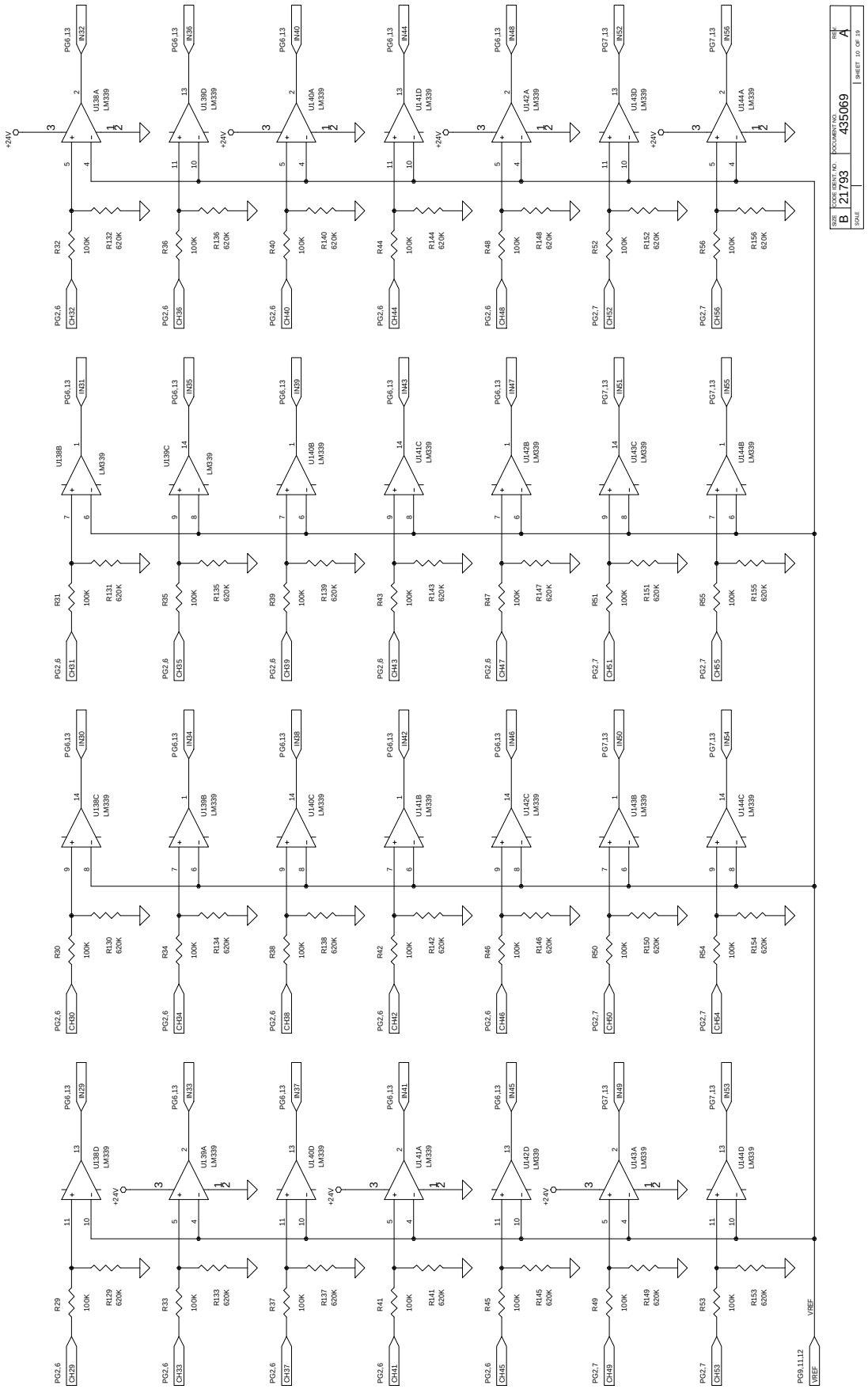


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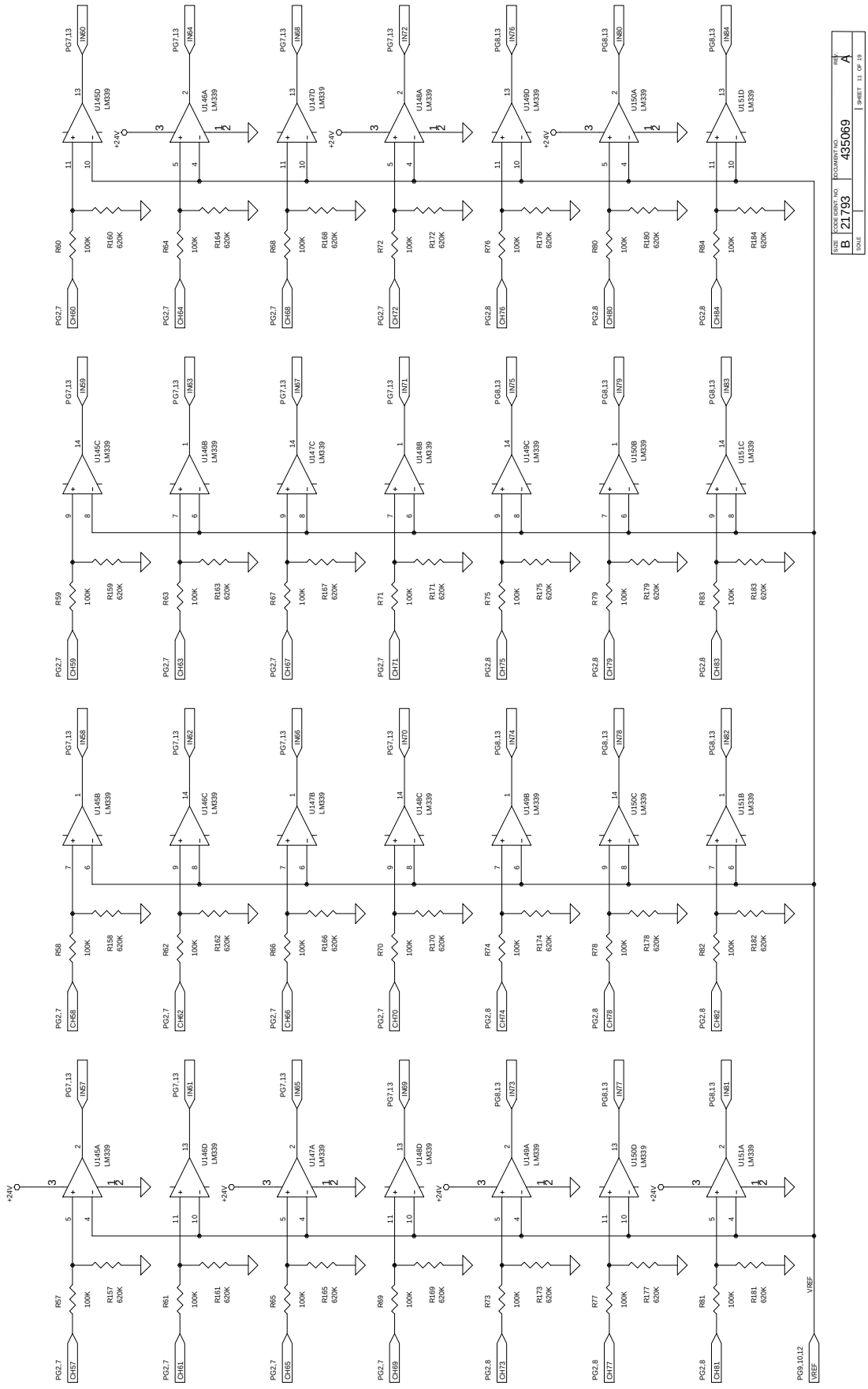



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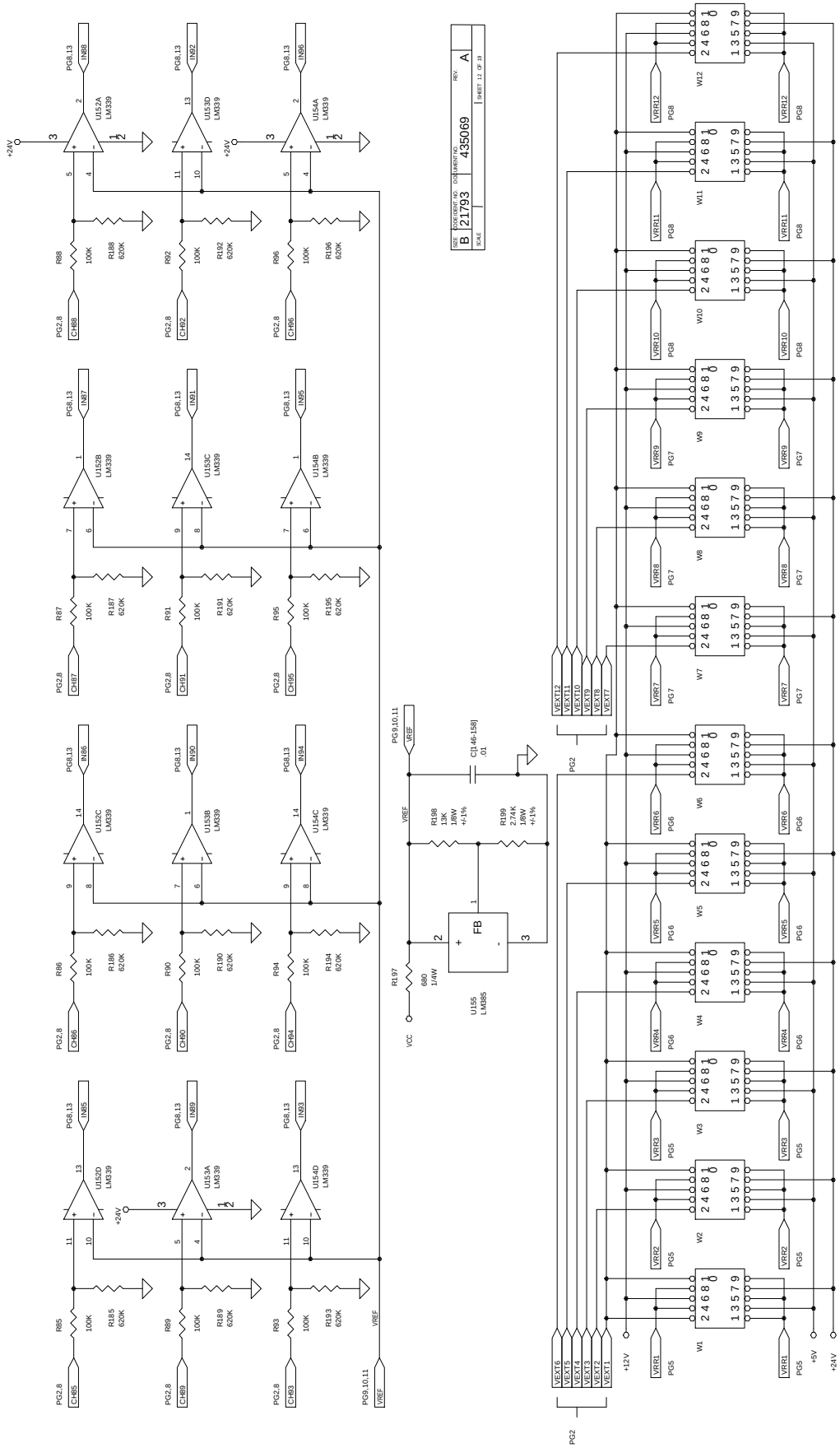


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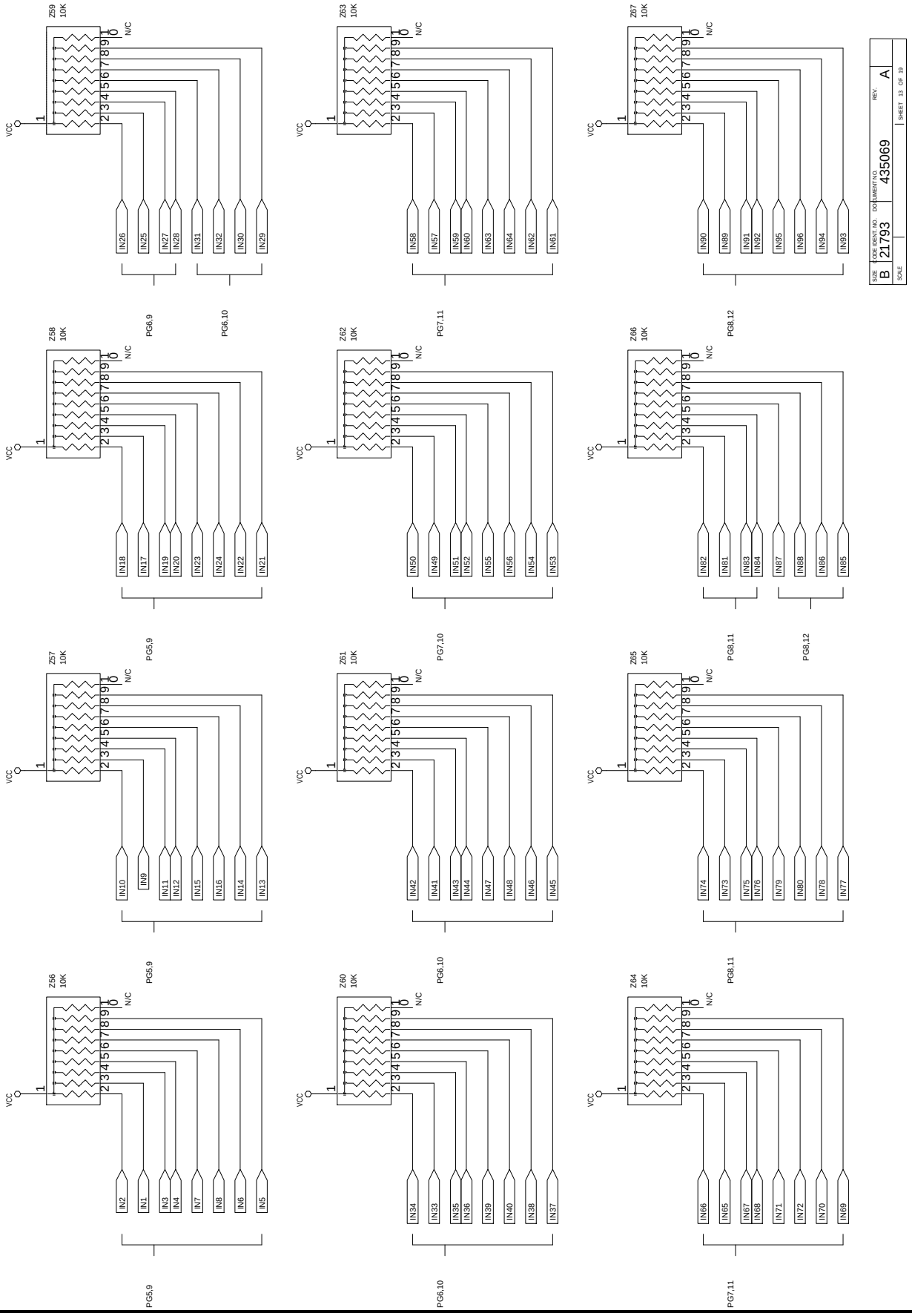



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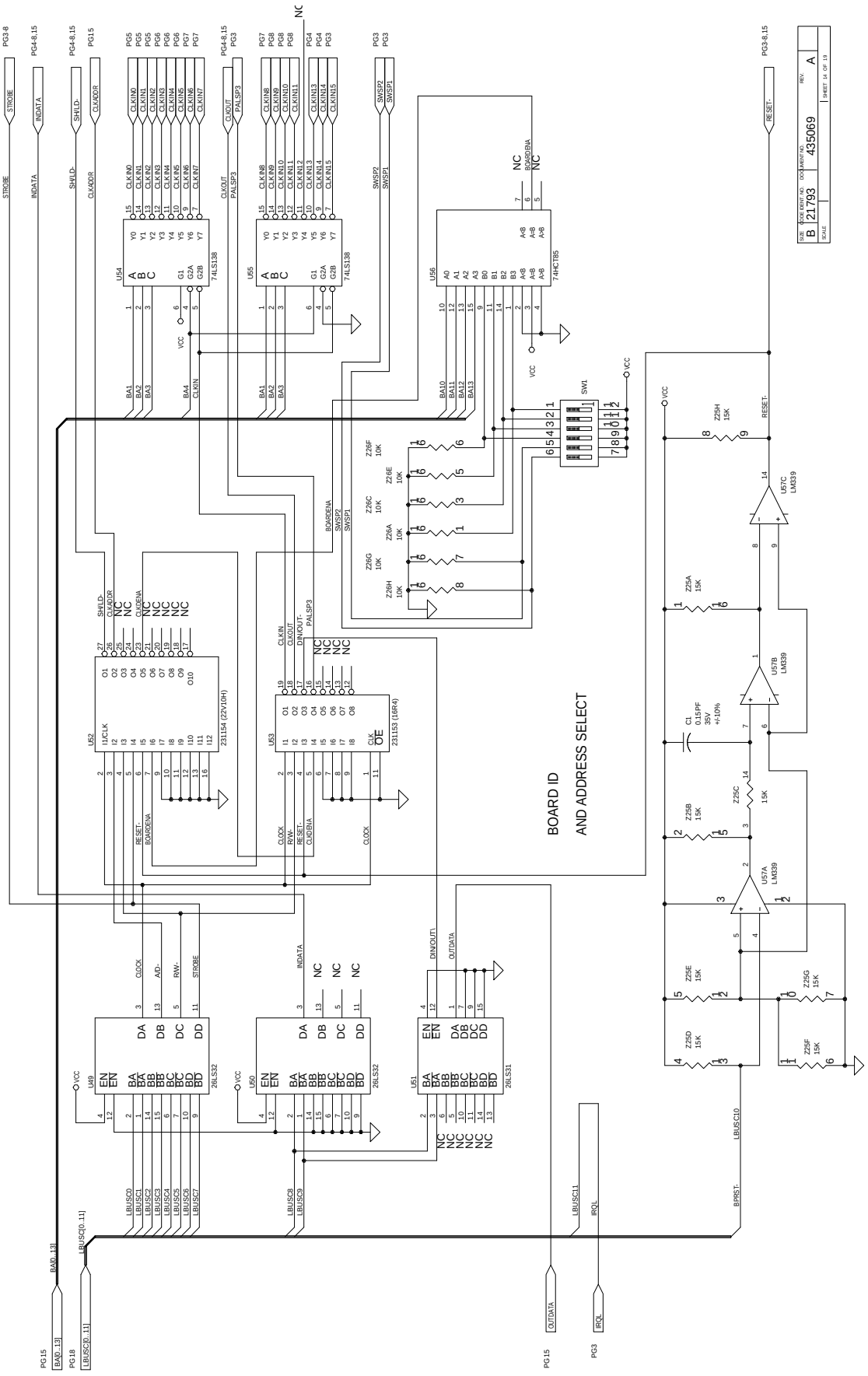


