8332475O

CONTROL DATA

CDC® PROGRAMMABLE FIELD TEST UNIT

TB2A3

THEORY OF OPERATION
MAINTENANCE
DIAGRAMS
PARTS DATA

HARDWARE MAINTENANCE MANUAL

REVISION RECORD

REVISION	DESCRIPTION
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REVISION LETTERS I, O, Q AND X ARE NOT USED.

Address comments concerning this manual to:

Control Data Corporation
Technical Publications Dept.
5950 Clearwater Drive
Minnetonka, MN 55343

or use Comment Sheet in the back of this manual.

MANUAL TO EQUIPMENT LEVEL CORRELATION

This manual reflects the equipment configurations listed below.

EXPLANATION: Locate the equipment type and series code number, as shown on the Equipment Configuration Log, in the list below. Immediately to the right of the series code number is an FCO number. If that number and all of the numbers underneath it match all of the numbers on the Equipment Configuration Log, then this manual accurately reflects the equipment.

EQUIPMENT TYPE	SERIES CODE	WITH FCOs	COMMENTS
MH404K	01&Abv	07196	
MH406K	01&Abv	07183	
TB2A3B-F	01-07	None	
	08	07171	TB2A3-D,E,F only
TB2A3G,H	09		

LIST OF EFFECTIVE PAGES

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New features, as well as changes, deletions, and additions to information in this manual are indicated by bars in the margins or by a dot near the page number if the entire page is affected. A bar by the page number indicates pagination rather than content has changed.

PAGE	REV	PAGE	REV
Cover	-	Blank	-
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1-4	A	3-11	E
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1-7	A	3-14	F
1-8	A	3-15	E
1-9	A	3-16	E
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4-10	F	4-30	F
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4-13	F	Cmt Sht	-
4-14	F	Rtn Env	-
4-15	F	Blank	-
4-16	F	Cover	-

PREFACE

INTRODUCTION

This manual is prepared for maintenance personnel and provides theory of operation, maintenance, diagrams, and parts data for the CONTROL DATA® TB2A3 Programmable Field Test Unit (PFTU).

You should be familiar with the computer system, drive controller, and the drive logic. Also, you should already understand system programming techniques for executing I/O operations, including sequencing I/O commands and routing signals between the drive and its controller.

This manual is divided into four sections as follows:

Section 1 - Theory of Operation. Explains the function of each of the logical components in the tester.

Section 2 - Maintenance. Contains the procedures required to maintain and repair the PFTU.

Section 3 - Diagrams. Contains logic diagrams, both internal and I/O cabling diagrams, and a schematic diagram of the power supply.

Section 4 - Parts Data. Contains illustrated parts breakdown and spare parts list.

CONTENTS

FIGURES

TABLES

IMPORTANT SAFETY INFORMATION AND PRECAUTIONS

Proper safety and repair is important to the safe, reliable operation of this unit. Service should be done by qualified personnel only. This maintenance manual describes procedures recommended by the manufacturer as effective methods of servicing the unit. Some of these procedures require the use of specially designed tools. For proper maintenance and safety, these specially designed tools should be used as recommended.

The procedures in this maintenance manual and labels on the unit contain warnings and cautions which must be carefully read and observed in order to minimize or eliminate the risk of personal injury. The warnings point out conditions or practices that are potentially hazardous to maintenance personnel. The cautions point out practices which, if disregarded, could damage the unit and make it unsafe for use.

For the safety of maintenance and operating personnel, the following precautions must be observed:

- Perform all maintenance by following the procedures given in this manual and using only CDC/MPI replacement parts.
- Read and observe all cautions and warnings provided in the procedures and labeled on the unit.
- Use the special tools called out in the maintenance procedures.
- Observe sound safety practices when performing maintenance.
- Use caution when troubleshooting a unit that has voltages present. Remove power from unit before servicing or replacing components.
- Wear safety glasses when servicing units.
- Wear safety shoes when removing or replacing heavy components.

It is also important to understand that these warnings and cautions are not exhaustive. The manufacturer could not possibly know, evaluate and advise maintenance personnel of all conceivable ways in which maintenance might be performed or the possible risk of each maintenance technique. Consequently, the manufacturer has not completed any such broad evaluation. Thus, any persons who use any non-approved maintenance procedure or tool must first satisfy themselves that neither their safety nor the unit performance will be jeopardized by the maintenance techniques they select.

CONFIGURATION CHART

EQUIPMENT NUMBER	* INTERFACE	COMMENTS
TB2A3B	ISI	
TB2A3C	ISI, SDI	
TB2A3D	ISI, SDI, SMD-0	No longer available - replaced by TB2A3H.
TB2A3E	SMD-0, SDI	No longer available.
TB2A3F	SMD-0	No longer available - replaced by TB2A3G.
TB2A3G	SMD-0/E	
TB2A3H	ISI, SDI, SMD-0/E	

* See I/O board/Controlware Reference Information in Parts Data section to add interfaces to existing configurations.

ABBREVIATIONS

Abv	Above
ACIA	Asynchronous Communications Interface Adapter
ALU	Arithmetic/Logic Unit
ASCII	American National Standard Code for Information Interchange
Blw	Below
BPS	Bits Per Second
CM	Control Module
Cont	Controller
COS	Command Operating System
CRC	Cyclical Redundancy Check
CRT	Cathode Ray Tube
CRTC	Cathode Ray Tube Controller
DMA	Direct Memory Access
Drv	Drive
FCO	Field Change Order
FDD	Flexible Disk Drive
fm	From
ISI	Intelligent Standard Interface
MPU	Microprocessor Unit
PFTU	Programmable Field Test Unit
PIA	Peripheral Interface Adapter
RAM	Random Access Memory
ROM	Read Only Memory
S/C	Series Code
SDI	Standard Device Interface
SERDES	Serialize/Deserialize
SMD	Storage Module Drive
STO	Standard Option
UART	Universal Asynchronous Receiver/Transmitter
USART	Universal Synchronous/ Asynchronous Receiver/ Transmitter

SECTION 1

THEORY OF OPERATION

THEORY OF OPERATION 1

INTRODUCTION

The TB2A3 Programmable Field Test Unit (PFTU) is a microprocessor controlled tester containing a motorola 6800 series microprocessor and related support logic. The microprocessor executes microcode stored in ROM and RAM. The microcode stored in RAM is loaded from flexible disk. A separate flexible disk package is required for each type of interface to be tested.

Only the non-vendor supplied logical components are described in this section. The remaining component assemblies are described in the corresponding vendor literature.

Figure 1-1 is a block diagram of the major functional components in the PFTU.

CONTROL LOGIC

The control logic (figure 1-2) performs the processing and primary control functions within the PFTU. The microprocessor chip on the __KGN board makes computations and controls data transfer to and from the other logic components as directed by the microprogram. In addition, the microprocessor responds to keyboard input (manual intervention), and status signals on the interface of the drive being tested. The following paragraphs describe the major functional components on the logic chassis.

KEYBOARD INTERFACE

The keyboard interface responds to a 57-function ASCII key array, and a 12-function key array located on the keyboard assembly. The ASCII keyboard matrix is encoded by the keyboard encoder chip on the logic chassis. This information is relayed to the microprocessor via PIA 2. The 12-function key array is encoded in PIA 2 under software control.

DEBUG CIRCUITRY

The debug logic allows service personnel to stop microprogram execution at selected locations (breakpoints), or step through the program one instruction at a time for problem isolation purposes.

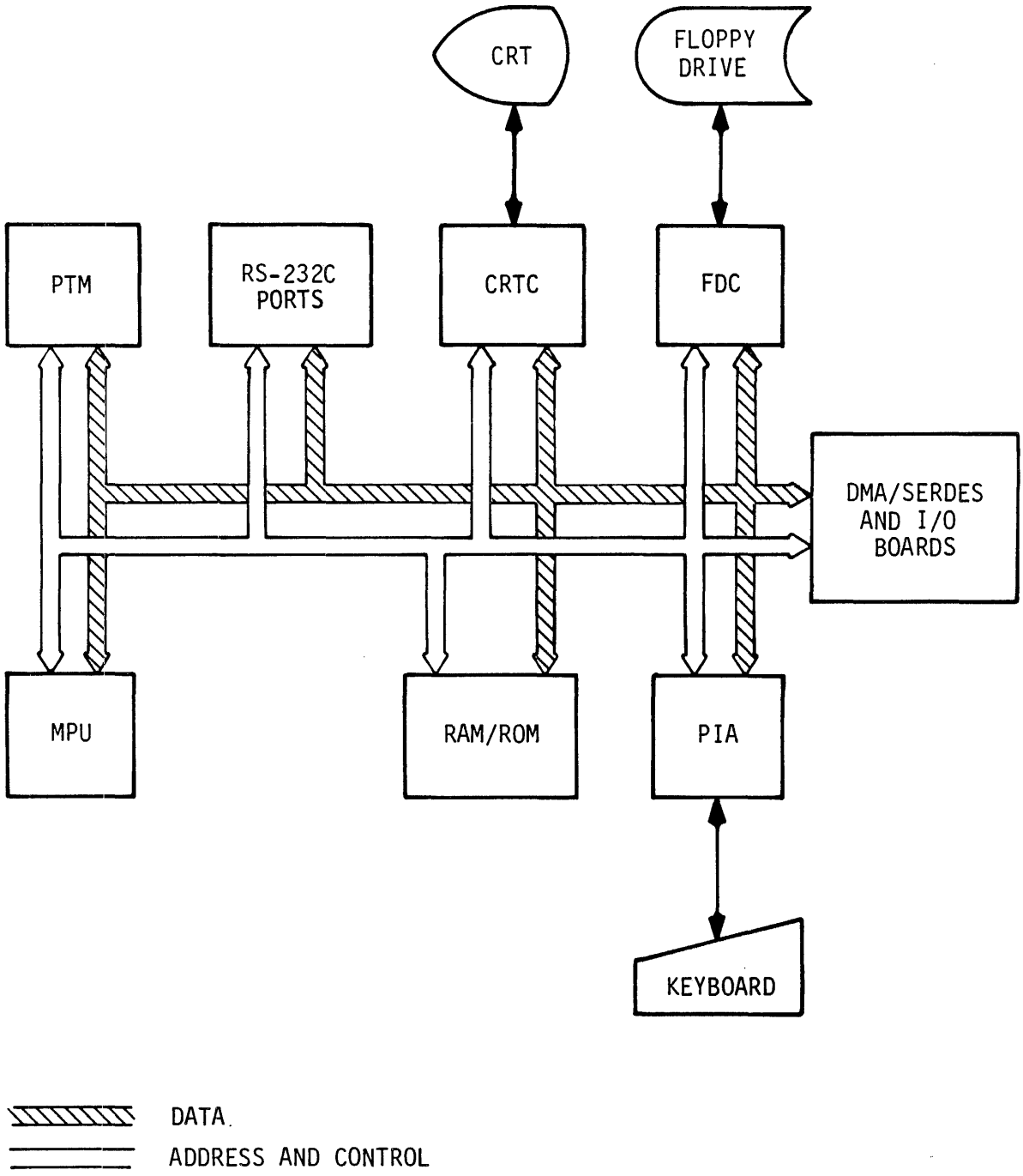


Figure 1-1. PFTU Block Diagram

SYSTEM CONFIGURATION

The system configuration logic permits the user to select either high or low resolution CRT character display following a power-up sequence, 50 or 60 Hz refresh on the CRT, and microprogram operation in either user or executive mode. The unit is manufactured to default to low resolution, 60 Hz, and user mode. Changes to these options require foil cuts on the _KGN board. Refer to the Logic Diagrams section of this manual for further information.

FLEXIBLE DISK INTERFACE

The flexible disk controller chip performs all the read/write and control operations required to interface data to/from the flexible disk drive. Information transferred to/from the disk drive is stored in the 64K dynamic RAM.

USART RS-232C INTERFACES

The two USART interfaces permit serial data transfer directly to a control module or other data terminal device (local mode), or to a modem or other data communications device (remote mode). Transfer rates are defined by, a dual baud rate generator attached to both USART channels.

UART RS-232C INTERFACE

The UART inteface permits serial data transfer to a modem or other data communications device. A programmable timer is used to establish the required baud rate.

16K ROM

The 16K ROM is used to store the self-test diagnostics and the operating system bootstrap programming. The MPU automatically executes the self tests during a power up operation.

64K RAM

The 64K dynamic RAM is used to store the information read from flexible disk (including the operation system), graphic display data, and flexible disk drive I/O control information.

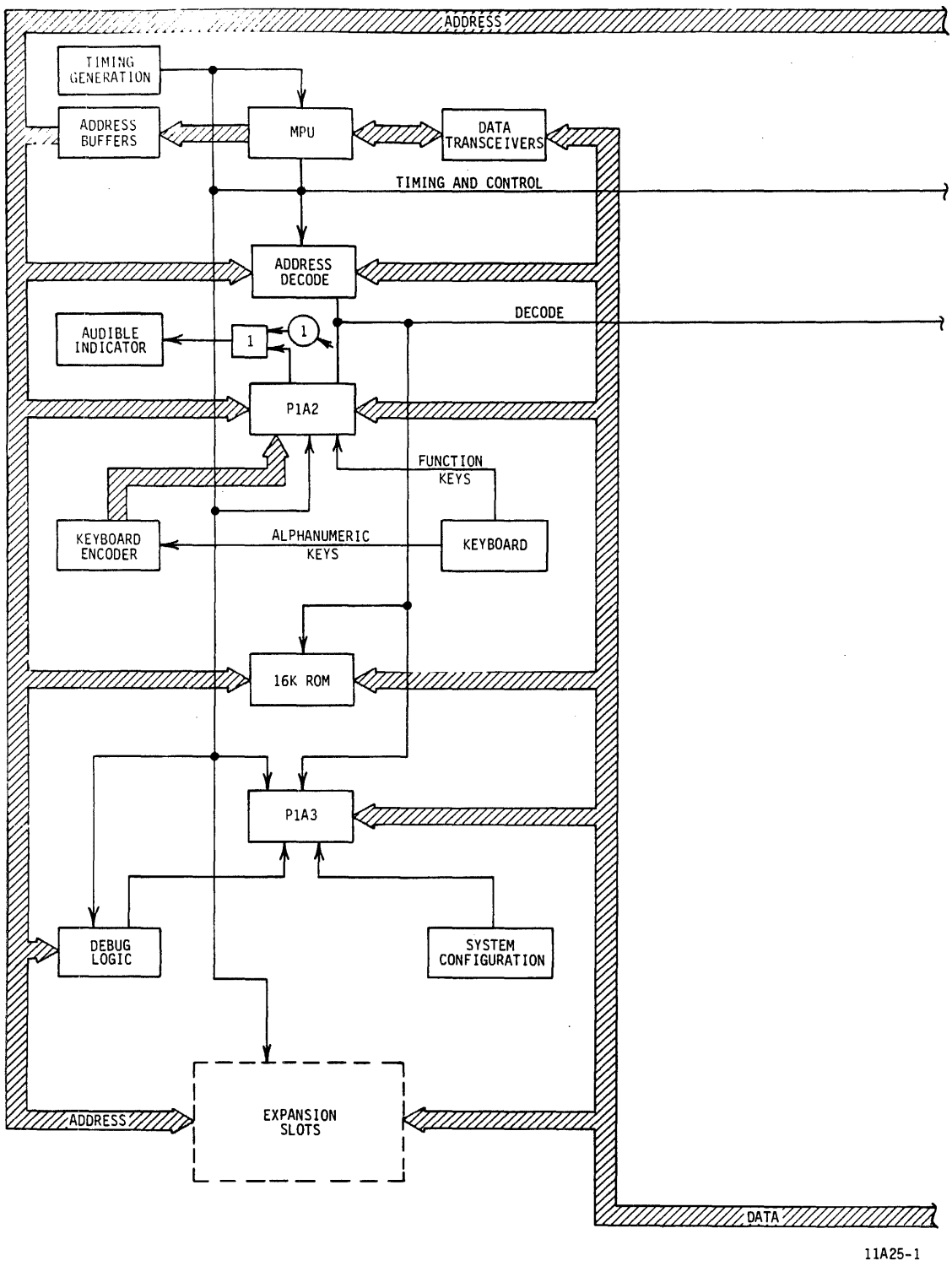


Figure 1-2. Functional Block Diagram (Sheet 1)

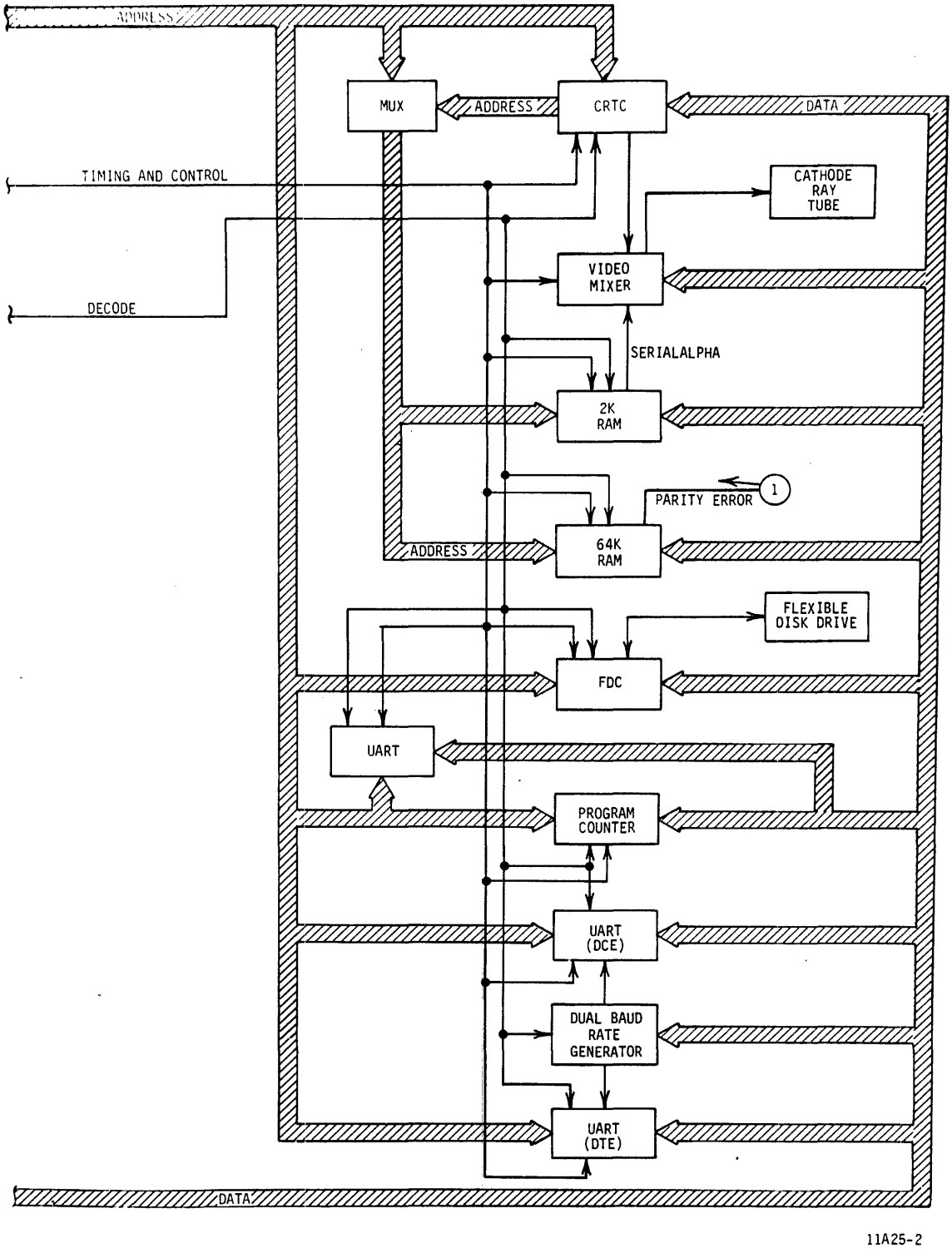


Figure 1-2. Functional Block Diagram (Sheet 2)

2K RAM

The 2K static RAM is used to store the alphanumberic and grammatical information displayed on the cathode ray tube (CRT).

CATHODE RAY TUBE (CRT) INTERFACE

The cathode ray tube controller (CRTC) provides the data and control information required for CRT operation, and also provides a refresh cycle for the 64K dynamic RAM.

When displaying alphanumeric or grammatical information, the CRTC accesses the 2K static RAM. When displaying graphic information, the CRTC accesses this information from the 64K dynamic RAM.

The video mixer logic combines the horizontal sync, vertical sync, and video data. Video data includes character or graphic data, and the row and retrace blanking. The video mixer can also combine the alphanumeric and graphic data on the same display. If both functions are selected together, the graphic output is automatically displayed at low intensity to make the text easily distinguishable from the graphic pattern.

EXPANSION SLOTS

DMA/SERDES (—GJN Board)

The DMA/SERDES logic formats the data transmitted between the PFTU and the drive being tested and also checks the integrity of the data transfer by generating and then checking a CRC character appended to the data. Figure 1-3 shows a block diagram of the logic contained on the DMA/SERDES board.

Interface Board(s)

The I/O board(s) interface the signal protocol of the PFTU to the signal protocol of the drive being tested. The I/O boards are categorized as non-intelligent or intelligent. Figures 1-4 and 1-5 show the logic contained on each type of I/O board.

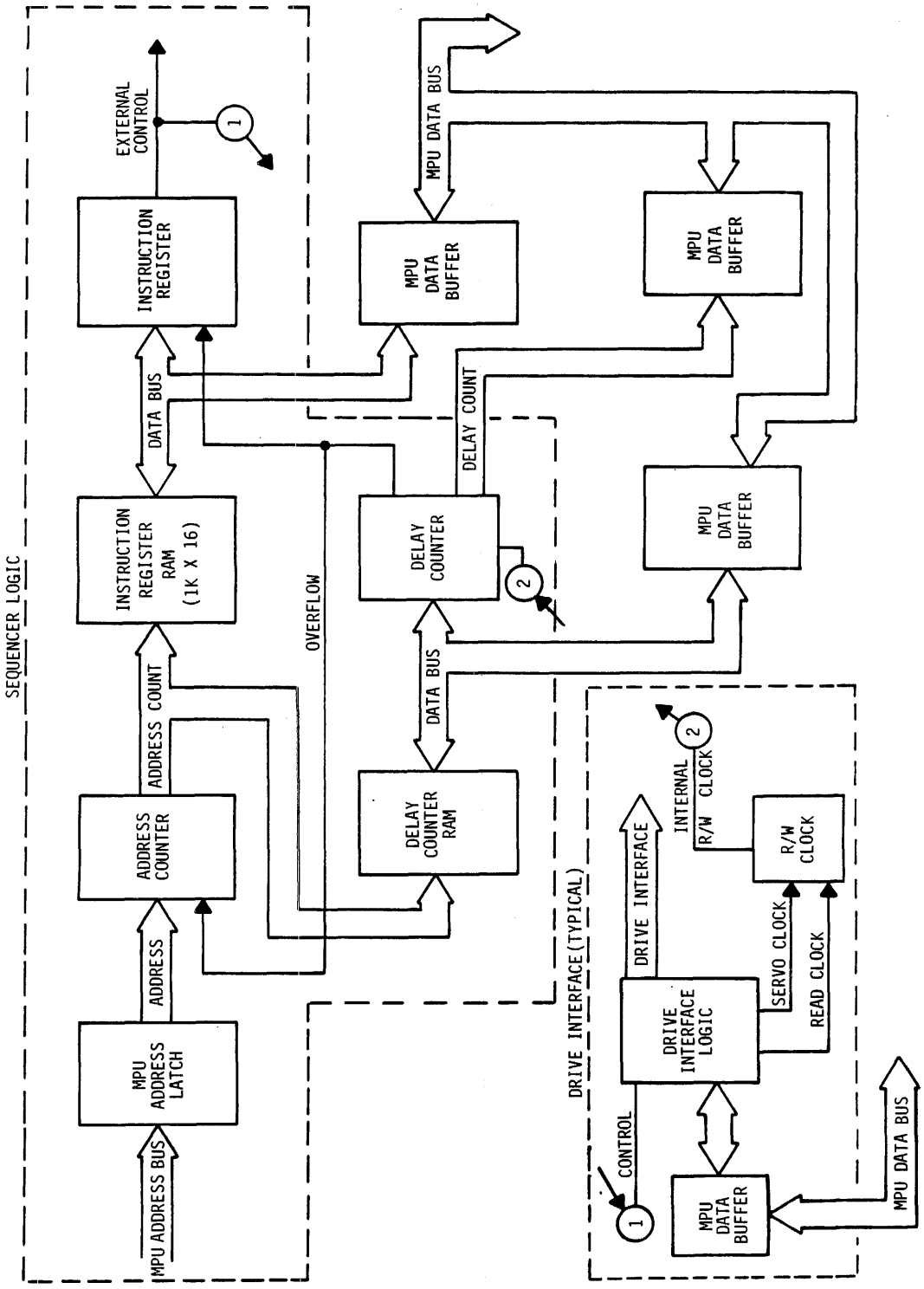


Figure 1-3. DMA/SERDES Board

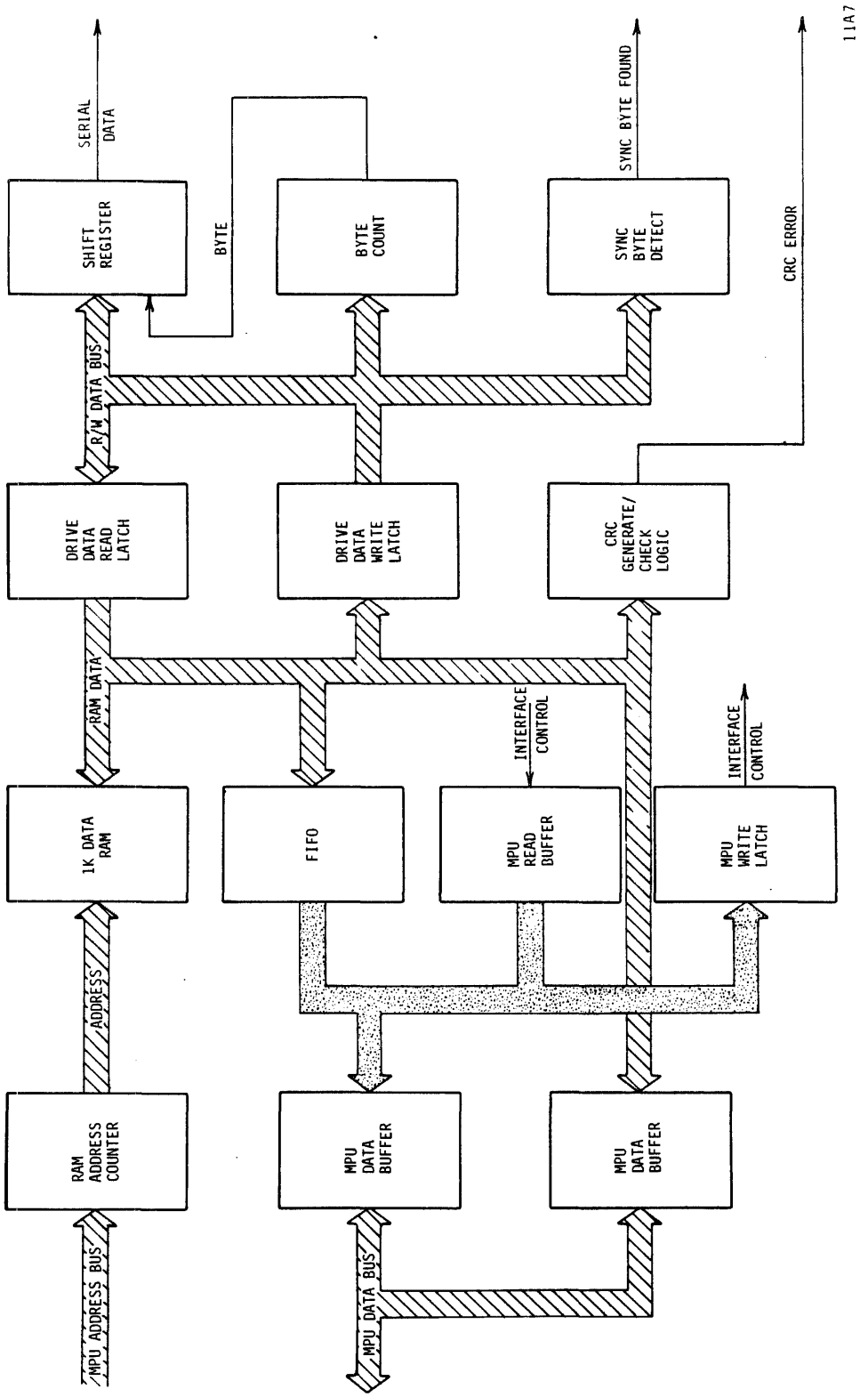


Figure 1-4. I/O Board (Non-Intelligent Interface)

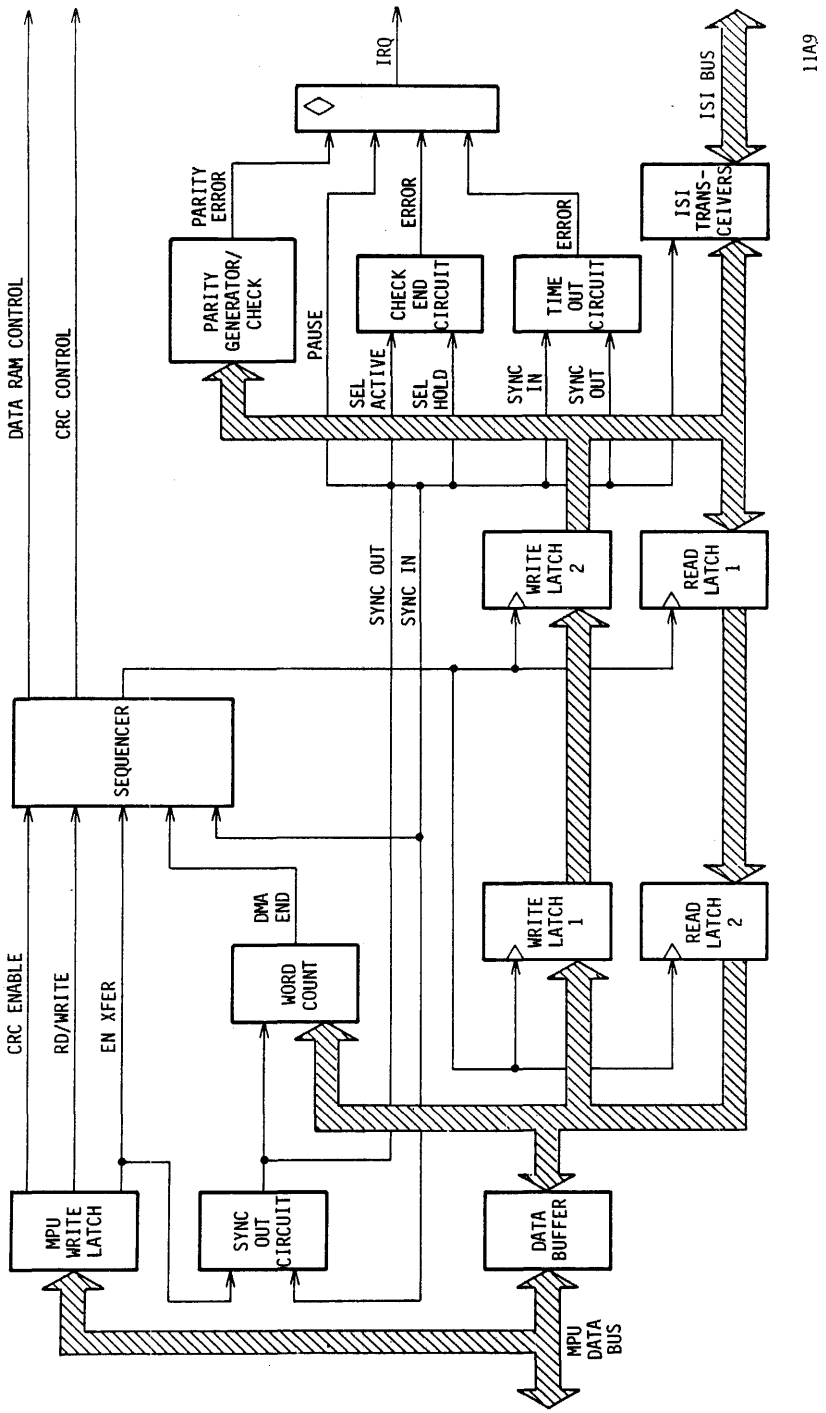


Figure 1-5. I/O Board (Intelligent Interface)

SECTION 2

MAINTENANCE

MAINTENANCE 2

INTRODUCTION

This section outlines the preventive and corrective maintenance procedures to be followed in maintaining the PFTU.

SAFETY PRECAUTIONS

Care should be exercised to avoid CRT implosion. Avoid rough handling of the PFTU, or the careless use of metal tools around the CRT screen. Do not scratch or nick the glass.

ELECTROSTATIC DISCHARGE PROTECTION

All PFTU electronic assemblies are sensitive to static electricity, due to the electrostatically sensitive devices used within the drive circuitry. Although some of these devices such as metal-oxide semiconductors are extremely sensitive, all semiconductors as well as some resistors and capacitors may be damaged or degraded by exposure to static electricity.

Electrostatic damage to electronic devices may be caused by a direct discharge of a charged conductor, or by exposure to the static fields which surround charged objects. To avoid damage to PFTU electronic assemblies, service personnel must observe the following precautions when servicing the unit:

- Ground yourself to the PFTU - whenever the PFTU electronics are or will be exposed, connect yourself to ground with a wrist strap. Refer to Accessories in section 3 of maintenance manual, volume 1. Connection may be made to any metal assembly or to the ground jack shown in figure 2-1. As a general rule, remember that you, the PFTU, and the circuit cards must all be at ground potential to avoid potentially damaging static discharges.

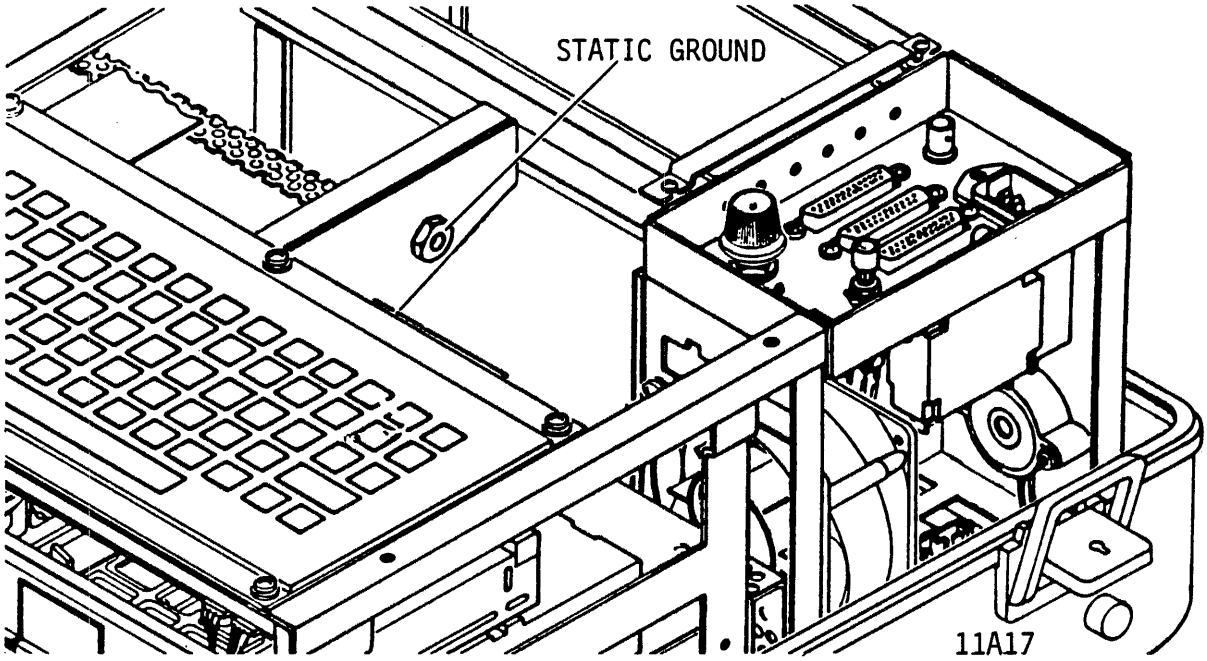


Figure 2-1. Safety Grounding

- Keep boards in conductive bags - when circuit boards are not installed in the PFTU, keep them in conductive static shielding bags. Refer to Accessories in section 3 of maintenance manual, volume 1. These bags provide absolute protection from direct static discharge and from static fields surrounding charged objects. Remember that these bags are conductive and should not be placed where they might cause an electrical short circuit.

- Remove cards from bags only when you are grounded - all cards received from the factory are in static shielding bags, and should not be removed unless you are grounded.

- Turn off power to PFTU before removing or installing any circuit boards.

- Never use an ohmmeter on the _GKN main control board.

MAINTENANCE TOOLS AND MATERIALS

No special maintenance tools or materials are required for the PFTU.

PREVENTIVE MAINTENANCE

The PFTU does not require preventive maintenance under normal operating conditions. A head cleaning kit is available for use on units subject to unusual environmental conditions. Refer to Accessories in parts data section of maintenance manual, volume 1.

CORRECTIVE MAINTENANCE

WARNING

All corrective maintenance procedures require the PFTU to be disconnected from site power.

This section contains procedures for removal and replacement of all major assemblies in the PFTU. All procedures except the keyboard removal and replacement assume that the frame has been removed from the case. The _GKN board must be removed before the CRT, flexible disk drive, or power supply can be removed. The CRT must be removed before the power supply can be removed.

KEYBOARD

To remove the keyboard, proceed as follows:

1. Remove the plastic cover from the top of the frame.
2. Disconnect connector J8 from the _GKN board (see figure 2-2).
3. Remove the screws securing the keyboard to the frame (see figure 2-3).
4. Replace keyboard by following steps 1 through 3 in reverse order. Refer to parts data section of maintenance manual, volume 1 to determine keyboard part number.

—GKN BOARD

To remove the _GKN board, proceed as follows:

1. Remove the plastic cover from the top of the frame.
2. Remove the DMA/SERDES board and I/O board from connectors J1 through J6 on the _GKN board (see figure 2-2).

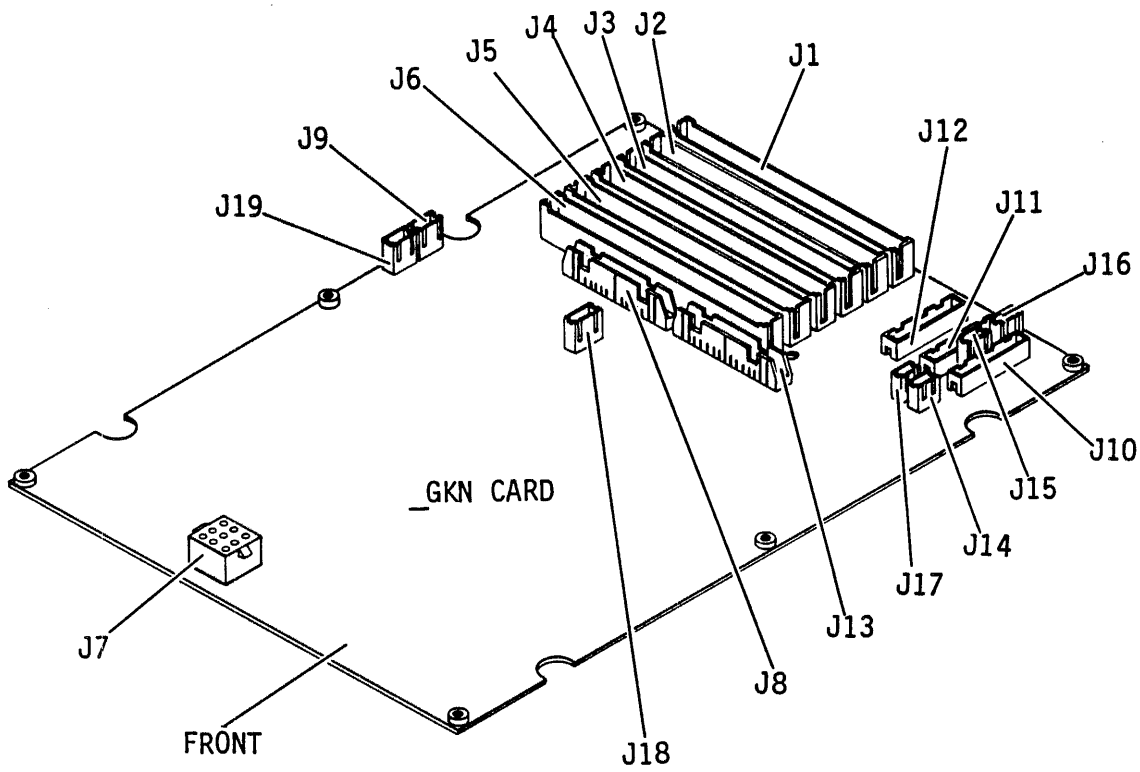


Figure 2-2. _GKN Board Connectors

3. Disconnect all cables attached to the __GKN board (see figure 2-2).

4. Turn frame on its side and remove screws and bracket securing _GKN board to frame (see figure 2-4).

NOTE

It is also necessary to remove the shock mounts on the side of the unit nearest the I/O panel to permit the board to be removed from the frame.

5. Slide _GKN board to side of frame away from control panel, tilt upward, and slide board out through bottom of frame.

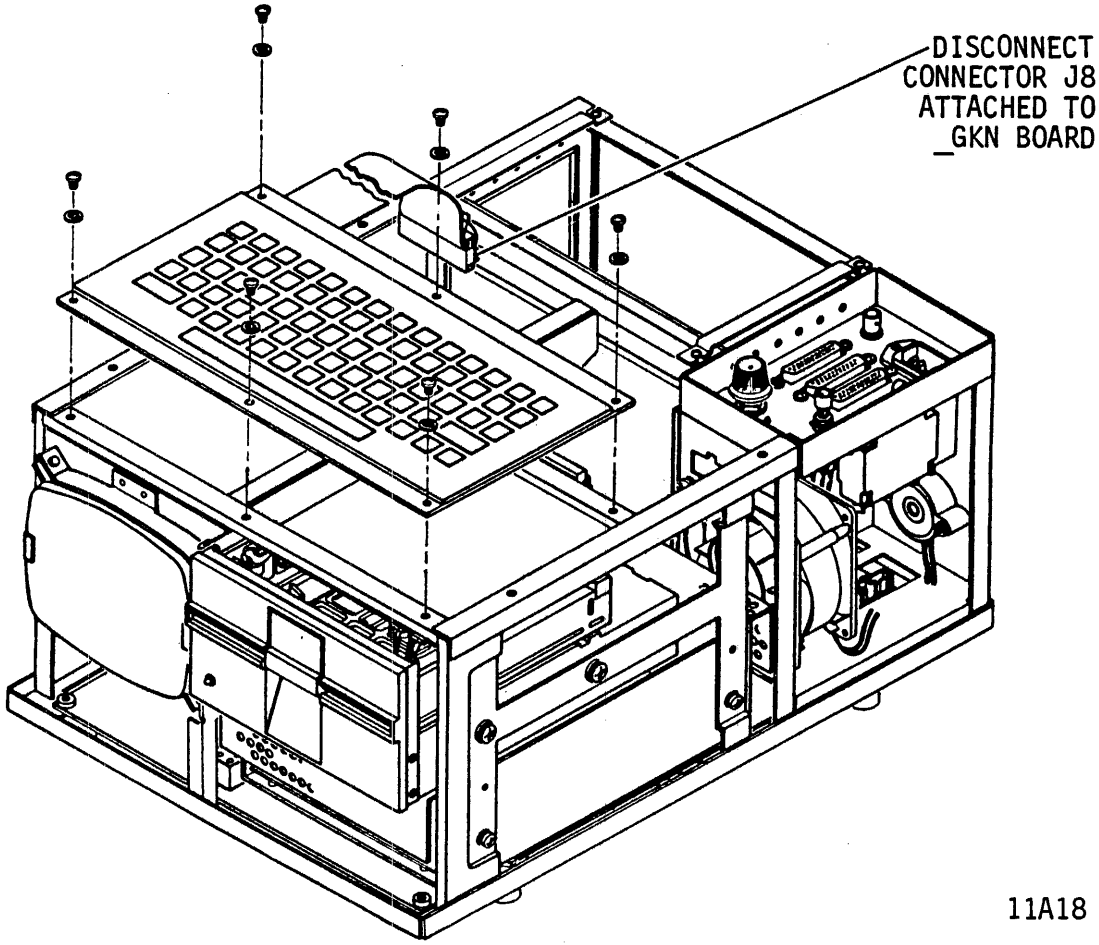


Figure 2-3. Keyboard Removal/Replacement

6. Replace the _GKN board by following steps 1 through 5 in reverse order. Refer to spare parts list in parts data section of maintenance manual, volume 1 to determine _GKN board part number.

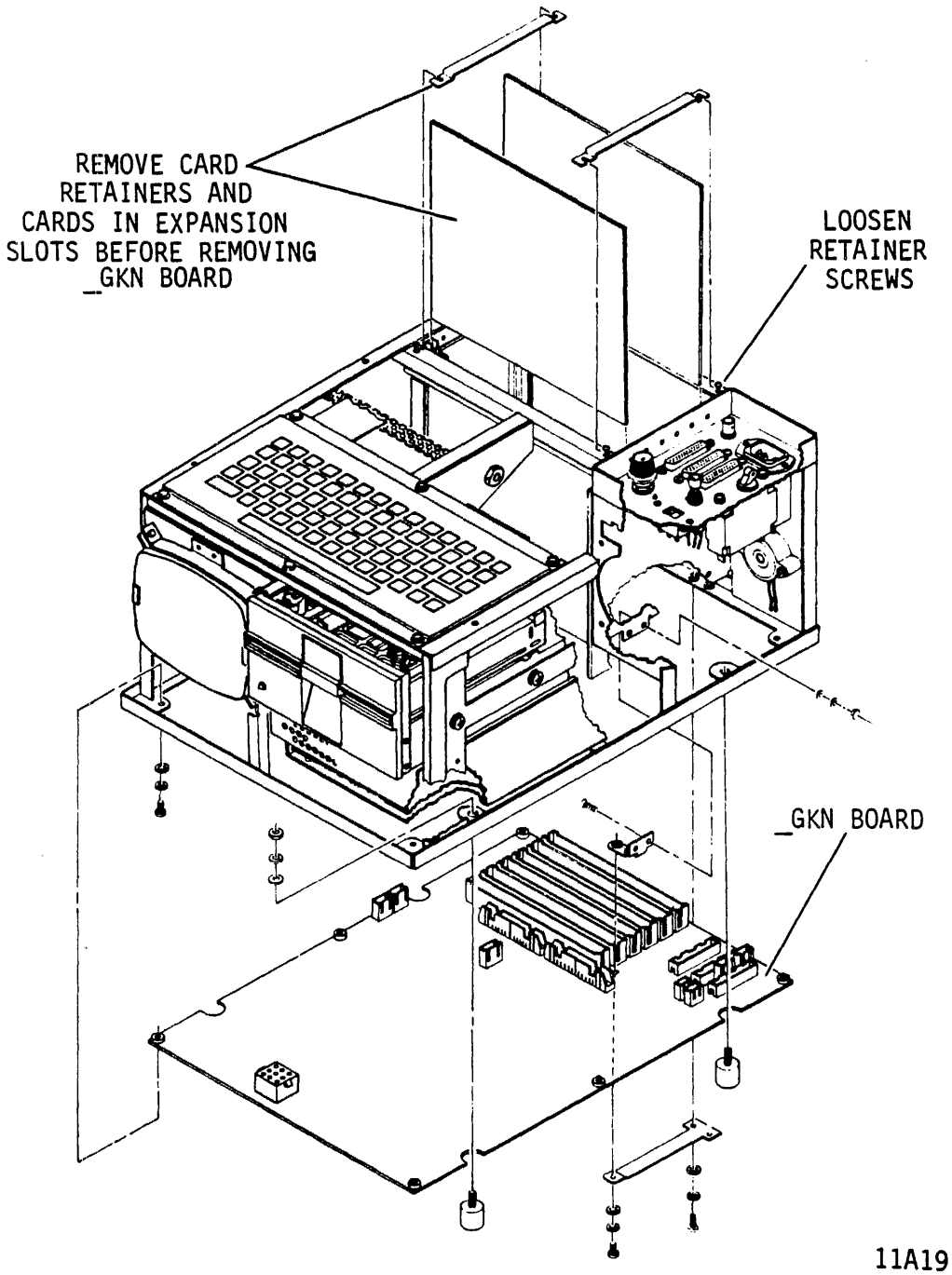


Figure 2-4. _GKN Board Removal/Replacement

CATHODE RAY TUBE (CRT)

NOTE

For units in S/C 07 and below: The _GKN board must be removed before the CRT can be removed. Refer to the __GKN board removal/replacement procedure.

To remove the CRT, proceed as follows:

1. Remove screws securing CRT to frame (see figures 2-5 and 2-6).
2. Disconnect connector J5 and ground E2 from I/O panel bulkhead.
3. Remove CRT through side of frame.

NOTE

The shroud surrounding the CRT must be retained for use in the replacement CRT. On S/C 08 and above units: Remove screws at bottom rear of shroud and remove CRT from shroud.

4. Replace CRT by performing steps 1 through 3 in reverse order. Refer to parts data section of maintenance manual volume 1 to determine CRT part number.

FLEXIBLE DISK DRIVE

NOTE

For units in S/C 07 and below: The __GKN board, power supply and CRT must be removed before the FDD can be removed. Refer to these removal/replacement procedures.

To remove the flexible disk drive, proceed as follows:

1. Remove connectors J1 and J2 from rear of flexible disk drive (refer to figure 2-7).
2. Remove screws securing flexible disk drive to frame (see figure 2-7).
3. Remove flexible disk drive through front of frame.

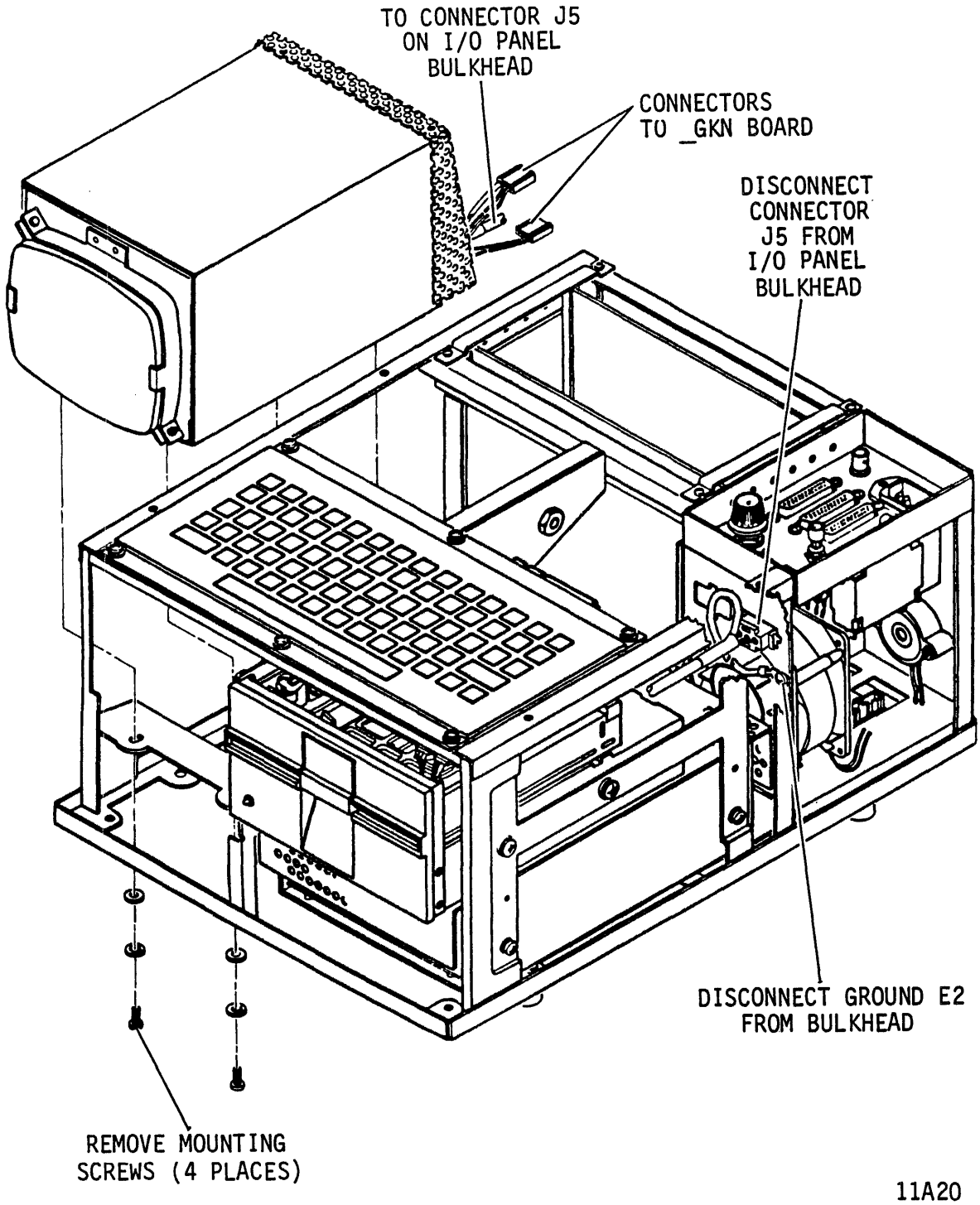


Figure 2-5. CRT Removal/Replacement
(S/C 07 and below)

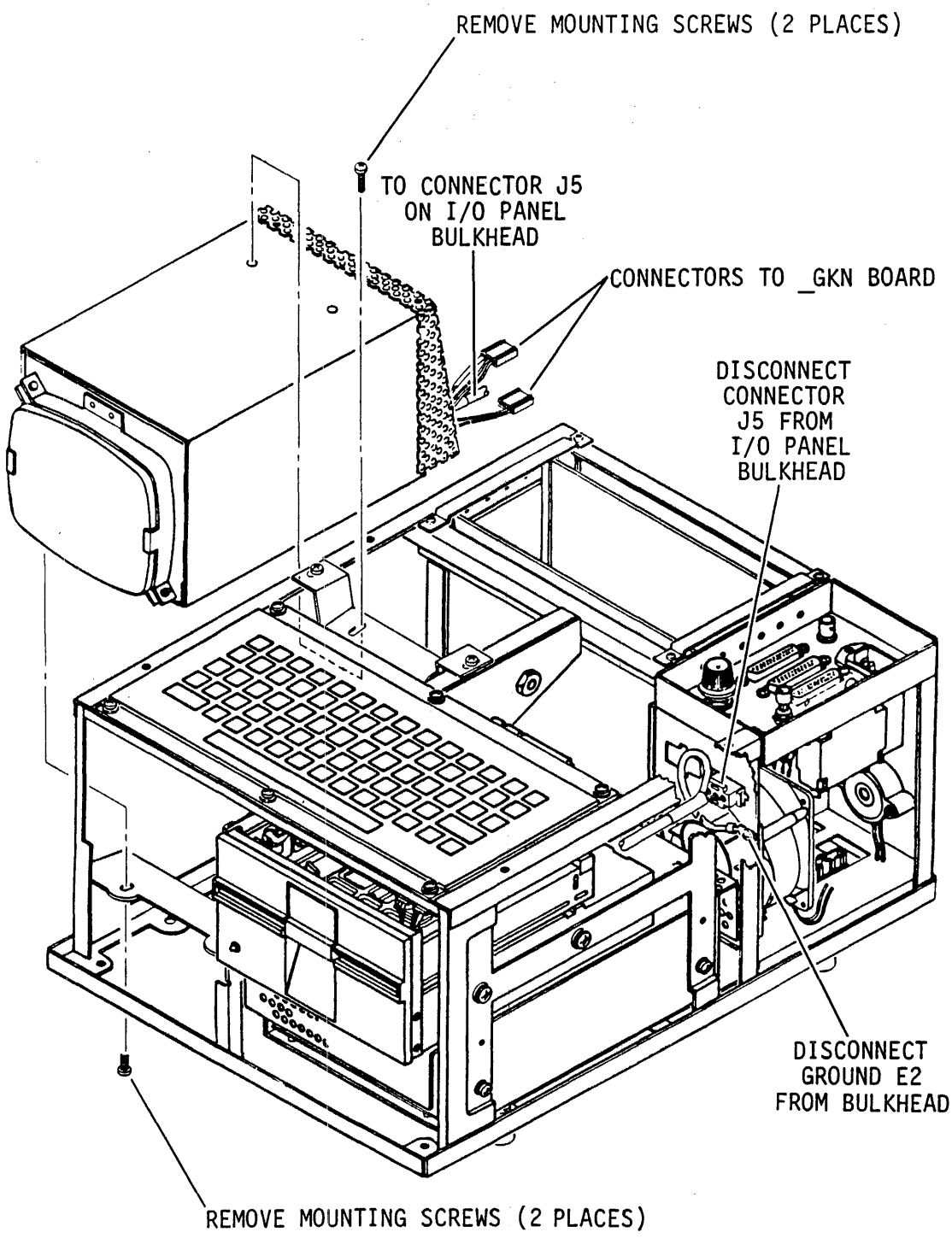


Figure 2-6. CRT Removal/Replacement (S/C 08 and above)

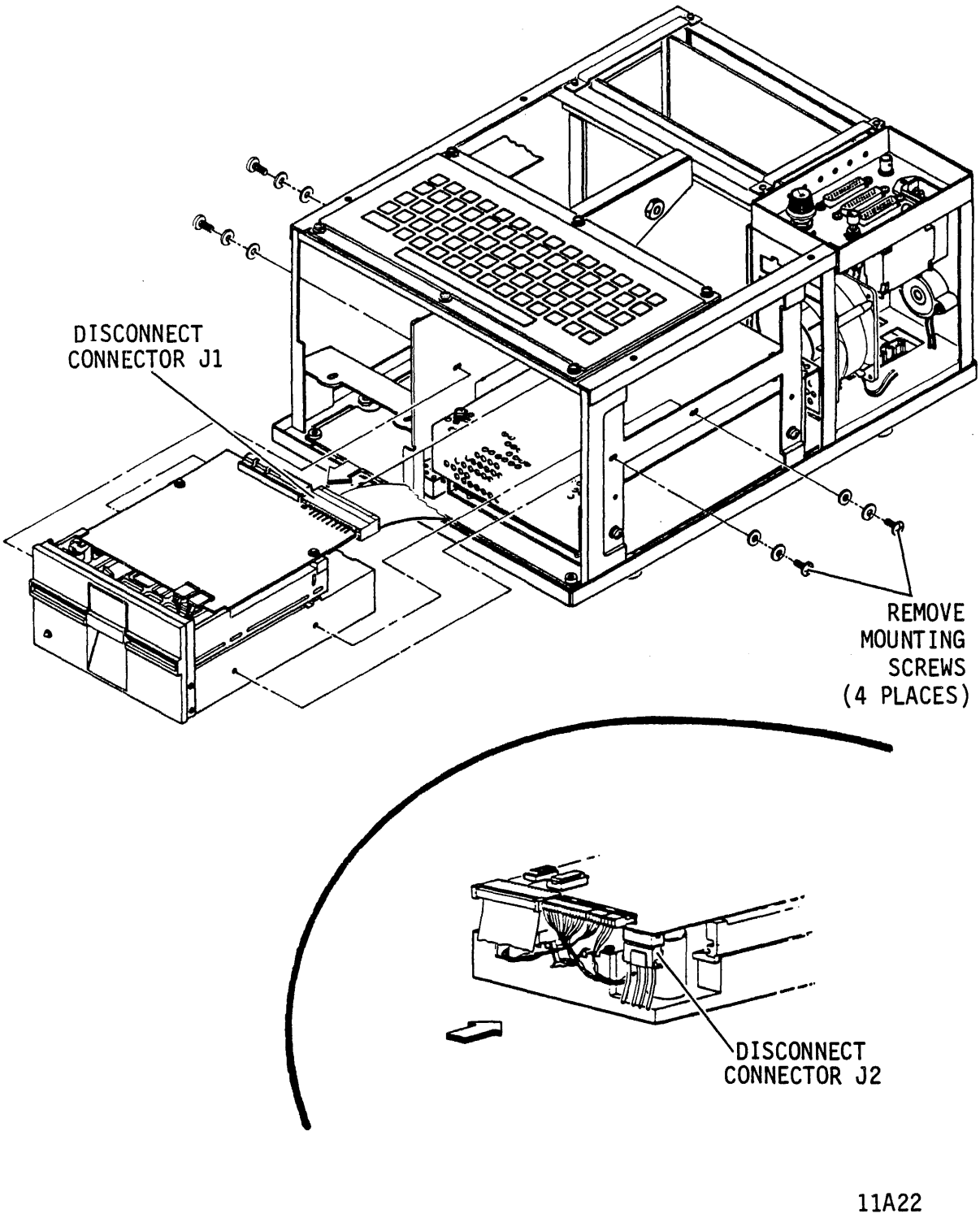


Figure 2-7. FDD Removal/Replacement

4. Replace flexible disk drive by following steps 1 through 3 in reverse order. Refer to parts data section in maintenance manual volume 1 to determine flexible disk drive part number.

POWER SUPPLY

NOTE

For units in S/C 07 and below: The _GKN board and CRT must be removed before the power supply can be removed. Refer to these removal and replacement procedures.

To remove the power supply, proceed as follows:

1. Remove screws securing power supply to frame (see figure 2-8).

2. Remove connector J5 from I/O panel bulkhead (see figure 2-8).

3. Remove power supply through front of unit.

4. Replace power supply by performing steps 1 through 3 in reverse. Refer to parts data section in maintenance manual, volume 1 to determine power supply part number.

FAN ASSEMBLY

To remove the fan assembly, proceed as follows:

1. Disconnect power connectors from the fan assembly (see figures 2-9 and 2-10).

2. Remove the screws (S/C 07 and below) or nut plates (S/C 08 and above) securing the fan assembly and variable resistor ground strap to the frame. Remove fan assembly through side of frame.

3. Replace fan assembly by performing steps 1 through 3 in reverse order. Refer to parts data section in maintenance manual, volume 1 to determine part number.

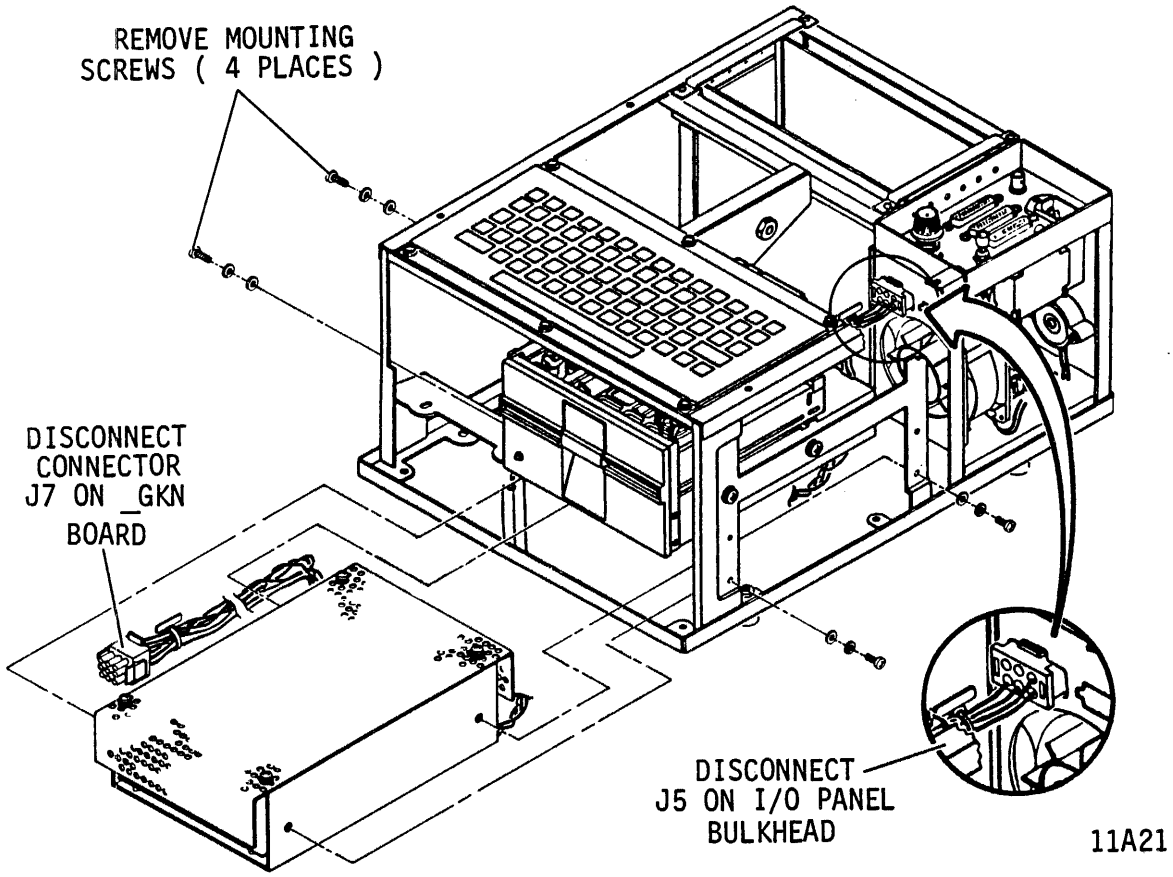


Figure 2-8. Power Supply Removal/Replacement

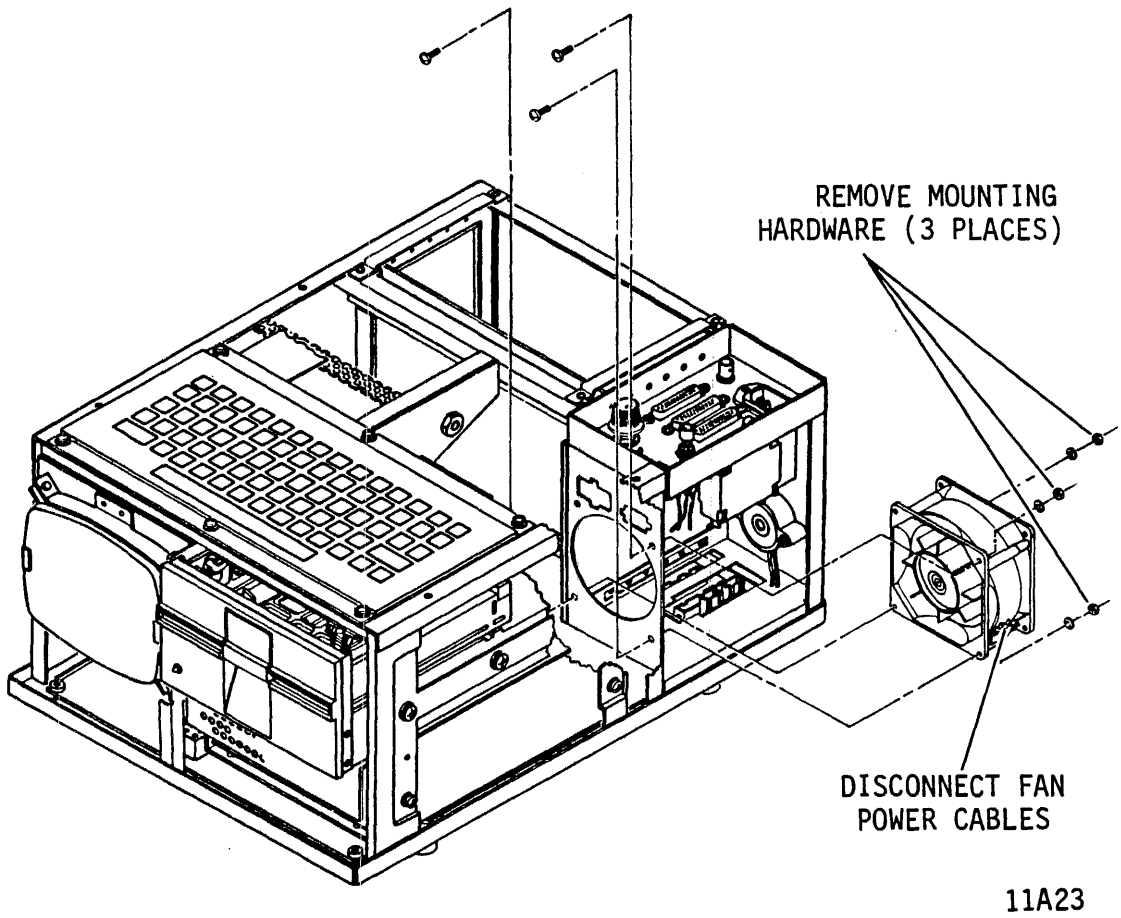


Figure 2-9. Fan Assembly Removal/Replacement
(S/C 07 and below)

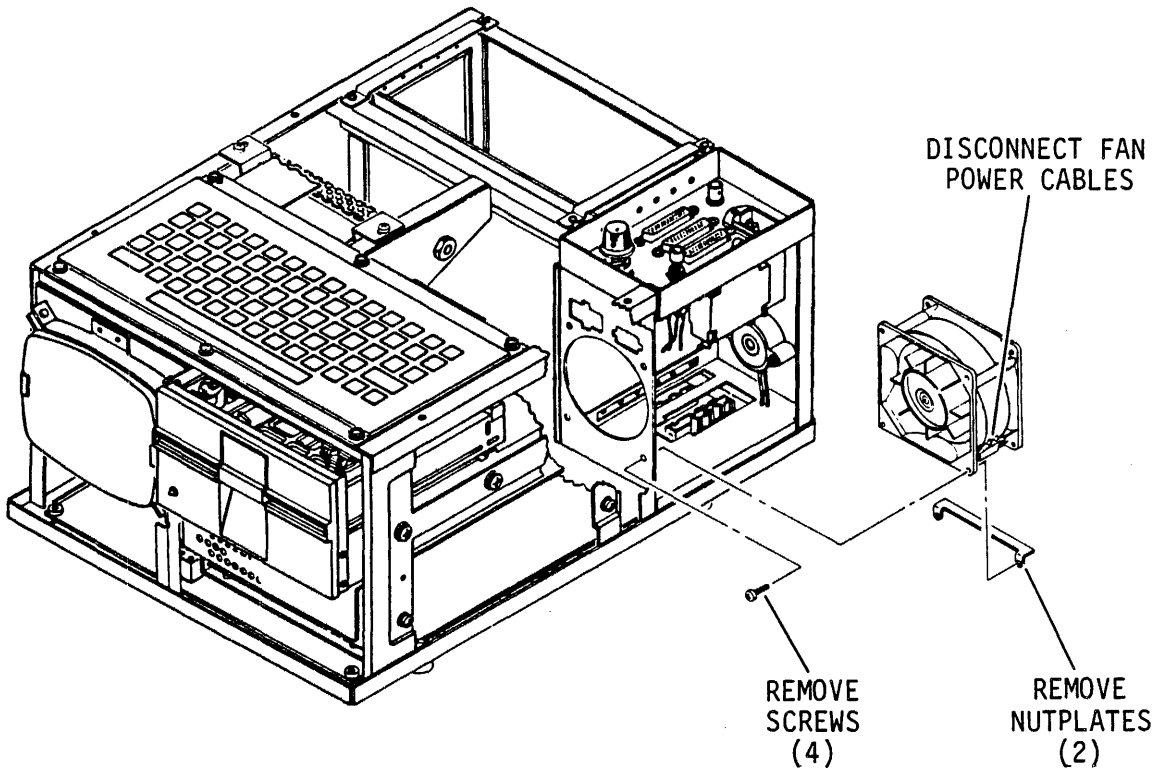


Figure 2-10. Fan Assembly Removal/Replacement
(S/C 08 and above)

SECTION 3

DIAGRAMS

INTRODUCTION

This section contains the logic diagrams and an explanation of the diagram conventions. The diagram conventions, along with the microcircuit manuals, provide the necessary information to understand and use the diagrams. The diagram conventions are:

- Symbology
- Abbreviations
- Logic Levels
- Signal Names
- Logic Arrangement
- Intersheet References

SYMBOLOGY

GENERAL

The diagrams contain a modified version of ANSI standard Y32.14 logic symbology (see figure 3-1). The logic symbols for integrated circuits contain a qualifying symbol, an element identifier, and a location code.