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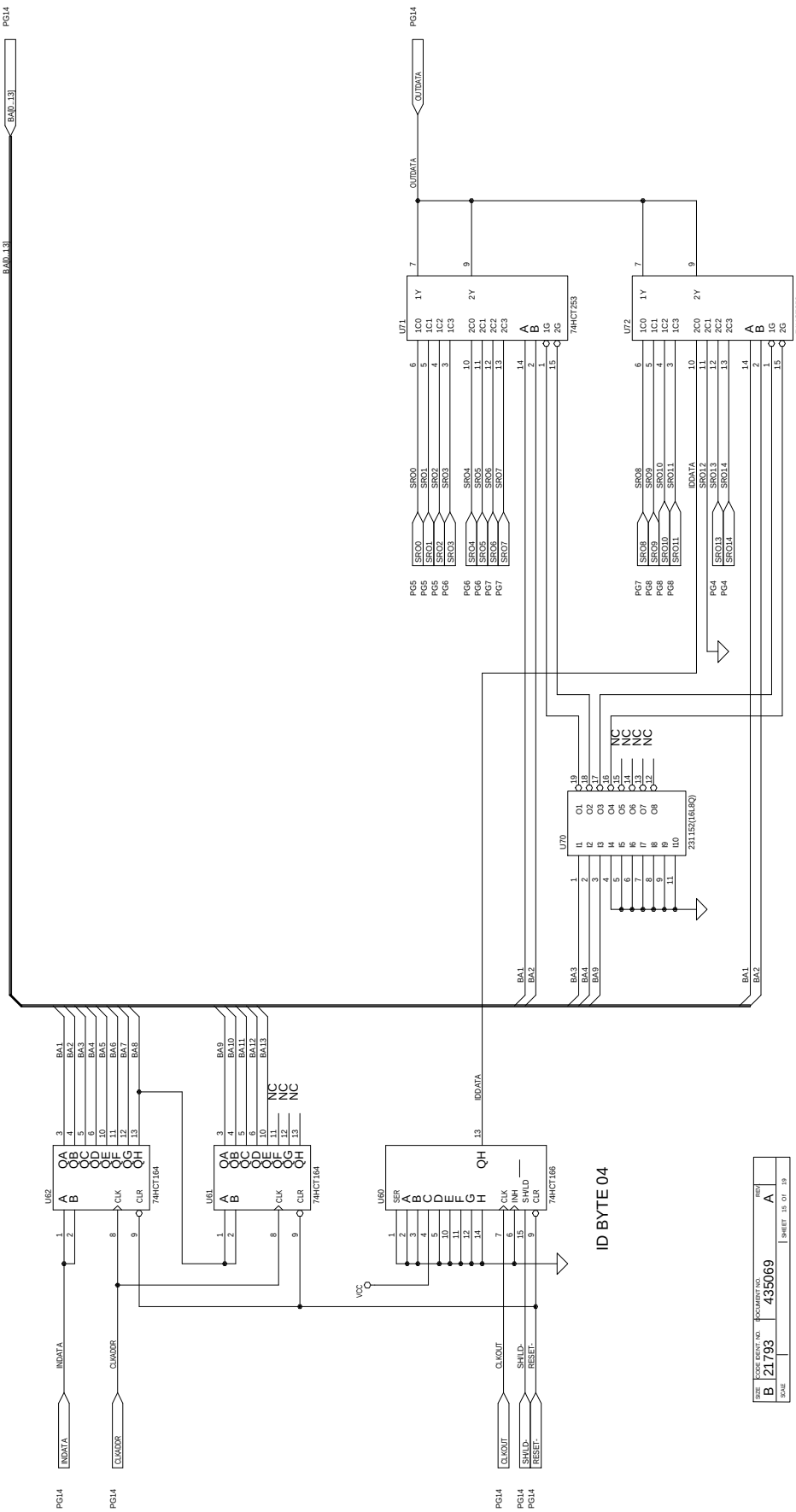



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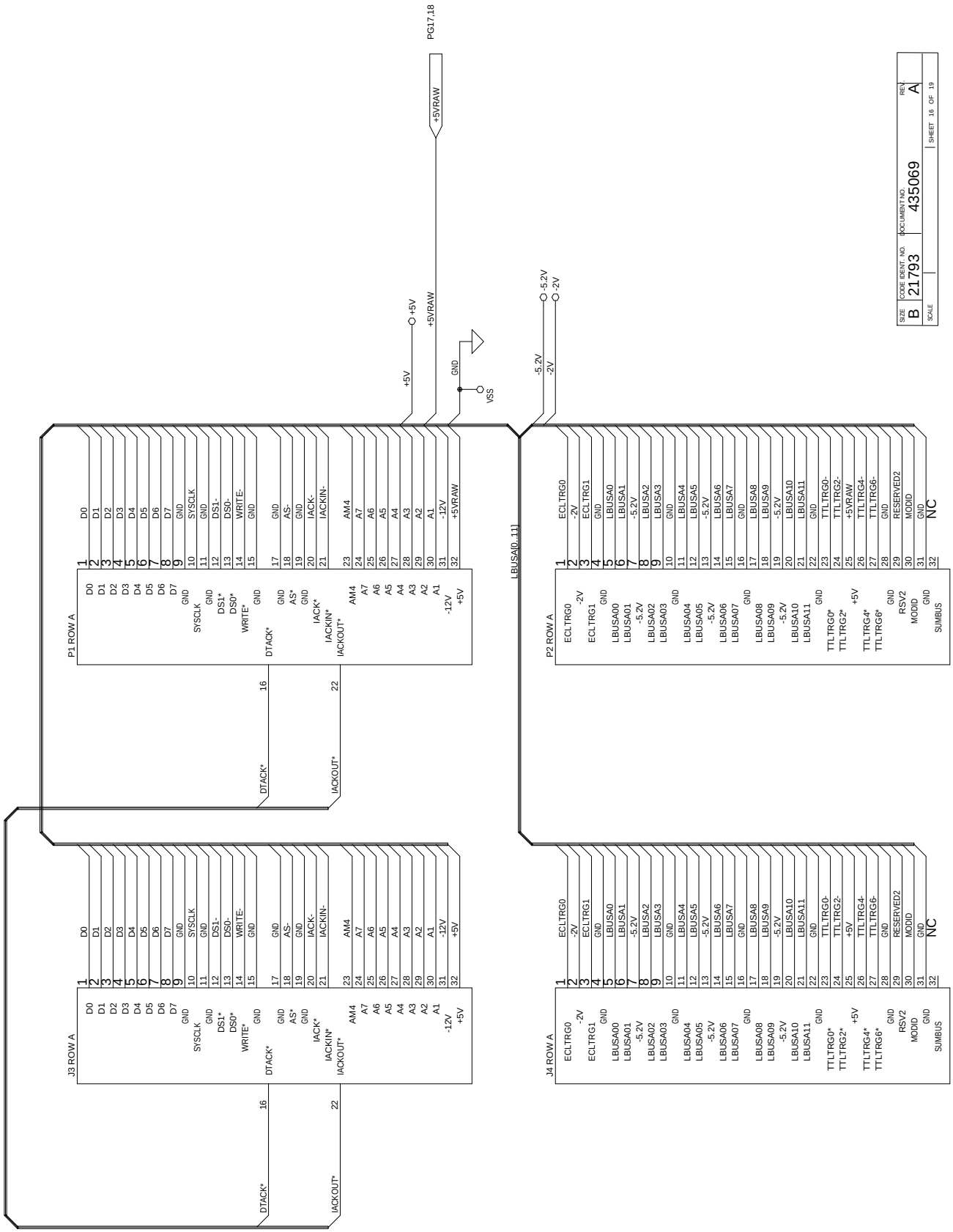



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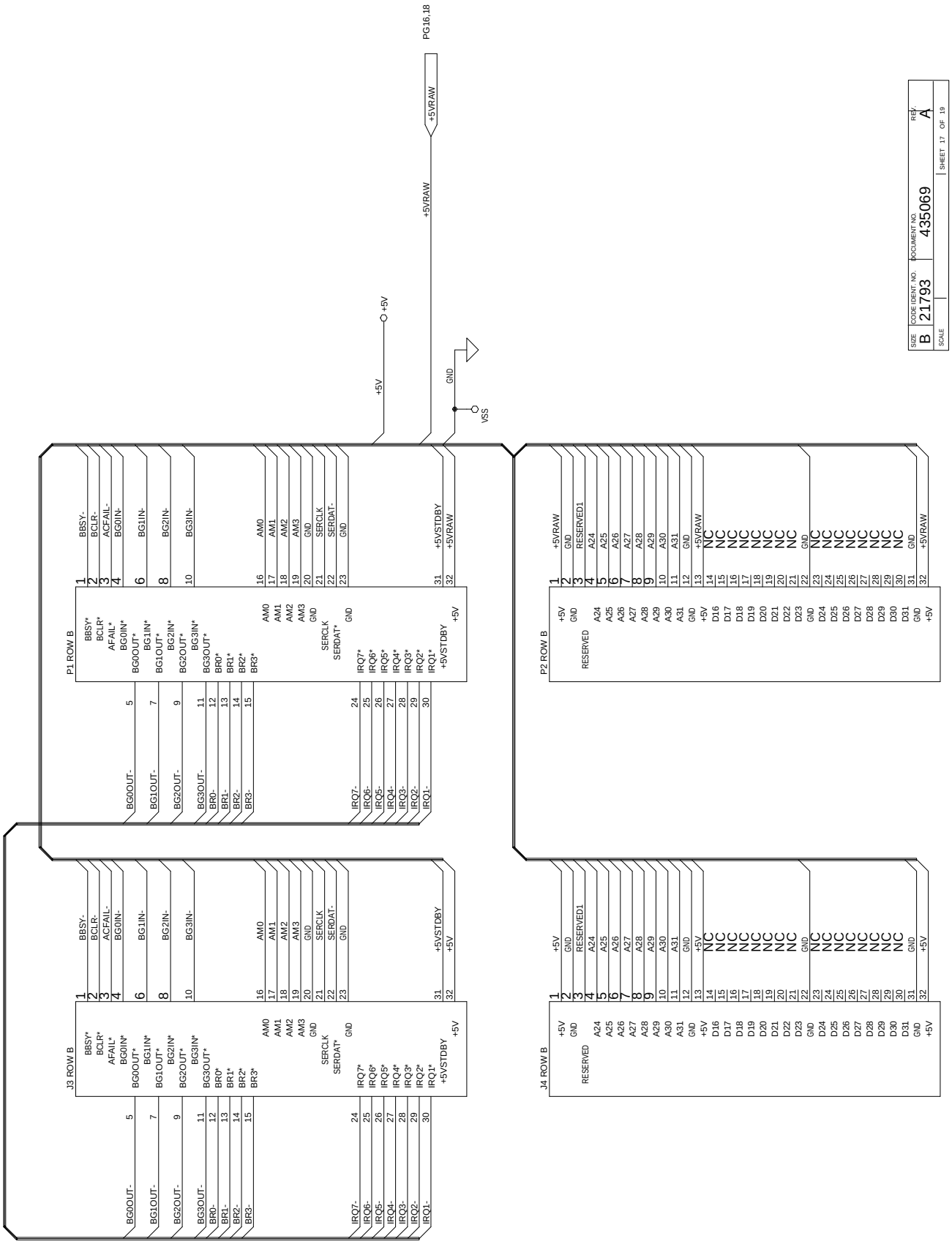



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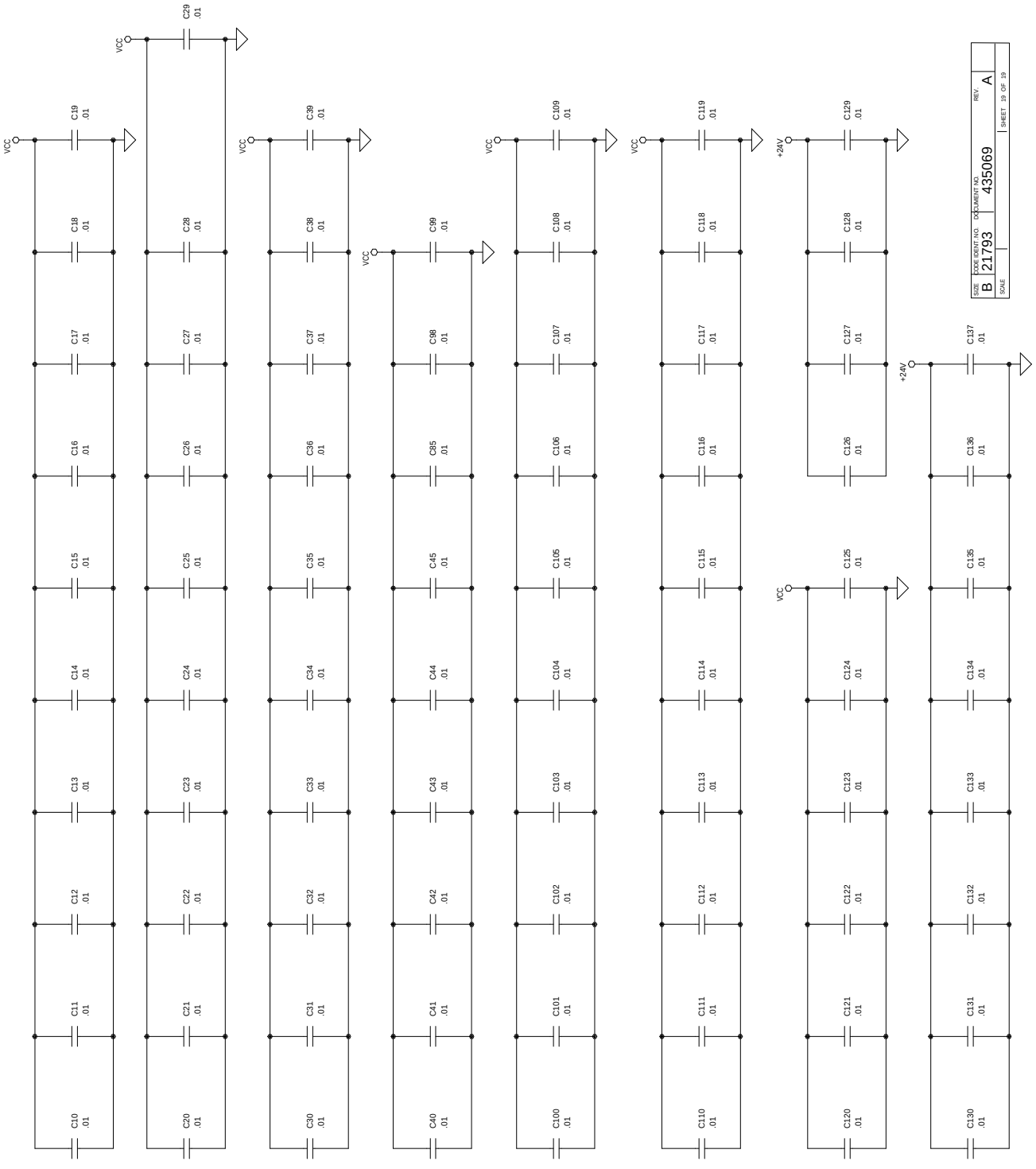

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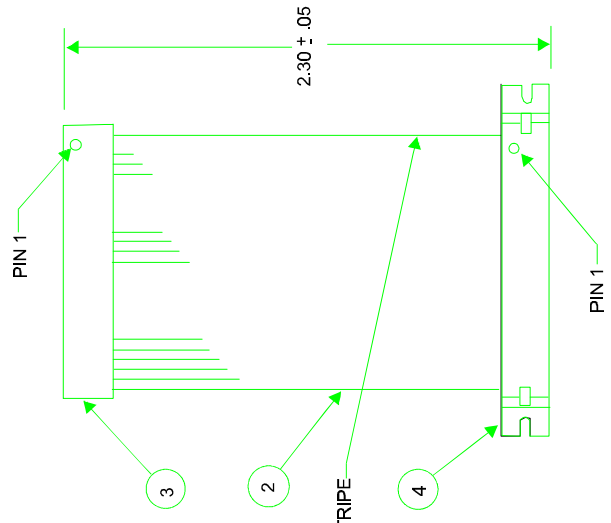