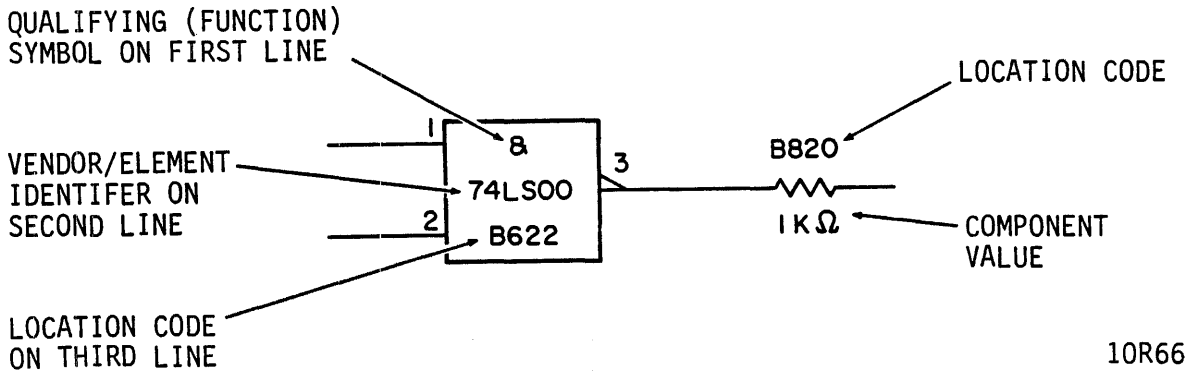


Figure 3-1. Logic Symbology

QUALIFYING (FUNCTION) SYMBOL

The qualifying symbol denotes the basic operation being performed by the integrated circuit. Refer to the microcircuits manual for an explanation of the qualifying symbols used in the diagrams.

ELEMENT IDENTIFIER

The second line of any symbol contains the vendor/element identifier. This number identifies the integrated circuit type. Refer to the microcircuits manuals for an explanation of the element identifiers used in the diagrams.

LOCATION CODE

The location code identifies the location of each component on the circuit board. The location code is a four-character XXYY designation related to an X-Y grid defined on the edges of the circuit board. To avoid confusion, the "XX" characters are alpha-numeric and the "YY" characters are numeric. Figure 3-2 shows a circuit board with a component at location code B622, which is the intersection of grid lines B6 (X) and 22 (Y).

ABBREVIATIONS

Standard abbreviations from ANSI Y1.1 are used whenever possible. Refer to the list of abbreviations contained in the front matter for a definition of all abbreviations used in the diagrams.

LOGIC LEVELS

Three types of logic are used in the drives that this manual applies to: TTL logic, ECL logic, and CMOS logic. Logic levels for the three types are shown in table 3-1. Different circuit configurations and temperatures may result in legitimate readings that fall outside of the typical range. Such readings should be suspect only in the event of problems.

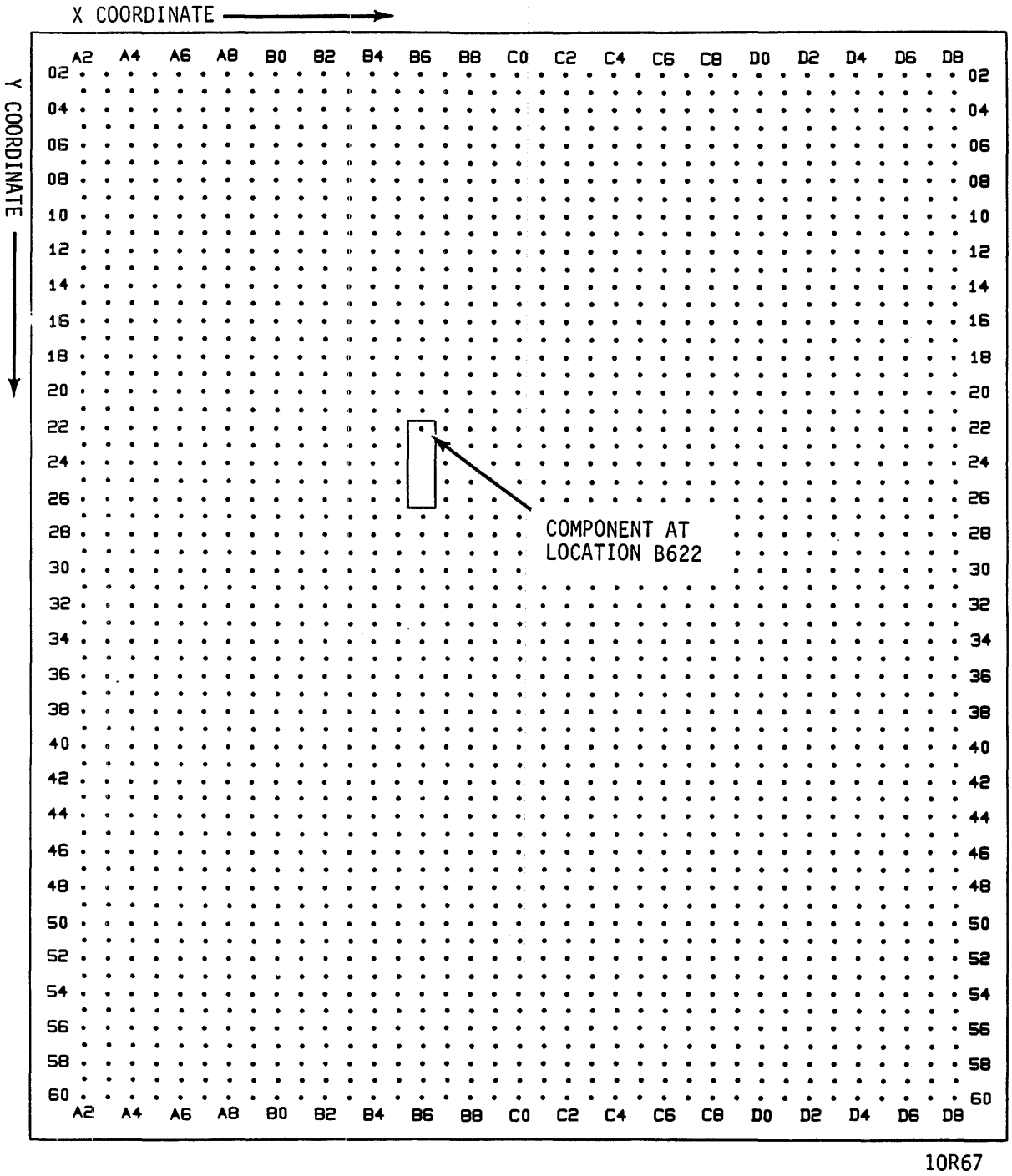


Figure 3-2. Location Code Example

TABLE 3-1. LOGIC VOLTAGE LEVELS

Logical State	Nominal Voltage	Typical Range
TTL "1"	3.3 V	2.0 V to 3.3 V*
TTL "0"	0.2 V	0.2 V to 0.8 V
ECL "1"	-0.924 V	-0.96 V to -0.81 V
ECL "0"	-1.75 V	-1.65 V to -1.85 V
CMOS "1"	5.0 V	3.5 V to 5.0 V
CMOS "0"	0 V	0 V to 1.5 V

*Measuring a TTL open collector voltage may result in a reading that is close to the actual power supply voltage.

SIGNAL NAMES

Input and output signals are labeled to reflect their particular function. If an output signal has no connection, and therefore no function, it is labelled "NC" to indicate no connection. The polarity (logical state) of a signal is identified by a plus or minus sign before the signal name. A plus sign before a signal name indicates that the signal is active when the logic level is high or in a logical "1" state. A minus sign before a signal name indicates that the signal is active when the logic level is low or in a logical "0" state. Refer to the discussion on logic levels.

LOGIC ARRANGEMENT

Logic diagrams for the tester consist of an overall block diagram and independent diagram sets for circuit boards. The diagram sets are presented in the order given in table 3-2. Refer to figure 3-3 for the location of the circuit boards in the tester.

Each diagram set consists of one or more sheets with each sheet identified by the sheet number which appears in the lower right-hand corner of the page. The first sheet in each set, the cover sheet, is described in the following paragraph.

TABLE 3-2. CONTENTS OF DIAGRAMS

Card Type	Cross Ref. Number	Title
	0002	PFTU Block Diagram
_GKN	01XX	Main Control Board
_GJN	02XX	DMA/Serdes Board
_GLN	03XX	ISI Control Board
_GMN	04XX	SDI Board
_GPN	05XX	SMD-0 Board
_GPN	05XX	SMD-E Board

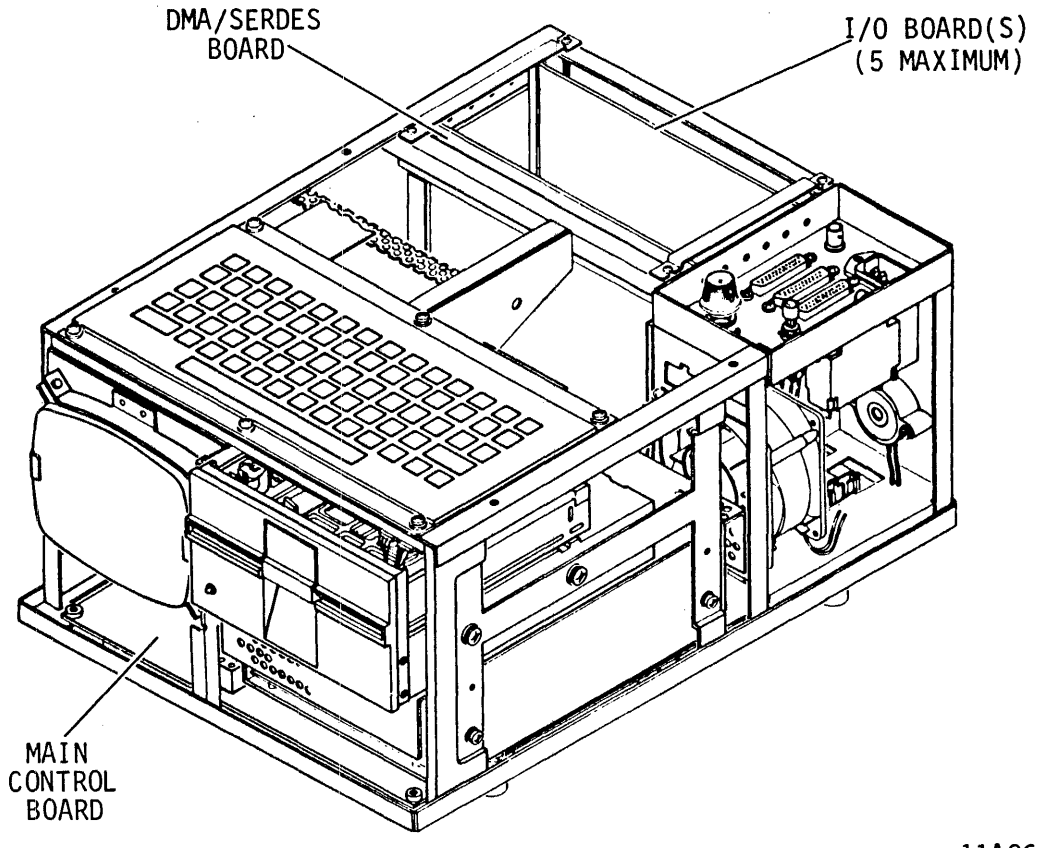


Figure 3-3. Circuit Board Locations

LOGIC DIAGRAM COVER SHEETS

The logic diagram cover sheet is the first sheet of each logic set. It contains power and ground connections, and lists unused logic elements. In the larger logic sets, either sheet 1 or sheet 2 has a table that cross-references each connector pin number to the logic sheet showing that signal input or output.

CARD TYPE

The card type designation is shown on sheet 1 in the title block.

INTERSHEET REFERENCES

Each logic diagram is assigned a four-digit cross-reference number and a two-digit sheet number. The first two digits of the cross-reference number indicate the assigned set number, and the last two digits indicate the sheet number within that set. Table 3-2 lists the cross-reference number for each logic diagram set. The following paragraphs discuss how to trace signals from one point to another in the diagrams and refer to both the sheet numbers and the cross-reference numbers.

The procedure for tracing signals in the logic diagrams depends on whether the signal path continues on the same sheet, on another sheet in the same logic set, or on a sheet in a different logic set. These three cases are symbolized differently in the logic (see figure 3-4) and are discussed separately in the following paragraphs.

When a logic signal is continued on the same sheet but cannot be shown in series, "line of sight" arrows along with a letter within a circle are used to indicate signal origin and destination.

When a logic signal is continued on another sheet of the same logic set, that sheet number appears next to a hexagon containing a designating letter. This same letter is then shown where the signal is continued.

When a signal is continued on a sheet of another logic set, it follows a path through a cable from one circuit board to another. Each sheet of logic which has signals coming from or going to other circuit boards is accompanied by a Logic Cross Reference Information sheet, printed on the page facing the logic sheet. Logic Cross Reference Information lists all signal inputs and signal outputs in the order they appear on the logic sheet. Each signal input listing includes the cross-reference number of the logic sheet where the signal originates and the

connector and pin number for the signal origin. Each signal output listing includes the crossreference number of the logic sheet where the signal goes and the connector and pin number for the signal destination.

Each logic sheet is linked to its associated Logic Cross Reference Information sheet by the connector and pin symbols that are duplicated on both sheets. For instance, if a logic sheet shows a signal entering the board on pin 1 of connector J14, then the Logic Cross Reference Information sheet has the following entry under Signal Inputs:

```
 01    J14
---->>-----------------|
```

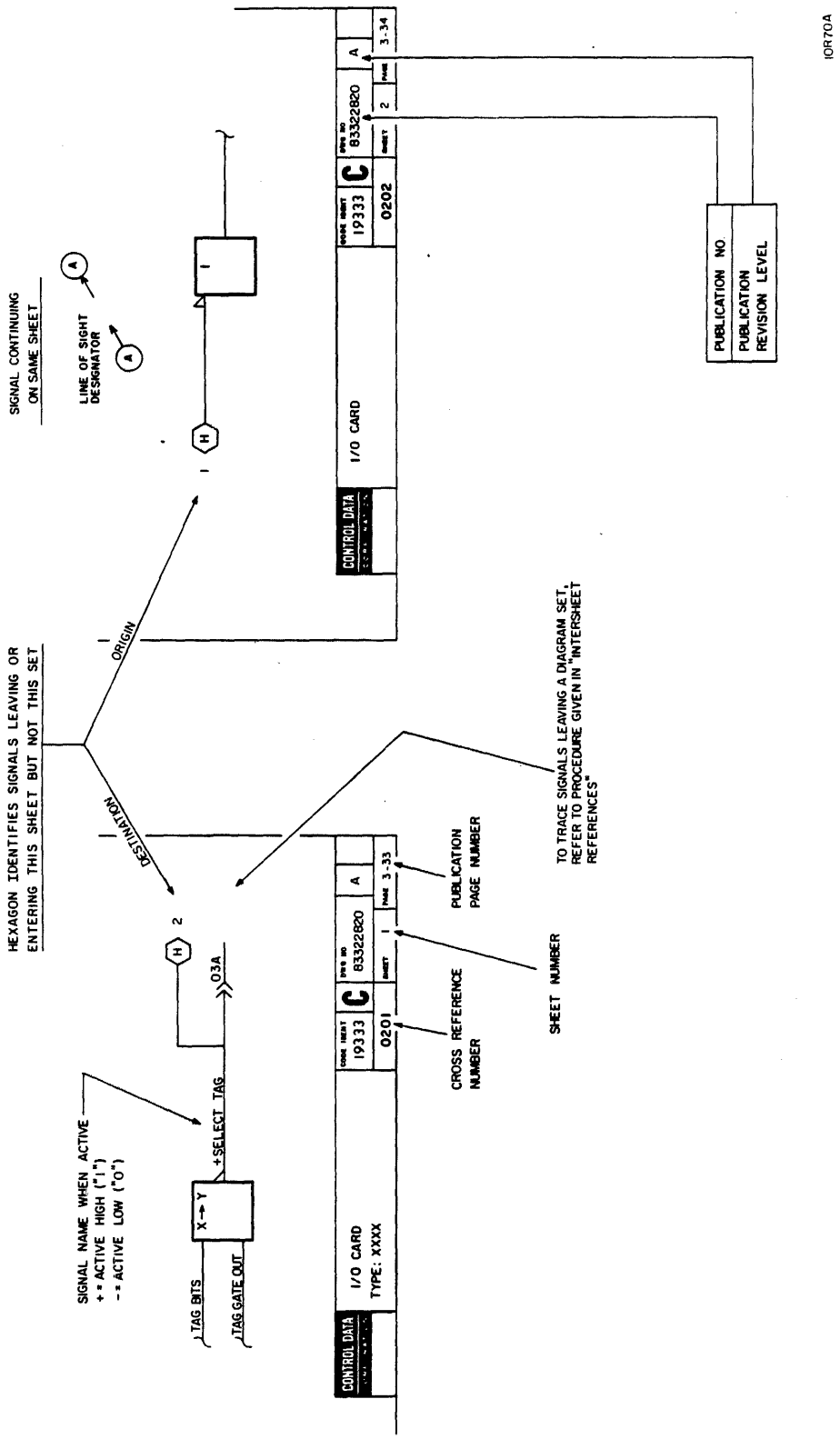
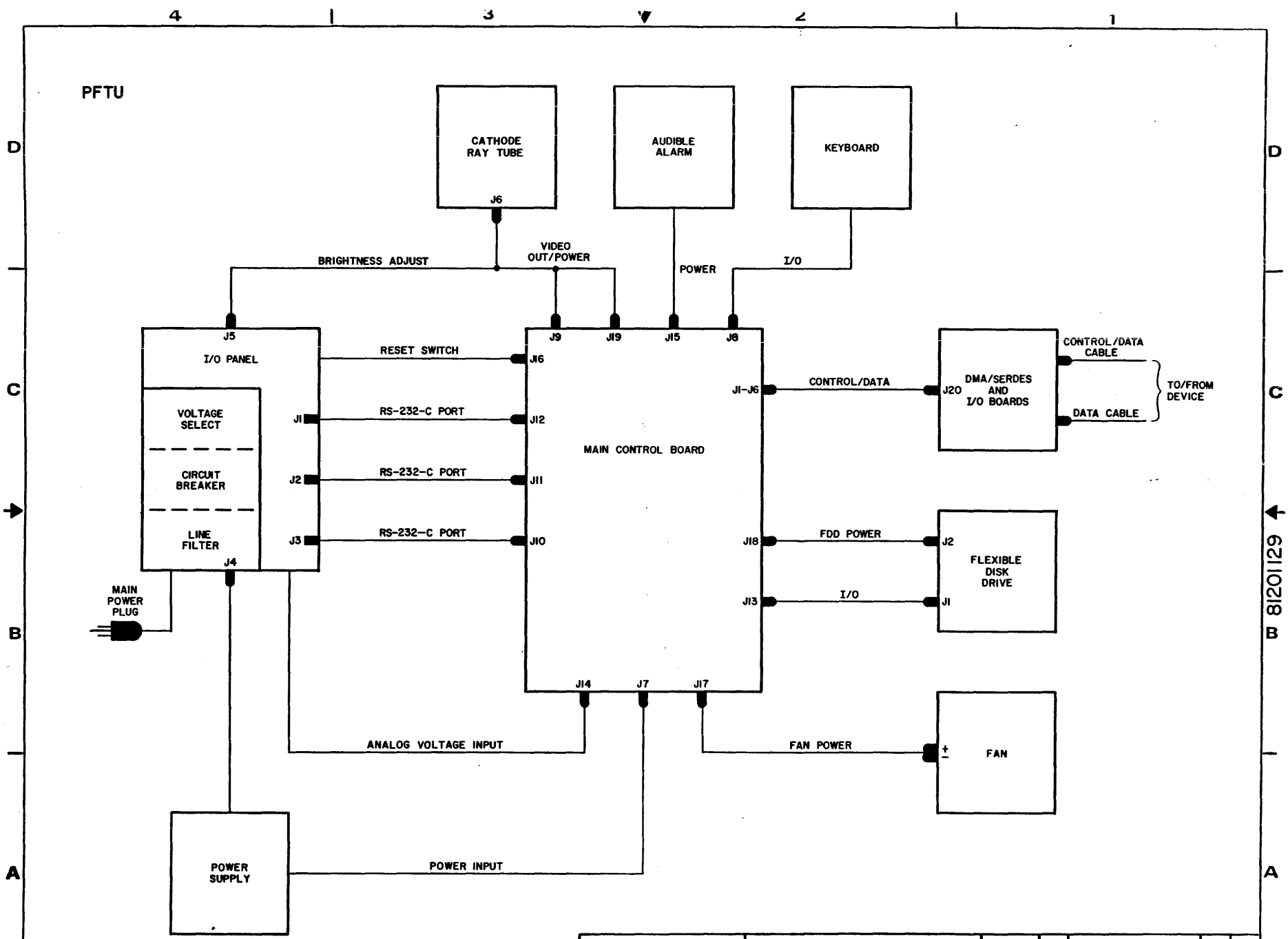
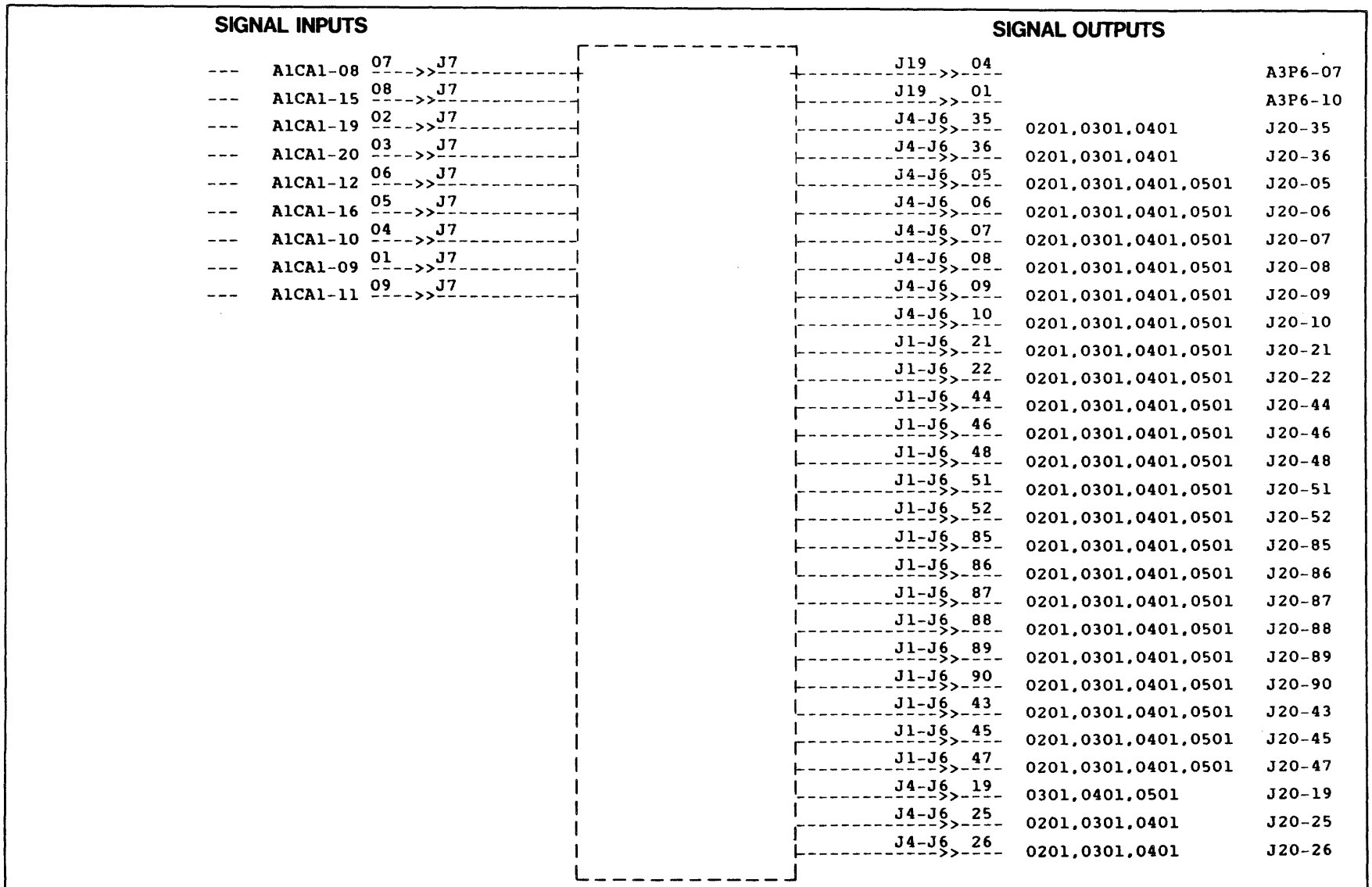
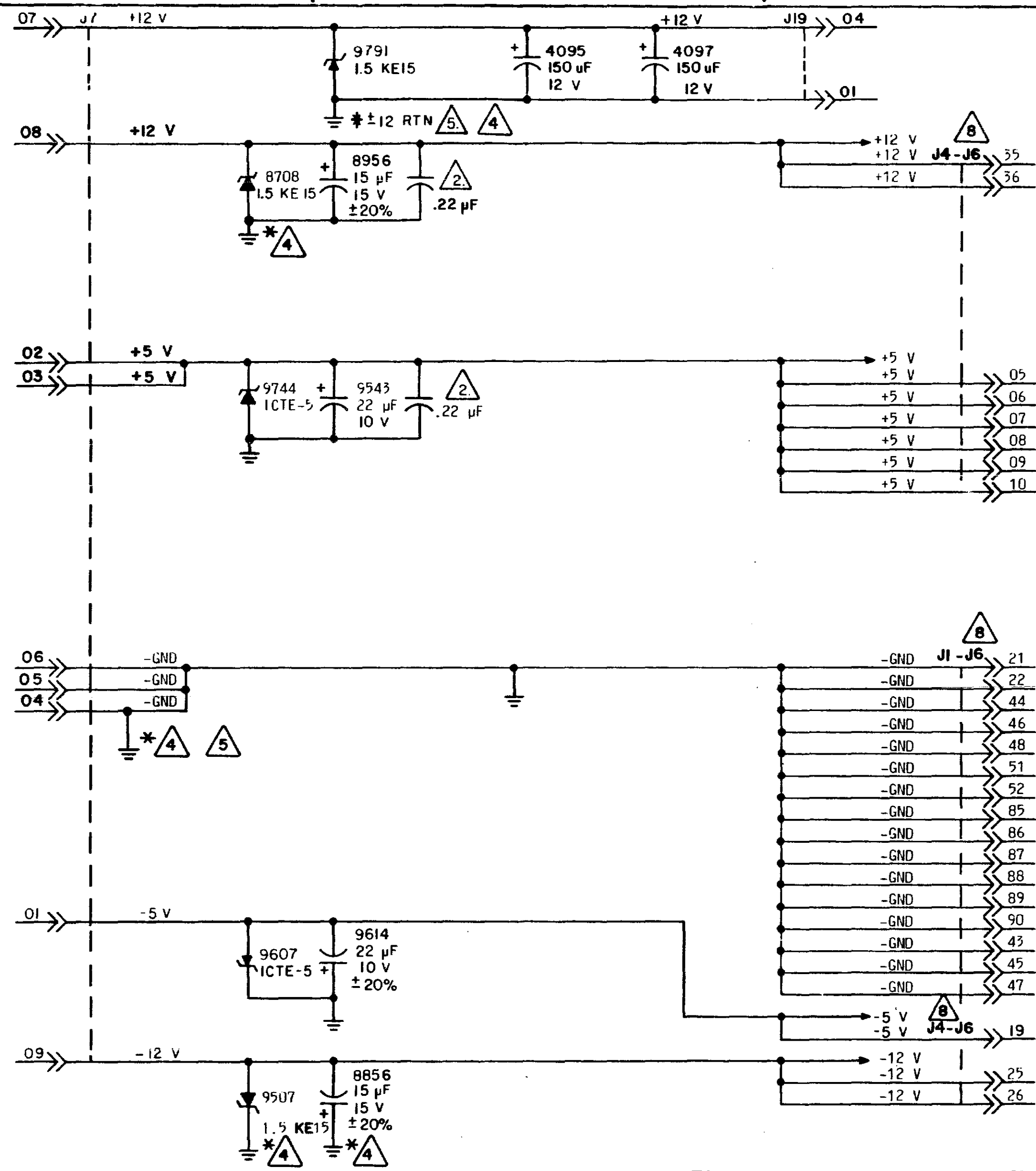


Figure 3-4. Key to Logic



MAGNETIC PERIPHERALS INC	BLOCK DIAGRAM PROGRAMMABLE FIELD TEST UNIT	TWIN CITIES DISK DIVISION	C	83324750	A A
		CODE IDENT 19333	X REF 0002	SHEET 2	PAGE NO 3-9


SIGNAL INPUTS
--- A1CA1-08 07 ->> J7
--- A1CA1-15 08 ->> J7
--- A1CA1-19 02 ->> J7
--- A1CA1-20 03 ->> J7
--- A1CA1-12 06 ->> J7
--- A1CA1-16 05 ->> J7
--- A1CA1-10 04 ->> J7
--- A1CA1-09 01 ->> J7
--- A1CA1-11 09 ->> J7
SIGNAL OUTPUTS
J19 04 A3P6-07
J19 01 A3P6-10
J4-J6 35 0201,0301,0401 J20-35
J4-J6 36 0201,0301,0401 J20-36
J4-J6 05 0201,0301,0401,0501 J20-05
J4-J6 06 0201,0301,0401,0501 J20-06
J4-J6 07 0201,0301,0401,0501 J20-07
J4-J6 08 0201,0301,0401,0501 J20-08
J4-J6 09 0201,0301,0401,0501 J20-09
J4-J6 10 0201,0301,0401,0501 J20-10
J1-J6 21 0201,0301,0401,0501 J20-21
J1-J6 22 0201,0301,0401,0501 J20-22
J1-J6 44 0201,0301,0401,0501 J20-44
J1-J6 46 0201,0301,0401,0501 J20-46
J1-J6 48 0201,0301,0401,0501 J20-48
J1-J6 51 0201,0301,0401,0501 J20-51
J1-J6 52 0201,0301,0401,0501 J20-52
J1-J6 85 0201,0301,0401,0501 J20-85
J1-J6 86 0201,0301,0401,0501 J20-86
J1-J6 87 0201,0301,0401,0501 J20-87
J1-J6 88 0201,0301,0401,0501 J20-88
J1-J6 89 0201,0301,0401,0501 J20-89
J1-J6 90 0201,0301,0401,0501 J20-90
J1-J6 43 0201,0301,0401,0501 J20-43
J1-J6 45 0201,0301,0401,0501 J20-45
J1-J6 47 0201,0301,0401,0501 J20-47
J4-J6 19 0301,0401,0501 J20-19
J4-J6 25 0201,0301,0401 J20-25
J4-J6 26 0201,0301,0401 J20-26



REV	ECO	DESCRIPTION	DRFT	DATE	CHKD	AP
		REVISION RECORD				
A	DJ23000	RELEASED				
B	DJ07034	UPDATE SCHEMATIC	KKB	2-2-84		
C	DJ07068	SHOW POLARITY	KKB	2-2-84		
D	DJ07056	ADD NOTE	CBD	3-20-84		
E	DJ07079	DELETE CAPACITORS	JL	10-16-84		
F	DJ07102	UPDATE SCHEMATIC	JL	10-16-84		
G	DJ07099	CHG DIODE TO RES	JL	10-17-84		
H	DJ07133	BKGN TO CKGN	BJP	3-27-85		
J	DJ07195	CHG IC	CB	7-7-86		
K	DJ07194	NEW BOARD BLANK	CB	7-7-86		

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   ALL 8 PIN IC'S HAVE PIN 4 CONNECTED TO GROUND **AND** PIN 8 CONNECTED TO +5 V
   ALL 14 PIN IC'S HAVE PIN 7 CONNECTED TO GROUND **AND** PIN 14 CONNECTED TO +5 V.
   ALL 16 PIN IC'S HAVE PIN 8 CONNECTED TO GROUND **AND** PIN 16 CONNECTED TO +5 V.
   ALL 18 PIN IC'S HAVE PIN 9 CONNECTED TO GROUND **AND** PIN 18 CONNECTED TO +5 V.
   ALL 20 PIN IC'S HAVE PIN 10 CONNECTED TO GROUND **AND** PIN 20 CONNECTED TO +5 V.
   ALL 24 PIN IC'S HAVE PIN 12 CONNECTED TO GROUND **AND** PIN 24 CONNECTED TO +5 V.
   ALL 28 PIN IC'S HAVE PIN 14 CONNECTED TO GROUND **AND** PIN 28 CONNECTED TO +5 V.
   ALL 40 PIN IC'S HAVE PIN 20 CONNECTED TO GROUND **AND** PIN 40 CONNECTED TO +5 V.
   ALL DIODES, 51007385.
   ALL TRANSISTORS, 50210710 AND 56301500.
   ALL RESISTOR PACK RESISTORS ± 3% 1/8W.
2. SEE TABLE ON SHEET 2 FOR .22 µF FILTER CAPACITORS LOCATIONS.
3. DELAY TIME FOR REFERENCE ONLY.
4. ⏚* **INDICATES ±12 V RETURN.**
5. ±12 V RETURN AND GROUND TIED TOGETHER AT ONLY ONE POINT ON CARD. **PIN 4 OF J7.**
6. DRAWINGS WHERE TAB NUMBERS CREATE NEW COVER SHEET, TABS 00-99 ARE RESERVED.

NOTES CONTINUED ON SHEET 2

REFERENCE DRAWING	
COMP ASSY	
CTR	

MAGNETIC PERIPHERALS INC. a Control Data Company

FIRST USED ON: TB2A3-A — NEXT ASSEMBLY

COMPONENTS EXCEPT AS NOTED	TOLERANCE	VALUE	RATING
RES	± 5%	OHMS	1/4 W
CAP	± 10%		

DWN	K. L. MALARKEY	7 23 83
CHKD	C. Semakula	9-6-83
ENGR	[illegible]	
MFG	J. Burandt	
QA	[illegible]	10 10 83

TITLE
MAIN CONTROL BOARD
TYPE: BGKN/CGKN

TWIN CITIES DISK DIVISION — C — 83324750 — E — K

FSCM NO. 19333 — XREF 0101 — SHEET 1 OF 25 — PAGE NO 3-11

54033803

SIGNAL INPUTS

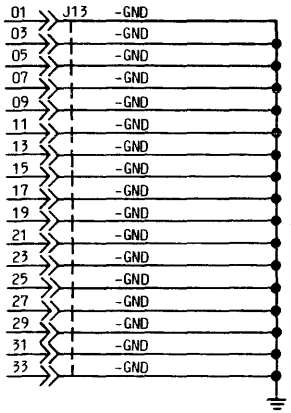
---	A4J1-01	01	J13
---	A4J1-03	03	J13
---	A4J1-05	05	J13
---	A4J1-07	07	J13
---	A4J1-09	09	J13
---	A4J1-11	11	J13
---	A4J1-13	13	J13
---	A4J1-15	15	J13
---	A4J1-17	17	J13
---	A4J1-19	19	J13
---	A4J1-21	21	J13
---	A4J1-23	23	J13
---	A4J1-25	25	J13
---	A4J1-27	27	J13
---	A4J1-29	29	J13
---	A4J1-31	31	J13
---	A4J1-33	33	J13
---	J20-16	16	J4
0309	J20-18	18	J4
0404,0504	J20-32	32	J4
0203	J20-34	34	J4
0209	J20-38	38	J4
0209	J20-40	40	J4
0413,0505*,0513+	J20-42	42	J4
0405,0505	J20-60	60	J4
0206	J20-92	92	J4
0309,0404,0504	J20-94	94	J4
0311	J20-29	29	J4
0210	J20-31	31	J4
0404,0504	J20-33	33	J4
0404,0504	J20-37	37	J4
0309,0404,0504	J20-39	39	J4
0402,0502	J20-53	53	J4
0402,0502	J20-55	55	J4
0306,0404,0504	J20-57	57	J4
0305,0404,0504	J20-59	59	J4
0404,0504	J20-91	91	J4
0209	J20-93	93	J4

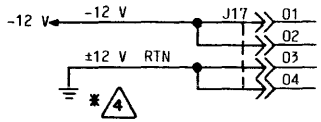
SIGNAL OUTPUTS

J17	01		Fan--
J17	02		NC-
J17	03		NC-
J17	04		Fan-+
J18	01		A4J2-3
J18	02		A4J2-1
J18	03		A4J2-2
J18	04		A4J2-4
J5-J6	16		J20-16
J5-J6	18	0208	J20-18
J5-J6	32	0207	J20-32
J5-J6	34	0413,0512	J20-34
J5-J6	38	0407,0507	J20-38
J5-J6	40	0402,0502	J20-40
J5-J6	42	0203	J20-42
J5-J6	60	0206	J20-60
J5-J6	92	0311	J20-92
J5-J6	94	0209	J20-94
J5-J6	29	0210	J20-29
J5-J6	31	0404,0504	J20-31
J5-J6	33	0210	J20-33
J5-J6	37	0207	J20-37
J5-J6	39	0206	J20-39
J5-J6	53	0204	J20-53
J5-J6	55	0202	J20-55
J5-J6	57	0206	J20-57
J5-J6	59	0206	J20-59
J5-J6	91	0206	J20-91
J5-J6	93	0309	J20-93

NOTES:
*From SMD-E _GPN board.
+From SMD-0 _GPN board.

LOGIC CROSS REFERENCE INFORMATION



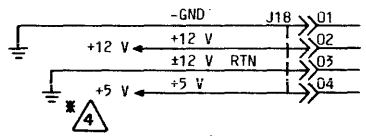


UNUSED RESISTOR PACKS

LOCATION	PIN(S)
3590	6
4232	6,7
4356	2
4362	10
5009	2
5062	10
5862	9,10
7537	2
8122	2,3,5,6,7,8,9

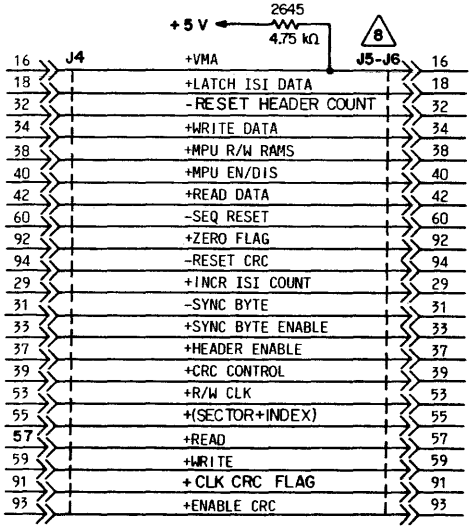
UNUSED LOGIC ELEMENTS

ELELEMENT	LOCATION	OUTPUT PIN(S)
74LS02	7594	4,13
74LS03	7564	6
74F04	6647	6,8
74F04	9043	10,12
74F04	8158	4,6,10,12
74F10	7511	6,12
74LS10	9094	12
74LS74	2320	9
74LS20	3576	8
74LS32	5390	6,8
74LS38	8190	6
74LS86	7585	11
74LS123	5034	4,13
74LS125	7516	3,6,11
MC4024	5052	6
1489A	2902	11
7417	2743	10,12
74LS139	2749	9,10,11,12



7 THIS NETWORK IS INTENDED TO LOCALLY CONTROL/ ELIMINATE NOISE ON THE SUPPLY VOLTAGES FOR THE A/D CIRCUITRY.

8 J1-J3 ARE INTERCONNECTED AND ISOLATED FROM J4-J6. GROUND LINES ARE INCLUDED IN J1-J6.



FILTER CAPS 2.

.22 µF					
+5 V					+12 V
	4985	6602	8081	9776	
	4990	6607	8085	9781	
	5513	6611	8090	7299	
2669	5518	6616	8716		3407
2631	5522	6620	8743		3411
2807	5634	6625	8752	3947	3420
2816	5538	6629	8758	3238	
2820	5543	6634	8785	3243	
3402	5547	6638	8790	3347A	
3416	5627	7143	8825	3252	
3425	5764	7147	8838	3276	
3508	5776	7252	8847	8047	
3701	5781	7258	8864		
3785	5785	7276	8870		
3938	5890	7282	8929		
3976	5894	7290	8934		
3994	5899	7294	8976		
4043	6138	7364	8981		
4056	6316	8011	9516		
4164	6320	8016	9520		
	6325	8020	9538		
4619	6458	8025	9590		
4625	6476	8038	9594		
4734	6494	8043	9625		
4743	6499	8052	9652		
4747	6507	8058	9670		
4758	6511	8064	9685		
4976	6552	8070	9729		
4981	6564	8076	9734		

MAGNETIC PERIPHERALS INC.	SCHEMATIC DIAGRAM	TWIN CITIES DISK DIVISION	C 83324750	E K
	TYPE: _GKN	CODE IDENT 19333	XREF 0102	SHEET 2 PAGE NO 3-13

SIGNAL INPUTS

0205,0305,0410,0510	J20-64	64 ->>	J4-J6
0205,0305,0410,0510	J20-68	68 ->>	J4-J6
0205,0305,0410,0510	J20-63	63 ->>	J4-J6
0205,0305,0410,0510	J20-67	67 ->>	J4-J6
0205,0305,0410,0510	J20-62	62 ->>	J4-J6
0205,0305,0410,0510	J20-66	66 ->>	J4-J6
0205,0305,0410,0510	J20-61	61 ->>	J4-J6
0205,0305,0410,0510	J20-65	65 ->>	J4-J6
---	J20-11	11 ->>	J4-J6
---	J20-14	14 ->>	J4-J6
0206,0311,0405, 0505*,0506+	J20-12	12 ->>	J4-J6
0406,0506	J20-50	50 ->>	J4-J6

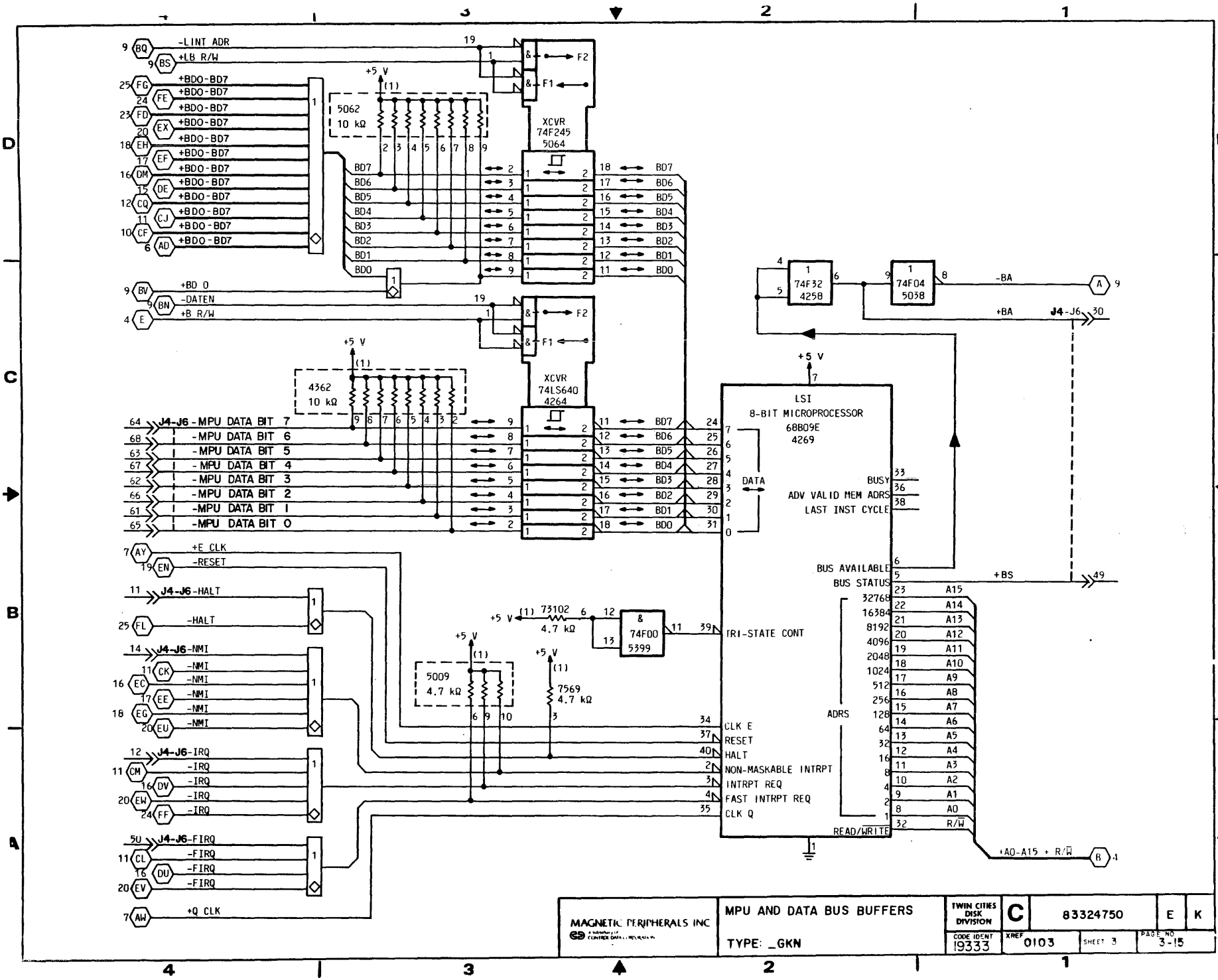
SIGNAL OUTPUTS

J4-J6	30 >>-	0407,0507	J20-30
J4-J6	49 >>-		---

NOTES:
*From SMD-0 _GPN board.
+From SMD-E _GPN board.

LOGIC CROSS REFERENCE INFORMATION

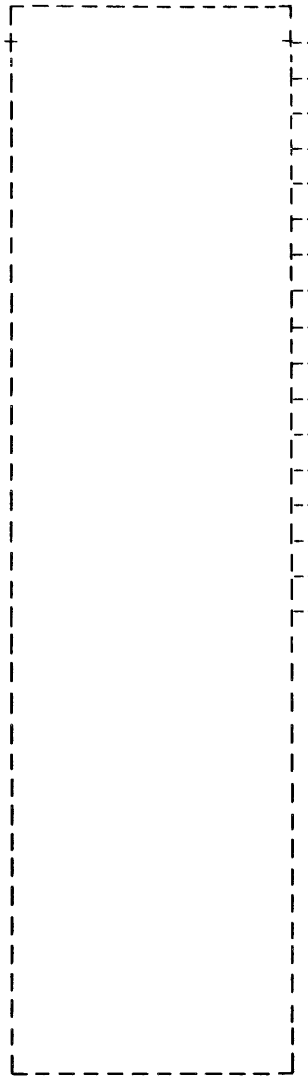
PUB	83324750	REV	F
CROSS REF NO	0103	PAGE	3-14



MAGNETIC PERIPHERALS INC	MPU AND DATA BUS BUFFERS	TWIN CITIES DISK DIVISION	C	83324750	E K
	TYPE: _GKN	CODE IDENT 19333	XREF 0103	SHEET 3	PAGE NO 3-15

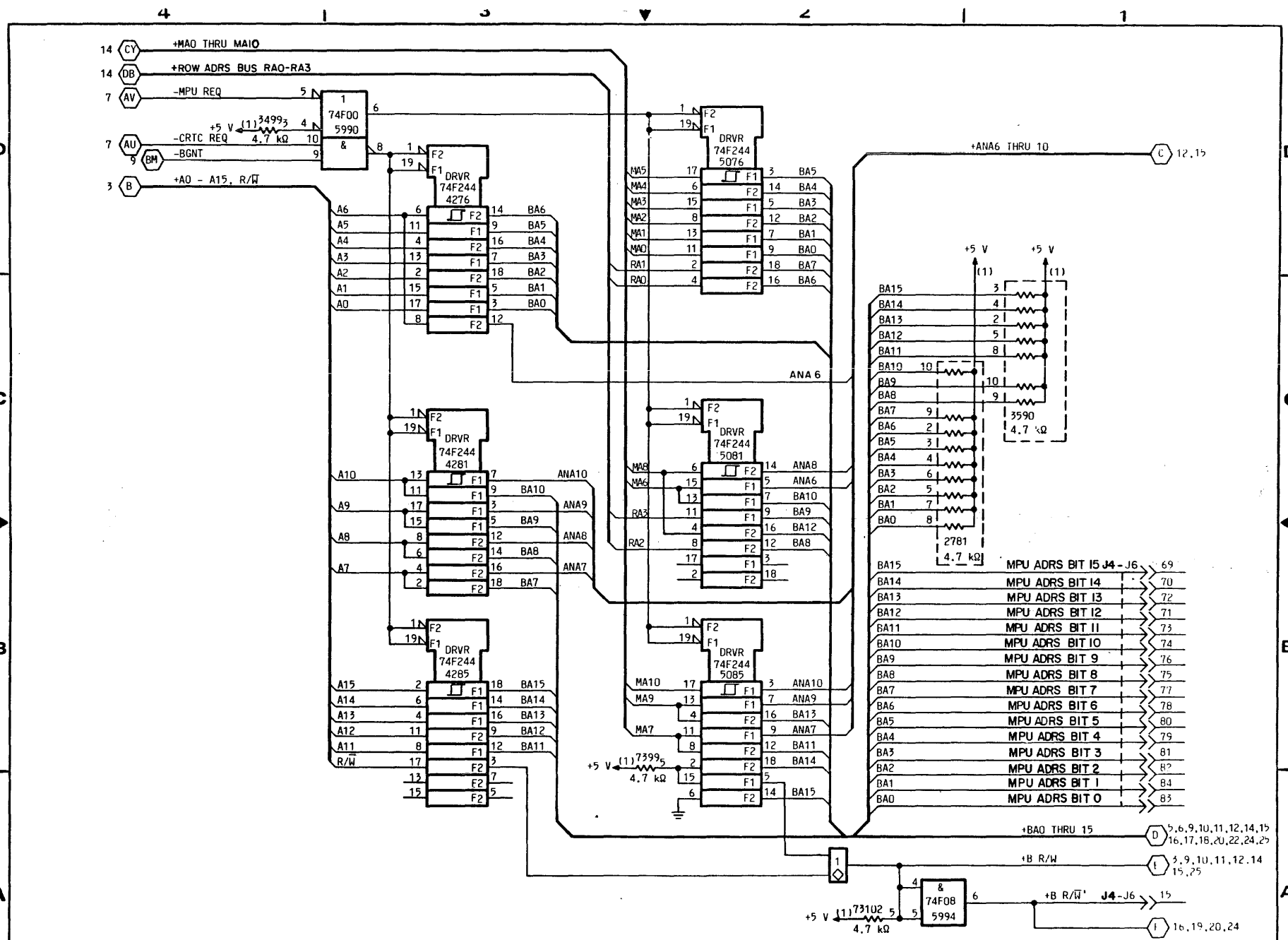
SIGNAL INPUTS

SIGNAL OUTPUTS

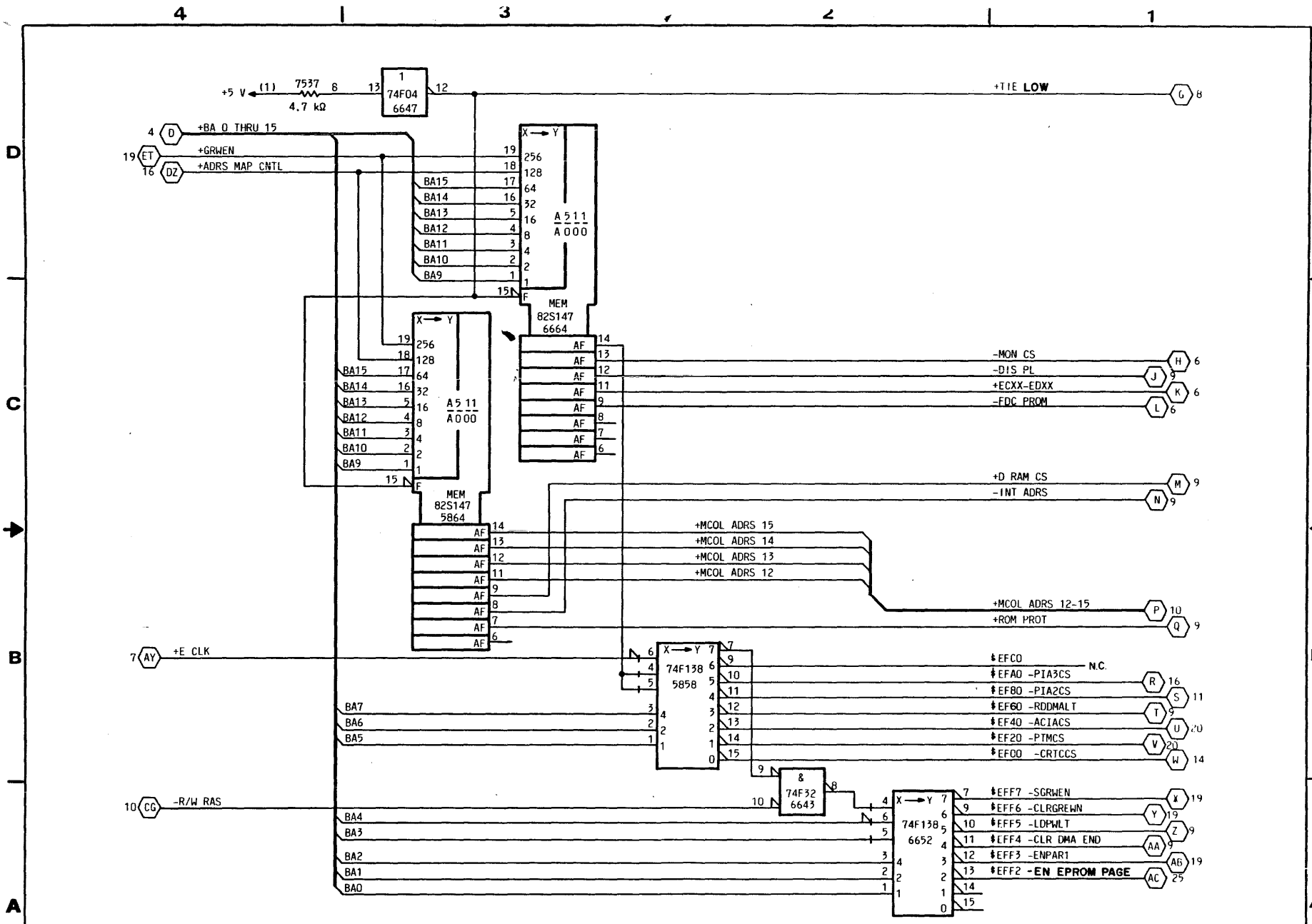


J4-J6 69	>>	0208,0304,0403,0503	J20-69
J4-J6 70	>>	0208,0304,0403,0503	J20-70
J4-J6 72	>>	0208,0304,0403,0503	J20-72
J4-J6 71	>>	0208,0304,0403,0503	J20-71
J4-J6 73	>>	0208,0304,0403,0503	J20-73
J4-J6 74	>>	0208,0304,0403,0503	J20-74
J4-J6 76	>>	0208,0304,0403,0503	J20-76
J4-J6 75	>>	0208,0304,0403,0503	J20-75
J4-J6 77	>>	0208,0304,0403,0503	J20-77
J4-J6 78	>>	0208,0304,0403,0503	J20-78
J4-J6 80	>>	0208,0304,0403,0503	J20-80
J4-J6 79	>>	0208,0304,0403,0503	J20-79
J4-J6 81	>>	0208,0304,0403,0503	J20-81
J4-J6 82	>>	0208,0304,0403,0503	J20-82
J4-J6 84	>>	0208,0304,0403,0503	J20-84
J4-J6 83	>>	0208,0304,0403,0503	J20-83
J4-J6 15	>>	0203,0304,0407,0507	J20-15

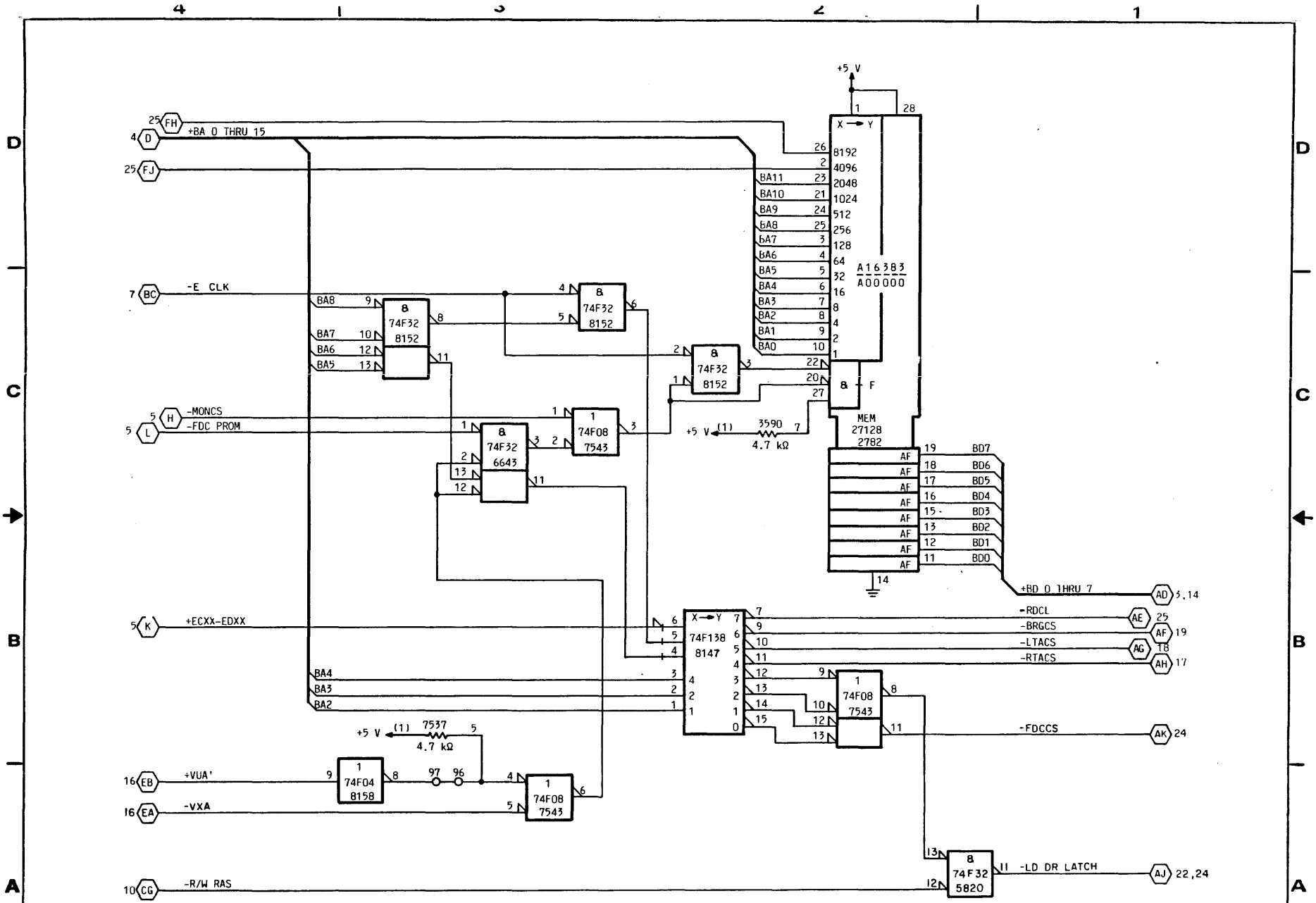
LOGIC CROSS REFERENCE INFORMATION



MAGNETIC PERIPHERALS INC	ADDRESS BUFFERS	TWIN CITIES DISK DIVISION	C	83324750	E K
	TYPE: _GKN	CODE IDENT 19333	XREF 0104	SHEET 4	PAGE NO 3-17



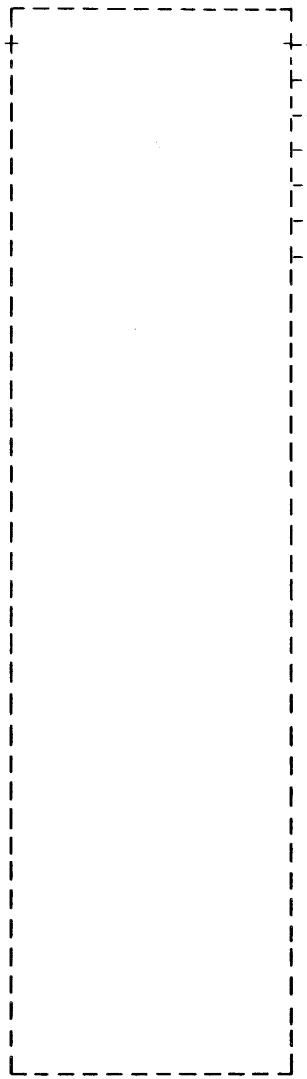
MAGNETIC PERIPHERALS INC	ADDRESS DECODE	TWIN CITIES DISK DIVISION	C	83324750	E	K
	TYPE: _GKN	CODE IDENT 19333	XREF 0105	SHEET 5	PAGE NO 5-19	



MAGNETIC PERIPHERALS INC	ADDRESS DECODE FDC	TWIN CITIES DISK DIVISION	C	83324750 E K
	TYPE: _GKN	CODE IDENT 19333	XREF 0106	SHEET 6 PAGE NO 3-21

SIGNAL INPUTS

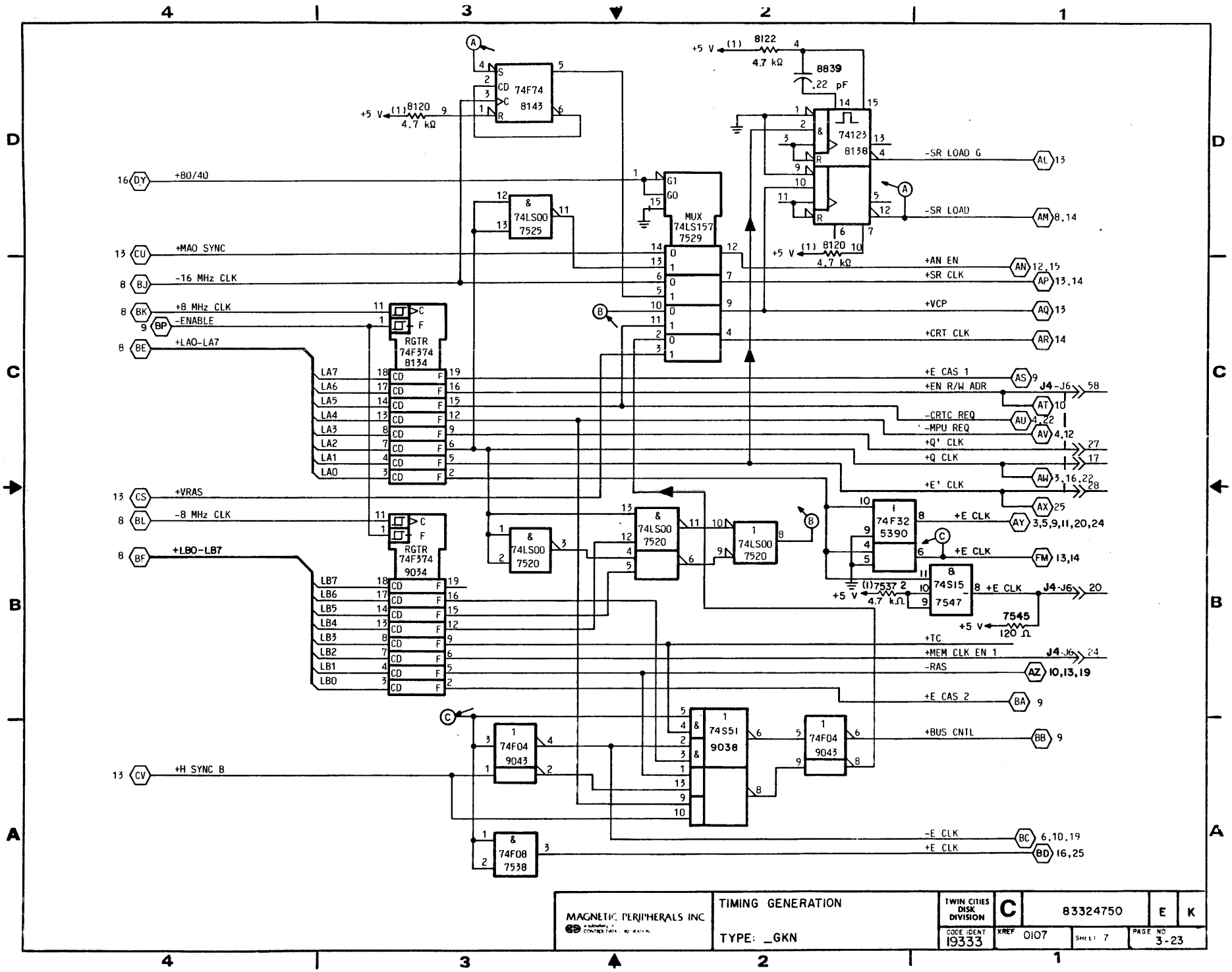
SIGNAL OUTPUTS



J4-J6 58		---
J4-J6 27	0208,0407,0507	J20-27
J4-J6 17	0205,0407,0507	J20-17
J4-J6 28	0208,0407,0503*,0507+	J20-28
J4-J6 24		---
J4-J6 54		---
J4-J6 20	0205,0304,0407,0507	J20-20

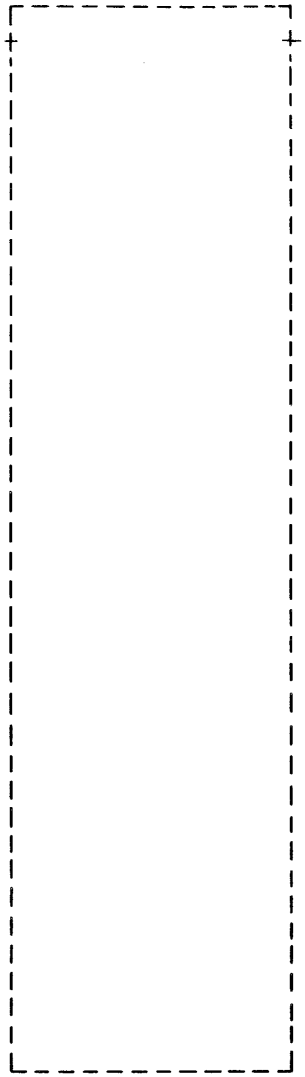
NOTES:
*To SMD-0 _GPN board.
+To SMD-E _GPN board.