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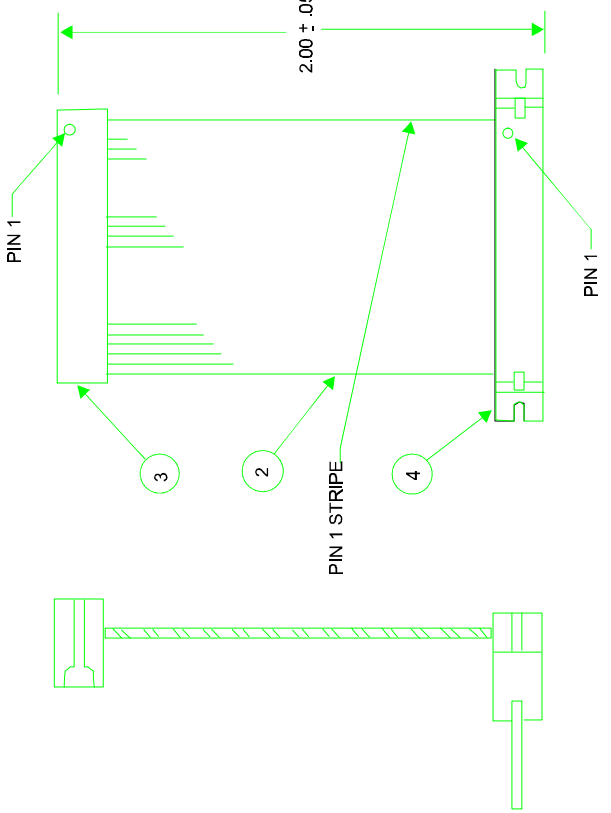
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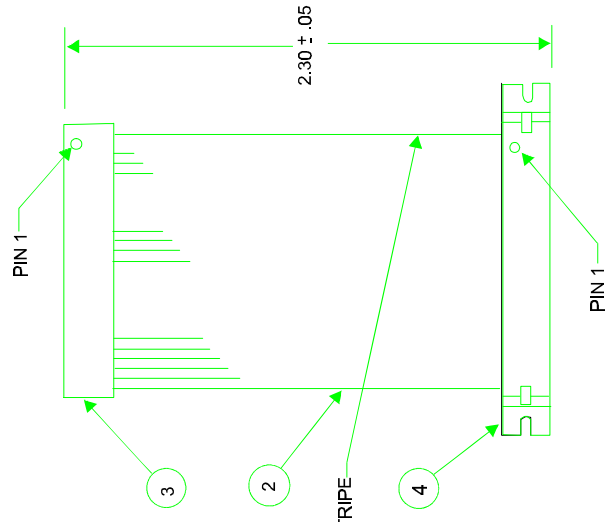
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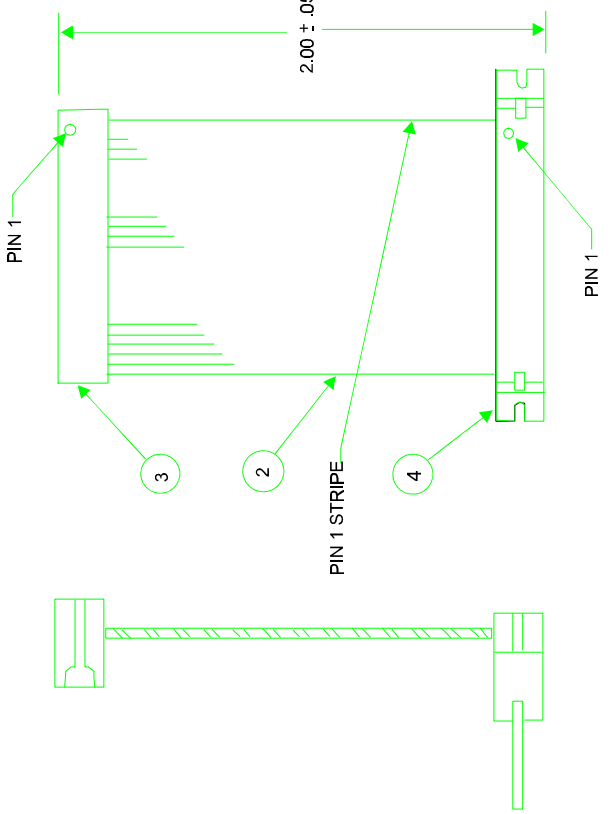
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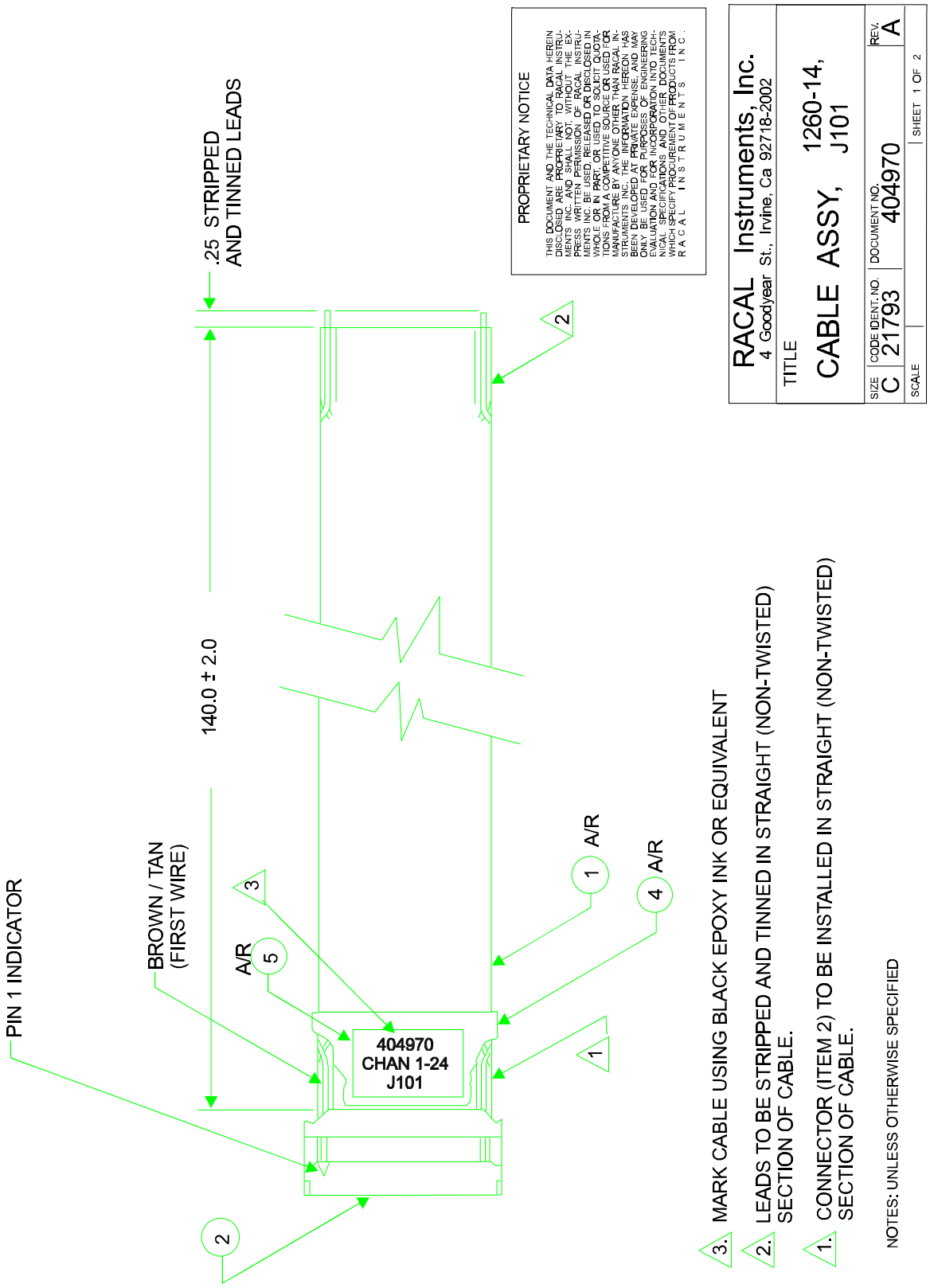
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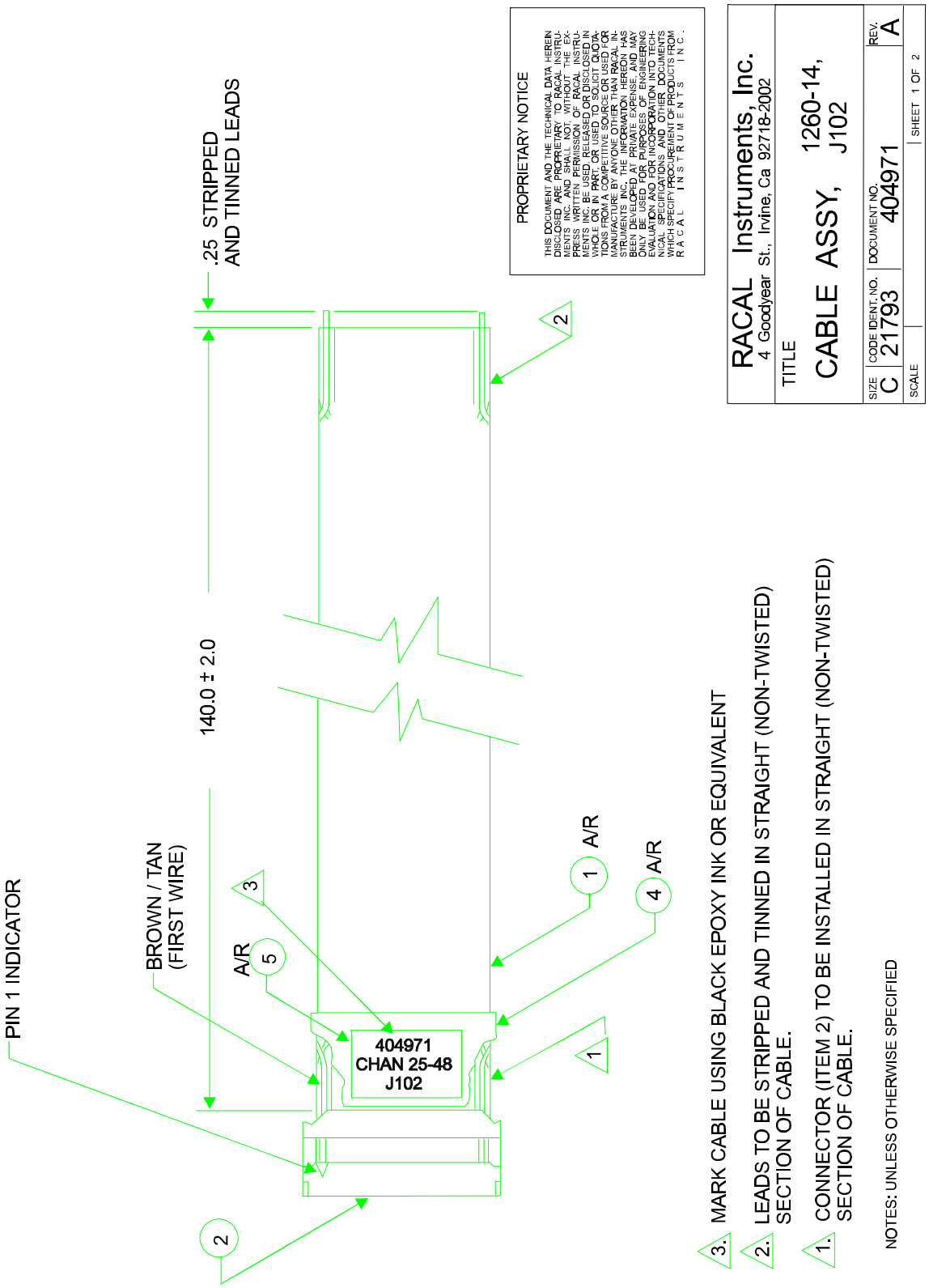


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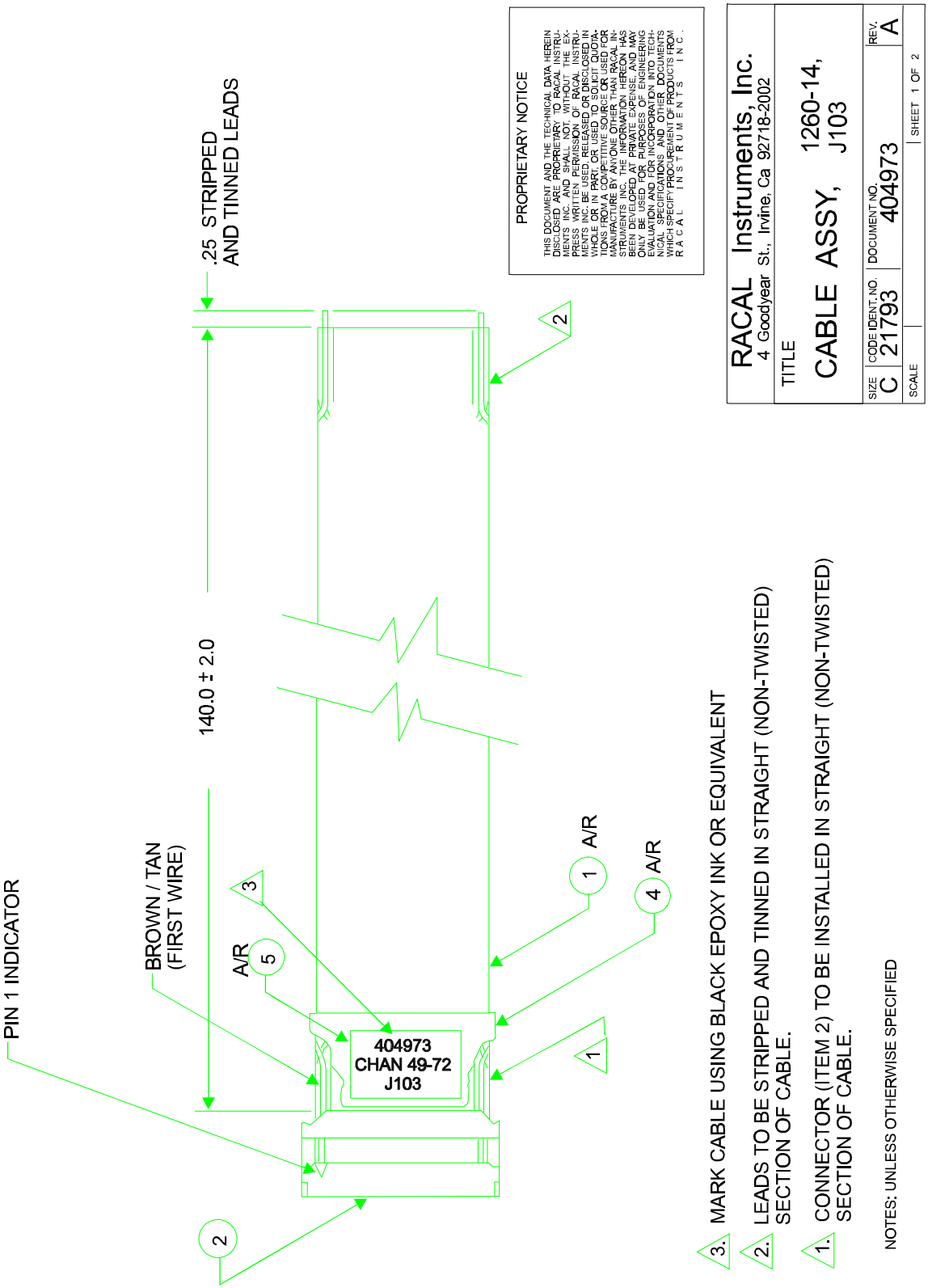