LOGIC CROSS REFERENCE INFORMATION


+5 V (1) 8122 4.7 kΩ
8839 .22 pF
74F74 8143
74123 8138
-SR LOAD G
-SR LOAD
+80/40
+MAO SYNC
-16 MHz CLK
+8 MHz CLK
-ENABLE
+LA0-LA7
MUX 74LS157 7529
74LS00 7525
+AN EN
+SR CLK
+VCP
+CRT CLK
RGTR 74F374 8134
+E CAS 1
+EN R/W ADR
-CRTC REQ
-MPU REQ
+Q' CLK
+Q CLK
+E' CLK
+VRAS
-8 MHz CLK
+LB0-LB7
RGTR 74F374 9034
74LS00 7520
74F32 5390
+E CLK
74S15 7547
7537 2 4.7 kΩ
7545 120 Ω
+TC
+MEM CLK EN 1
-RAS
+E CAS 2
74S51 9038
74F04 9043
+BUS CNTL
+H SYNC B
74F08 7538
-E CLK
+E CLK
MAGNETIC PERIPHERALS INC
TIMING GENERATION
TYPE: _GKN
TWIN CITIES DISK DIVISION
CODE IDENT 19333
C
83324750
E
K
XREF 0107
SHEET 7
PAGE NO 3-23

SIGNAL INPUTS

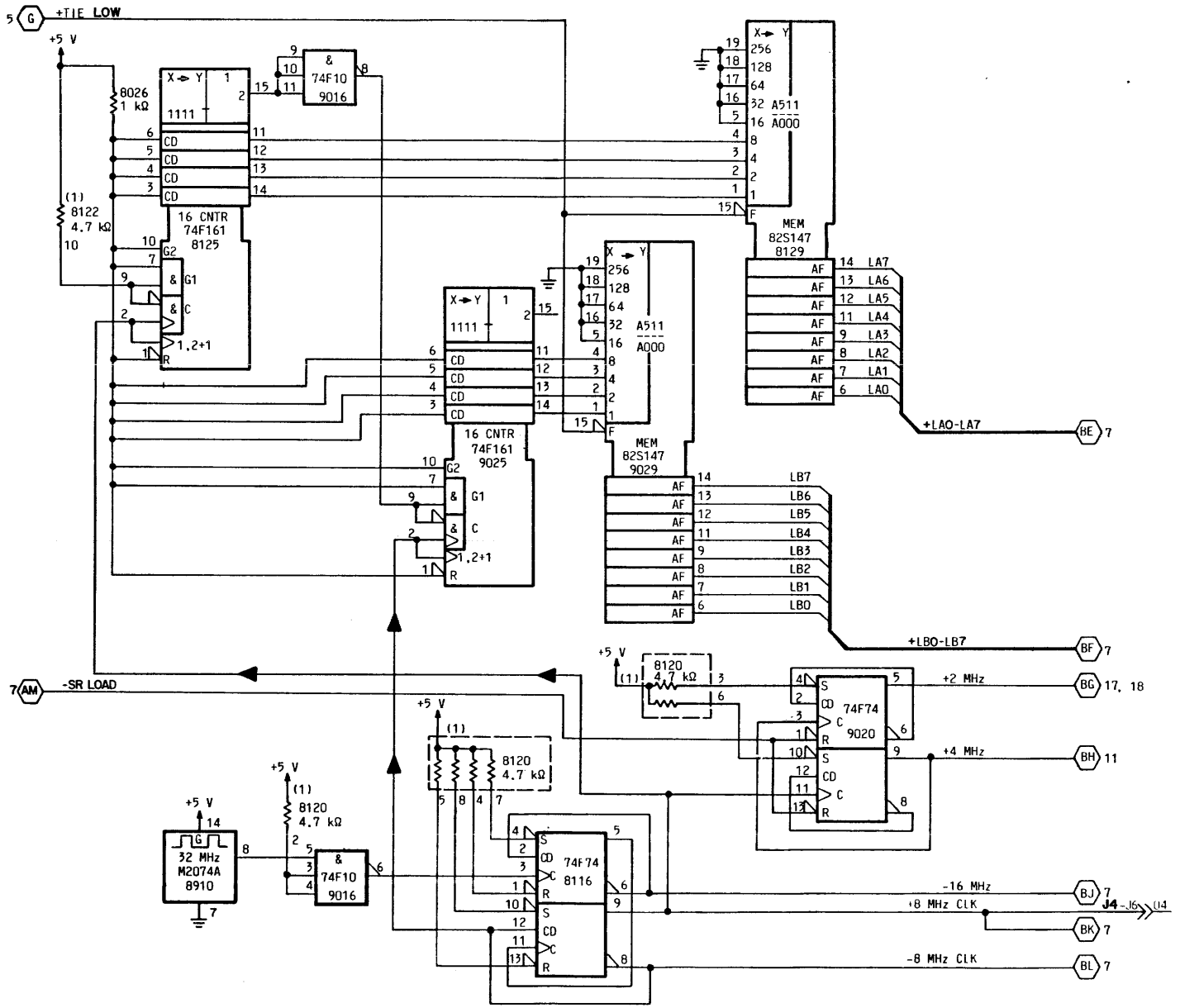
SIGNAL OUTPUTS



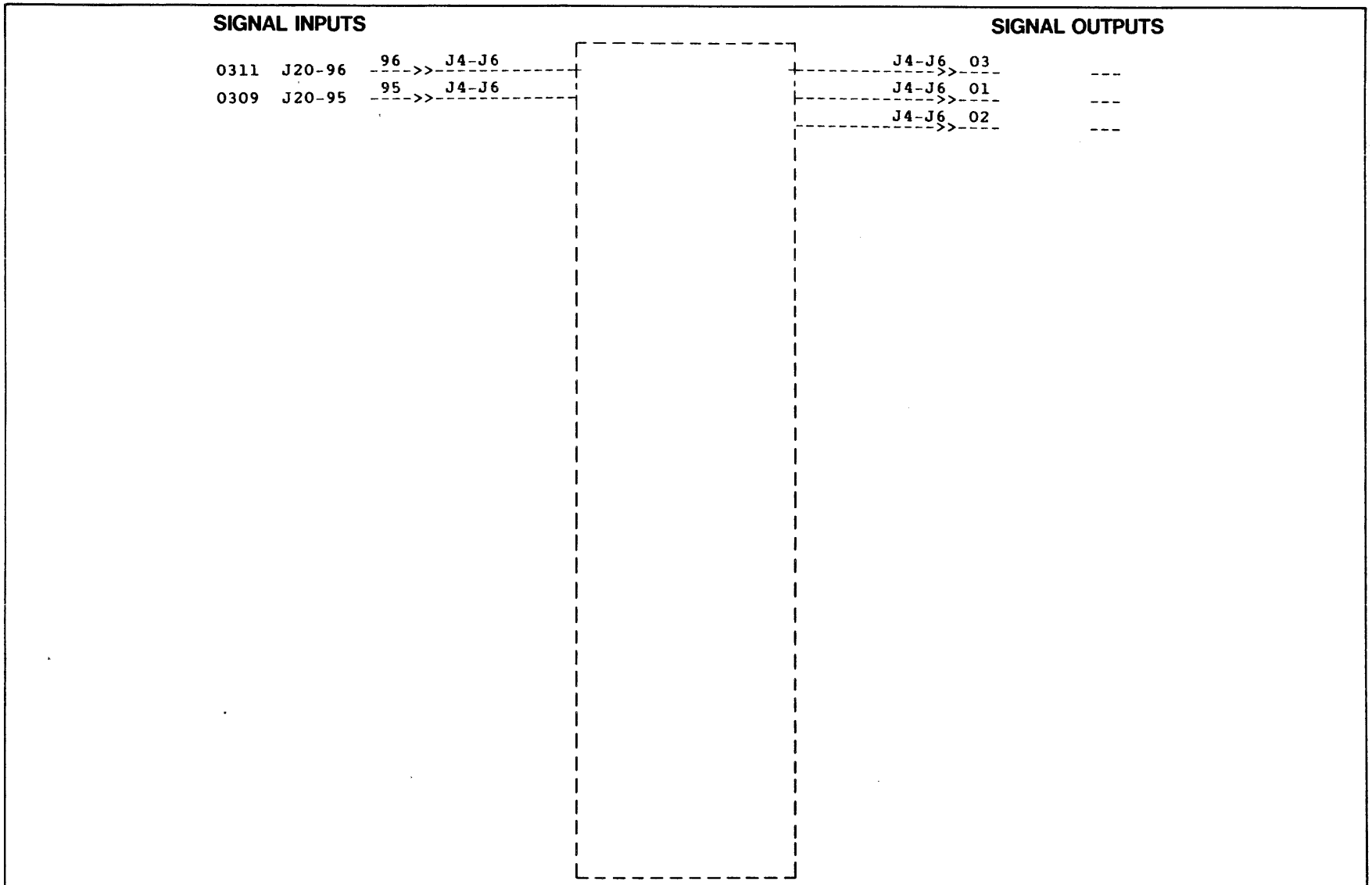
J4-J6 04 >>---- 0309 J20-04

LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	E
CROSS REF NO: 0108	PAGE: 3-24

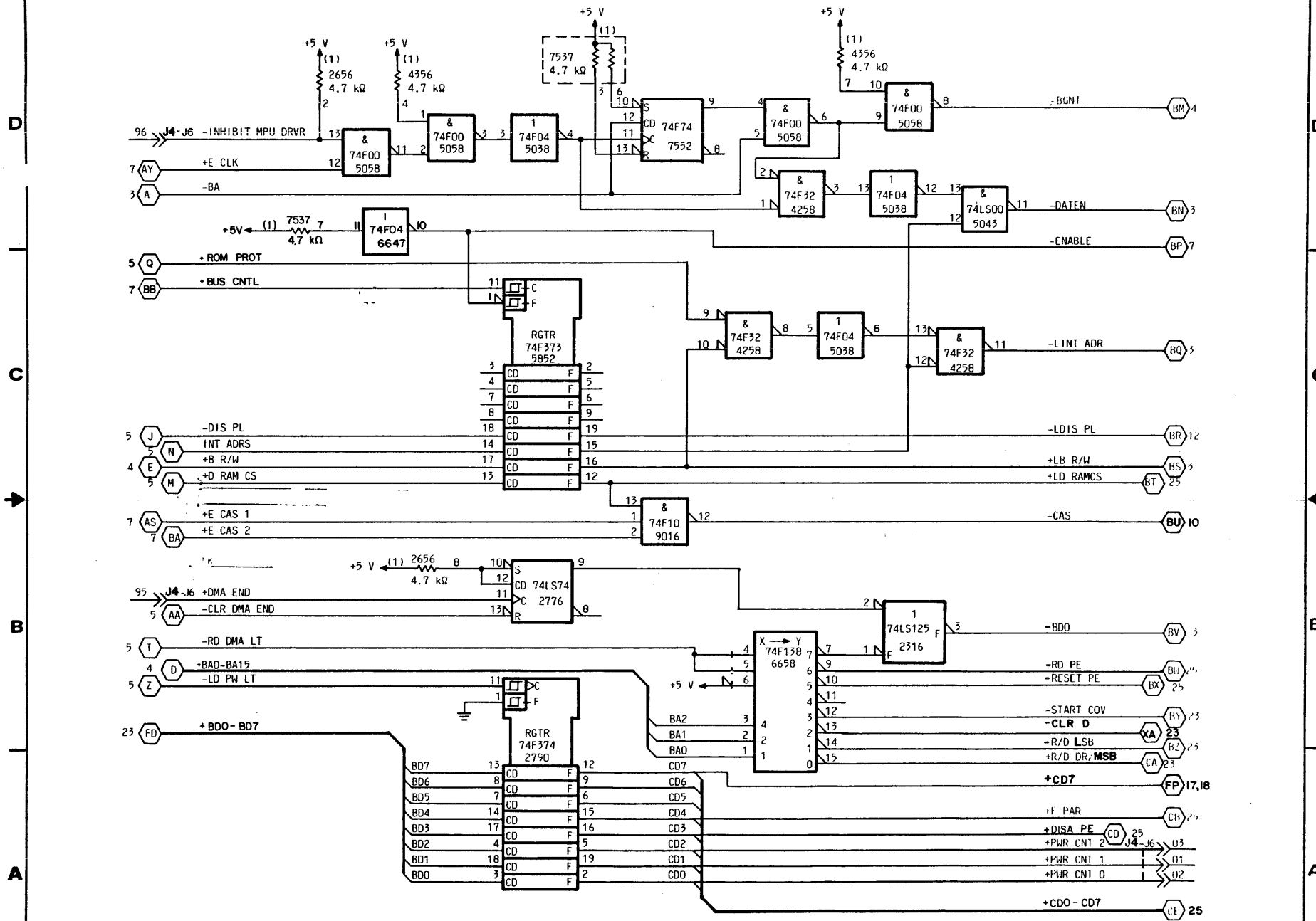


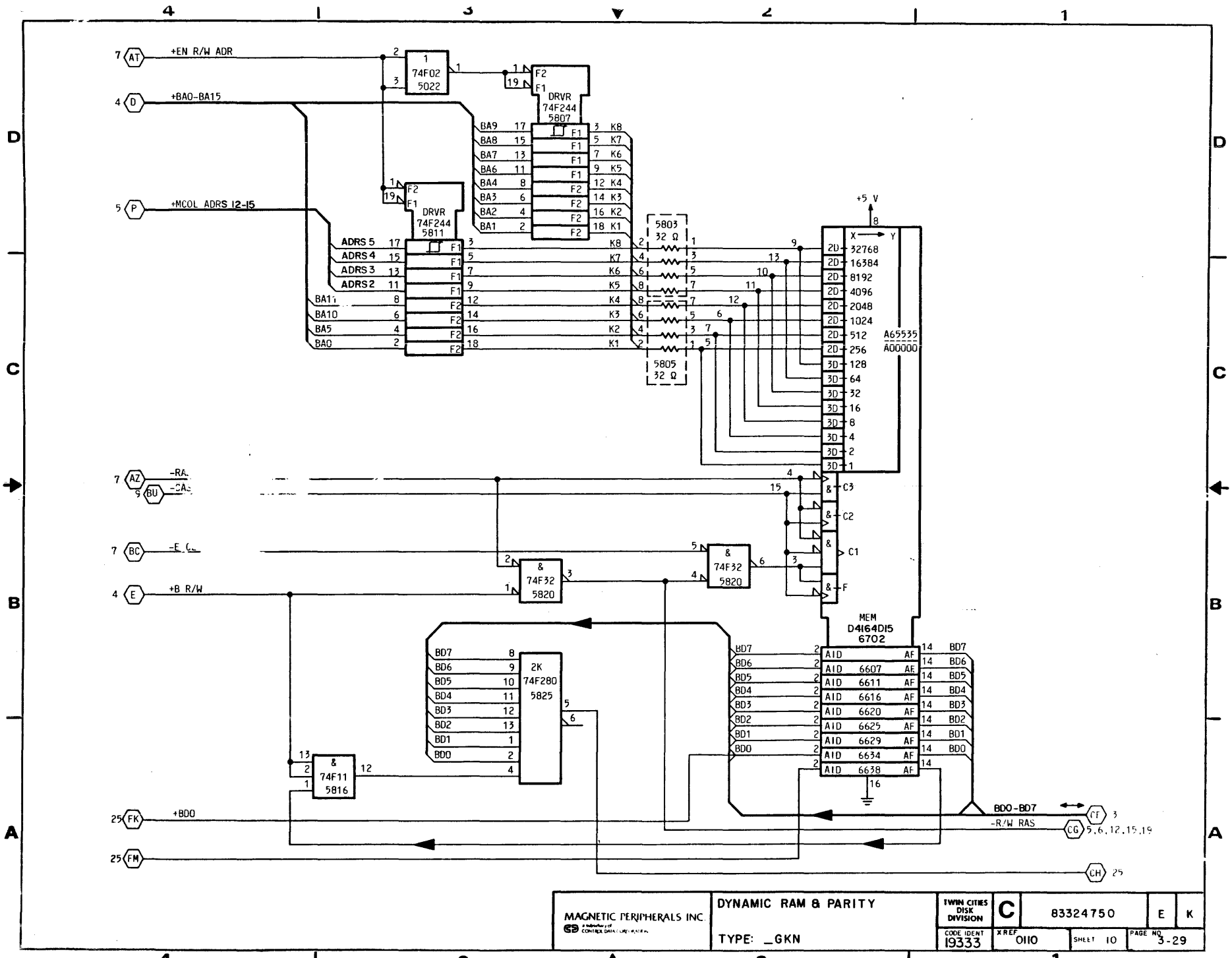
MAGNETIC PERIPHERALS INC	TIMING GENERATION	TWIN CITIES DISK DIVISION	C	83324750	E K
	TYPE: _GKN	CODE IDENT 19333	XREF 0108	SHEET 8	PAGE NO 3-25

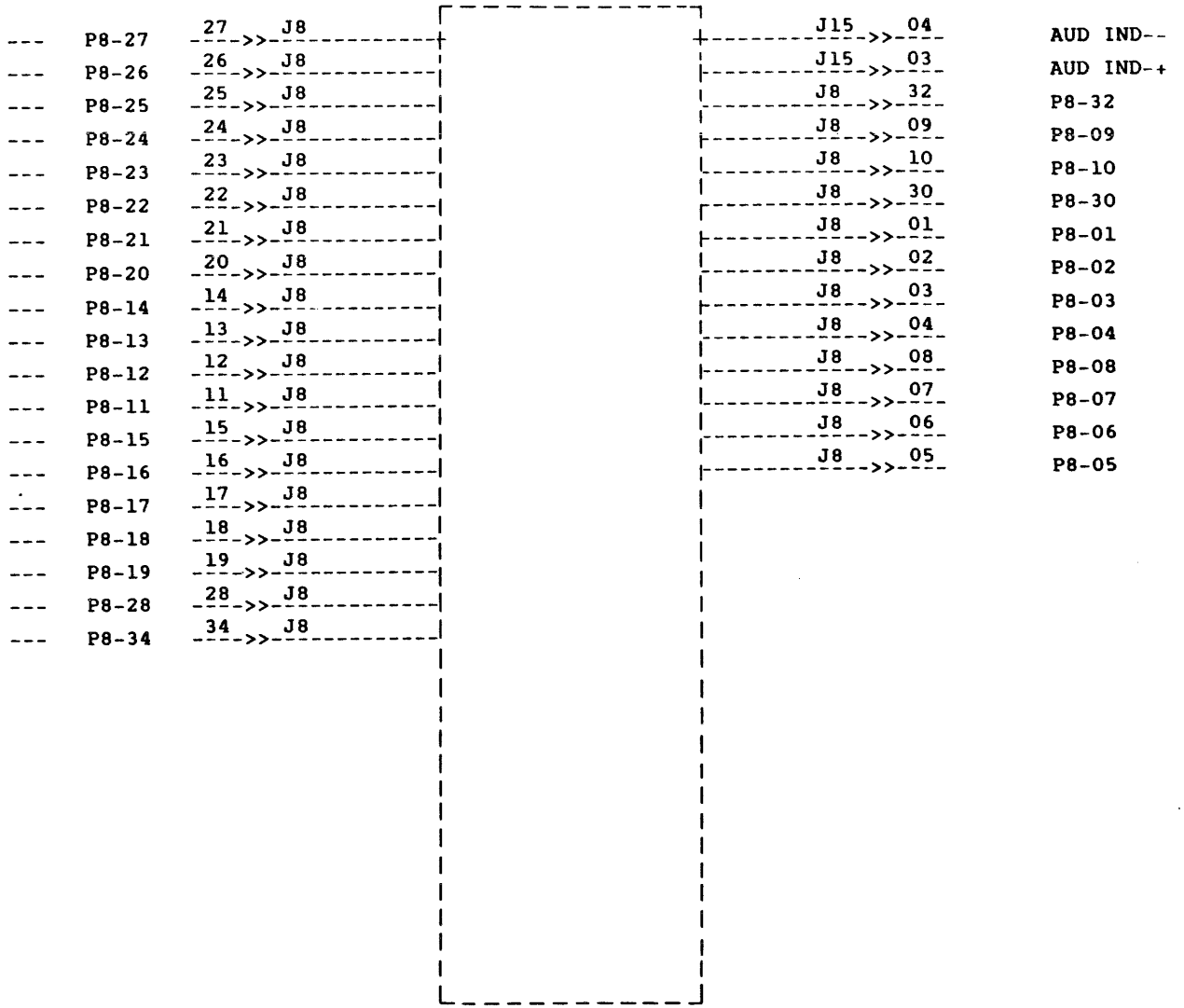


LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	E
CROSS REF NO: 0109	PAGE: 3-26

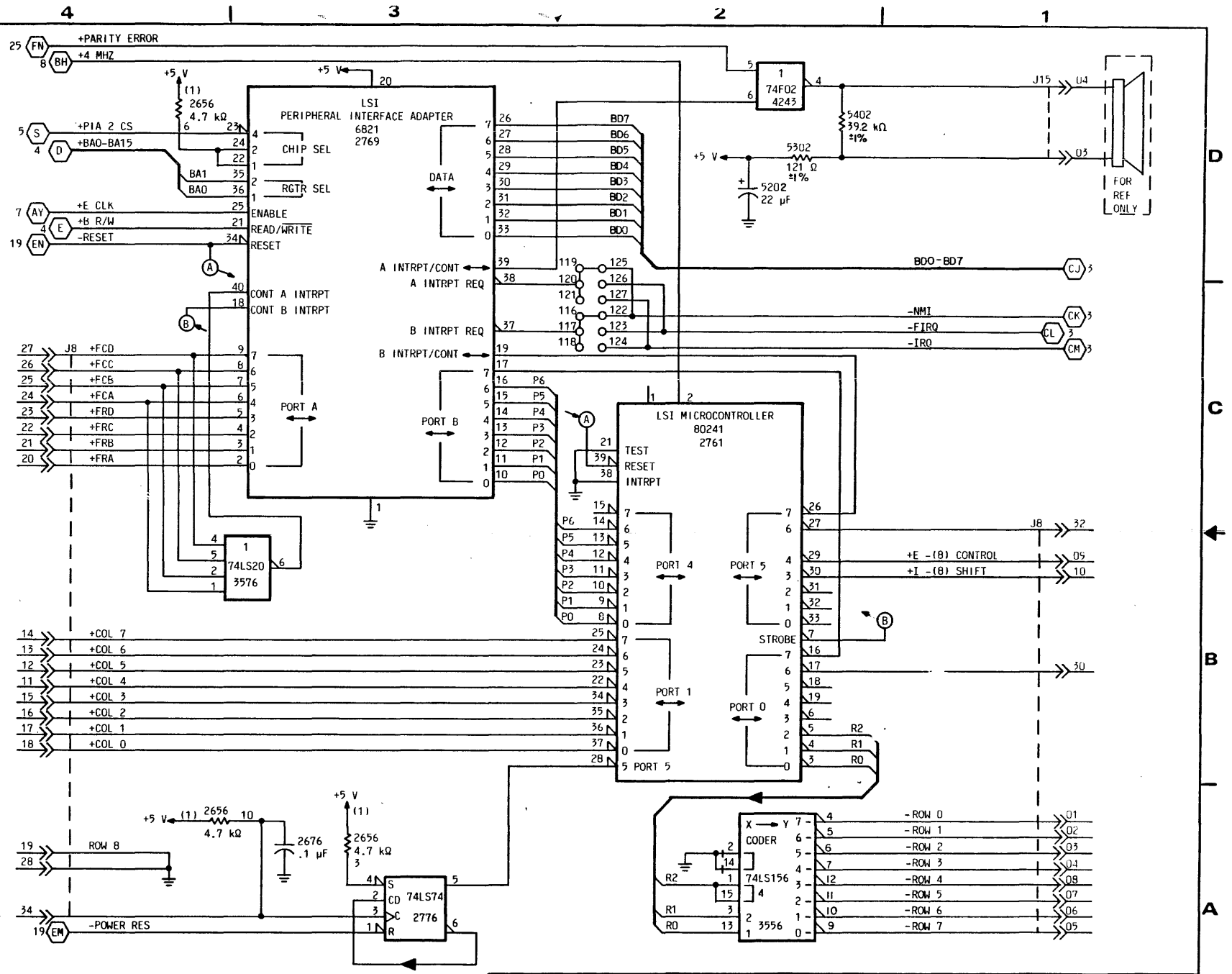

+5 V
(1) 2656 4.7 kΩ
(1) 4356 4.7 kΩ
7537 4.7 kΩ
(1) 4356 4.7 kΩ
96 J4-J6 -INHIBIT MPU DRVR
7 AY +E CLK
3 A -BA
&
74F00
5058
1
74F04
5038
CD 74F74
7552
&
74F32
4258
1
74F04
5038
&
74LS00
5043
-BGNT
-DATEN
-ENABLE
+5V (1) 7537 4.7 kΩ
1
74F04
6647
5 Q +ROM PROT
7 BB +BUS CNTL
RGTR
74F373
5852
CD F
-DIS PL
INT ADRS
+B R/W
+D RAM CS
-LDIS PL
+LB R/W
+LD RAMCS
7 AS +E CAS 1
7 BA +E CAS 2
&
74F10
9016
-CAS
+5 V (1) 2656 4.7 kΩ
CD 74LS74
2776
95 J4-J6 +DMA END
5 AA -CLR DMA END
1
74LS125
2316
-BDO
5 T -RD DMA LT
4 D +BA0-BA15
5 Z -LD PW LT
X → Y
74F138
6658
BA2
BA1
BA0
-RD PE
-RESET PE
-START COV
-CLR D
-R/D LSB
+R/D DR/MSB
+CD7
23 FD +BDO-BD7
RGTR
74F374
2790
BD7
BD6
BD5
BD4
BD3
BD2
BD1
BD0
CD7
CD6
CD5
CD4
CD3
CD2
CD1
CD0
+F PAR
+DISA PE
+PWR CNT 2
+PWR CNT 1
+PWR CNT 0
+CD0-CD7
J4-J6
MAGNETIC PERIPHERALS INC
ADDRESS DECODE AND MPU BUS BUFFERS
TYPE: _GKN
TWIN CITIES DISK DIVISION
C
83324750
E
K
CODE IDENT 19333
XREF 0109
SHEET 9
BASE NO 3-27


+EN R/W ADR
+BA0-BA15
+MCOL ADRS 12-15
74F02 5022
DRVR 74F244 5807
DRVR 74F244 5811
ADRS 5
ADRS 4
ADRS 3
ADRS 2
BA11
BA10
BA5
BA0
BA9
BA8
BA7
BA6
BA4
BA3
BA2
BA1
5803 32 Ω
5805 32 Ω
+5 V
A65535 A00000
32768
16384
8192
4096
2048
1024
512
256
128
64
32
16
8
4
2
1
-RAS
-CAS
-E CLK
+B R/W
74F32 5820
74F32 5820
MEM D4164D15 6702
2K 74F280 5825
74F11 5816
+BD0
BD0-BD7
-R/W RAS
5,6,12,15,19
25
MAGNETIC PERIPHERALS INC.
DYNAMIC RAM & PARITY
TYPE: _GKN
TWIN CITIES DISK DIVISION
C
83324750
E
K
CODE IDENT 19333
XREF 0110
SHEET 10
PAGE NO 3-29

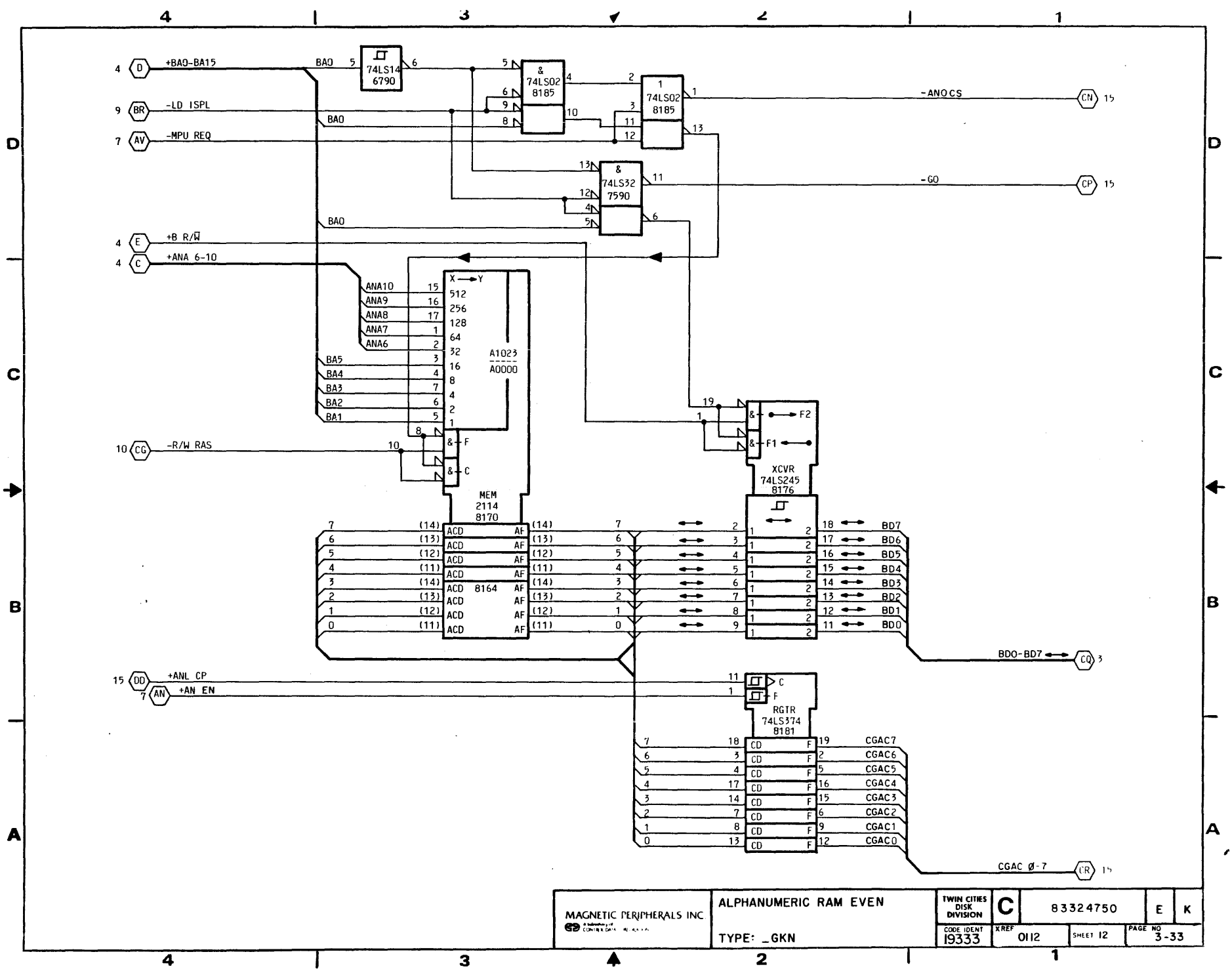


LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	A
CROSS REF NO 0111	PAGE 3-30



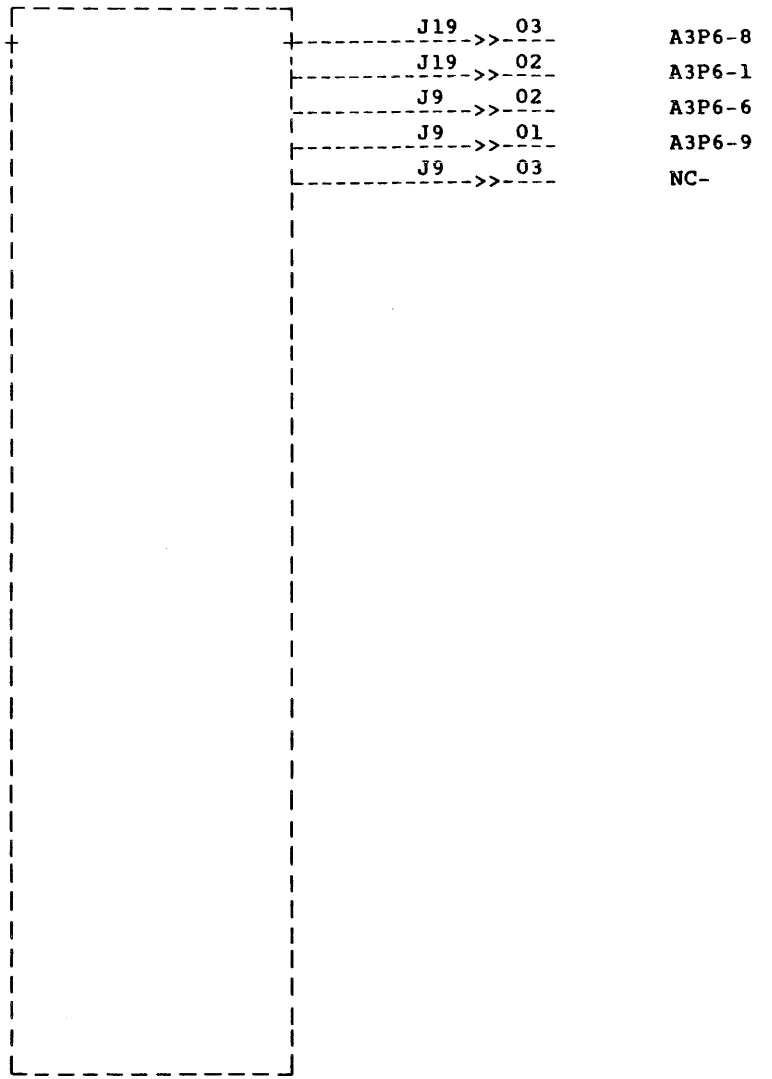
MAGNETIC PERIPHERALS INC.	KEYBOARD ENCODER	TWIN CITIES DISK DIVISION	C	83324750	E	K
	TYPE: _GKN	CODE IDENT 19333	XREF 0111	SHEET 11	PAGE NO 3-31	



MAGNETIC PERIPHERALS INC	ALPHANUMERIC RAM EVEN	TWIN CITIES DISK DIVISION	C	83324750	E K
	TYPE: _GKN	CODE IDENT 19333	XREF 0112	SHEET 12	PAGE NO 3-33

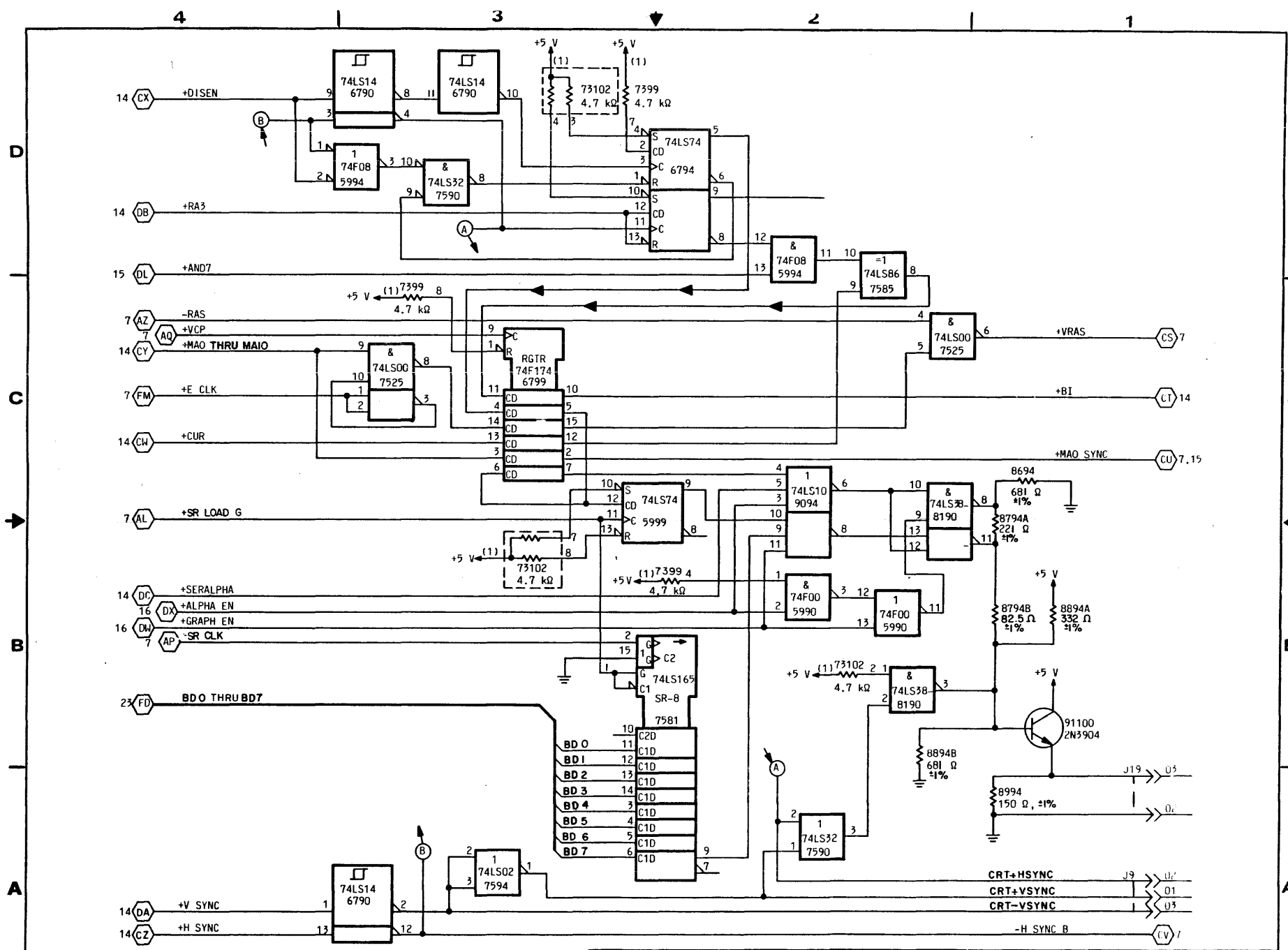
SIGNAL INPUTS

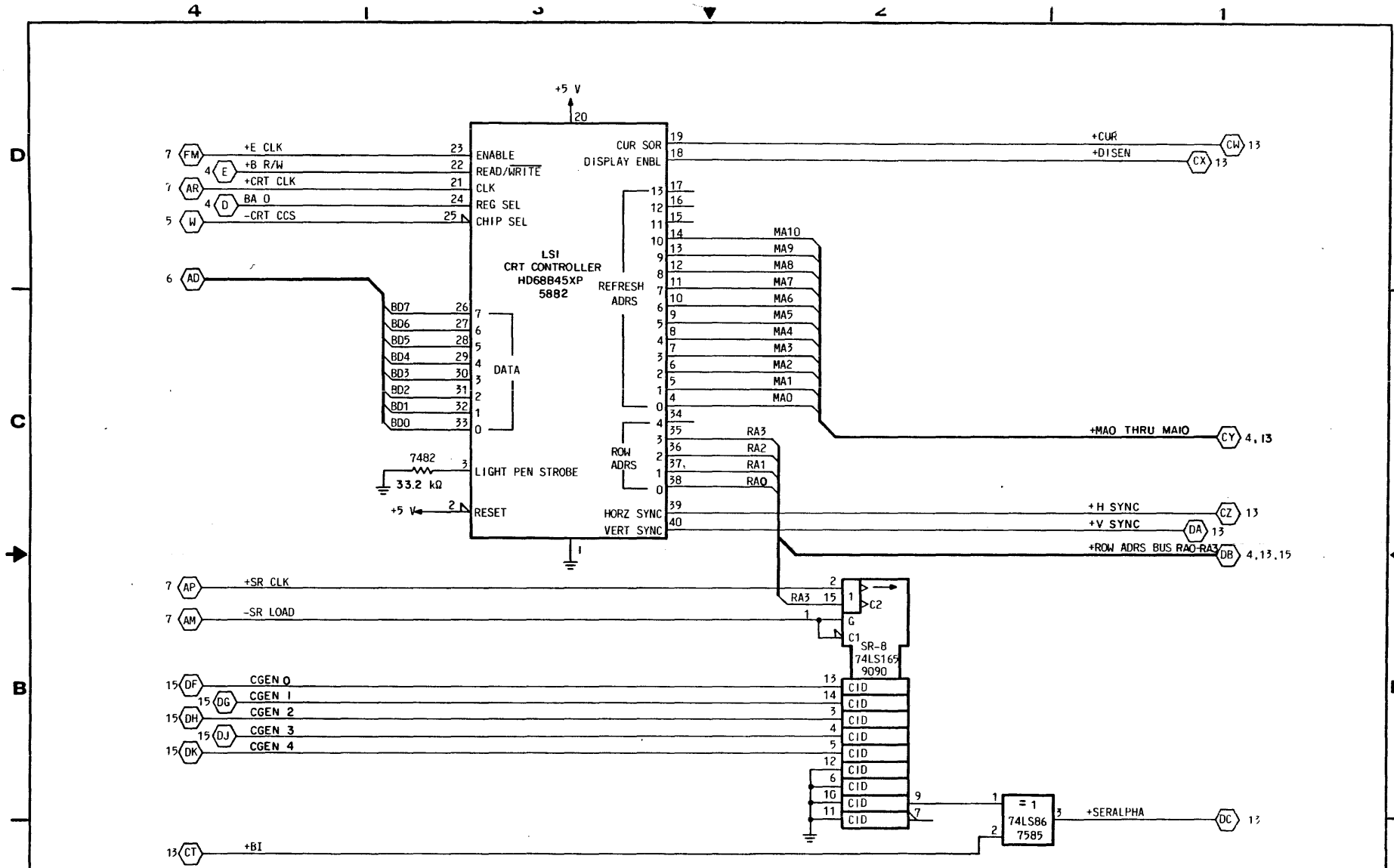
SIGNAL OUTPUTS



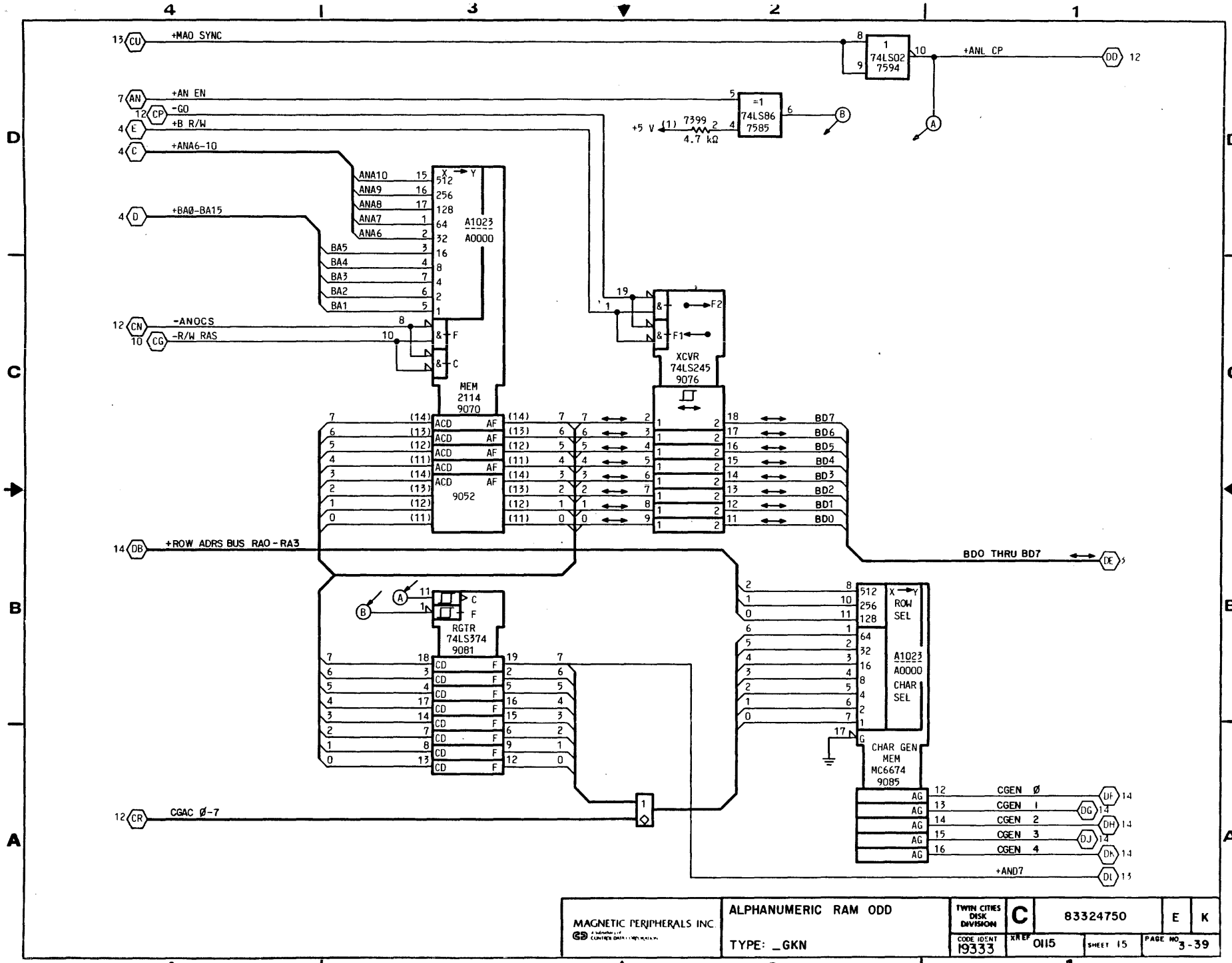
LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	A
CROSS REF NO: 0113	PAGE: 3-34


14 CX +DISEN
14 DB +RA3
15 DL +AND7
7 AZ -RAS
7 AQ +VCP
14 CY +MAO THRU MAIO
7 FM +E CLK
14 CW +CUR
7 AL +SR LOAD G
14 DC +SERALPHA
16 DX +ALPHA EN
16 DW +GRAPH EN
7 AP SR CLK
23 FD BD0 THRU BD7
14 DA +V SYNC
14 CZ +H SYNC
74LS14 6790
74F08 5994
74LS32 7590
73102 4.7 kΩ
7399 4.7 kΩ
74LS74 6794
74LS74 5999
74LS86 7585
74LS00 7525
RGTR 74F174 6799
74LS10 9094
74LS38 8190
74F00 5990
74LS165 SR-8 7581
74LS02 7594
+VRAS
+BI
+MAO SYNC
8694 681 Ω ±1%
8794A 221 Ω ±1%
8794B 82.5 Ω ±1%
8894A 332 Ω ±1%
8894B 681 Ω ±1%
8994 150 Ω, ±1%
91100 2N3904
CRT+HSYNC
CRT+VSYNC
CRT-VSYNC
-H SYNC B
MAGNETIC PERIPHERALS INC
VIDEO MIXER
TYPE: _GKN
TWIN CITIES DISK DIVISION
C
83324750
E
K
CODE IDENT 19333
XREF 0113
SHEET 13
PAGE NO 3-35

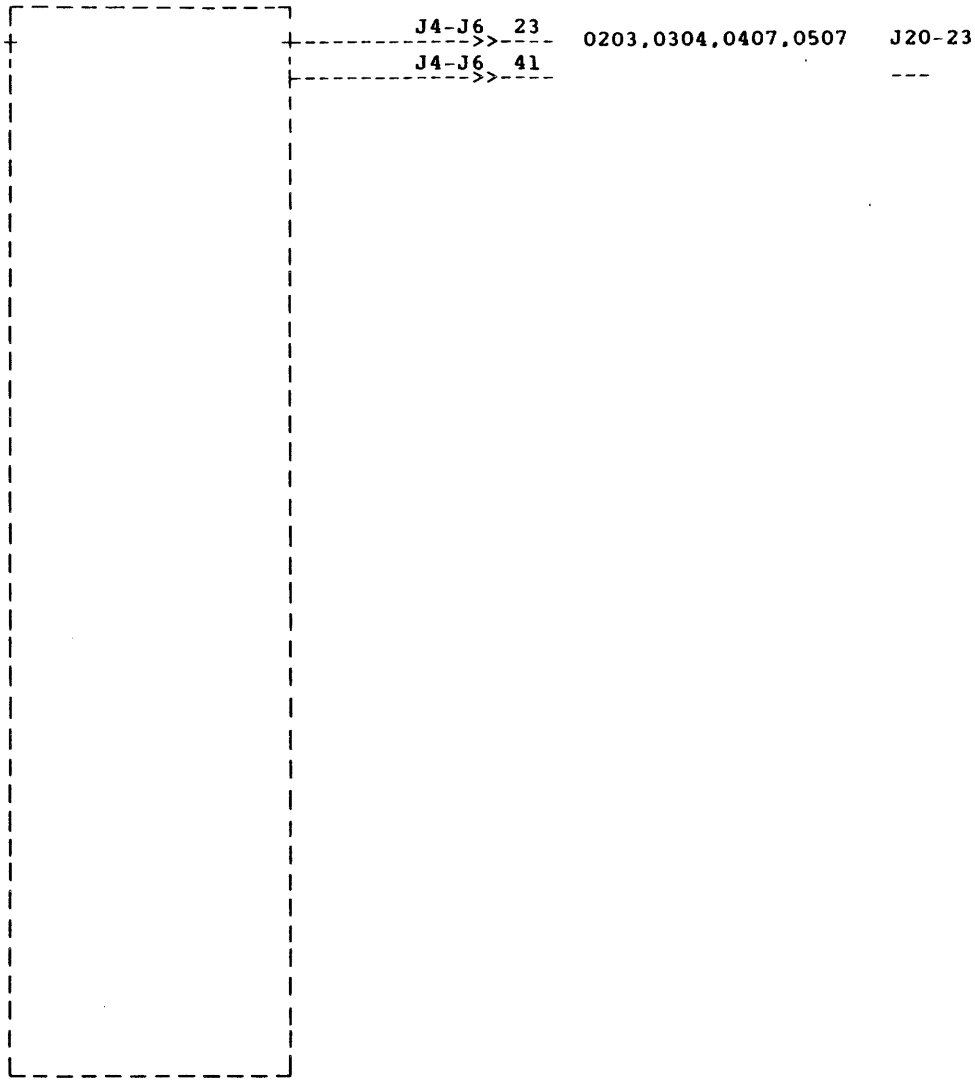


MAGNETIC PERIPHERALS INC	CRT VIDEO MIXER	TWIN CITIES DISK DIVISION	C	83324750 E K
	TYPE: _GKN	CODE IDENT 19333	XREF 0114	SHEET 14 PAGE NO 3-37


+MA0 SYNC
+AN EN
-GO
+B R/W
+ANA6-10
+BA0-BA15
-ANOCS
-R/W RAS
+ROW ADRS BUS RA0-RA3
CGAC Ø-7
+ANL CP
+AND7
BD0 THRU BD7
74LS02 7594
74LS86 7585
4.7 kΩ
A1023 A0000
MEM 2114 9070
9052
XCVR 74LS245 9076
RGTR 74LS374 9081
ROW SEL
CHAR SEL
CHAR GEN MEM MC6674 9085
CGEN Ø
CGEN 1
CGEN 2
CGEN 3
CGEN 4
MAGNETIC PERIPHERALS INC.
ALPHANUMERIC RAM ODD
TYPE: _GKN
TWIN CITIES DISK DIVISION
C
83324750
E
K
CODE IDENT 19333
XREF 0115
SHEET 15
PAGE NO 3-39

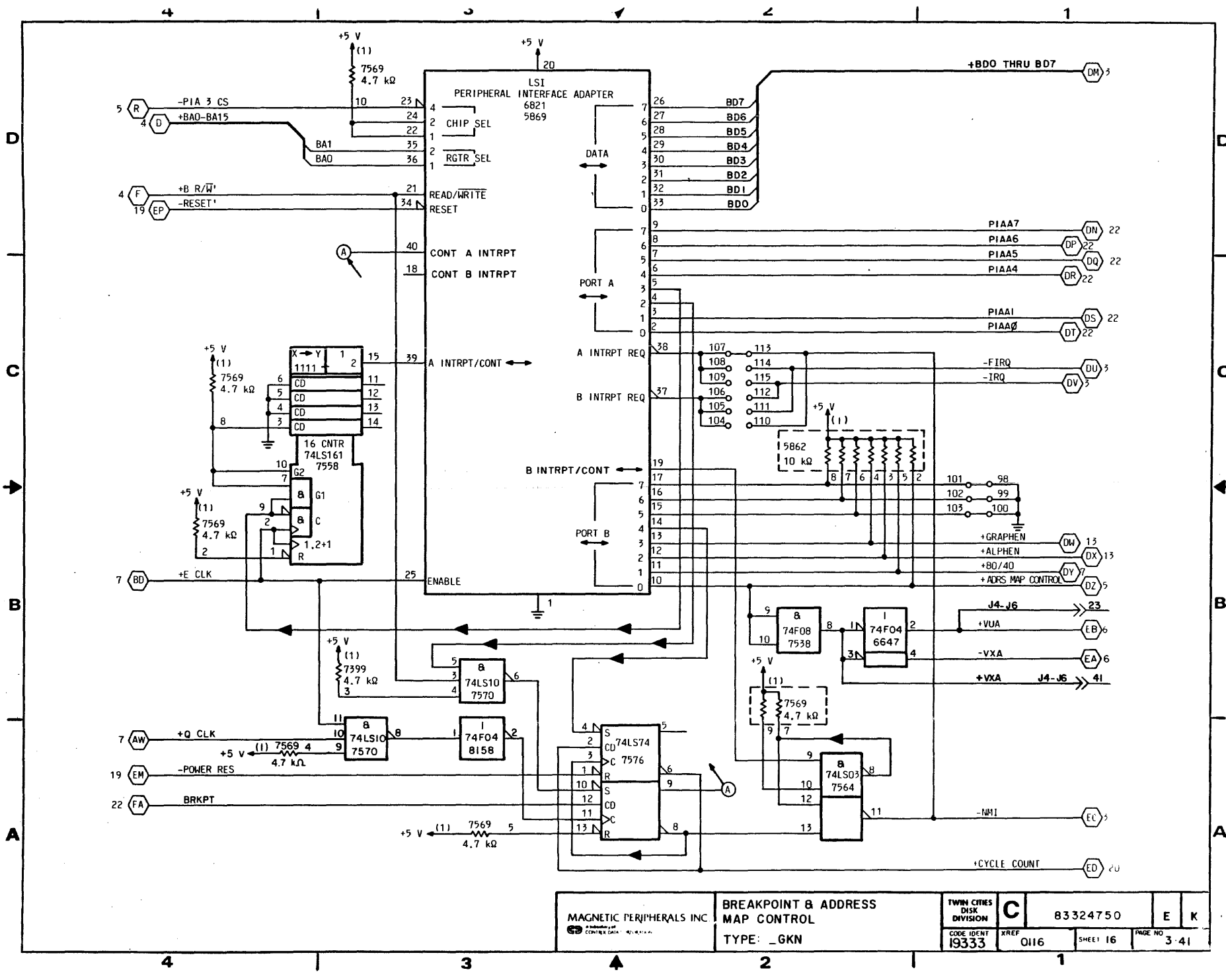
SIGNAL INPUTS

SIGNAL OUTPUTS



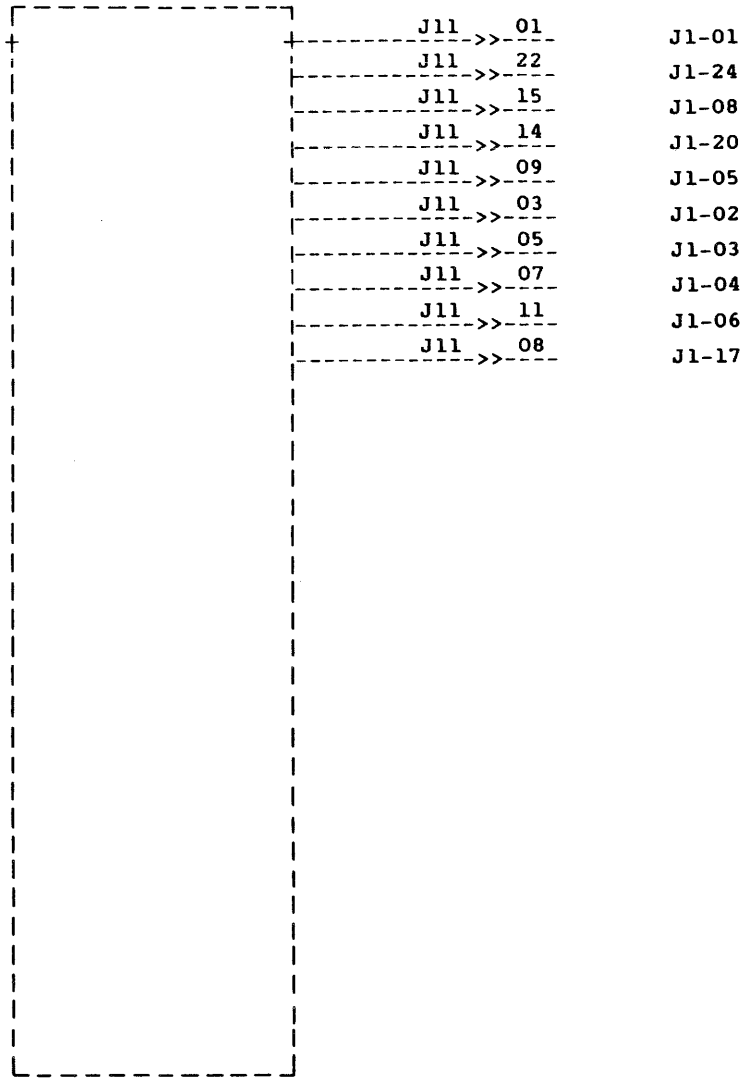
LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	E
CROSS REF NO: 0116	PAGE: 3-40

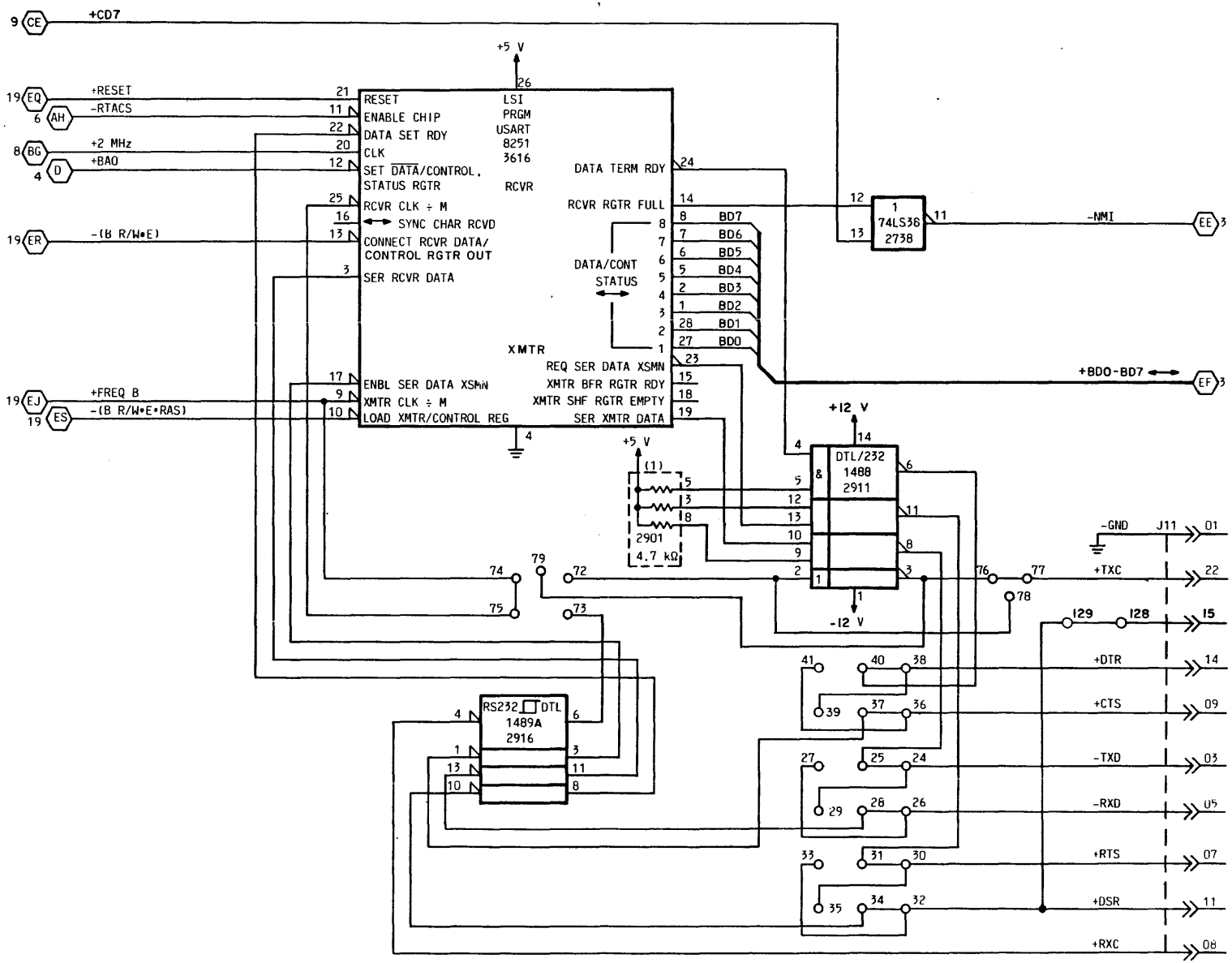

LSI
PERIPHERAL INTERFACE ADAPTER
6821
5869
CHIP SEL
RGTR SEL
DATA
PORT A
PORT B
A INTRPT REQ
B INTRPT REQ
A INTRPT/CONT
B INTRPT/CONT
READ/WRITE
RESET
CONT A INTRPT
CONT B INTRPT
ENABLE
-PIA 3 CS
+BA0-BA15
+B R/W'
-RESET'
+E CLK
+Q CLK
-POWER RES
BRKPT
+BD0 THRU BD7
BD7
BD6
BD5
BD4
BD3
BD2
BD1
BD0
PIAA7
PIAA6
PIAA5
PIAA4
PIAA1
PIAA0
-FIRQ
-IRQ
+GRAPHEN
+ALPHEN
+80/40
+ADRS MAP CONTROL
+VUA
-VXA
+VXA
-NMI
+CYCLE COUNT
16 CNTR
74LS161
7558
74LS10
7570
74F04
8158
74LS74
7576
74F08
7538
74F04
6647
74LS03
7564
7569
4.7 kΩ
7399
4.7 kΩ
5862
10 kΩ
+5 V
MAGNETIC PERIPHERALS INC
BREAKPOINT & ADDRESS
MAP CONTROL
TYPE: _GKN
TWIN CITIES DISK DIVISION
C
83324750
E
K
CODE IDENT 19333
XREF 0116
SHEET 16
PAGE NO 3-41

SIGNAL INPUTS

SIGNAL OUTPUTS



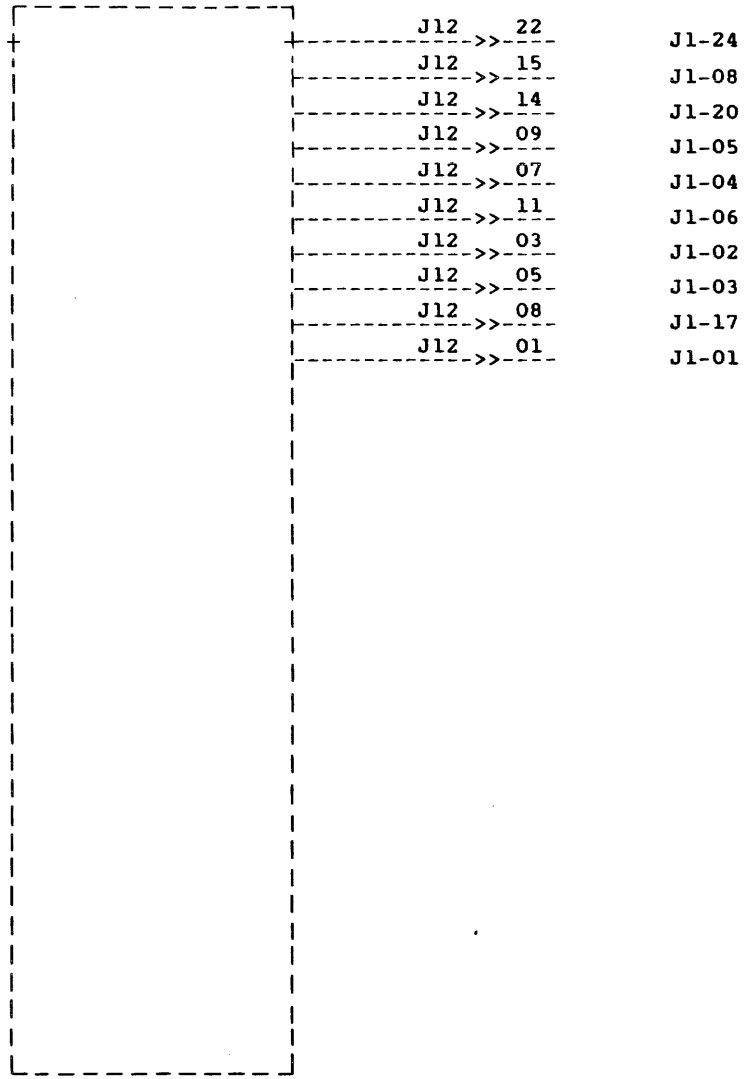
LOGIC CROSS REFERENCE INFORMATION



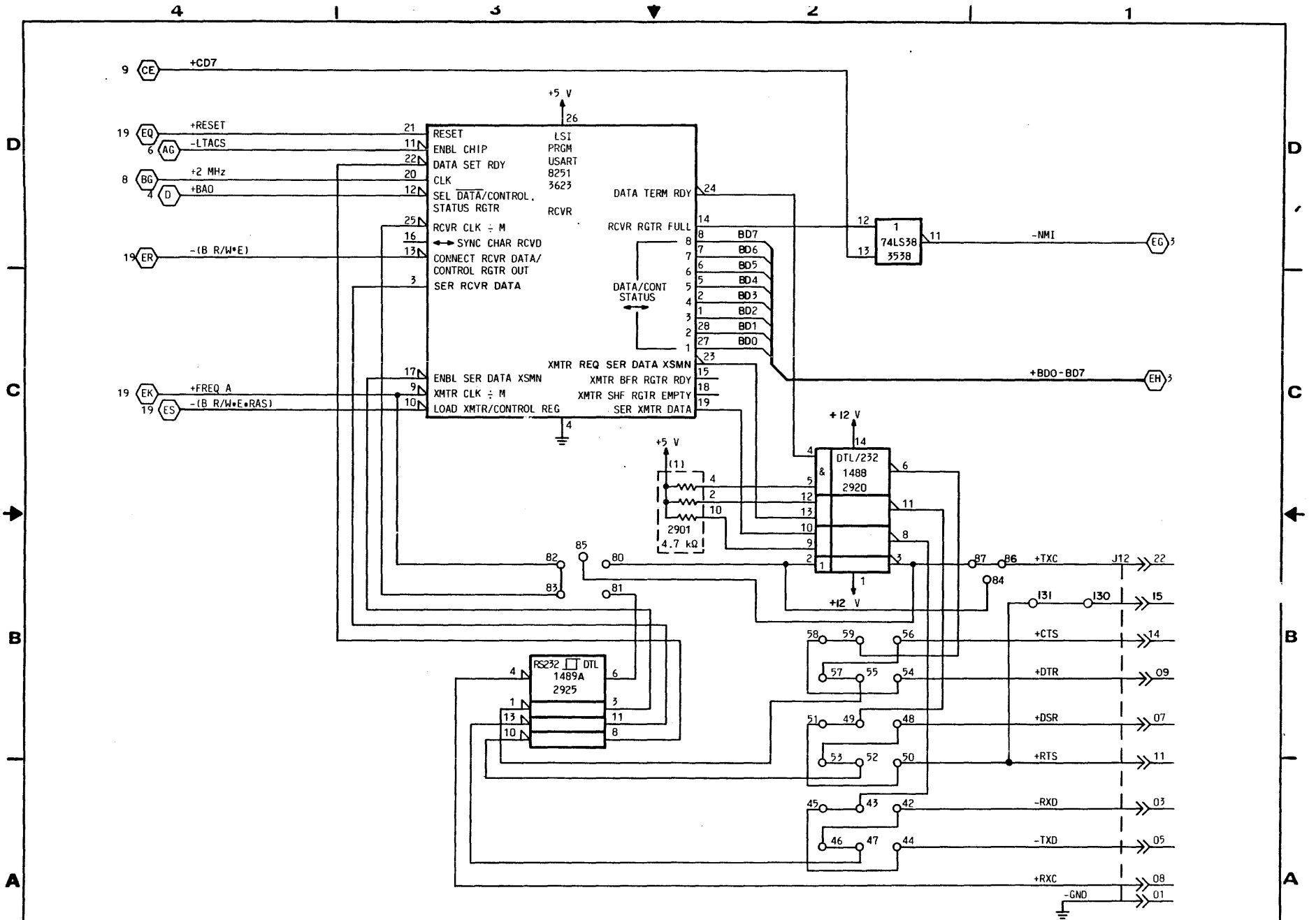
MAGNETIC PERIPHERALS INC	RS232 RTA LTA	TWIN CITIES DISK DIVISION	C	83324750	E K
	TYPE: _GKN	CODE IDENT 19333	XREF 0117	SHEET 17	PAGE NO 3-43

SIGNAL INPUTS

SIGNAL OUTPUTS



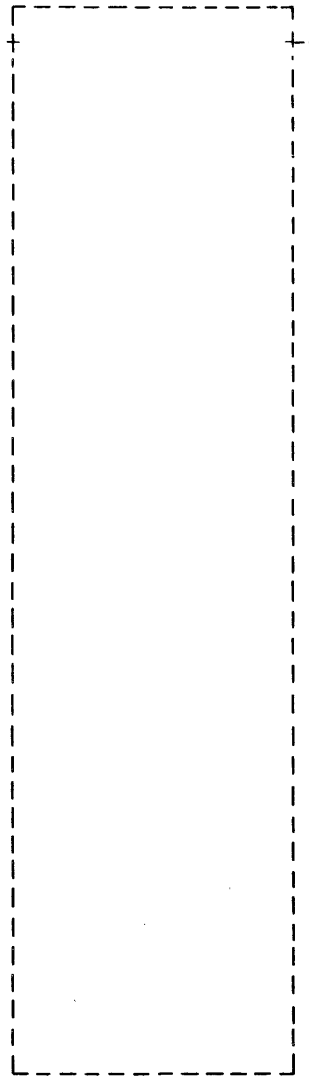
LOGIC CROSS REFERENCE INFORMATION



MAGNETIC PERIPHERALS INC	RS232 RTA LTA	TWIN CITIES DISK DIVISION	C	83324750	E K
	TYPE: _GKN	CODE IDENT 19333	XREF 0118	SHEET 18	PAGE NO 3-45

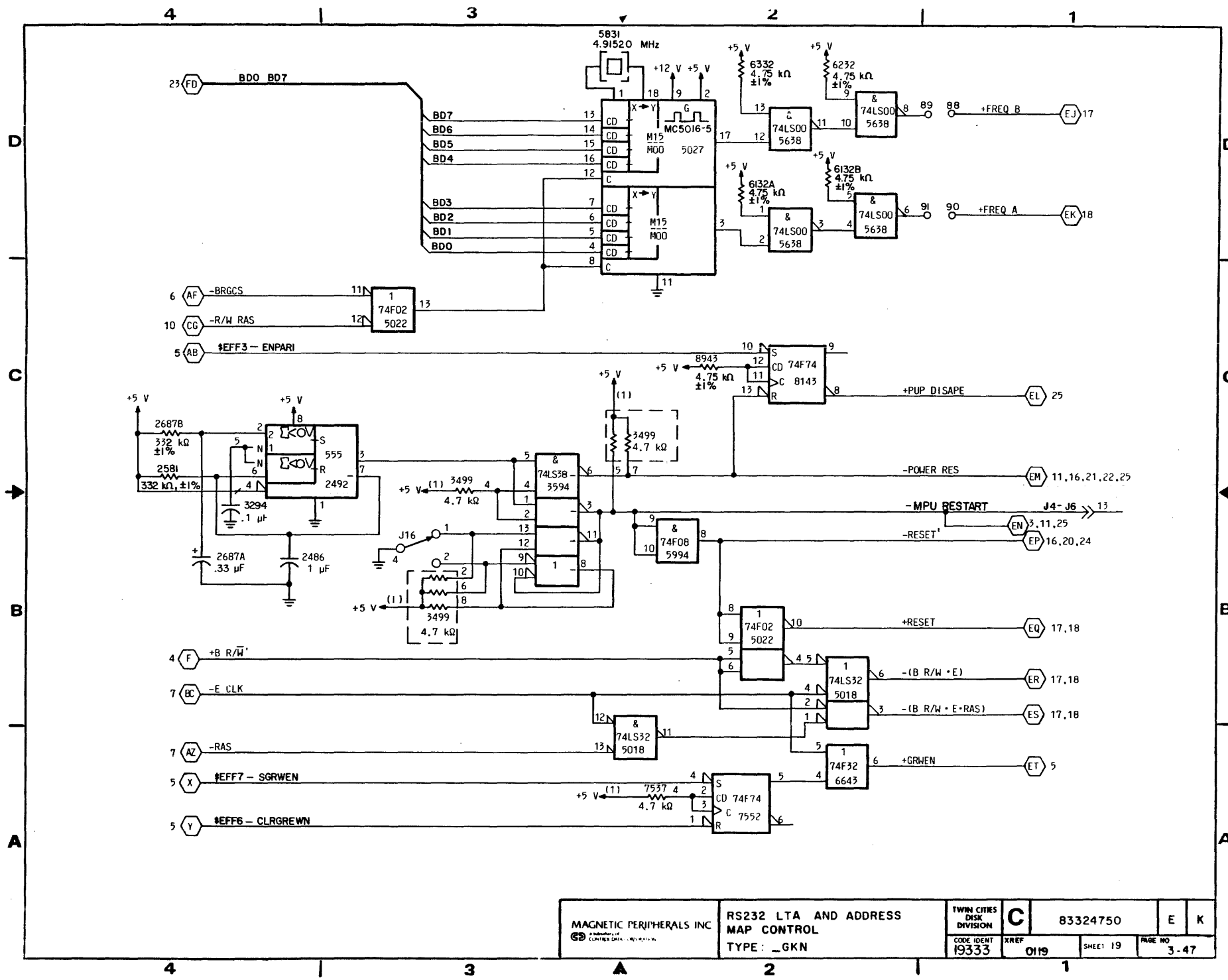
SIGNAL INPUTS

SIGNAL OUTPUTS



LOGIC CROSS REFERENCE INFORMATION

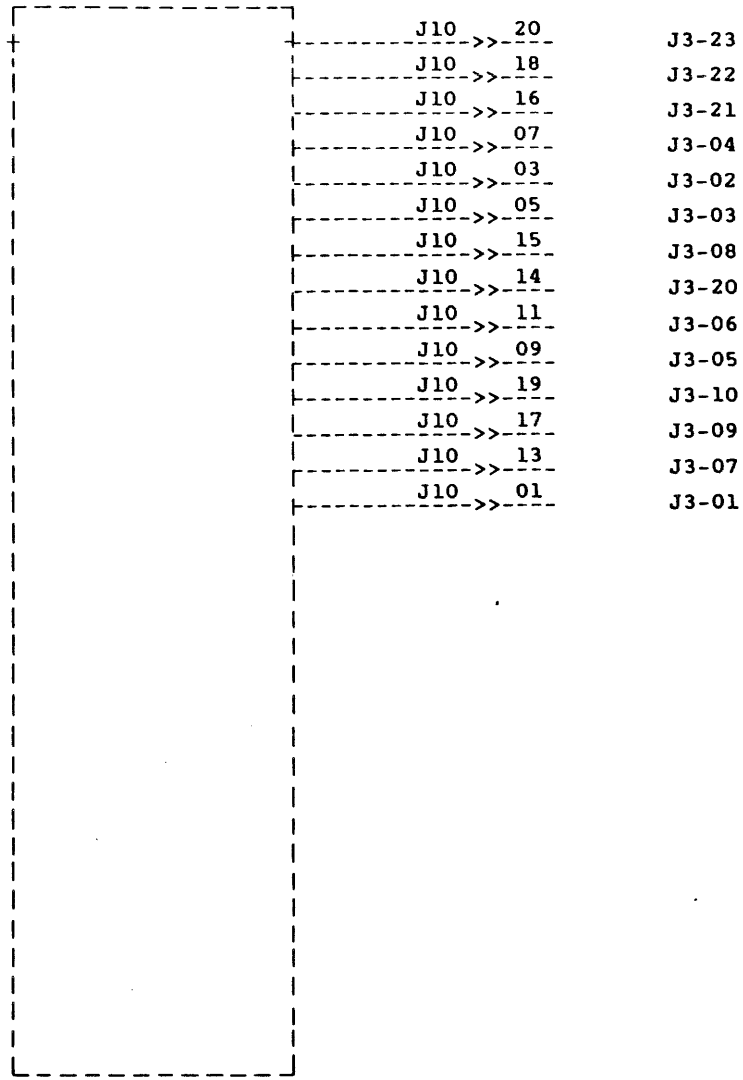
PUB	REV
83324750	E
CROSS REF NO: 0119	PAGE: 3-46