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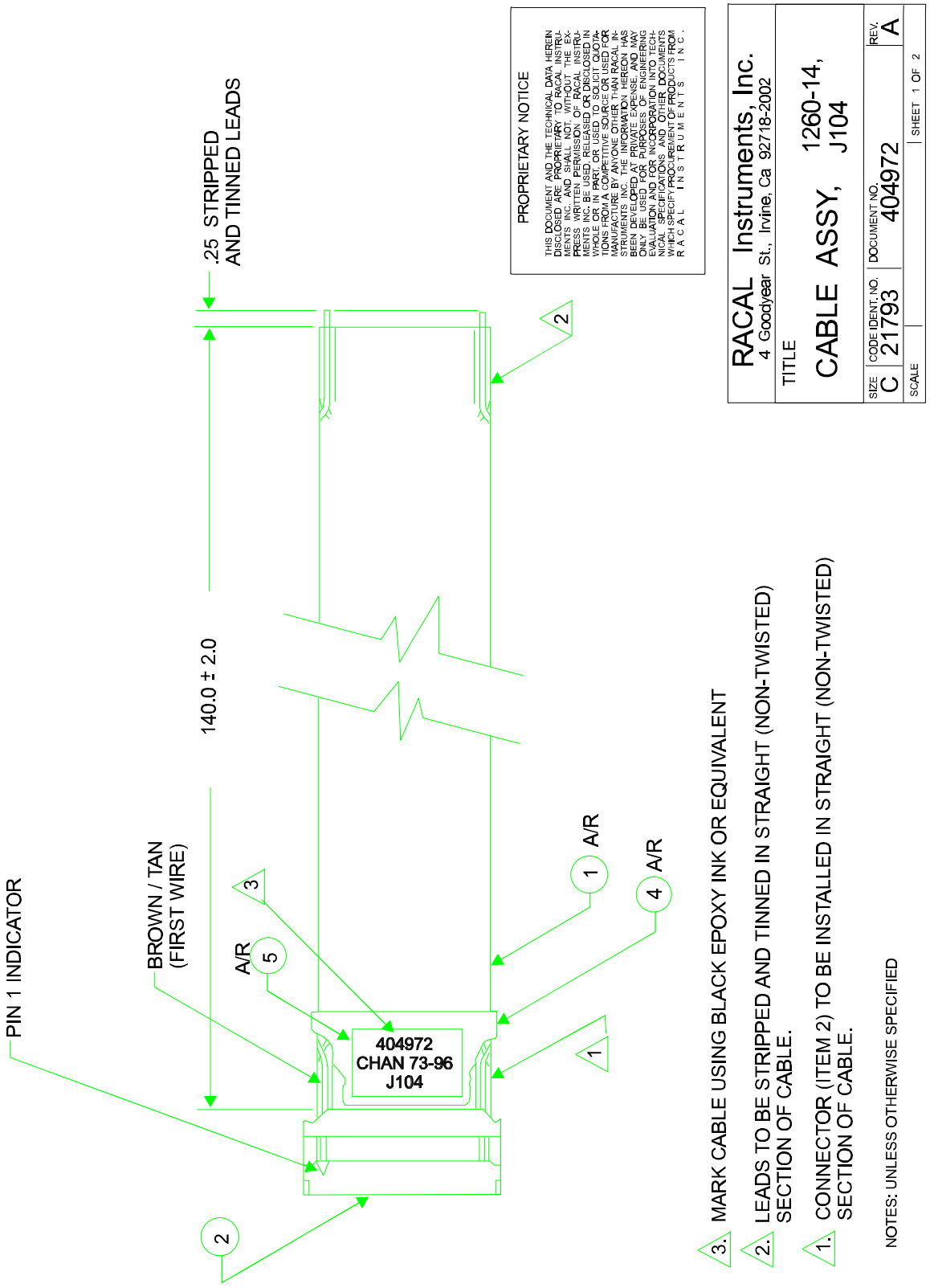



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# Chapter 5
# PARTS LIST


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| 407179-002 | PCB Cable Assy., 50-pin | 5-7 |
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407164 FINAL ASSY., KIT , 1260-14C

| REF DESIG | RACAL INST P/N | DESCRIPTION | FSC | MANUFACTURER'S P/N |
|---|---|---|---|---|
| (1)1 | 405069 | PCB ASSY., 1260-14C | 21793 | 4050690 |
| (3)1 | 404936-001 | SHIPPING KIT, 1260-14C | 21793 | 404936-001 |
| (5)1 | 455901 | PANEL, RIGHT SIDE | 21793 | 455901 |
| (6)1 | 455779-003 | PANEL, SIDE, LEFT | 21793 | 455779-003 |
| (9)1 | 455781 | PANEL, REAR, SINGLE | 21793 | 455781 |
| (10)1 | 455784-001 | PANEL, VXI TOP | 21793 | 455784-001 |
| (11)1 | 455784-002 | PANEL, VXI BGTTOM | 21793 | 455784-002 |
| {14)32 | 615539 | SCREW, PFH, 4-40X. 125 | | |
| (16)8 | 616480 | SCREW, PFH, 4-40 X .375 | | |
| (17)1 | 920710 | LABEL, IDENIFICATION | 21793 | 920710 |
| (18)1 | 921212-027 | LABEL, VXI, 1260-14C | 21793 | 921212-02740 |
| (19)A/R | 920962 | LOCTITE. 242, MED STR. | 05972 | 272 |
| (21)1 | 921059 | LABEL, CAUTION, STATIC | 21793 | 921059 |
| (23)1 | 921309 | LABEL, VXI SWITCH ID | 21793 | 921309 |



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405069 PCB ASSY., 1260-14C

| REF DESIG | RACAL INST P/N | DESCRIPTION | FSC | MANUFACTURER'S P/N |
|---|---|---|---|---|
| C1 | 110165 | CAP, TANTA, .15 MF, 35V, 1OPCT | 05397 | T355A154K035A5 |
| C2 | 110126 | CAP, TANTA, 6. 8UF, 35V, 20 PERCENT | 05397 | T355F685M035A5 |
| C3 | 110126 | CAP, TANTA, 6. 8UF, 35V, 20 PERCENT | 05397 | T355F685M035A5 |
| C1O-C45 | R-21-1801 | CAP, CHIP, 10 NF | 95275 | VJ12O6Y1O3MF |
| C82 | R-21-1801 | CAP, CHIP, 10 NF | 95275 | VJ12O6Y1O3MF |
| C83 | R-21-1801 | CAP, CHIP, 10 NF | 95275 | VJ12O6Y1O3MF |
| C85 | R-21-1801 | CAP, CHIP, 10 NF | 95275 | VJ12O6Y1O3MF |
| C98-C138 | R-21-1801 | CAP, CHIP, 10 NF | 95275 | VJ12O6Y1O3MF |
| C139 | 110126 | CAP, TANTA, 6. 8UF, 35V, 20 PERCENT | 05397 | T355F685M035A5 |
| C140 | 110126 | CAP, TANTA, 6. 8UF, 35V, 20 PERCENT | 05397 | T355F685M035A5 |
| C141 | R-21-1801 | CAP, CHIP, 10 NF | 95275 | VJ12O6Y1O3MF |
| C142 | R-21-1801 | CAP, CHIP, 10 NF | 95275 | VJ12O6Y1O3MF |
| C143 | 110126 | CAP, TANTA, 6. RUF, 35V, 20 PERCENT | 05397 | T355F685M035A5 |
| C144 | 110126 | CAP, TANTA, 6. 8UF, 35V, 20 PERCENT | 05397 | T355F685M035A5 |
| C145-C158 | R-21-1801 | CAP, CHIP, 10 NF | 95275 | VJ12O6Y1O3MF |
| J3 | 601925 | CONNECTOR, PCB, RECEPT, 3 ROW, 96P | 52072 | 618008 |
| J4 | 601925 | CONNECTOR, PCB, RECEPT, 3 ROW, 96P | 52072 | 618008 |
| L1 | 310193 | CHOKE, SHIELDED, SUH | 91637 | IH-5-5-10 |
| L6 | 100164 | CAP, FEED-THRU,8OOPF, 50v | 00779 | 842448-2 |
| L7 | 100164 | CAP, FEED-THRU,8OOPF, 50v | 00779 | 842448-2 |
| L8 | 310193 | CHOKE, SHIELDED, SUH | 91637 | IH-5-5-10 |
| L9 | 100164 | CAP, FEED-THRU,8OOPF, 50v | 00779 | 842448-2 |
| L10 | 310193 | CHOKE, SHIELDED, SUH | 91637 | IH-5-5-10 |
| P1 | 601675-001 | CONNECTOR, EUROCARD, 96 PIN MOD. | 21793 | 601675-001 |
| P2 | 601675-001 | CONNECTOR, EUROCARD, 96 PIN MOD. | 21793 | 601675-001 |
| P101 | 601604 | CONNECTOR, PCB, PLUG, 50-PIN, STRAIGHT | 08261 | 842-800-571-000 |
| P102 | 601604 | CONNECTOR, PCB, PLUG, 50-PIN, STRAIGHT | 08261 | 842-800-571-000 |
| P103 | 601169 | CONNECTOR, IDC, 60P, BREAKAWAY | 55322 | TSW-130-07-G-D |
| P104 | 601169 | CONNECTOR, IDC, 60P, BREAKAWAY | 55322 | TSW-130-07-G-D |
| R1-R96 | 050000-104 | RES, CHIP, lOOK,.06W, SPCT | 91637 | O8OSSERIES |
| R1O1-R196 | 050000-624 | RES, CHIP, 620K,.06W, SPCT | 91637 | O8O5SERIES |
| R197 | 000681 | RES,CARBON, 680 OHM,1/4W,5 PERCENT | 81349 | RCO7GF681J |
| R198 | 010523 | RES, METAL, 13K, 1/8W, 1PCT | 81349 | RN60D1302F |
| R199 | 010778 | RES, METAL, 2.74K, 1/8W, 1PCT 100K, .06W, 5PCT | 81349 | RN55C2741F |
| R200 | 050000-104 | RES, CHIP, 6 POS, LOW PROFILE | 91637 | O8O5SERIES |
| SW1-5W3 | 601969 | SWITCH, DIP .025SQ | 65832 | K4065 |
| TP1 | 601197 | POST, TEST, .025SQ SHIFT REGISTER FLIP FLOP | 00779 | 6-87022-6 |
| TP2 | 601197 | POST, TEST, 8-BIT, PARALLEL/SERIAL OUT S.R. | 00779 | 6-87022-6 |
| U1 | 231131 | IC, DIGITAL, DIGITAL, SHIFT REGISTER | 18324 | PC74HCT164D |
| U2 | 231130 | IC, DIGITAL, DIGITAL, FLIP FLOP | 18324 | PC74HC273 |
| U4 | 231120 | IC, 8-BIT, PARALLEL/SERIAL OUT S.R | 18324 | 74HCT166D |
| US | 231131 | IC, DIGITAL, SHIFT REGISTER | 18324 | PC74HCT164D |
| U6 | 231130 | IC, DIGITAL, FLIP FLOP | 18324 | PC74HC273 |
| UB | 231120 | IC, 8-BIT, PARALLEL/SERIAL OUT S.R | 18324 | 74HCT166D |
| U9 | 231131 | IC, DIGITAL, SHIFT REGISTER | 18324 | PC74HCT164D |
| Ul0 | 231130 | IC, DIGITAL, FLIP FLOP | 18324 | PC74HC273 |
| U12 | 231120 | IC, 8-BIT, PARALLEL/SERIAL OUT S.R. | 18324 | 74HCT166D |
| U13 | 231131 | IC, DIGITAL, SHIFT REGISTER | 18324 | PC74HCT164D |
| U14 | 231130 | IC, DIGITAL, FLIP FLOP | 18324 | PC74HC273 |
| U16 | 231120 | IC, 8-BIT, PARALLEL/SERIAL OUT S.R. | 18324 | 74HCT166D |
| U17 | 231131 | IC, DIGITAL, SHIFT REGISTER | 18324 | PC74HCT164D |
| U18 | 231130 | IC, DIGITAL, FLIP FLOP | 18324 | PC74HC273 |
| U20 | 231120 | IC, 8-BIT, PARALLEL/SERIAL OUT S.R. | 18324 | 74HCT166D |
| U21 | 231131 | IC, DIGITAL, SHIFT REGISTER | 18324 | PC74HCT164D |
| U22 | 231130 | IC, DIGITAL, FLIP FLOP | 18324 | PC74HC273 |
| U24 | 231120 | IC, 8-BIT, PARALLEL/SERIAL OUT S.R. | 18324 | 74HCT166D |
| U25 | 231131 | IC, DIGITAL, SHIFT REGISTER | 18324 | PC74HCT164D |
| U26 | 231130 | IC, DIGITAL, FLIP FLOP | 18324 | PC74HC273 |
| U28 | 231120 | IC, 8-BIT, PARALLEL/SERIAL OUT S.R. | 18324 | 74HCT166D |
| U29 | 231131 | IC, DIGITAL, SHIFT REGISTER | 18324 | PC74HCT164D |



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405069 PCB ASSY., 1260-14C

| REF DESIG | RACAL INST P/N | DESCRIPTION | FSC | MANUFACTURER'S P/N |
|---|---|---|---|---|
| U30 | 231130 | IC, DIGITAL, FLIP FLOP | 18324 | PC74HC273 |
| U32 | 231120 | IC, 8-BIT, PARALLEL/SERIAL OUT S.R. | 18324 | 74HCT166D |
| U33 | 231131 | IC, DIGITAL, SHIFT REGISTER | 18324 | PC74HCTl64D |
| U34 | 231130 | IC, DIGITAL, FLIP FLOP | 18324 | PC74HC273 |
| U36 | 231120 | IC, 8-BIT, PARALLEL/SERIAL OUT S.R. | 18324 | 74HCT166D |
| U37 | 231131 | IC, DIGITAL, SHIFT REGISTER | 18324 | PC74HCTl64D |
| U38 | 231130 | IC, DIGITAL, FLIP FLOP | 18324 | PC74HC273 |
| U40 | 231120 | IC, 8-BIT, PARALLEL/SERIAL OUT S.R. | 18324 | 74HCT166D |
| U41 | 231131 | IC, DIGITAL, SHIFT REGISTER | 18324 | PC74HCTl64D |
| U42 | 231130 | IC, DIGITAL, FLIP FLOP | 18324 | PC74HC273 |
| U44 | 231120 | IC, 8-BIT, PARALLEL/SERIAL OUT S.R. | 18324 | 74HCT166D |
| U45 | 231131 | IC, DIGITAL, SHIFT REGISTER | 18324 | PC74HCTl64D |
| U46 | 231130 | IC, DIGITAL, FLIP FLOP | 18324 | PC74HC273 |
| U48 | 231120 | IC, 8-BIT, PARALLEL/SERIAL OUT S.R. | 18324 | 74HCT166D |
| U49 | 231096 | IC, QUAD DIFF RECEIVER | 01295 | AM26LS32ACD |
| U50 | 231096 | IC, QUAD DIFF RECEIVER | 01295 | AM26LS32ACD |
| U51 | 231125 | IC, DIGITAL, LINE DRIVER | 27014 | D526L531MN |
| U52 | 231154 | IC, PROGRAMMED PLA | 21793 | 231154 |
| U53 | 231153 | IC, PROGRAMMED PLA | 21793 | 231153 |
| U54 | 231094 | IC, DEMUX DECODER | 18324 | N74L5138D |
| U55 | 231094 | IC, DEMUX DECODER | 18324 | N74L5138D |
| U56 | 231135 | IC, DIGITAL, 4-BIT COMPARATOR | 18324 | PC74HCT85D |
| U57 | 231093 | IC, QUAD COMPARATOR | 04713 | LM339D |
| U60 | 231120 | IC, 8-BIT, PARALLEL/SERIAL OUT S.R. | 18324 | 74HCT166D |
| U61 | 231131 | IC, DIGITAL, SHIFT REGISTER | 18324 | PC74HCTl64D |
| U62 | 231131 | IC, DIGITAL, SHIFT REGISTER | 18324 | PC74HCTl64D |
| U70 | 231152 | IC, PROGRAMMED PIA | 21793 | 231152 |
| U71 | 231147 | IC, MULTIPLEXER | 04713 | 74HC253D |
| U72 | 231147 | IC, MULTIPLEXER | 04713 | 74HC253D |
| U80-U91 | 230774 | IC, TRANSISTOR ARRAY | 56289 | ULN-2803A |
| U92 | 231299 | IC, MODE SELECT PAL | 21793 | 231299 |
| U95 | 230414 | IC, QUAD 2-INPUT EXCLUSIVE OR~GATES | 01295 | 74L586 |
| U96 | 231403 | IC, DIGITAL, OCTAL BUFFER | 01295 | SN74HCT244N |
| U97 | 231130 | IC, DIGITAL, FLIP FLOP | 18324 | PC74HC273 |
| U99 | 231130 | IC, DIGITAL, FLIP FLOP | 18324 | PC74HC273 |
| U100 | 231131 | IC, DIGITAL, SHIFT REGISTER | 18324 | PC74HCTl64D |
| U102 | 231131 | IC, DIGITAL, SHIFT REGISTER | 18324 | PC74HCTl64D |
| U103 | 231298 | IC, HANDSHAKE PAL | 21793 | 231298 |
| U107 | 231120 | IC, 8-BIT, PARALLEL/SERIAL OUT S.R. | 18324 | 74HCT166D |
| U109 | 231120 | IC, 8-BIT, PARALLEL/SERIAL OUT S.R. | 18324 | 74HCT166D |
| U117 | 231143 | IC, HEX INVERTER | 18324 | 74HCT14N |
| U118 | 231297 | IC, PAL | 21793 | 231297 |
| U119-U130 | 231404 | IC, DIGITAL, OCTAL RECEIVER | 01295 | SN74HCT6S2NT |
| U131-U154 | 231093 | IC, QUAD COMPARATOR | 04713 | LM339D |
| U155 | 231219 | IC, LINEAR, VREF | 27014 | LM38SBYZ |
| U156-U167 | 231236 | IC, DIGITAL BUFFER 5010 | 04713 | MC74HCT244DW |
| Wl-W12 | 601935 | CONNECTOR, HEADER, 10 PIN | 52072 | CA-DlO-23B-43 |
| Z25 | 080114 | RES NETWORK, 16P8R, 15K | 73138 | 628-AL-153J |
| Z26 | 080120 | RES NETWORK, 10K | 11236 | 767-l6lRlOK |
| Z56-Z67 | 080015 | RES NETWORK, lOP9R, 10K, 5 PERCENT | 71450 | 750-l0l-RlOK |
| {54)1 | 401951 | PCB ASSY., LBUS JUMPER | 21793 | 401951 |
| (55)1 | 401951-003 | PCB ASSY., P3 JUMPER | 21793 | 401951-003 |
| (56)1 | 415069 | PCB, 1260-14C(UNLOADED) | 21793 | 415069 |
| (59)1 | 455776-001 | PANEL, FRONT, 1260-140 | 21793 | 455776-001 |
| {62)A/R | 500022 | WIRE, BARE COPPER/TIN, 22 GA | 21793 | 500022 |



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405069 PCB ASSY., 1260-14C

| REF DESIG | RACAL INST P/N | DESCRIPTION | FSC | MANUFACTURER'S P/N |
|---|---|---|---|---|
| (64)12 | 601195 | PLUG, JUMPER, 0.1CTR, LOW PROFILE | 00779 | 530153-2 |
| (71)1 | 601632 | CONNECTOR, DIP, RECEPTACLE, 20P | 00779 | 641612-4 |
| (78)1 | 407179-001 | PCB CABLE ASSY., 50-PIN | 21793 | 407179-001 |
| (79)1 | 407179-002 | PCB CABLE ASSY., 50-PIN | 21793 | 407179-002 |
| (80)1 | 407180-001 | PCB CABLE ASSY., 60-PIN | 21793 | 407180-001 |
| (81)1 | 407180-002 | PCB CABLE ASSY., 60-PIN | 21793 | 407180-002 |
| {82)8 | 611023 | KEY, POLARIZING CONNECTOR | 06776 | PK-3 |
| (83)4 | 611258-001 | STANDOFF, SWAGE 4-40 X .170 | 06540 | 8091-llB-B-440-28 |
| (84)1 | 611264 | HANDLE, EXTRACTOR, BOTTOM | 62559 | 20817-327 |
| (85)1 | 611265 | HANDLE, EXTRACTOR, TOP | 62559 | 20817-328 |
| (86)0.5 | 611266 | MOUNTING HARDWARE, HANDLE | 62559 | 21100-745 |
| (87)12 | 611060 | CONNECTOR, DIP, 16 PIN, LOW PROFILE | 91506 | 216-AG39D |
| (89)8 | 615545 | SCREW, PFH, 4-40 X .500 | | |
| (91)2 | 616405 | SCREW, PFH, M2.5- .45 X 12 | | |
| (93)8 | 617016 | NUT, HEX, 4-40 | | |
| (94)8 | 617102 | WASHER, FLAT, #4, LIGHT SERIES | | |
| (95)8 | 617127 | WASHER, LOCK, #4, LIGHT SERIES | | |
| (96)12 | 920841 | SOCKET, IC, 18-PIN, SOLDER TAIL | 52072 | CA-185-TSD-BC |
| {97)A/R | 920962 | LOCTITE, 242, MED STR. | 05972 | 272 |
| (98)1 | 921148-001 | LABEL SET, VXI | 21793 | 921148-001 |



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407179-001 - CABLE ASSY., 50-PIN

| REF DESIG | RACAL INST P/N | DESCRIPTION | FSC | MANUFACTURER'S P/N |
|---|---|---|---|---|
| (2)A/R | 500272 | CABLE, FLAT, RIBBON, 50 CONDUCTOR, 28GA | 70903 | 9L28050 |
| (3)1 | 601985 | CONNECTOR, IDC SOCKET, SOP | 53387 | 3425-6000 |
| (4)1 | 601987 | CONNECTOR, IDC PLUG, SOP | 53387 | 4650-6300 |

407179-002 - CABLE ASSY., 5O-PIN

| REF DESIG | RACAL INST P/N | DESCRIPTION | FSC | MANUFACTURER'S P/N |
|---|---|---|---|---|
| {2)A/R | 500272 | CABLE, FLAT, RIBBON, SO CONDUCTOR, 28GA | 70903 | 9L28050 |
| (3)1 | 601985 | CONNECTOR, IDC SOCKET, SOP | 53387 | 3425-6000 |
| (4)1 | 601987 | CONNECTOR, IOC PLUG, SOP | 53387 | 4650-6300 |

407180-001 - CABLE ASSY., 60-PIN

| REF DESIG | RACAL INST P/N | DESCRIPTION | FSC | MANUFACTURER'S P/N |
|---|---|---|---|---|
| (2)A/R | 500253 | CABLE, FLAT RIBBON, 60 COND | 53387 | 3365/60 |
| (3)1 | 601966 | CONNECTOR, CABLE, FLAT, 60 PIN | 53387 | 3334-6000 |
| (4)1 | 601988 | CONNECTOR, IDC PLUG, 60P | 53387 | 4660-6300 |

407180-002 - CABLE ASSY., 60-PIN

| REF DESIG | RACAL INST P/N | DESCRIPTION | FSC | MANUFACTURER'S P/N |
|---|---|---|---|---|
| (2)A/~ | 500253 | CABLE, FLAT RIBBON, 60 COND | 53387 | 3365/60 |
| (3)1 | 601966 | CONNECTOR, CABLE, FLAT, 60 PIN | 53387 | 3334-6000 |
| (4)1 | 601988 | CONNECTOR, IDC PLUG, SOP | 53387 | 4660-6300 |



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404936-001 - SHIPPING KIT, 1260-14C

| REF DESIG | RACAL INST P/N | DESCRIPTION | FSC | MANUFACTURER'S P/N |
|---|---|---|---|---|
| {1)2 | 455540 | KEY, LOCKOUT, TTL, A/C | 21793 | 455540 |
| (2)2 | 455541 | KEY, LOCKOUT, TTL, A/C | 21793 | 455541 |
| (3)2 | 455542 | KEY, LOCKOUT, TTL, A/C | 21793 | 455542 |
| (5)3 | 615013 | SCREW, PPF, 2-56 X .188 | | |
| (6)2 | 601457 | CONNECTOR, FLAT CABLE, 60-PIN | 52072 | CA-601D52-F-SR |
| {7)2 | 601627 | CONNECTOR, FLAT CABLE, RECEPTACLE, SOP | 53387 | 3425-6050 |
| {9)1 | 980673-012 | INSTRUCTION MANUAL, 1260-14C | 21793 | 980673-012 |

404974 CABLE ASSY., KIT , 1260-14

| REF DESIG | RACAL INST P/N | DESCRIPTION | FSC | MANUFACTURER'S P/N |
|---|---|---|---|---|
| (1)1 | 404970 | CABLE ASSY., J1Ol | 21793 | 404970 |
| {2}1 | 404971 | CABLE ASSY., J102 | 21793 | 404971 |
| {3}1 | 404972 | CABLE ASSY., J104 | 21793 | 404972 |
| (4)1 | 404973 | CABLE ASSY., J103 | 21793 | 404973 |



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404970 CABLE ASSY., 1260-14-J1Ol

| REF DESIG | RACAL INST P/N | DESCRIPTION | FSC | MANUFACTURER'S P/N |
|---|---|---|---|---|
| (1}A/R | 500292 | CABLE, 50 CONDUCTORS, FLAT, TWISTED | 53387 | 1700150 |
| (2)1 | 601627 | CONNECTOR, FLAT CABLE, RECEPTACLE, SOP | 53387 | 3425-6050 |

404971 CABLE ASSY., 1260-14-J102

| REF DESIG | RACAL INST P/N | DESCRIPTION | FSC | MANUFACTURER'S P/N |
|---|---|---|---|---|
| (1)2 | 500292 | CABLE, 50 CONDUCTORS, FLAT, TWISTED | 53387 | 700150 |
| (2)1 | 601627 | CONNECTOR, FLAT CABLE, RECEPTACLE, SOP | 53387 | 3425-6050 |

404973 CABLE ASSY., 1260-14,J103

| REF DESIG | RACAL INST P/N | DESCRIPTION | FSC | MANUFACTURER'S P/N |
|---|---|---|---|---|
| {1)A/R | 500300 | CABLE, 60 CONDUCTOR FLAT, TWISTED | 52072 | CA-6OIDC-TF |
| (2)1 | 601457 | CONNECTOR, FLAT CABLE, 60-PIN | 52072 | CA-601D52-SR |

404972 CABLE ASSY., 1260-14, J104

| REF DESIG | RACAL INST P/N | DESCRIPTION | FSC | MANUFACTURER'S P/N |
|---|---|---|---|---|
| (1}A/R | 500300 | CABLE, 60 CONDUCTOR FLAT, TWISTED | 52072 | CA-6OIDC-TF |
| {2}1 | 601457 | CONNECTOR, FLAT CABLE, 60-PIN | 52072 | CA-601D52-F-SR |



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**List of Suppliers**

| FSC | SUPPLIER |
|---|---|
| 00779 | AMP, INC.<br>HARRISBURG, PA |
| 01295 | TEXAS INSTRUMENTS, INC.<br>DALLAS, TX |
| 02735 | RCA (SOLID STATE DIV.)<br>SOMERVILLE, NJ |
| 04713 | MOTOROLA, INC. (SEMICONDUCTOR PRODUCTS DIV.)<br>PHOENIX, AZ |
| 05397 | UNION CARBIDE CORP. (MATERIALS SYSTEMS DIV.)<br>CLEVELAND, OH |
| 05972 | LOCTITE CORP.<br>HARTFORD, CT |
| 06540 | AMATOM ELECTRONIC HARDWARE<br>NEW ROCHELLE, NY |
| 06776 | ROBINSON NUGENT INC.<br>NEW ALBANY, IN |
| 08261 | SPECTRA-STRIP CORP.<br>GARDEN GROVE, CA |
| 11236 | CTS OF BERNE, INC.<br>BEPNE, IN |
| 18324 | SIGNETICS, INC.<br>SUNNYVALE, CA |
| 21793 | RACAL INSTRUMENTS INC.<br>IRVINE, CA |
| 27014 | NATIONAL SEMI-CONDUCTOR CORP.<br>SANTA CLARA, CA |
| 52072 | CIRCUIT ASSY. CORP.<br>COSTA MESA, CA |
| 53387 | THREE M (3M) CO.<br>ST. PAUL, MN |
| 55322 | SAMTEC, INC<br>NEW ALBANY, IN |
| 62559 | SCHROFF, INC.<br>WARWICK, RI |
| 65832 | AMERICAN RESEARCH & ENGINEERING<br>ELGIN, IL |
| 73138 | BECKMAN INSTRUMENTS<br>FULLERTON, CA |
| 91637 | DALE ELECTRONICS, INC.<br>COLUMBUS, NE |
| 95275 | VITRAMON, INC.<br>BRIDGEPORT, CT |



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# Chapter 6

# OPTIONAL HARNESS ASSEMBLIES

The following harness assemblies are used to connect Racal Instruments Model 1260-14 to Freedom Series Test Receiver Interfaces.

Each harness documentation consists of an assembly drawing, parts list, system wire list and wire list.

| | |
|---|---|
| 407272 | Virginia Panel, Inc. Series VP90 Interface Harness |
| 407273 | TTI Testron, Inc. Interface Harness |

For more information on Racal Instruments complete line of Test Receivers Interface solution, contact your Sales Representative.

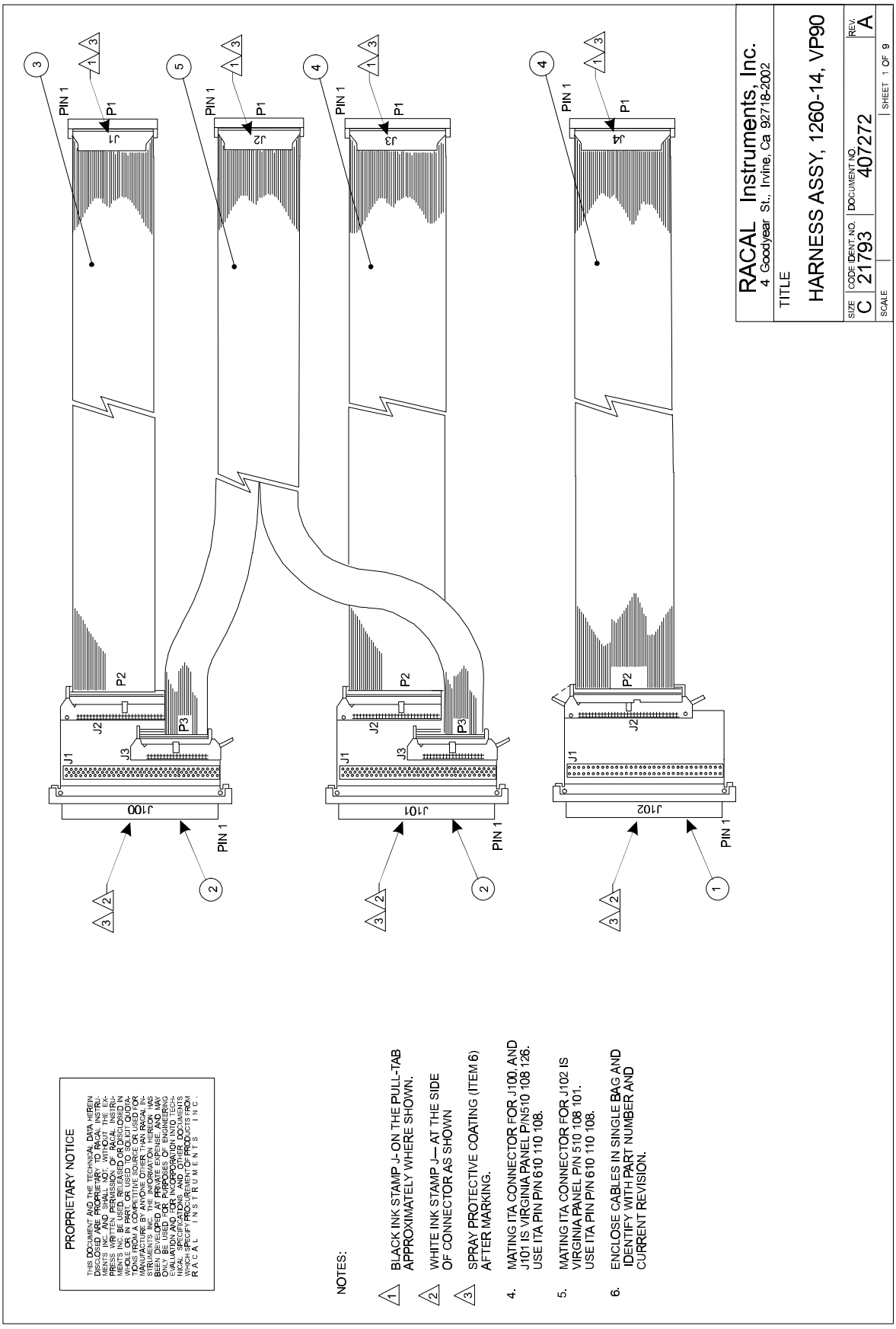


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## ENGINEERING PARTS LIST

| ITEM | BIN | PART NO. | DESCRIPTION | QTY | REFERENCE |
|---|---|---|---|---|---|
| 1 | | 405084 | PCB AS SY, VP90 INTFC,64PIN | 1 | J102 |
| 2 | | 405085 | PCB ASSY, VP90 1NTFC,96PIN | 2 | J100-J101 |
| 3 | | 407251 | CABLE ASSY, DC, 50-COND., VP90 | 1 | |
| 4 | | 407256 | CABLE ASSY, DC, 60-COND., VP90 | 2 | |
| 5 | | 407252 | CABLE ASS Y, 50SPLT, VP90 | 1 | |
| 6 | | 910541 | POLYURETHANE CONF. COAT | A/R | |

RACAL Instruments, Inc., 4 Goodyear St., Irvine, CA 92718

| DOCUMENT TI'TLE | SIZE. | CODE NO | DOCUMENT NO. | REV |
|---|---|---|---|---|
| HARNESS ASSY, 1260-14,VP90 | A | 21793 | 407272 | A |
| | DRN | | | SHEET 2 of 9 |



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# ENGINEERING PARTS LIST

| WIRE | FROM | TO | TYPE | PART # | WIRE LEN | REFERENCE |
|---|---|---|---|---|---|---|
| | BLK AA (J100) | Uxx-SLOT yy (J1,J2) | CABLE | 407272 | | SYSTEM WIRE LIST |
| | BLK AA (J101) | Uxx-SLOT yy (J2,J3) | CABLE | 407272 | | |
| | BLK AA (J102) | Uxx-SLOT yy (J4) | CABLE | 407272 | | |

This system wirelist serves as a template for incorporating this harness assembly into the overall system wirelist. It does not in any way affect the fabrication of this harness assembly.