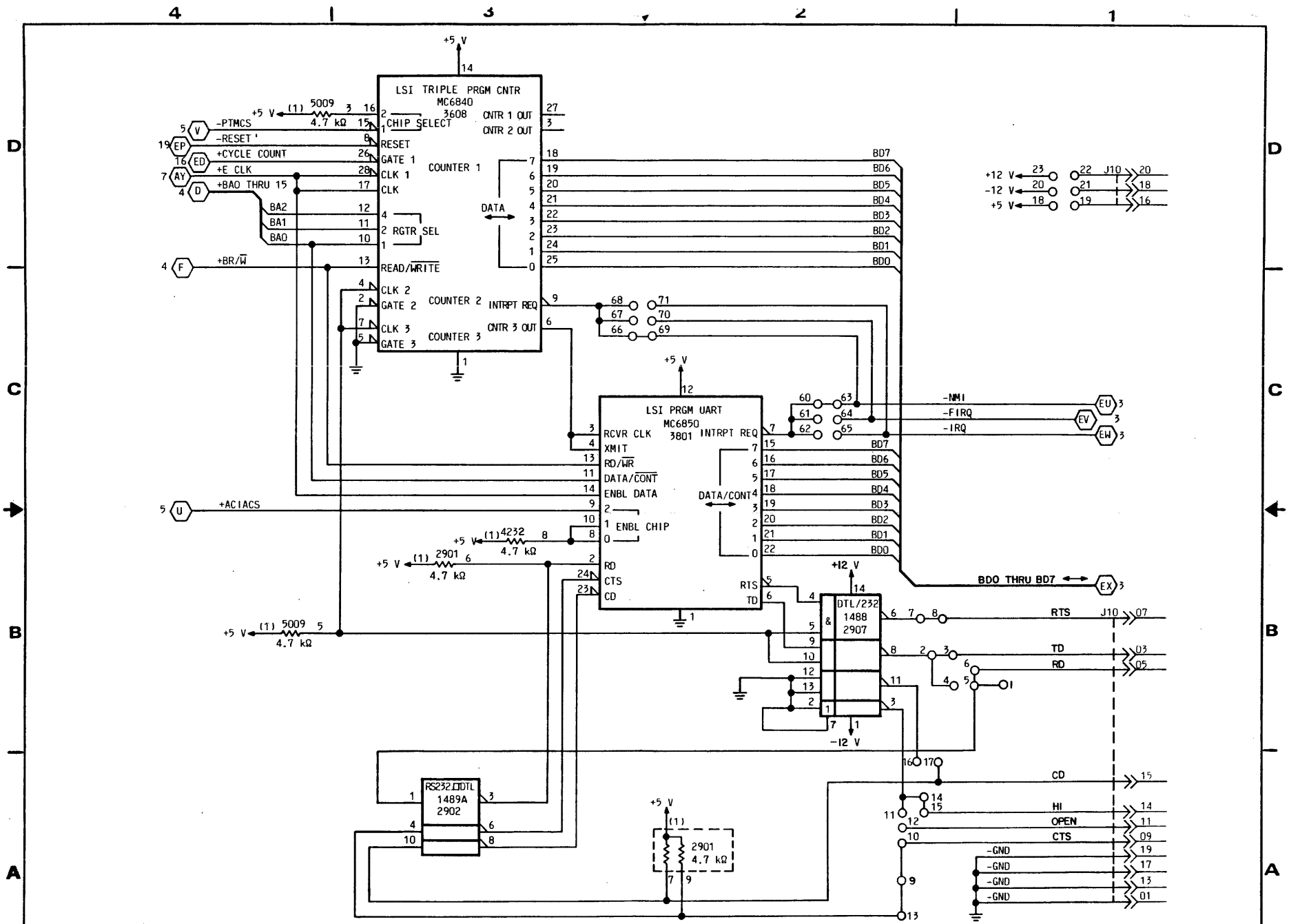
MAGNETIC PERIPHERALS INC	RS232 LTA AND ADDRESS MAP CONTROL TYPE: _GKN	TWIN CITIES DISK DIVISION	C	83324750	E K
		CODE IDENT 19333	XREF 0119	SHEET 19	PAGE NO 3-47

SIGNAL INPUTS

SIGNAL OUTPUTS



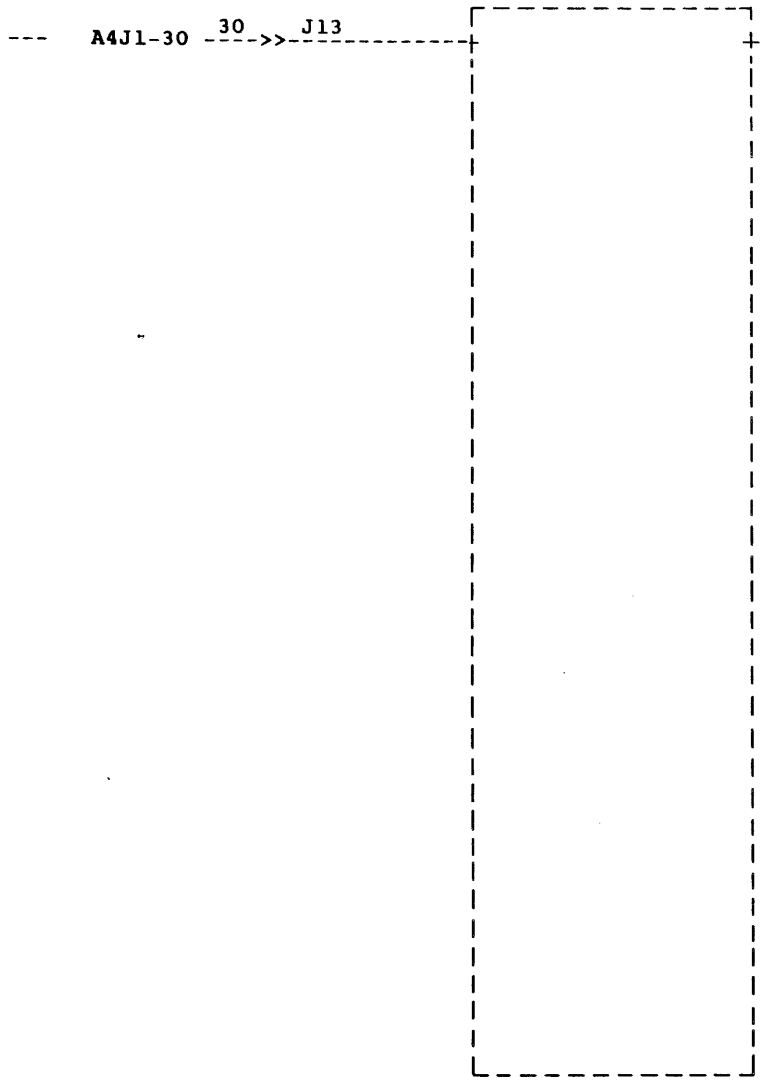
LOGIC CROSS REFERENCE INFORMATION



MAGNETIC PERIPHERALS INC.	6850 RS232	TWIN CITIES DISK DIVISION	C 83324750 E K
	TYPE: _GKN	CODE IDENT 19333	XREF 0120 SHEET 20 PAGE NO 3-49

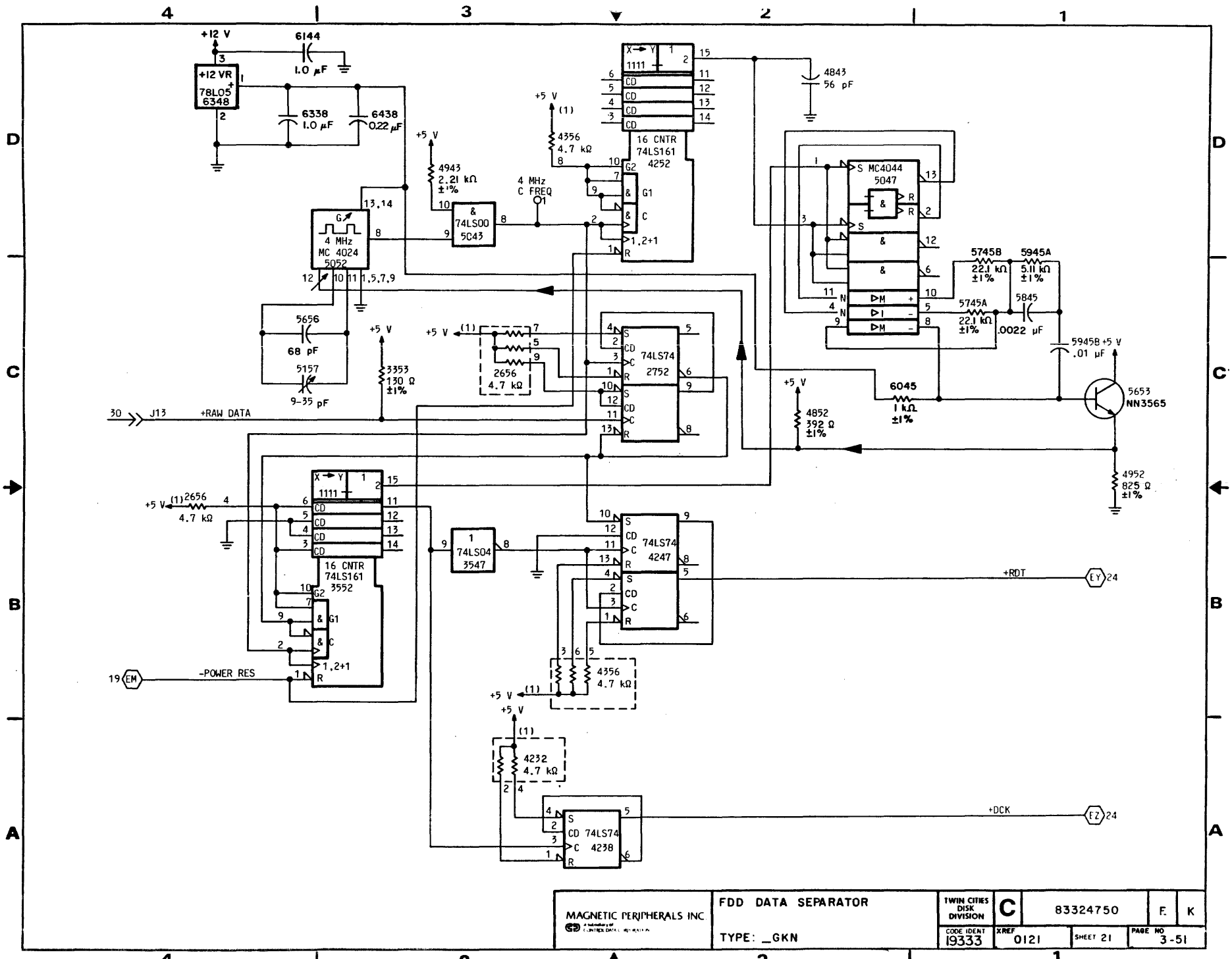
SIGNAL INPUTS

SIGNAL OUTPUTS



LOGIC CROSS REFERENCE INFORMATION

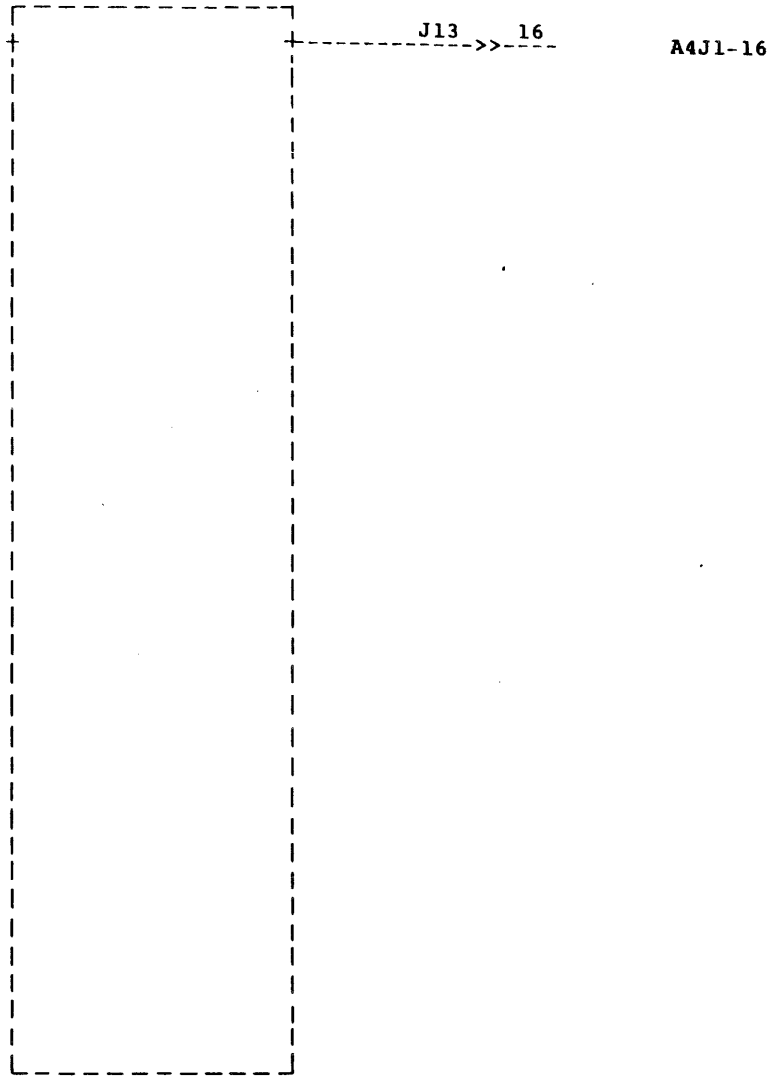
PUB	REV
83324750	A
CROSS REF NO: 0121	PAGE: 3-50



MAGNETIC PERIPHERALS INC	FDD DATA SEPARATOR	TWIN CITIES DISK DIVISION	C	83324750	F K
	TYPE: _GKN	CODE IDENT 19333	XREF 0121	SHEET 21	PAGE NO 3-51

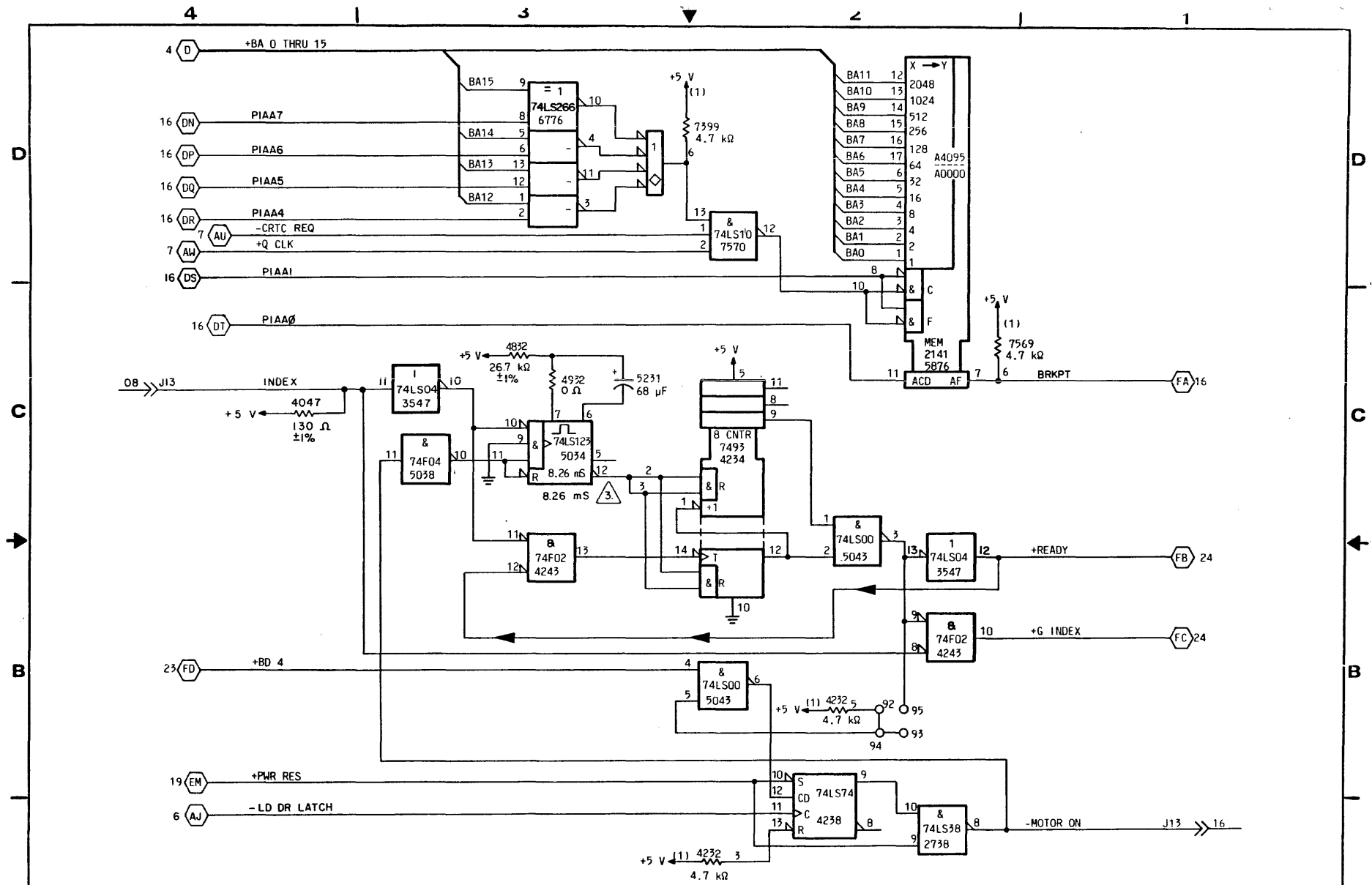
SIGNAL INPUTS

SIGNAL OUTPUTS



LOGIC CROSS REFERENCE INFORMATION

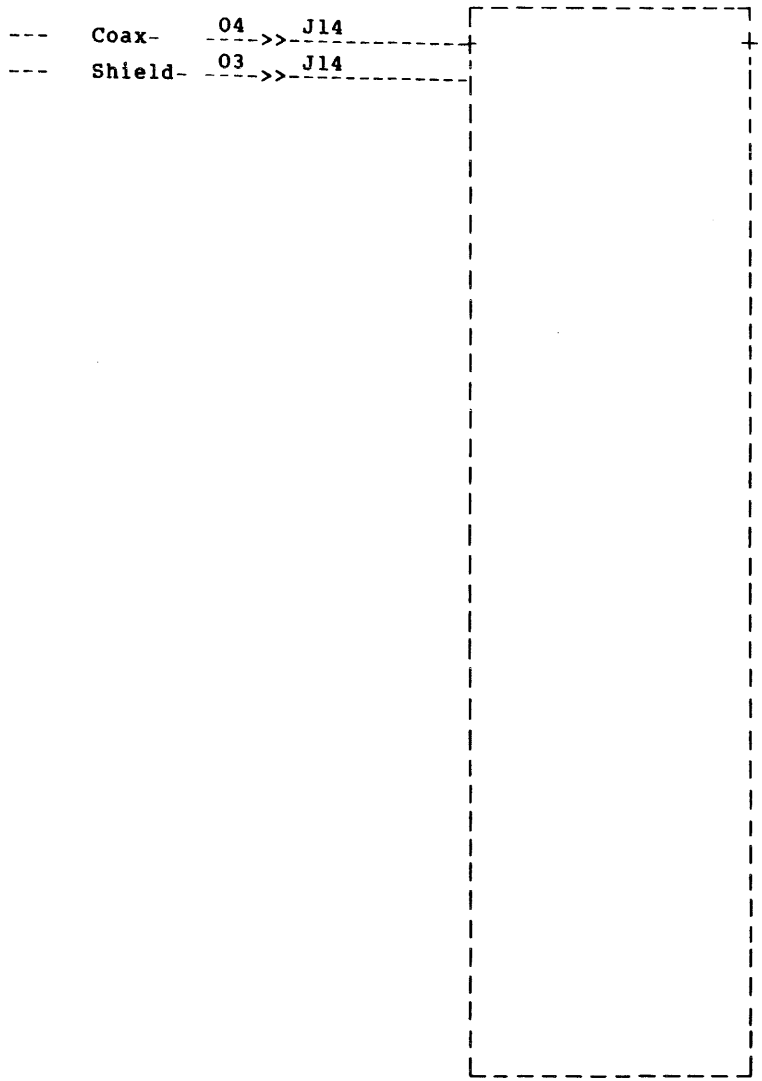
PUB	REV
83324750	A
CROSS REF NO	PAGE
0122	3-52



MAGNETIC PERIPHERALS INC	BREAKPOINT & ADDRESS MAP CONTROL & FDD DATA SEPARATOR	TWIN CITIES DISK DIVISION	C	83324750		E	K
	TYPE: _GKN	CODE IDENT 19333	XREF 0122	SHEET 22	PAGE NO 3-53		

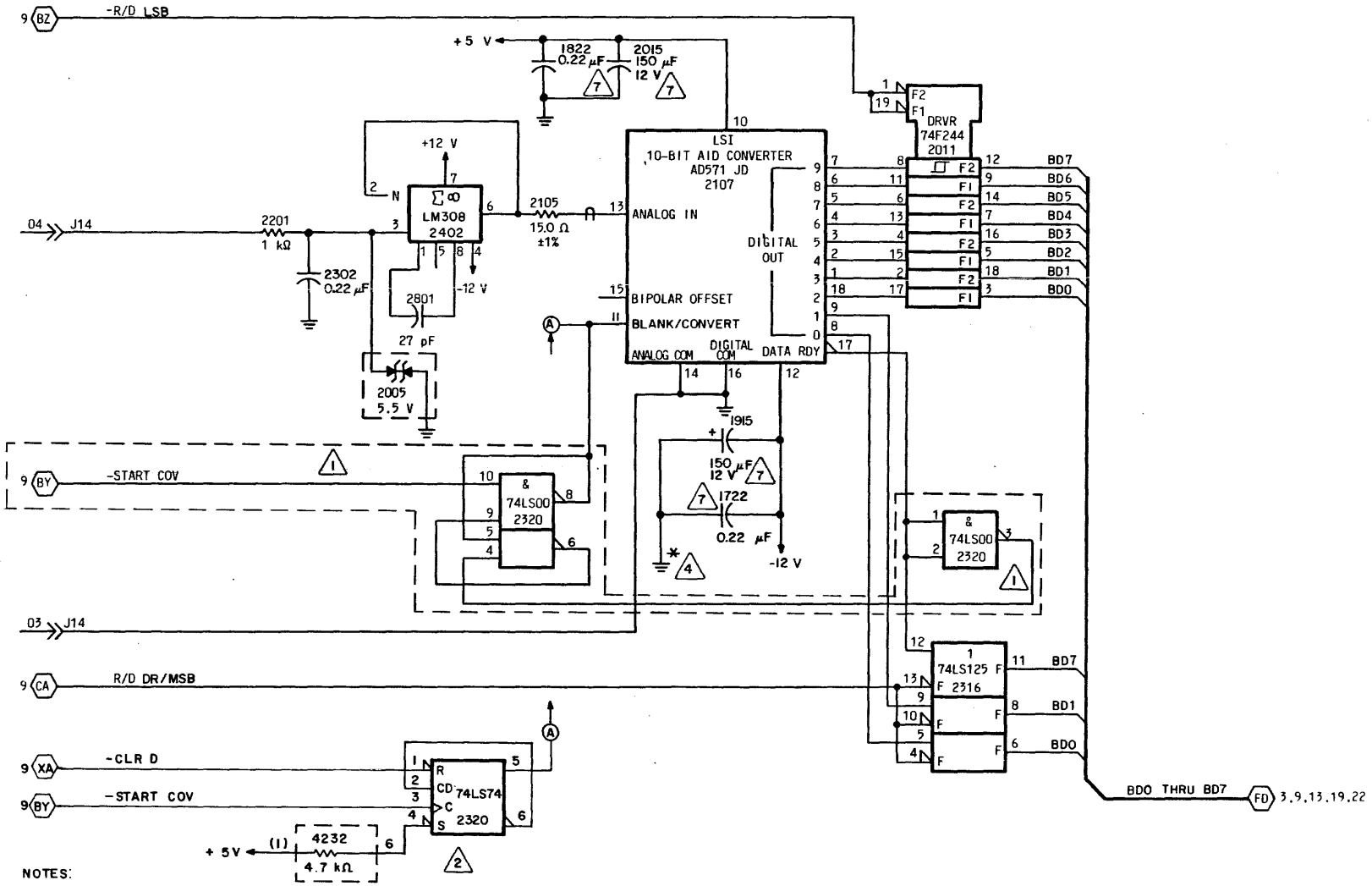
SIGNAL INPUTS

SIGNAL OUTPUTS

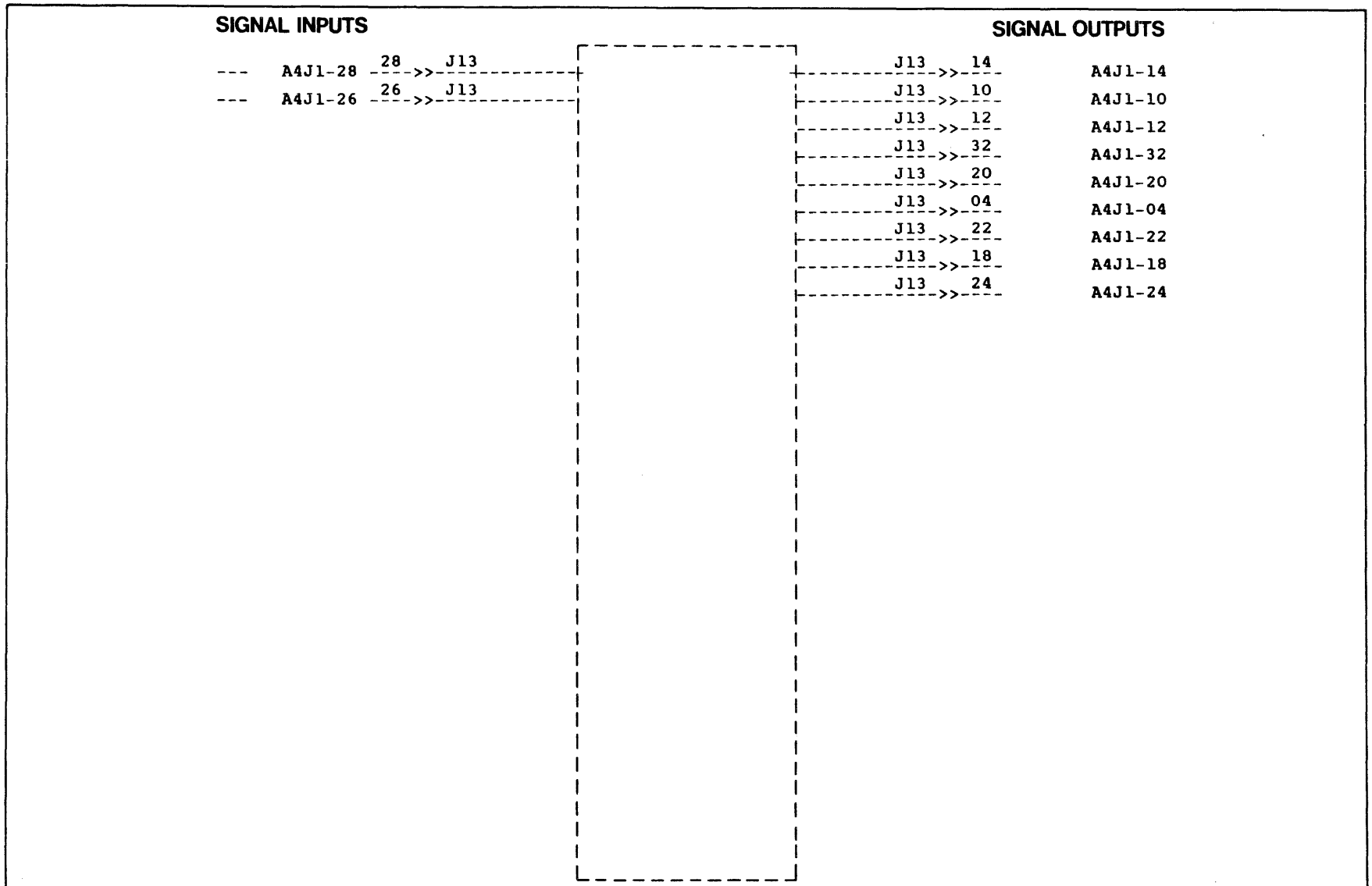


LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	A
CROSS REF NO: 0123	PAGE: 3-54

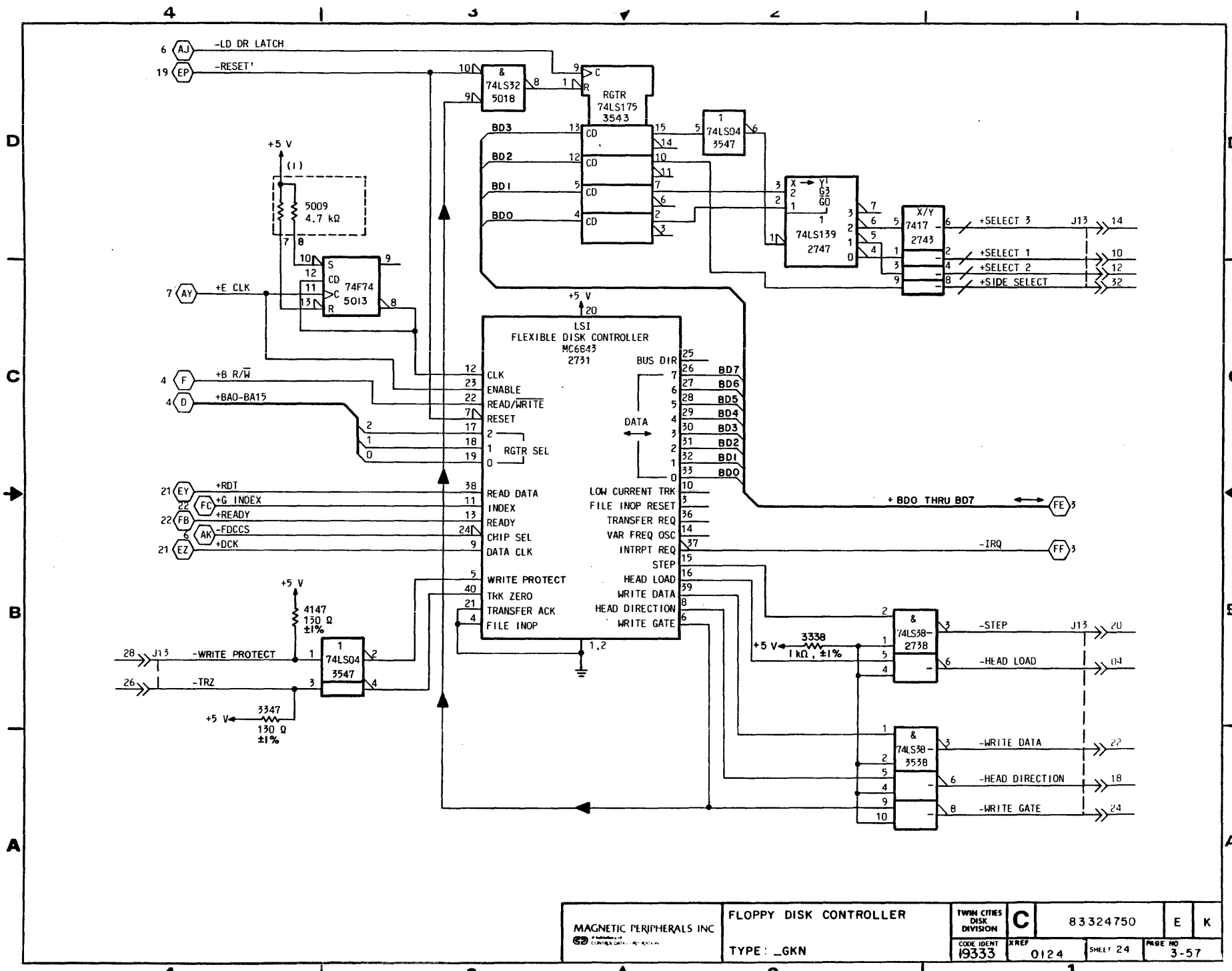


MAGNETIC PERIPHERALS INC.	AD CONVERTER	TWIN CITIES DISK DIVISION	C	83324750	E K
	TYPE: _GKN	CODE IDENT 19333	XREF 0123	SHEET 23	PAGE NO 3-55

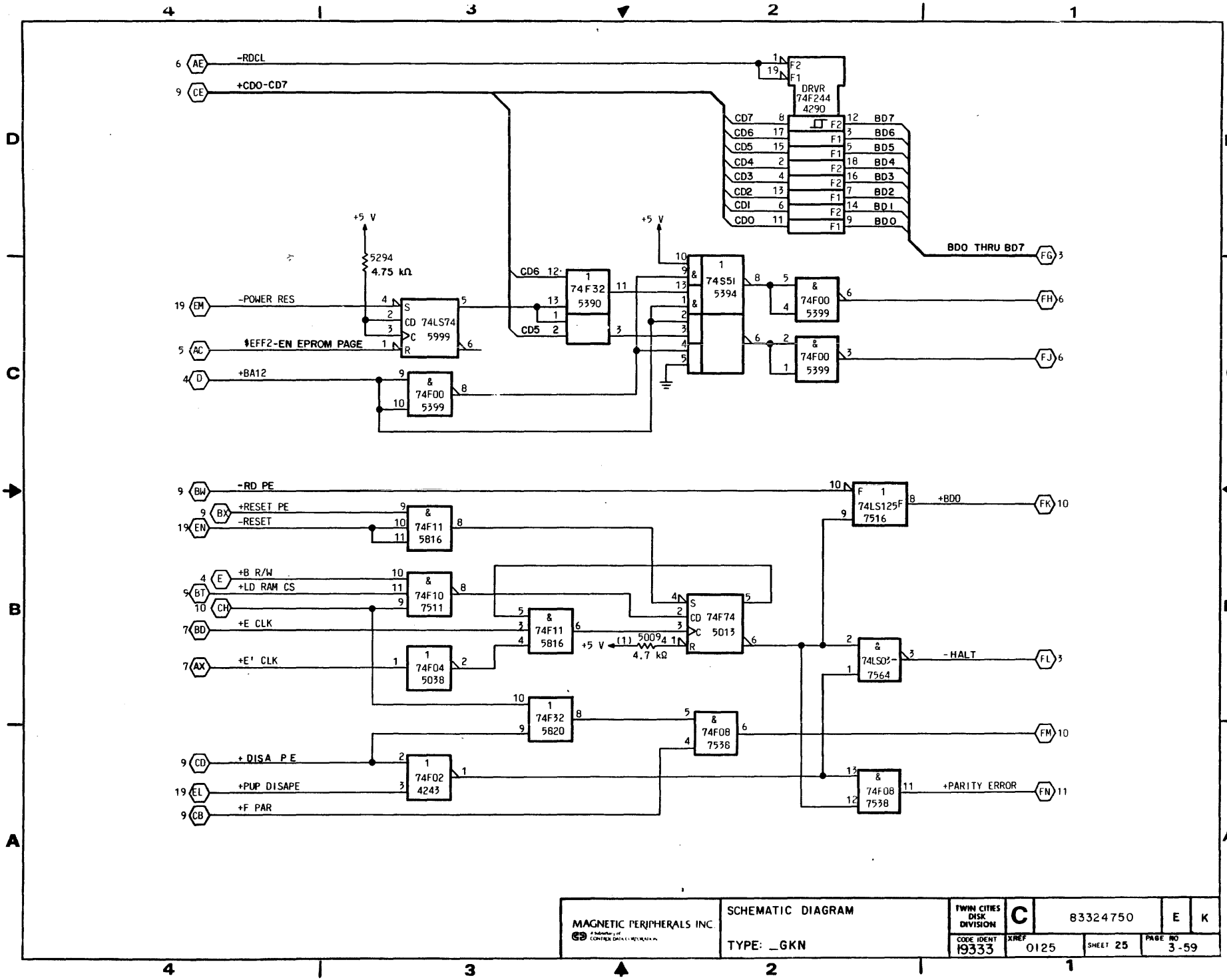


LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	A
CROSS REF NO 0124	PAGE 3-56