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|---|---|---|---|---|
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## ENGINEERING WIRE LIST

| WIRE | FROM | TO | TYPE | PART # | WIRE LEN | REFERENCE |
|---|---|---|---|---|---|---|
| 1 | J100-96 | J1-1 | BRN | 407251 | 41.5" | CHAN 01 |
| 2 | J100-32 | J1-2 | TAN | 407251 | 41.5" | CHAN 01 RTN |
| 3 | J100-64 | J1-3 | RED | 407251 | 41.5" | CHAN 02 |
| 4 | J100-95 | J1-4 | TAN | 407251 | 41.5" | CHAN 02 RTN |
| 5 | J100-31 | J1-5 | ORN | 407251 | 41.5" | CHAN 03 |
| 6 | J100-63 | J1-6 | TAN | 407251 | 41.5" | CHAN 03 RTN |
| 7 | J100-94 | J1-7 | YEL | 407251 | 41.5" | CHAN 04 |
| 8 | J100-30 | J1-8 | TAN | 407251 | 41.5" | CHAN 04 RTN |
| 9 | J100-62 | J1-9 | ORN | 407251 | 41.5" | CHAN 05 |
| 10 | J100-93 | J1-10 | TAN | 407251 | 41.5" | CHAN 05 RTN |
| 11 | J100-29 | J1-11 | BLU | 407251 | 41.5" | CHAN 06 |
| 12 | J100-61 | J1-12 | TAN | 407251 | 41.5" | CHAN 06 RTN |
| 13 | J100-92 | J1-13 | VIO | 407251 | 41.5" | CHAN 07 |
| 14 | J100-28 | J1-14 | TAN | 407251 | 41.5" | CHAN 07 RTN |
| 15 | J100-60 | J1-15 | GRY | 407251 | 41.5" | CHAN 08 |
| 16 | J100-91 | J1-16 | TAN | 407251 | 41.5" | CHAN 08 RTN |
| 17 | J100-27 | J1-17 | WRT | 407251 | 41.5" | CHAN 09 |
| 18 | J100-59 | J1-18 | TAN | 407251 | 41.5" | CHAN 09 RTN |
| 19 | J100-90 | J1-19 | BLK | 407251 | 41.5" | CHAN 10 |
| 20 | J100-26 | J1-20 | TAN | 407251 | 41.5" | CHAN 10 RTN |
| 21 | J100-58 | J1-21 | BRN | 407251 | 41.5" | CHAN 11 |
| 22 | J100-89 | J1-22 | TAN | 407251 | 41.5" | CHAN 11 RTN |
| 23 | J100-25 | J1-23 | RED | 407251 | 41.5" | CHAN 12 |
| 24 | J100-57 | J1-24 | TAN | 407251 | 41.5" | CHAN 12 RTN |
| 25 | J100-88 | J1-25 | ORN | 407251 | 41.5" | CHAN 13 |
| 26 | J100-24 | J1-26 | TAN | 407251 | 41.5" | CHAN 13 RTN |
| 27 | J100-56 | J1-27 | YEL | 407251 | 41.5" | CHAN 14 |
| 28 | J100-87 | J1-28 | TAN | 407251 | 41.5" | CHAN 14 RTN |
| 29 | J100-23 | J1-29 | GRN | 407251 | 41.5" | CHAN 15 |
| 30 | J100-55 | J1-30 | TAN | 407251 | 41.5" | CHAN 15 RTN |
| 31 | J100-86 | J1-31 | BLU | 407251 | 41.5" | CHAN 16 |
| 32 | J100-22 | J1-32 | TAN | 407251 | 41.5" | CRAN 16 RTN |
| 33 | J100-54 | J1-33 | VIO | 407251 | 41.5" | CHAN 17 |
| 34 | J100-85 | J1-34 | TAN | 407251 | 41.5" | CHAN 17 RTN |
| 35 | J100-21 | J1-35 | GRY | 407251 | 41.5" | CHAN 18 |
| 36 | J100-53 | J1-36 | TAN | 407251 | 41.5" | CHAN 18 RTN |
| 37 | J100-84 | J1-37 | WHT | 407251 | 41.5" | CHAN 19 |
| 38 | J100-20 | J1-38 | TAN | 407251 | 41.5" | CHAN 19 RTN |
| 39 | J100-52 | J1-39 | BLK | 407251 | 41.5" | CHAN 20 |
| 40 | J100-83 | J1-40 | TAN | 407251 | 41.5" | CHAN 20 RTN |
| 41 | J100-19 | J1-41 | BRN | 407251 | 41.5" | CHAN 21 |
| 42 | J100-51 | J1-42 | TAN | 407251 | 41.5" | CHAN 21 RTN |
| 43 | J100-82 | J1-43 | RED | 407251 | 41.5" | CHAN 22 |
| 44 | J100-18 | J1-44 | TAN | 407251 | 41.5" | CHAN 22 RTN |
| 45 | J100-50 | J1-45 | ORN | 407251 | 41.5" | CHAN 23 |
| 46 | J100-81 | J1-46 | TAN | 407251 | 41.5" | CHAN 23 RTN |
| 47 | J100-17 | J1-47 | YEL | 407251 | 41.5" | CHAN 24 |
| 48 | J100-49 | J1-48 | TAN | 407251 | 41.5" | CHAN 24 RTN |
| 49 | J100-80 | J1-49 | GRN | 407251 | 41.5" | BUSY |
| 50 | J100-16 | J1-50 | TAN | 407251 | 41.5" | GND |

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## ENGINEERING WIRE LIST

| WIRE | FROM | TO | TYPE | PART # | WIRE LEN | REFERENCE |
|---|---|---|---|---|---|---|
| 51<br>52 | J100-48<br>J100-79 | NO CONNECT<br>NO CONNECT | | | | |
| 53<br>54 | J100-15<br>J100-47 | NO CONNECT<br>NO CONNECT | | | | |
| 55<br>56 | J100-78<br>J100-14 | NO CONNECT<br>NOCONNECT | | | | |
| 57<br>58 | J100-46<br>J100-77 | NO CONNECT<br>NO CONNECT | | | | |
| 59<br>60 | J100-13<br>J100-45 | NO CONNECT<br>NO CONNECT | | | | |
| 61<br>62 | J100-76<br>J100-12 | NO CONNECT<br>NO CONNECT | | | | |
| 63<br>64 | J100-44<br>J100-75 | NO CONNECT<br>NO CONNECT | | | | |
| 65<br>66 | J100-11<br>J100-43 | NO CONNECT<br>NO CONNECT | | | | |
| 67<br>68 | J100-74<br>J100-10 | NO CONNECT<br>NO CONNECT | | | | |
| 69<br>70 | J100-42<br>J100-73 | NO CONNECT<br>NO CONNECT | | | | |
| 71<br>72 | J100-9<br>J100-41 | J2-1<br>J2-2 | BRN<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 25<br>CHAN 25 RTN |
| 73<br>74 | J100-72<br>J100-8 | J2-3<br>J2-4 | RED<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 26<br>CHAN 26 RTN |
| 75<br>76 | J100-40<br>J100-71 | J2-5<br>J2-6 | ORN<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 27<br>CHAN 27 RTN |
| 77<br>78 | J100-7<br>J100-39 | J2-7<br>J2-8 | YEL<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 28<br>CHAN 28 RTN |
| 79<br>80 | J100-70<br>J100-6 | J2-9<br>J2-10 | GRN<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 29<br>CHAN 29 RTN |
| 81<br>82 | J100-38<br>J100-69 | J2-11<br>J2-12 | BLU<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 30<br>CHAN 30 RTN |
| 83<br>84 | J100-5<br>J100-37 | J2-13<br>J2-14 | VIO<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 31<br>CHAN 31 RTN |
| 85<br>86 | J100-68<br>J100-4 | J2-15<br>J2-16 | GRY<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 32<br>CHAN 32 RTN |
| 87<br>88 | J100-36<br>J100-67 | J2-17<br>J2-18 | WHT<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 33<br>CHAN 33 RTN |
| 89<br>90 | J100-3<br>J100-35 | J2-19<br>J2-20 | BLK<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 34<br>CHAN 34 RTN |
| 91<br>92 | J100-66<br>J100-2 | J2-21<br>J2-22 | BRN<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 35<br>CHAN 35 RTN |
| 93<br>94 | J100-34<br>J100-65 | J2-23<br>J2-24 | RED<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 36<br>CHAN 36 RTN |
| 95<br>96 | J100-1<br>J100-33 | J2-25<br>J2-26 | ORN<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 37<br>CHAN 37 RTN |

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## ENGINEERING WIRE LIST

| WIRE | FROM | TO | TYPE | PART # | WIRE LEN | REFERENCE |
|---|---|---|---|---|---|---|
| 97<br>98 | J101-72<br>J101-8 | J2-27<br>J2-28 | YEL<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 38<br>CHAN 38 RTN |
| 99<br>100 | J10140<br>J101-71 | J2-29<br>J2-30 | GRN<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 39<br>CHAN 39 RTN |
| 101<br>102 | J101-7<br>J101-39 | J2-31<br>J2-32 | BLU<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 40<br>CHAN 40 RTN |
| 103<br>104 | J101-70<br>J101-6 | J2-33<br>J2-34 | VIO<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 41<br>CHAN 41 RTN |
| 105<br>106 | J101-38<br>J101-69 | J2-35<br>J2-36 | GRY<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 42<br>CHAN 42 RTN |
| 107<br>108 | J101-5<br>J101-37 | J2-37<br>J2-38 | WHT<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 43<br>CHAN 43 RTN |
| 109<br>110 | J101-68<br>J101-4 | J2-39<br>J2-40 | BLK<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 44<br>CHAN 44 RTN |
| 111<br>112 | J101-36<br>J101-67 | J2-41<br>J2-42 | BRN<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 45<br>CHAN 45 RTN |
| 113<br>114 | J101-3<br>J101-35 | J2-43<br>J2-44 | RED<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 46<br>CHAN 46 RTN |
| 115<br>116 | J101-66<br>J101-2 | J245<br>J2-46 | ORN<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 47<br>CHAN 47 RTN |
| 117<br>118 | J101-34<br>J101-65 | J2-47<br>J2-48 | YEL<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CHAN 48<br>CHAN 48 RTN |
| 119<br>120 | J101-1<br>J101-3; | J2-49<br>J2-50 | GRN<br>TAN | 407252<br>407252 | 41.5"<br>41.5" | CLOCK IN<br>CLOCK IN RTN |
| 121<br>122 | J101-96<br>J101-32 | J3-1<br>J3-2 | BRN<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 49<br>CHAN 49 RTN |
| 123<br>124 | J101-64<br>J101-95 | J3-3<br>J3-4 | RED<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 50<br>CHAN 50 RTN |
| 125<br>126 | J101-31<br>J101-63 | J3-5<br>J3-6 | ORN<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 51<br>CHAN 51 RTN |
| 127<br>128 | J101-94<br>J101-30 | J3-7<br>J3-8 | YEL<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 52<br>CHAN 52 RTN |
| 129<br>130 | J101-62<br>J101-93 | J3-9<br>J3-10 | GRN<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 53<br>CHAN 53 RTN |
| 131<br>132 | J101-29<br>J101-61 | J3-11<br>J3-12 | BLU<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 54<br>CHAN 54 RTN |
| 133<br>134 | J101-92<br>J101-28 | J3-13<br>J3-14 | VIO<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 55<br>CHAN 55 RTN |
| 135<br>136 | J101-60<br>J101-91 | J3-15<br>J3-16 | GRY<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 56<br>CHAN 56 RTN |
| 137<br>138 | J101-27<br>J101-59 | J3-17<br>J3-18 | WHT<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 57<br>CHAN 57 RTN |
| 139<br>140 | J101-90<br>J101-26 | J3-19<br>J3-20 | BLK<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 58<br>CHAN 58 RTN |
| 141<br>142 | J101-58<br>J101-89 | J3-21<br>J3-22 | BRN<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 59<br>CHAN 59 RTN |
| 143<br>144 | J101-25<br>J101-57 | J3-23<br>J3-24 | RED<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 60<br>CHAN 60 RTN |

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| WIRE | FROM | TO | TYPE | PART # | WIRE LEN | REFERENCE |
|---|---|---|---|---|---|---|
| 145<br>146 | J101-88<br>J101-24 | J3-25<br>J3-26 | ORN<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 61<br>CHAN 61 RTN |
| 147<br>148 | J101-56<br>J101-87 | J3-27<br>J3-28 | YEL<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 62<br>CHAN 62 RTN |
| 149<br>150 | J101-23<br>J101-55 | J3-29<br>J3-30 | ORN<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 63<br>CHAN 63 RTN |
| 151<br>152 | J101-86<br>J101-22 | J3-31<br>J3-32 | BLU<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 64<br>CHAN 64 RTN |
| 153<br>154 | J101-54<br>J101-85 | J3-33<br>J3-34 | VIO<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 65<br>CHAN 65 RTN |
| 155<br>156 | J101-21<br>J101-53 | J3-35<br>J3-36 | GRY<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 66<br>CHAN 66 RTN |
| 157<br>158 | J101-84<br>J101-20 | J3-37<br>J3-38 | WHT<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 67<br>CHAN 67 RTN |
| 159<br>160 | J101-52<br>J101-83 | J3-39<br>J3-40 | BLK<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 68<br>CHAN 68 RTN |
| 161<br>162 | J101-19<br>J101-51 | J3-41<br>J3-42 | BRN<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 69<br>CHAN 69 RTN |
| 163<br>164 | J101-82<br>J101-18 | J3-43<br>J3-44 | RED<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 70<br>CHAN 70 RTN |
| 165<br>166 | J101-50<br>J101-81 | J3-45<br>J3-46 | ORN<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CIIAN 71<br>CHAN 71 RTN |
| 167<br>168 | J101-17<br>J101-49 | J3-47<br>J3-48 | YEL<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | CHAN 72<br>CHAN 72 RTN |
| 169<br>170 | J101-80<br>J101-16 | J3-49<br>J3-50 | GRN<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | EDRVR 00/VEXT 01<br>EDRVR 00/VEXT 01 RTN |
| 171<br>172 | J101-48<br>J101-79 | J3-51<br>J3-52 | BLU<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | EDRVR 01/VEXT 02<br>EDRVR 01/VEXT 02 RTN |
| 173<br>174 | J101-15<br>J101-47 | J3-53<br>J3-54 | VIO<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | EDRVR 02/VEXT 03<br>EDRVR 02/VEXT 03 RTN |
| 175<br>176 | J101-78<br>J101-14 | J3-55<br>J3-56 | GRY<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | EDRVR 03/VEXT 04<br>EDRVR 03/VEXT 04 RTN |
| 177<br>178 | J101-46<br>J101-77 | J3-57<br>J3-58 | WHT<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | EDRVR 04/VEKT 05<br>EDRVR 04/VEXT 05 RTN |
| 179<br>180 | J101-13<br>J101-45 | J3-59<br>J3-60 | BLK<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | EDRVR 05/VEXT 06<br>EDRVR 05/VEXT 06 RTN |
| 181<br>182 | J101-76<br>J101-12 | NO CONNECT<br>NO CONNECT | | | | |
| 183<br>184 | J101-44<br>J101-75 | NO CONNECT<br>NO CONNECT | | | | |
| 185<br>186 | J101-11<br>J101-43 | NO CONNECT<br>NO CONNECT | | | | |
| 187<br>188 | J101-74<br>J101-10 | NO CONNECT<br>NO CONNECT | | | | |
| 189<br>190 | J101-42<br>J101-73 | NO CONNECT<br>NO CONNECT | | | | |
| 191<br>192 | J101-9<br>J101-41 | NO CONNECT<br>NO CONNECT | | | | |

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# ENGINEERING WIRE LIST

| WIRE | FROM | TO | TYPE | PART # | WIRE LEN | REFERENCE |
|---|---|---|---|---|---|---|
| 193 | J102-64 | J4-1 | BRN | 407256 | 41.5" | CHAN 73 |
| 194 | J102-32 | J4-2 | TAN | 407256 | 41.5" | CHAN 73 RTN |
| 195 | J102-63 | J4-3 | RED | 407256 | 41.5" | CHAN 74 |
| 196 | J102-31 | J4-4 | TAN | 407256 | 41.5" | CHAN 74 RTN |
| 197 | J102-62 | J4-5 | ORN | 407256 | 41.5" | CHAN 75 |
| 198 | J102-30 | J4-6 | TAN | 407256 | 41.5" | CHAN 75 RTN |
| 199 | J102-61 | J4-7 | YEL | 407256 | 41.5" | CHAN 76 |
| 200 | J102-29 | J4-8 | TAN | 407256 | 41.5" | CHAN 76 RTN |
| 201 | J102-60 | J4-9 | GRN | 407256 | 41.5" | CHAN 77 |
| 202 | J102-28 | J4-10 | TAN | 407256 | 41.5" | CHAN 77 RTN |
| 203 | J102-59 | J4-11 | BLU | 407256 | 41.5" | CHAN 78 |
| 204 | J102-27 | J4-12 | TAN | 407256 | 41.5" | CHAN 78 RTN |
| 205 | J102-58 | J4-13 | VIO | 407256 | 41.5" | CHAN 79 |
| 206 | J102-26 | J4-14 | TAN | 407256 | 41.5" | CHAN 79 RTN |
| 207 | J102-57 | J4-15 | GRY | 407256 | 41.5" | CHAN 80 |
| 208 | J102-25 | J4-16 | TAN | 407256 | 41.5" | CHAN 80 RTN |
| 209 | J102-56 | J4-17 | WHT | 407256 | 41.5" | CHAN 81 |
| 210 | J102-24 | J4-18 | TAN | 407256 | 41.5" | CHAN 81 RTN |
| 211 | J102-55 | J4-19 | BLK | 407256 | 41.5" | CHAN 82 |
| 212 | J102-23 | J4-20 | TAN | 407256 | 41.5" | CHAN 82 RTN |
| 213 | J102-54 | J4-21 | BRN | 407256 | 41.5" | CHAN 83 |
| 214 | J102-22 | J4-22 | TAN | 407256 | 41.5" | CHAN 83 RTN |
| 215 | J102-53 | J4-23 | RED | 407256 | 41.5" | CHAN 84 |
| 216 | J102-21 | J4-24 | TAN | 407256 | 41.5" | CHAN 84 RTN |
| 217 | J102-52 | J4-25 | ORN | 407256 | 41.5" | CHAN 85 |
| 218 | J102-20 | J4-26 | TAN | 407256 | 41.5" | CHAN 85 RTN |
| 219 | J102-51 | J4-27 | YEL | 407256 | 41.5" | CHAN 86 |
| 220 | J102-19 | J4-28 | TAN | 407256 | 41.5" | CHAN 86 RTN |
| 221 | J102-50 | J4-29 | GRN | 407256 | 41.5" | CHAN 87 |
| 222 | J102-18 | J4-30 | TAN | 407256 | 41.5" | CHAN 87 RTN |
| 223 | J102-49 | J4-31 | BLU | 407256 | 41.5" | CHAN 88 |
| 224 | J102-17 | J4-32 | TAN | 407256 | 41.5" | CHAN 88 RTN |
| 225 | J102-48 | J4-33 | VIO | 407256 | 41.5" | CHAN 89 |
| 226 | J102-16 | J4-34 | TAN | 407256 | 41.5" | CHAN 89 RTN |
| 227 | J102-47 | J4-35 | GRY | 407256 | 41.5" | CHAN 90 |
| 228 | J102-15 | J4-36 | TAN | 407256 | 41.5" | CHAN 90 RTN |
| 229 | J102-46 | J4-37 | WHT | 407256 | 41.5" | CHAN 91 |
| 230 | J102-14 | J4-38 | TAN | 407256 | 41.5" | CHAN 91 RTN |
| 231 | J102-45 | J4-39 | BLK | 407256 | 41.5" | CHAN 92 |
| 232 | J102-13 | J440 | TAN | 407256 | 41.5" | CHAN 92 RTN |
| 233 | J102-44 | J441 | BRN | 407256 | 41.5" | CHAN 93 |
| 234 | J102-12 | J442 | TAN | 407256 | 41.5" | CHAN 93 RTN |
| 235 | J102-43 | J443 | RED | 407256 | 41.5" | CHAN 94 |
| 236 | J102-11 | J444 | TAN | 407256 | 41.5" | CHAN 94 RTN |
| 237 | J102-42 | J4-45 | ORN | 407256 | 41.5" | CHAN 95 |
| 238 | J102-10 | J446 | TAN | 407256 | 41.5" | CHAN 95 RTN |
| 239 | J102-41 | J447 | YEL | 407256 | 41.5" | CHAN 96 |
| 240 | J102-9 | J448 | TAN | 407256 | 41.5" | CHAN 96 RTN |
| 241 | J102-40 | J449 | GRN | 407256 | 41.5" | EDRVR 06/VEXT 07 |
| 242 | J102-8 | J4-50 | TAN | 407256 | 41.5" | EDRVR 06/VEXT 07 RTN |

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# ENGINEERING WIRE LIST

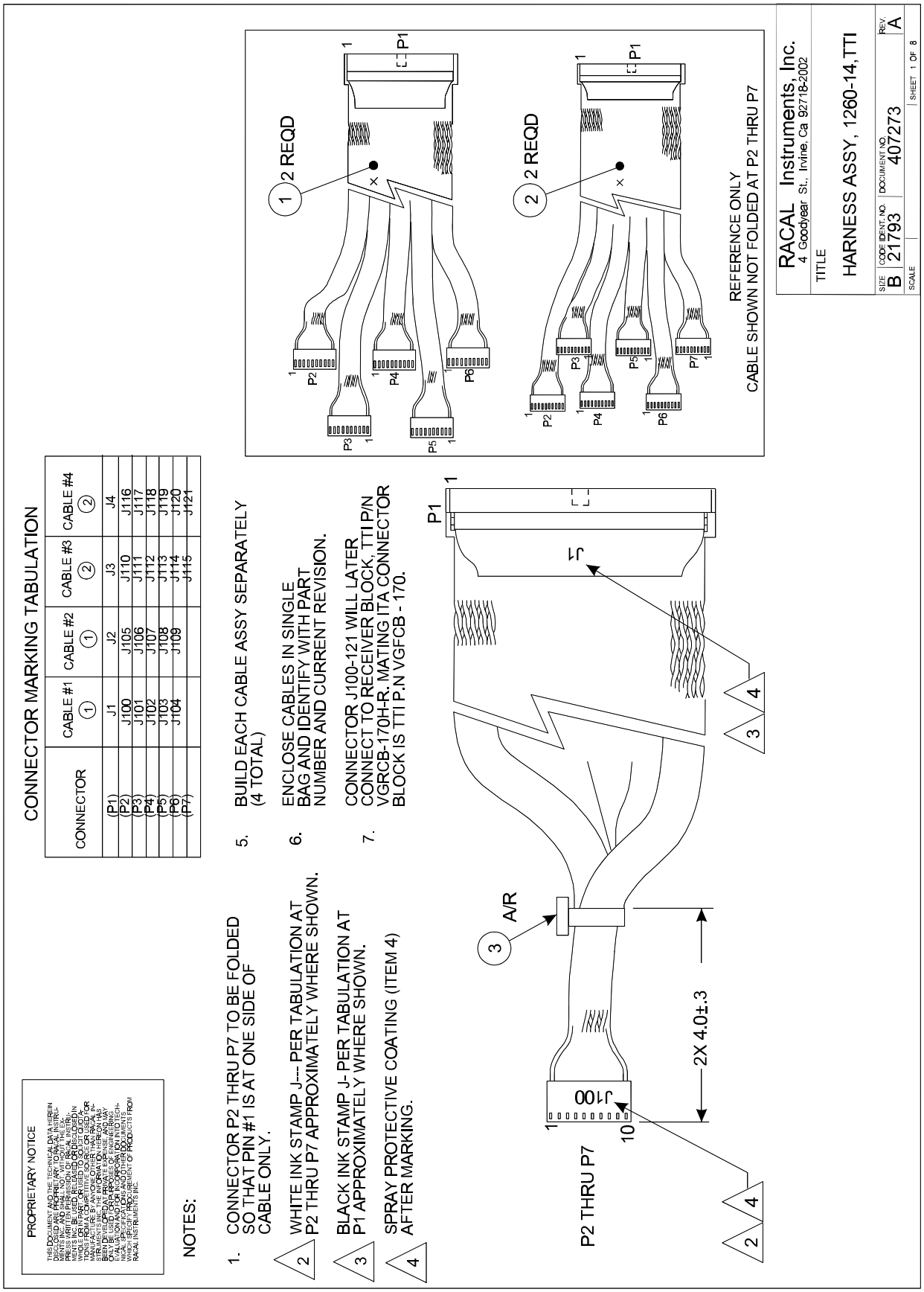
| WIRE | FROM | TO | TYPE | PART # | WIRE LEN | REFERENCE |
|---|---|---|---|---|---|---|
| 243<br>244 | J102-39<br>J102-7 | J4-51<br>J4-52 | BLU<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | EDRVR 07IVEXT 08<br>EDRVR 07IVEXT 08 RTN |
| 245<br>246 | J102-38<br>J102-6 | J4-53<br>J4-54 | VIO<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | EDRVR 08/VEXT 09<br>EDRVR 08/VEXT 09 RTN |
| 247<br>248 | J102-37<br>J102-5 | J4-55<br>J4-56 | GRY<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | EDRVR 09/VEXT 10<br>EDRVR 09/VEXT 10 RTN |
| 249<br>250 | J102-36<br>J1024 | J4-57<br>J4-58 | WHT<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | EDRVR 10/VEXT 11<br>EDRVR 10/VENT 11 RTN |
| 251<br>252 | J102-35<br>J102-3 | J4-59<br>J4-60 | BLK<br>TAN | 407256<br>407256 | 41.5"<br>41.5" | EDRVR 11/VEXT 12<br>EDRVR 11/VEXT 12 RTN |
| 253<br>254 | J102-34<br>J102-2 | NO CONNECT<br>NO CONNECT | | | | |
| 255<br>256 | J102-33<br>J102-1 | NO CONNECT<br>NO CONNECT | | | | |

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## ENGINEERING PARTS LIST

| ITEM | BIN | PART NO. | DESCRIPTION | QTY | REFERENCE |
|---|---|---|---|---|---|
| 1 | | 407250 | CABLE ASSY, IDC, 50-COND, TTI | 2 | |
| 2 | | 407255 | CABLE ASSY, IDC, 60-COND, TTI | 2 | |
| 3 | | 610777 | TIE-CA-LKG-.062-.075 | A/R | |
| 4 | | 910541 | POLYURETHANE CONFORMAL COAT | A/R | |

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|---|---|---|---|---|
| DOCUMENT TI'LE | SIZE. | CODE NO | DOCUMENT NO. | REV |
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| | DRN | | SHEET 2 of 8 | |



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## ENGINEERING WIRE LIST

| WIRE | FROM | TO | TYPE | PART # | WIRE LEN | REFERENCE |
|---|---|---|---|---|---|---|
| | BLK AAx RW 0l (J100) | Uxx-SLOT yy (JI) | CABLE | 407273 | | SYSTEM WIRE LIST |
| | BLK AAx RW 02 (3101) | Uxx-SLOT yy (J1) | CABLE | 407273 | | |
| | BLK AAx RW 03 (J102) | Uxx-SLOT yy (J1) | CABLE | 407273 | | |
| | BLK AAx RW 04 (J103) | Uxx-SLOT yy (JI) | CABLE | 407273 | | |
| | BLK AAx Rw 05 (J104) | Uxx-S LOT yy (J1) | CABLE | 407273 | | |
| | BLK AAx RW 06 (J105) | Uxx-S LOT yy (J2) | CABLE | 407273 | | |
| | BLK AAx RW 07 (J106) | Uxx-SLOT yy (J2) | CABLE | 407273 | | |
| | BLK AAx RW 08 (J107) | Uxx-SLOT yy (J2) | CABLE | 407273 | | |
| | BLK AAx RW 09 (J108) | Uxx-SLOT yy (J2) | CABLE | 407273 | | |
| | BLK AAx RW 10 (J109) | Uxx-SLOT yy (J2) | CABLE | 407273 | | |
| | BLK AAx RW 11 (J110) | Uxx-SLOT yy (J3) | CABLE | 407273 | | |
| | BLK AAx RW 12 (J111) | Uxx-SLOT yy (J3) | CABLE | 407273 | | |
| | BLK AAx RW 13 (J112) | Uxx-SLOT yy (J3) | CABLE | 407273 | | |
| | BLK AAx RW 14 (J113) | Uxx-SLOT yy (J3) | CABLE | 407273 | | |
| | BLK AAx RW 15 (J114) | Uxx-SLOT yy (J3) | CABLE | 407273 | | |
| | BLK AAx RW 16 (J115) | Uxx-SLOT yy (J3) | CABLE | 407273 | | |
| | BLK AAx RW 17 (J116) | Uxx-SLOT yy (J4) | CABLE | 407273 | | |
| | BLK AAx RW 0l (J117) | Uxx-SLOT yy (J4) | CABLE | 407273 | | |
| | BLK AAx RW 02 (J118) | Uxx-SLOT yy (J4) | CABLE | 407273 | | |
| | BLK AAx RW 03 (J119) | Uxx-SLOT yy (J4) | CABLE | 407273 | | |
| | BLK AAx RW 04 (J120) | Uxx-SLOT yy (J4) | CABLE | 407273 | | |
| | BLK Aax RW 05 (J121) | Uxx-SLOT yy (J4) | CABLE | 407273 | | |

This system wirelist serves as a template for incorporating this harness assembly into the overall system wirelist. It does not in any way affect the fabrication of this harness assembly.

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## ENGINEERING WIRE LIST

| WIRE | FROM | TO | TYPE | PART # | WIRE LEN | REFERENCE |
|---|---|---|---|---|---|---|
| 1 | J100-1 | J1-1 | BRN | 407250 | 41.5" | CHAN 01 |
| 2 | J100-2 | J1-2 | TAN | 407250 | 41.5" | CHAN 01 RTN |
| 3 | J100-3 | J1-3 | RED | 407250 | 41.5" | CHAN 02 |
| 4 | J100-4 | J1-4 | TAN | 407250 | 41.5" | CHAN 02 RTN |
| 5 | J100-5 | J1-5 | ORN | 407250 | 41.5" | CHAN 03 |
| 6 | J100-6 | J1-6 | TAN | 407250 | 41.5" | CHAN 03 RTN |
| 7 | JJ00-7 | J1-7 | YEL | 407250 | 41.5" | CHAN 04 |
| 8 | J100-8 | J1-8 | TAN | 407250 | 41.5" | CHAN 04 RTN |
| 9 | J100-9 | J1-9 | GRN | 407250 | 41.5" | CHAN 05 |
| 10 | J100-10 | J1-10 | TAN | 407250 | 41.5" | CHAN 05 RTN |
| 11 | J101-10 | J1-11 | BLU | 407250 | 41.5" | CHAN 06 |
| 12 | J101-9 | J1-12 | TAN | 407250 | 41.5" | CHAN 06 RTN |
| 13 | J101-8 | J1-13 | VIO | 407250 | 41.5" | CHAN 07 |
| 14 | J101-7 | J1-14 | TAN | 407250 | 41.5" | CHAN 07 RTN |
| 15 | J101-6 | J1-15 | GRY | 407250 | 41.5" | CHAN 08 |
| 16 | J101-5 | J1-16 | TAN | 407250 | 41.5" | CHAN 08 RTN |
| 17 | J101-4 | J1-17 | WHT | 407250 | 41.5" | CHAN 09 |
| 18 | J101-3 | J1-18 | TAN | 407250 | 41.5" | CHAN 09 RTN |
| 19 | J101-2 | J1-19 | BLK | 407250 | 41.5" | CHAN 10 |
| 20 | J101-1 | J1-20 | TAN | 407250 | 41.5" | CHAN 10 RTN |
| 21 | J102-1 | J1-21 | BRN | 407250 | 41.5" | CHAN 11 |
| 22 | J102-2 | J1-22 | TAN | 407250 | 41.5" | CHAN 11 RTN |
| 23 | J102-3 | J1-23 | RED | 407250 | 41.5" | CHAN 12 |
| 24 | J102-4 | J1-24 | TAN | 407250 | 41.5" | CHAN 12 RTN |
| 25 | J102-5 | J1-25 | ORN | 407250 | 41.5" | CHAN 13 |
| 26 | J102-6 | J1-26 | TAN | 407250 | 41.5" | CHAN 13 RTN |
| 27 | J102-7 | J1-27 | YEL | 407250 | 41.5" | CHAN 14 |
| 28 | J102-8 | J1-28 | TAN | 407250 | 41.5" | CHAN 14 RTN |
| 29 | J102-9 | J1-29 | GRN | 407250 | 41.5" | CHAN 15 |
| 30 | J102-10 | J1-30 | TAN | 407250 | 41.5" | CHAN 15 RTN |
| 31 | J103-10 | J1-31 | BLU | 407250 | 41.5" | CHAN 16 |
| 32 | J103-9 | J1-32 | TAN | 407250 | 41.5" | CHAN 16 RTN |
| 33 | J103-8 | J1-33 | VIO | 407250 | 41.5" | CHAN 17 |
| 34 | J103-7 | J1-34 | TAN | 407250 | 41.5" | CHAN 17 RTN |
| 35 | J103-6 | J1-35 | GRY | 407250 | 41.5" | CHAN 18 |
| 36 | J103-5 | J1-36 | TAN | 407250 | 41.5" | CHAN 18 RTN |
| 37 | J103-4 | J1-37 | WHT | 407250 | 41.5" | CHAN 19 |
| 38 | J103-3 | J1-38 | TAN | 407250 | 41.5" | CHAN 19 RTN |
| 39 | J103-2 | J1-39 | BLK | 407250 | 41.5" | CHAN 20 |
| 40 | J103-1 | J1-40 | TAN | 407250 | 41.5" | CHAN 20 RTN |
| 41 | J104-1 | J1-41 | BRN | 407250 | 41.5" | CHAN 21 |
| 42 | J104-2 | J1-42 | TAN | 407250 | 41.5" | CHAN 21 RTN |
| 43 | J104-3 | J1-43 | RED | 407250 | 41.5" | CHAN 22 |
| 44 | J104-4 | J1-44 | TAN | 407250 | 41.5" | CHAN 22 RTN |
| 45 | J104-5 | J1-45 | ORN | 407250 | 41.5" | CHAN 23 |
| 46 | J104-6 | J1-46 | TAN | 407250 | 41.5" | CHAN 23 RTN |
| 47 | J104-7 | J1-47 | YEL | 407250 | 41.5" | CHAN 24 |
| 48 | J104-8 | J1-48 | TAN | 407250 | 41.5" | CHAN 24 RTN |
| 49 | J104-9 | J1-49 | GRN | 407250 | 41.5" | BUSY |
| 50 | J104-10 | J1-50 | TAN | 407250 | 41.5" | GND |

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## ENGINEERING WIRE LIST

| WIRE | FROM | TO | TYPE | PART # | WIRE LEN | REFERENCE |
|---|---|---|---|---|---|---|
| 51 | J105-1 | J2-1 | BRN | 407250 | 41.5" | CHAN2S |
| 52 | J105-2 | J2-2 | TAN | 407250 | 41.5" | CHAN 25 RTN |
| 53 | J105-3 | J2-3 | RED | 407250 | 41.5" | CHAN 26 |
| 54 | J105-4 | J2-4 | TAN | 407250 | 41.5" | CHAN 26 RTN |
| 55 | J105-5 | J2-5 | ORN | 407250 | 41.5" | CHAN 27 |
| 56 | J105-6 | J2-6 | TAN | 407250 | 41.5" | CHAN 27 RTN |
| 57 | J105-7 | J2-7 | YEL | 407250 | 41.5" | CHAN 28 |
| 58 | J105-8 | J2-8 | TAN | 407250 | 41.5" | CHAN 28 RTN |
| 59 | J105-9 | J2-9 | GRN | 407250 | 41.5" | CHAN 29 |
| 60 | J105-10 | J2-10 | TAN | 407250 | 41.5" | CHAN 29 RTN |
| 61 | J106-10 | J2-11 | BLU | 407250 | 41.5" | CHAN 30 |
| 62 | J106-9 | J2-12 | TAN | 407250 | 41.5" | CHAN 30 RTN |
| 63 | J106-8 | J2-13 | VIO | 407250 | 41.5" | CHAN 31 |
| 64 | J106-7 | J2-14 | TAN | 407250 | 41.5" | CHAN 31 RTN |
| 65 | J106-6 | J2-15 | GRY | 407250 | 41.5" | CHAN 32 |
| 66 | J106-5 | J2-16 | TAN | 407250 | 41.5" | CHAN 32 RTN |
| 67 | J106-4 | J2-17 | WHT | 407250 | 41.5" | CHAN 33 |
| 68 | J106-3 | J2-18 | TAN | 407250 | 41.5" | CHAN 33 RTN |
| 69 | J106-2 | J2-19 | BLK | 407250 | 41.5" | CHAN 34 |
| 70 | J106-1 | J2-20 | TAN | 407250 | 41.5" | CHAN 34 RTN |
| 71 | J107-1 | J2-21 | BRN | 407250 | 41.5" | CHAN 35 |
| 72 | J107-2 | J2-22 | TAN | 407250 | 41.5" | CHAN 35 RTN |
| 73 | J107-3 | J2-23 | RED | 407250 | 41.5" | CHAN 36 |
| 74 | J107-4 | J2-24 | TAN | 407250 | 41.5" | CHAN 36 RTN |
| 75 | J107-5 | J2-25 | ORN | 407250 | 41.5" | CHAN 37 |
| 76 | J107-6 | J2-26 | TAN | 407250 | 41.5" | CHAN 37 RTN |
| 77 | J107-7 | J2-27 | YEL | 407250 | 41.5" | CHAN 38 |
| 78 | J107-8 | J2-28 | TAN | 407250 | 41.5" | CHAN 38 RTN |
| 79 | J107-9 | J2-29 | GRN | 407250 | 41.5" | CHAN 39 |
| 80 | J107-10 | J2-30 | TAN | 407250 | 41.5" | CHAN 39 RTN |
| 81 | J108-10 | J2-31 | BLU | 407250 | 41.5" | CHAN 40 |
| 82 | J108-9 | J2-32 | TAN | 407250 | 41.5" | CHAN 40 RTN |
| 83 | J108-8 | J2-33 | VIO | 407250 | 41.5" | CHAN 41 |
| 84 | J108-7 | J2-34 | TAN | 407250 | 41.5" | CHAN 41 RTN |
| 85 | J108-6 | J2-35 | GRY | 407250 | 41.5" | CHAN 42 |
| 86 | J108-5 | J2-36 | TAN | 407250 | 41.5" | CHAN 42 RTN |
| 87 | J108-4 | J2-37 | WHT | 407250 | 41.5" | CHAN 43 |
| 88 | J108-3 | J2-38 | TAN | 407250 | 41.5" | CHAN 43 RTN |
| 89 | J108-2 | J2-39 | BLK | 407250 | 41.5" | CHAN 44 |
| 90 | J108-1 | J2-40 | TAN | 407250 | 41.5" | CHAN 44 RTN |
| 91 | J109-1 | J2-41 | BRN | 407250 | 41.5" | CHAN 45 |
| 92 | J109-2 | J2-42 | TAN | 407250 | 41.5" | CHAN 45 RTN |
| 93 | J109-3 | J2-43 | RED | 407250 | 41.5" | CHAN 46 |
| 94 | J109-4 | J2-44 | TAN | 407250 | 41.5" | CHAN 46 RTN |
| 95 | J109-5 | J2-45 | ORN | 407250 | 41.5" | CHAN 47 |
| 96 | J109-6 | J2-46 | TAN | 407250 | 41.5' | CHAN 47 RTN |
| 97 | J109-7 | J2-47 | YEL | 407250 | 41.5" | CHAN 48 |
| 98 | J109-8 | J2-48 | TAN | 407250 | 41.5" | CHAN 48 RTN |

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## ENGINEERING WIRE LIST

| WIRE | FROM | TO | TYPE | PART # | WIRE LEN | REFERENCE |
|---|---|---|---|---|---|---|
| 99 | J109-9 | J2-49 | ORN | 407250 | 41.5" | CLOCK IN |
| 100 | J109-10 | J2-50 | TAN | 407250 | 41.5" | CLOCK IN RTN |
| 101 | J110-1 | J3-1 | BRN | 407255 | 41.5" | CHAN 49 |
| 102 | J110-2 | J3-2 | TAN | 407255 | 41.5" | CHAN 49 RTN |
| 103 | J110-3 | J3-3 | RED | 407255 | 41.5" | CHAN 50 |
| 104 | J110-4 | J3-4 | TAN | 407255 | 41.5" | CHAN 50 RTN |
| 105 | J110-5 | J3-5 | ORN | 407255 | 41.5" | CHAN 51 |
| 106 | J110-6 | J3-6 | TAN | 407255 | 41.5" | CHAN 51 RTN |
| 107 | J110-7 | J3-7 | YEL | 407255 | 41.5" | CHAN 52 |
| 108 | J110-8 | J3-8 | TAN | 407255 | 41.5" | CHAN 52 RTN |
| 109 | J110-9 | J3-9 | GRN | 407255 | 41.5" | CHAN 53 |
| 110 | J110-10 | J3-10 | TAN | 407255 | 41.5" | CHAN 53 RTN |
| 111 | J111-10 | J3-11 | BLU | 407255 | 41.5" | CHAN 54 |
| 112 | J111-9 | J3-12 | TAN | 407255 | 41.5" | CHAN 54 RTN |
| 113 | J111-8 | J3-13 | VIO | 407255 | 41.5" | CHAN 55 |
| 114 | J111-7 | J3-14 | TAN | 407255 | 41.5" | CHAN 55 RTN |
| 115 | J111-6 | J3-15 | GRY | 407255 | 41.5" | CHAN 56 |
| 116 | J111-5 | J3-16 | TAN | 407255 | 41.5" | CHAN 56 RTN |
| 117 | J111-4 | J3-17 | WHT | 407255 | 41.5" | CHAN 57 |
| 118 | J111-3 | J3-18 | TAN | 407255 | 41.5" | CHAN 57 RTN |
| 119 | J111-2 | J3-19 | BLK | 407255 | 41.5" | CHAN 58 |
| 120 | J111-1 | J3-20 | TAN | 407255 | 41.5" | CHAN 58 RTN |
| 121 | J112-1 | J3-21 | BRN | 407255 | 41.5" | CHAN 59 |
| 122 | J112-2 | J3-22 | TAN | 407255 | 41.5" | CHAN 59 RTN |
| 123 | J112-3 | J3-23 | RED | 407255 | 41.5" | CHAN 60 |
| 124 | J112-4 | J3-24 | TAN | 407255 | 41.5" | CHAN 60 RTN |
| 125 | J112-5 | J3-25 | ORN | 407255 | 41.5" | CHAN 61 |
| 126 | J112-6 | J3-26 | TAN | 407255 | 41.5" | CHAN 61 RTN |
| 127 | J112-7 | J3-27 | YEL | 407255 | 41.5" | CHAN 62 |
| 128 | J112-8 | J3-28 | TAN | 407255 | 41.5" | CHAN 62 RTN |
| 129 | J112-9 | J3-29 | GRN | 407255 | 41.5" | CHAN 63 |
| 130 | J112-10 | J3-30 | TAN | 407255 | 41.5" | CHAN 63 RTN |
| 131 | J113-10 | J3-31 | BLU | 407255 | 41.5" | CHAN 64 |
| 132 | J113-9 | J3-32 | TAN | 407255 | 41.5" | CHAN 64 RTN |
| 133 | J113-8 | J3-33 | VIO | 407255 | 41.5" | CHAN 65 |
| 134 | J113-7 | J3-34 | TAN | 407255 | 41.5" | CHAN 65 RTN |
| 135 | J113-6 | J3-35 | GRY | 407255 | 41.5" | CHAN 66 |
| 136 | J113-5 | J3-36 | TAN | 407255 | 41.5" | CHAN 66 RTN |
| 137 | J113-4 | J3-37 | WHT | 407255 | 41.5" | CHAN 67 |
| 138 | J113-3 | J3-38 | TAN | 407255 | 41.5" | CHAN 67 RTN |
| 139 | J113-2 | J3-39 | BLK | 407255 | 41.5" | CHAN 68 |
| 140 | J113-1 | J3-40 | TAN | 407255 | 41.5" | CHAN 68 RTN |
| 141 | J114-1 | J3-41 | BRN | 407255 | 41.5" | CHAN 69 |
| 142 | J114-2 | J3-42 | TAN | 407255 | 41.5" | CHAN 69 RTN |
| 143 | J114-3 | J3-43 | RED | 407255 | 41.5" | CHAN 70 |
| 144 | J114-4 | J3-44 | TAN | 407255 | 41.5" | CHAN 70 RTN |
| 145 | J114-5 | J3-45 | ORN | 407255 | 41.5" | CHAN 7I |
| 146 | J114-6 | J3-46 | TAN | 407255 | 41.5" | CHAN 71 RTN |

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## ENGINEERING WIRE LIST

| WIRE | FROM | TO | TYPE | PART # | WIRE LEN | REFERENCE |
|---|---|---|---|---|---|---|
| 147 | J114-7 | J3-47 | YEL | 407255 | 41.5" | CHAN 72 |
| 148 | J114-8 | J3-48 | TAN | 407255 | 41.5" | CHAN 72 RTN |
| 149 | J114-9 | J3-49 | GRN | 407255 | 41.5" | EDRVR 00 |
| 150 | J114-10 | J3-50 | TAN | 407255 | 41.5" | EDRVR 00 RTN |
| 151 | J115-10 | J3-51 | BLU | 407255 | 41.5" | EDRVR 01 |
| 152 | J115-9 | J3-52 | TAN | 407255 | 41.5" | EDRVR 01 RTN |
| 153 | J115-8 | J3-53 | VIO | 407255 | 41.5" | EDRVR 02 |
| 154 | J115-7 | J3-54 | TAN | 407255 | 41.5" | EDRVR 02 RTN |
| 155 | J115-6 | J3-55 | GRY | 407255 | 41.5" | EDRVR 03 |
| 156 | J115-5 | J3-56 | TAN | 407255 | 41.5" | EDRVR 03 RTN |
| 157 | J115-4 | J3-57 | WHT | 407255 | 41.5" | EDRVR 04 |
| 158 | J115-3 | J3-58 | TAN | 407255 | 41.5" | EDRVR 04 RTN |
| 159 | J115-2 | J3-59 | BLK | 407255 | 41.5" | EDRVR 05 |
| 160 | J115-1 | J3-60 | TAN | 407255 | 41.5" | EDRVR 05 RTN |
| 161 | J116-1 | J4-1 | BRN | 407255 | 41.5" | CHAN 73 |
| 162 | J116-2 | J4-2 | TAN | 407255 | 41.5" | CHAN 73 RTN |
| 163 | J116-3 | J4-3 | RED | 407255 | 41.5" | CHAN 74 |
| 164 | J116-4 | J4-4 | TAN | 407255 | 41.5" | CHAN 74 RTN |
| 165 | J116-5 | J4-5 | ORN | 407255 | 41.5" | CHAN 75 |
| 166 | J116-6 | J4-6 | TAN | 407255 | 41.5" | CHAN 75 RTN |
| 167 | J116-7 | J4-7 | YEL | 407255 | 41.5" | CHAN 76 |
| 168 | J116-8 | J4-8 | TAN | 407255 | 41.5" | CHAN 76 RTN |
| 169 | J116-9 | J4-9 | GRN | 407255 | 41.5" | CHAN 77 |
| 170 | J116-10 | J4-10 | TAN | 407255 | 41.5" | CHAN 77 RTN |
| 171 | J117-10 | J4-11 | BLU | 407255 | 41.5" | CHAN 78 |
| 172 | J117-9 | J4-12 | TAN | 407255 | 41.5" | CHAN 78 RTN |
| 173 | J117-8 | J4-13 | VIO | 407255 | 41.5" | CHAN 79 |
| 174 | J117-7 | J4-14 | TAN | 407255 | 41.5" | CHAN 79 RTN |
| 175 | J117-6 | J4-15 | GRY | 407255 | 41.5" | CHAN 80 |
| 176 | J117-5 | J4-16 | TAN | 407255 | 41.5" | CHAN 80 RTN |
| 177 | J117-4 | J4-17 | WHT | 407255 | 41.5" | CHAN 81 |
| 178 | J117-3 | J4-18 | TAN | 407255 | 41.5" | CHAN 81 RTN |
| 179 | J117-2 | J4-19 | BLK | 407255 | 41.5" | CHAN 82 |
| 180 | J117-1 | J4-20 | TAN | 407255 | 41.5" | CHAN 82 RTN |
| 181 | J118-1 | J4-21 | BRN | 407255 | 41.5" | CIIAN 83 |
| 182 | J118-2 | J4-22 | TAN | 407255 | 41.5" | CHAN 83 RTN |
| 183 | J118-3 | J4-23 | RED | 407255 | 41.5" | CHAN 84 |
| 184 | J118-4 | J4-24 | TAN | 407255 | 41.5" | CHAN 84 RTN |
| 185 | J118-5 | J4-25 | ORN | 407255 | 41.5" | CHAN 85 |
| 186 | J118-6 | J4-26 | TAN | 407255 | 41.5" | CHAN 85 RTN |
| 187 | J118-7 | J4-27 | YEL | 407255 | 41.5" | CHAN 86 |
| 188 | J118-8 | J4-28 | TAN | 407255 | 41.5" | CHAN 86 RTN |
| 189 | J118-9 | J4-29 | GRN | 407255 | 41.5" | CHAN 87 |
| 190 | J118-10 | J4-30 | TAN | 407255 | 41.5" | CHAN 87 RTN |
| 191 | J119-10 | J4-31 | BLU | 407255 | 41.5" | CHAN 88 |
| 192 | J119-9 | J4-32 | TAN | 407255 | 41.5" | CHAN 88 RTN |
| 193 | J119-8 | J4-33 | VIO | 407255 | 41.5" | CHAN 89 |
| 194 | J119-7 | J4-34 | TAN | 407255 | 41.5" | CHAN 89 RTN |

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| HARNESS ASSY, 1260-14,TTI | A | 21793 | 407273 | A |
| | DRN | | | SHEET 7 of 8 |



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## ENGINEERING WIRE LIST

| WIRE | FROM | TO | TYPE | PART # | WIRE LEN | REFERENCE |
|---|---|---|---|---|---|---|
| 195 | J119-6 | J4-35 | GRY | 407255 | 41.5″ | CHAN 90 |
| 196 | J119-5 | J4-36 | TAN | 407255 | 41.5" | CHAN 90 RTN |
| 197 | J119-4 | J4-37 | WHT | 407255 | 41.5" | CHAN 91 |
| 198 | J119-3 | J4-38 | TAN | 407255 | 41.5" | CHAN 91 RTN |
| 199 | J119-2 | J4-39 | BLK | 407255 | 41.5" | CHAN 92 |
| 200 | J119-1 | J4-40 | TAN | 407255 | 41.5" | CHAN 92 RTN |
| 201 | J120-1 | J4-41 | BRN | 407255 | 41.5" | CHAN 93 |
| 202 | J120-2 | J4-42 | TAN | 407255 | 41.5" | CHAN 93 RTN |
| 203 | J120-3 | J4-43 | RED | 407255 | 41.5" | CHAN 94 |
| 204 | J120-4 | J4-44 | TAN | 407255 | 41.5" | CHAN 94 RTN |
| 205 | J120-5 | J4-45 | ORN | 407255 | 41.5" | CHAN 95 |
| 206 | J120-6 | J4-46 | TAN | 407255 | 41.5" | CHAN 95 RTN |
| 207 | J120-7 | J4-47 | YEL | 407255 | 41.5" | CHAN 96 |
| 208 | J120-8 | J4-48 | TAN | 407255 | 41.5" | CHAN 96 RTN |
| 209 | J120-9 | J4-49 | GRN | 407255 | 41.5" | EDRYR 06 |
| 210 | J120-10 | J4-50 | TAN | 407255 | 41.5" | EDRVR 06 RTN |
| 211 | J121-10 | J4-51 | BLU | 407255 | 41.5" | EDRVR 07 |
| 212 | J121-9 | J4-52 | TAN | 407255 | 41.5" | EDRVR 07 RTN |
| 213 | J121-8 | J4-53 | VIO | 407255 | 41.5" | EDRVR 08 |
| 214 | J121-7 | J4-54 | TAN | 407255 | 41.5" | EDRVR 08 RTN |
| 215 | J121-6 | J4-55 | GRY | 407255 | 41.5" | EDRVR 09 |
| 216 | J121-5 | J4-56 | TAN | 407255 | 41.5" | EDRVR 09 RTN |
| 217 | J121-4 | J4-57 | WHT | 407255 | 41.5" | EDRYR 10 |
| 218 | J121-3 | J4-58 | TAN | 407255 | 41.5" | EDRVR 10 RTN |
| 219 | J121-2 | J4-59 | BLK | 407255 | 41.5" | EDRVR 11 |
| 220 | J121-1 | J4-60 | TAN | 407255 | 41.5" | EDRVR 11 RTN |

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# Chapter 7
# PRODUCT SUPPORT

## Product Support

Racal Instruments has a complete Service and Parts Department. If you need technical assistance or should it be necessary to return your product for repair or calibration, call 1-800-722-3262. If parts are required to repair the product at your facility, call 1-949-859-8999 and ask for the Parts Department.

When sending your instrument in for repair, complete the form in the back of this manual.

For worldwide support and the office closest to your facility, refer to the Support Offices section on the following page.

## Reshipment Instructions

Use the original packing material when returning the 1260-14C to Racal Instruments for calibration or servicing. The original shipping crate and associated packaging material will provide the necessary protection for safe reshipment.

If the original packing material is unavailable, contact Racal Instruments Customer Service for information.



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## Support Offices

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