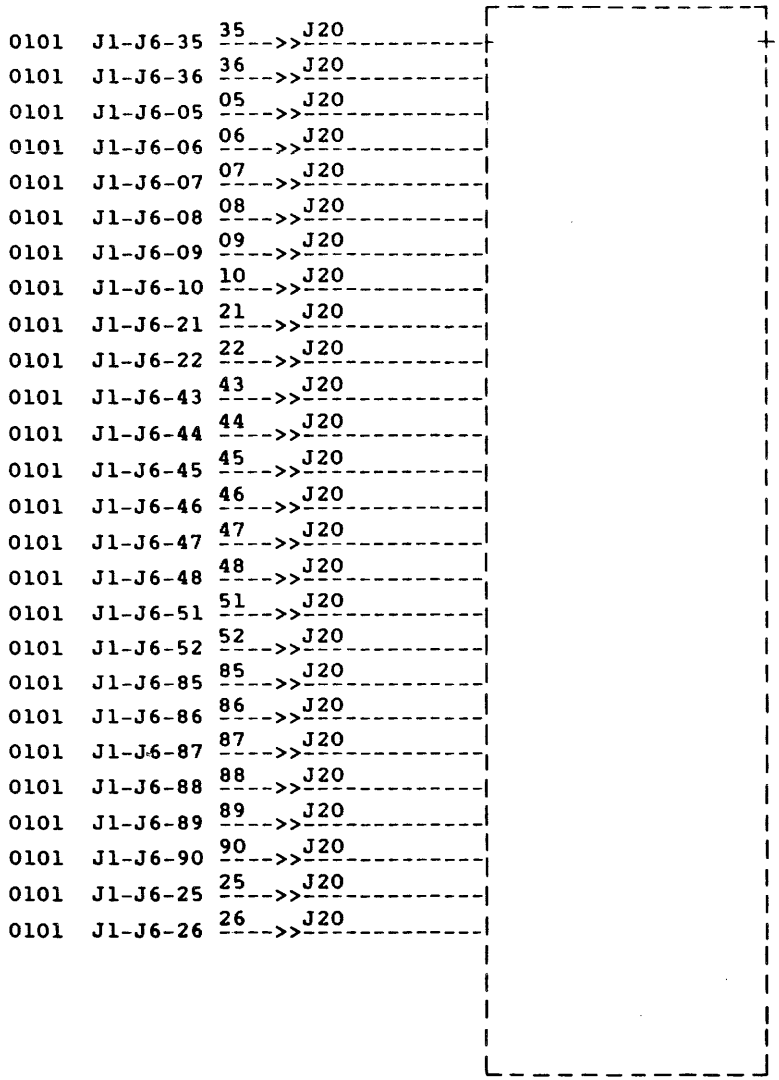
MAGNETIC PERIPHERALS INC	FLOPPY DISK CONTROLLER	TWIN CITIES DISK DIVISION	C	83324750	E K
	TYPE: _GKN	CODE IDENT 19333	XREF 0124	SHEET 24	PAGE NO 3-57



MAGNETIC PERIPHERALS INC.	SCHEMATIC DIAGRAM	TWIN CITIES DISK DIVISION	C	83324750	E K
	TYPE: _GKN	CODE IDENT 19333	XREF 0125	SHEET 25	PAGE NO 3-59

SIGNAL INPUTS

SIGNAL OUTPUTS



LOGIC CROSS REFERENCE INFORMATION

SCHEMATIC DIAGRAM DMA / SERDES BOARD TYPE: CGJN

PART NO. RANGE (2)
01 THRU 01

REVISION RECORD

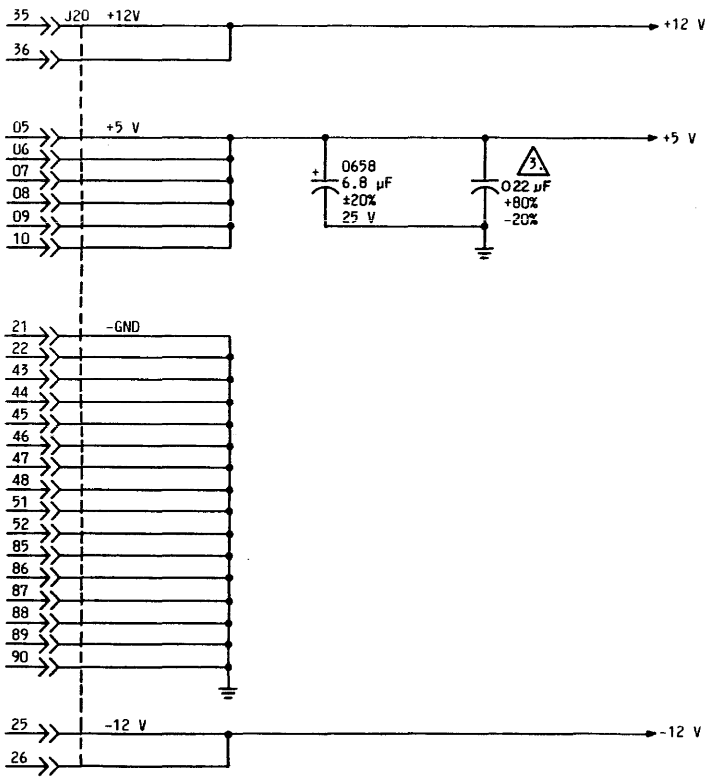
REV	ECO	DESCRIPTION	DRFT	DATE	CHKD	APP
A		RELEASED		1-26-83		
B	DJ07035	UPDATE SCHEMATIC	KKB	2-6-84		
C	DJ07047	TIMING PROBLEM	KKB	2-6-84		
D	DJ07066	CHANGE SIGNALS	KKB	2-6-84		
E	DJ07057	CORRECT SCHEMATIC	CBD	3-21-84		
F	DJ07089	SHOW PINS	JL	10-17-84		
G	DJ07101	CHG CHIP	JL	10-17-84		
H	DJ07127	CHG RES CGJN	JL	10-17-84		

UNUSED RESISTOR PACKS

VALUE	LOCATION	PIN(S)
4.7 kΩ	1050	6,7

(3) FILTER CAPS

0.22 µF		
+5 V		
3003	4225	2436
1212	3625	6037
4213	3025	6662
4814	2425	4249
6619	1826	3649
5425	0631	0649
4825		



UNUSED LOGIC ELEMENTS

ELEMENT	LOCATION	OUTPUT PIN(S)
74LS02	6629	10
74F02	3004	4,13
74LS02	1850	10
74F04	3604	12
74LS04	0641	2
74LS21	4804	8
74LS08	1838	3
7409	0632	3,6
74F11	6611	8
74LS12	5404	6,12
74LS74	6647	8,9

NOTES:

1. UNLESS OTHERWISE SPECIFIED:

   ALL 14 PIN IC'S HAVE PIN 7 CONNECTED TO GROUND AND PIN 14 CONNECTED TO +5 V.

   ALL 16 PIN IC'S HAVE PIN 8 CONNECTED TO GROUND AND PIN 16 CONNECTED TO +5 V.

   ALL 20 PIN IC'S HAVE PIN 10 CONNECTED TO GROUND AND PIN 20 CONNECTED TO +5 V.

   ALL RESISTOR PACK RESISTORS 1/8 W, ±3%.

(2) DRAWINGS WHERE TAB NUMBERS CREATE NEW COVER SHEET. TABS 00-99 ARE RESERVED.

(3) SEE TABLE FOR 0.22 µF FILTER CAPS.

54033401

REFERENCE DRAWING	
COMP ASSY	54033301
CTR	54033501

COMPONENTS, EXCEPT AS NOTED

	TOLERANCE	VALUE	RATING
RES	± 5%	OHMS	1/4 W
CAP	± 10%		

MAGNETIC PERIPHERALS, INC. a Control Data Company

FIRST USED ON	NEXT ASSEMBLY
TB2A3-A	

DWN	Margaret L. Cook	6/25/83
CHKD	[signature]	8-18-83
ENGR	Karen Hazen	8-18-83
MFG	Jane Brandt	8-23-83
QA	M Haile	8-23-83

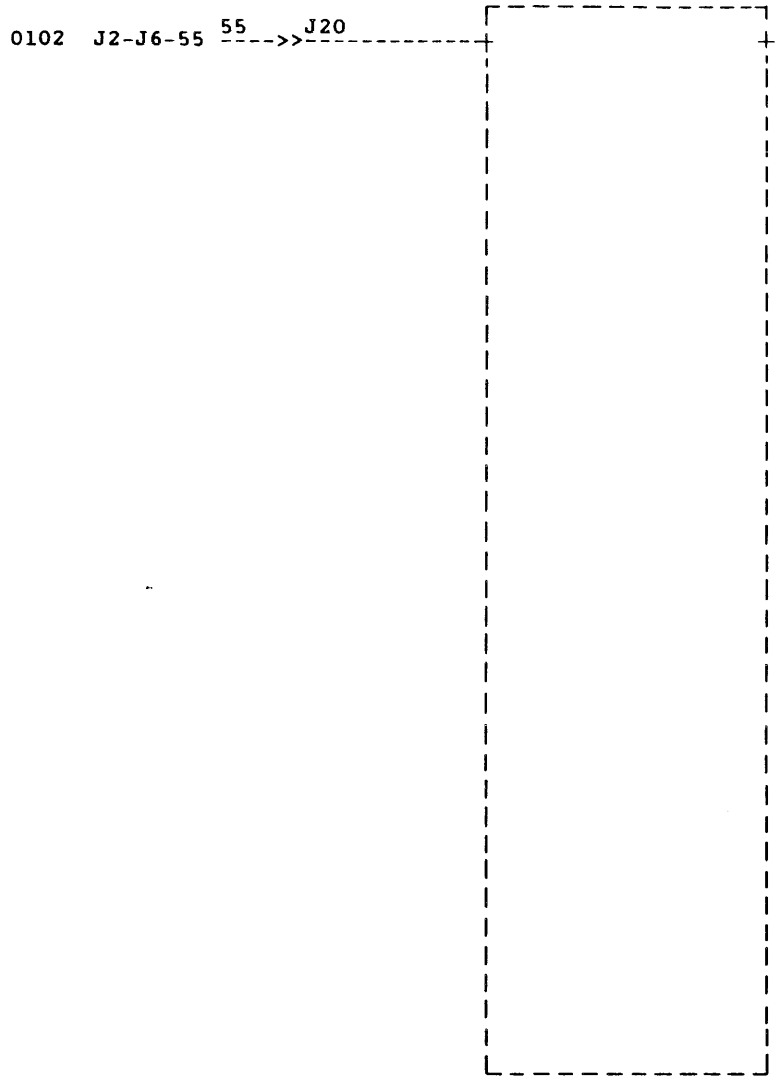
TWIN CITIES DISK DIVISION | C | 83324750 | C | H

FSCM NO. 19333 | XREF 0201 | SHEET 1 OF 10 | PAGE NO 3-61

REF: 54033401

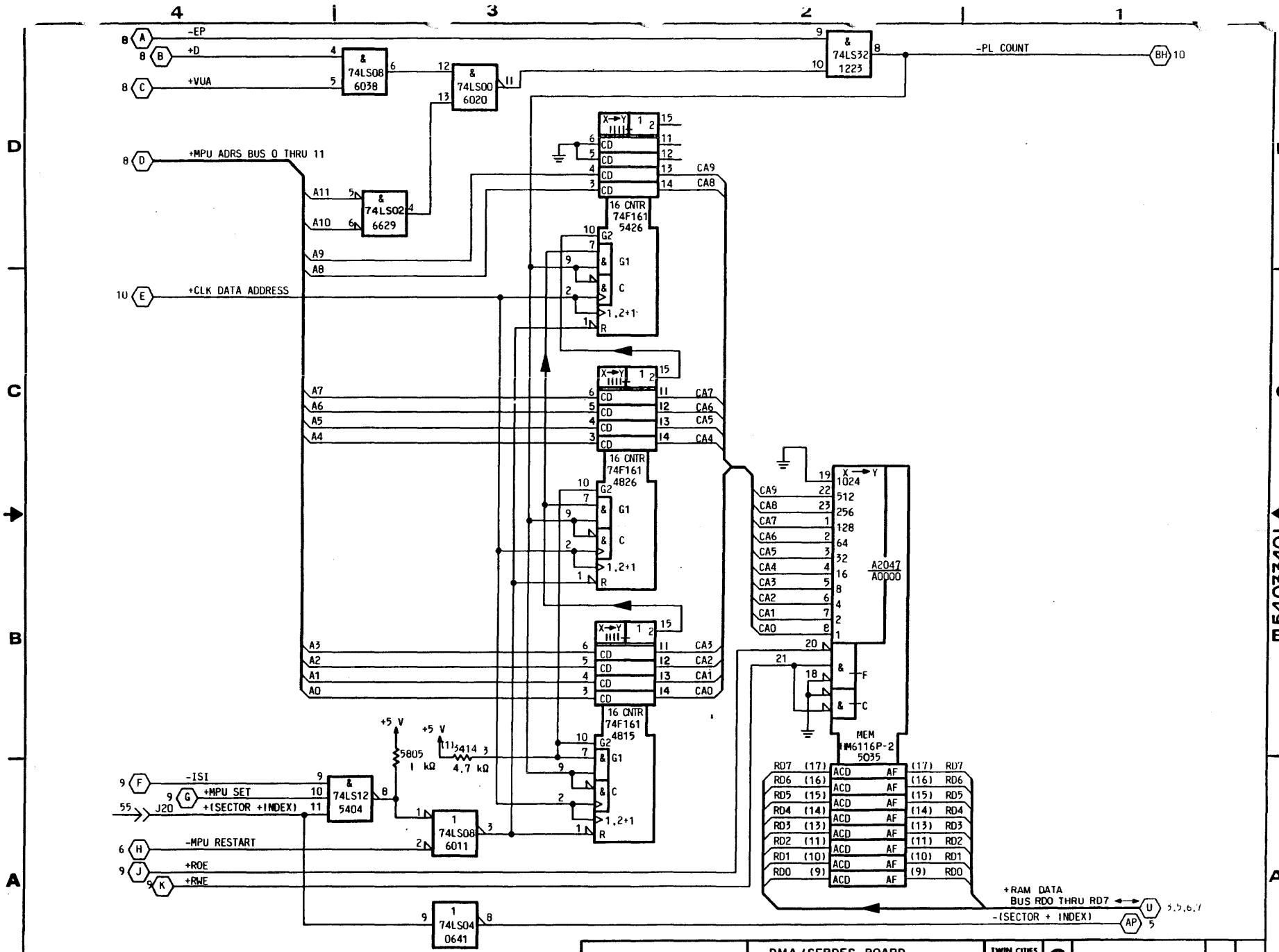
SIGNAL INPUTS

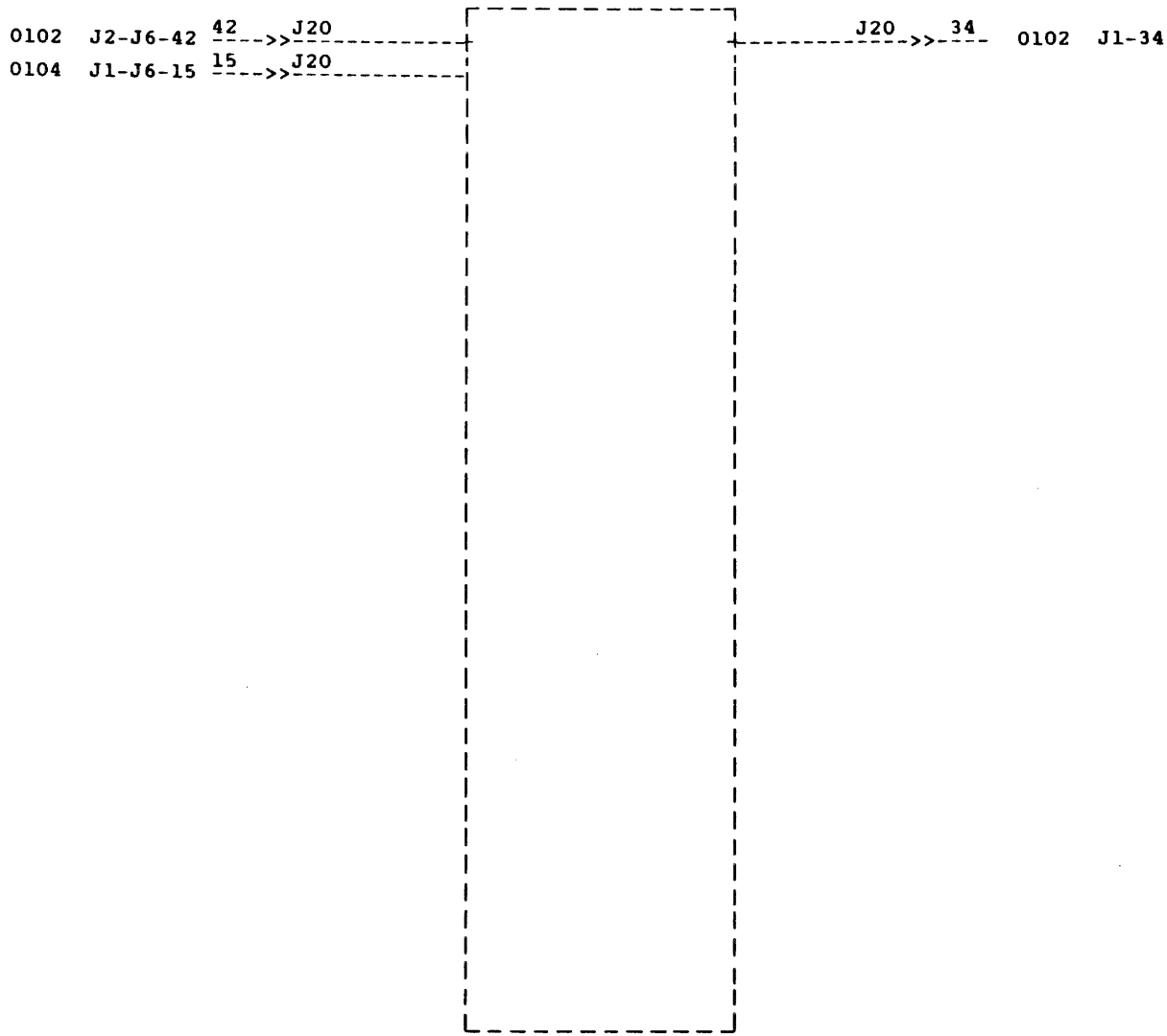
SIGNAL OUTPUTS



LOGIC CROSS REFERENCE INFORMATION

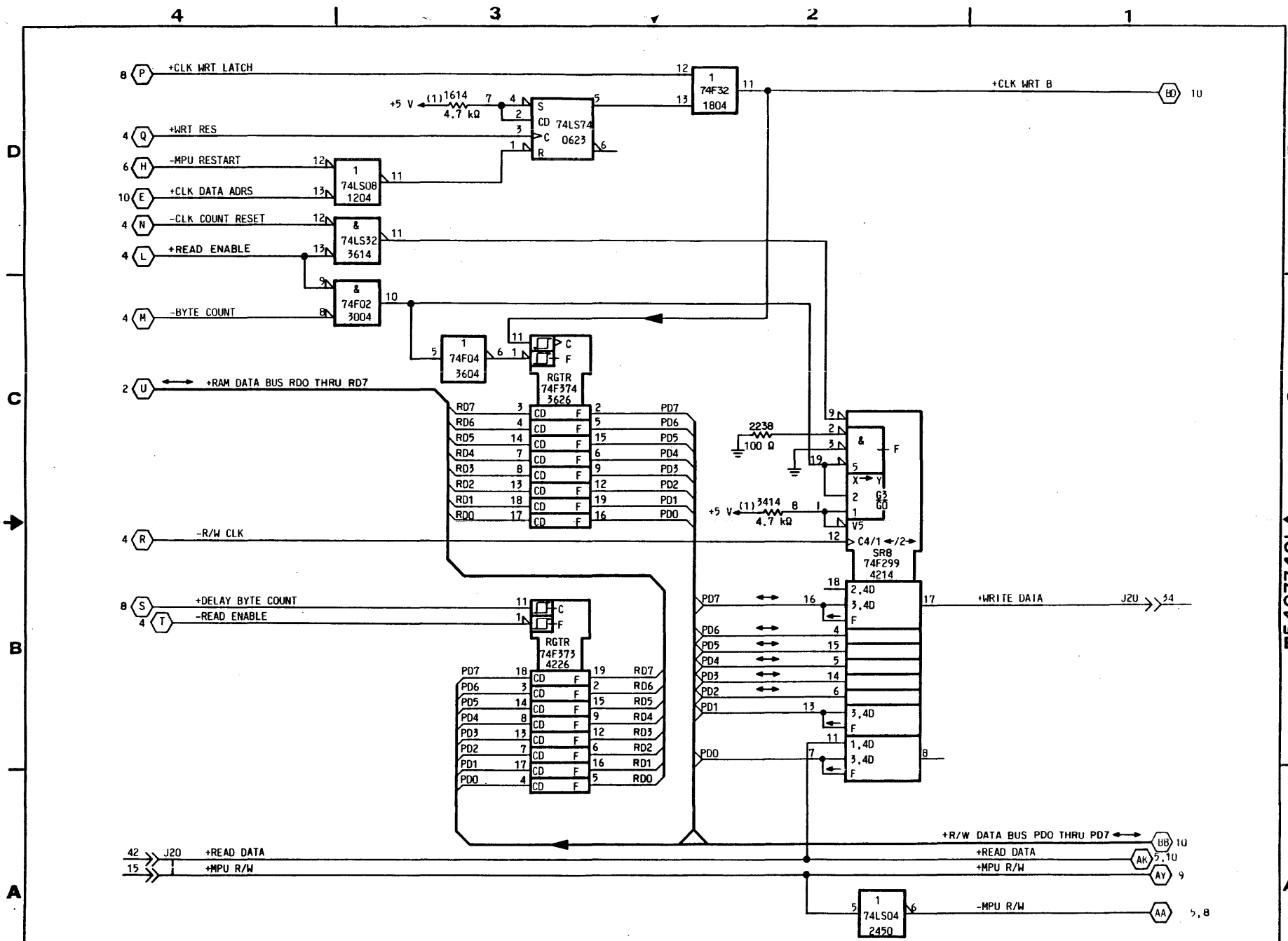
PUB	REV
83324750	A
CROSS REF NO	PAGE
0202	3-62


-EP
+D
+VUA
74LS08 6038
74LS00 6020
74LS32 1223
-PL COUNT
+MPU ADRS BUS 0 THRU 11
74LS02 6629
+CLK DATA ADDRESS
16 CNTR 74F161 5426
16 CNTR 74F161 4826
16 CNTR 74F161 4815
A2047 A0000
MEM MM6116P-2 5035
+5 V
5805 1 kΩ
5414 4.7 kΩ
-ISI
+MPU SET
+(SECTOR +INDEX)
74LS12 5404
74LS08 6011
74LS04 0641
-MPU RESTART
+ROE
+RWE
+RAM DATA BUS RD0 THRU RD7
-(SECTOR + INDEX)
MAGNETIC PERIPHERALS INC
DMA/SERDES BOARD
TYPE: _GJN
TWIN CITIES DISK DIVISION
C
83324750
B
B
CODE IDENT 19333
XREF NO 0202
SHEET 2
PAGE NO 3-63



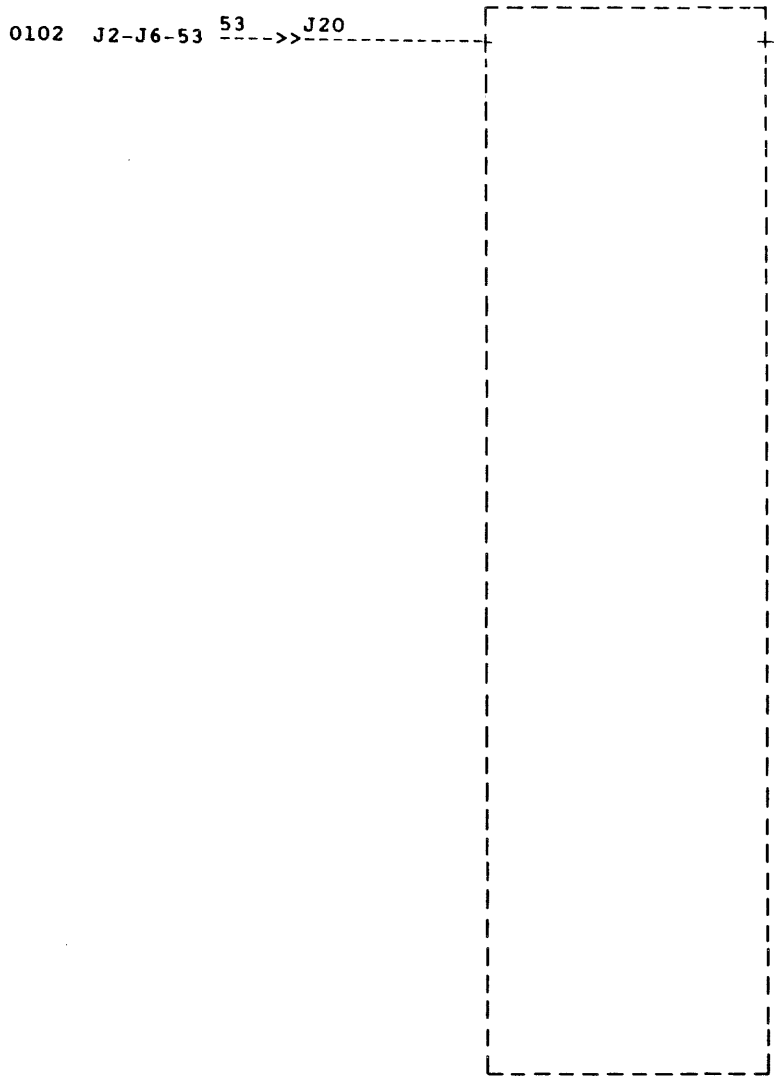
LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	A
CROSS REF NO 0203	PAGE 3-64


+CLK WRT LATCH
+WRT RES
-MPU RESTART
+CLK DATA ADRS
-CLK COUNT RESET
+READ ENABLE
-BYTE COUNT
74LS74 0623
74LS08 1204
74LS32 3614
74F02 3004
74F32 1804
+CLK WRT B
74F04 3604
RGTR 74F374 3626
+RAM DATA BUS RD0 THRU RD7
2238 100 Ω
+5 V
(1)3414 4.7 kΩ
-R/W CLK
SR8 74F299 4214
+WRITE DATA
+DELAY BYTE COUNT
-READ ENABLE
RGTR 74F373 4226
+R/W DATA BUS PD0 THRU PD7
+READ DATA
+MPU R/W
74LS04 2450
-MPU R/W
MAGNETIC PERIPHERALS INC
DMA/SERDES BOARD
TYPE: _GJN
TWIN CITIES DISK DIVISION
83324750
CODE IDENT 19333
XREF NO 0203
SHEET 3
PAGE NO 3-65

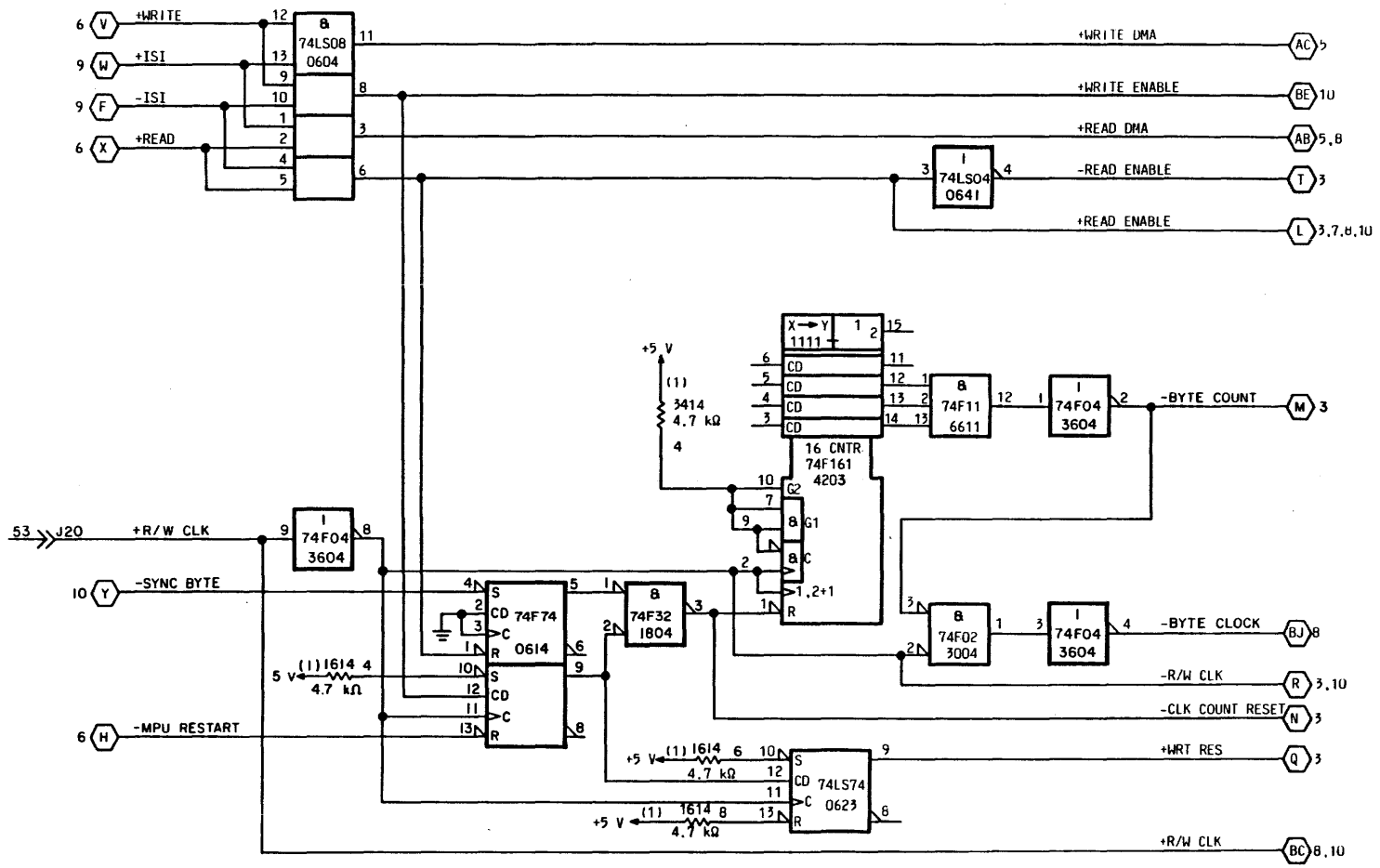
SIGNAL INPUTS

SIGNAL OUTPUTS



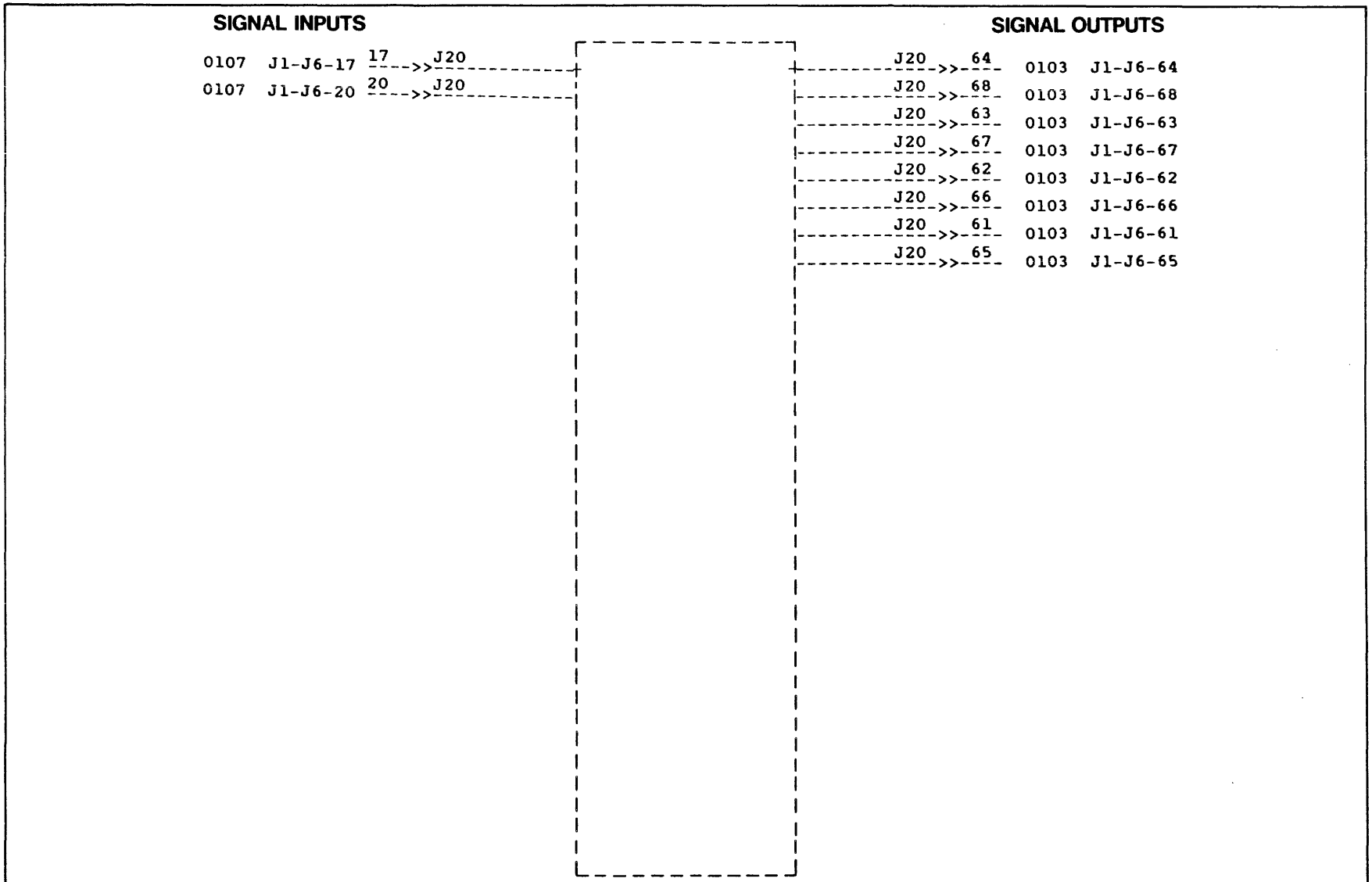
LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	A
CROSS REF NO 0204	PAGE 3-66



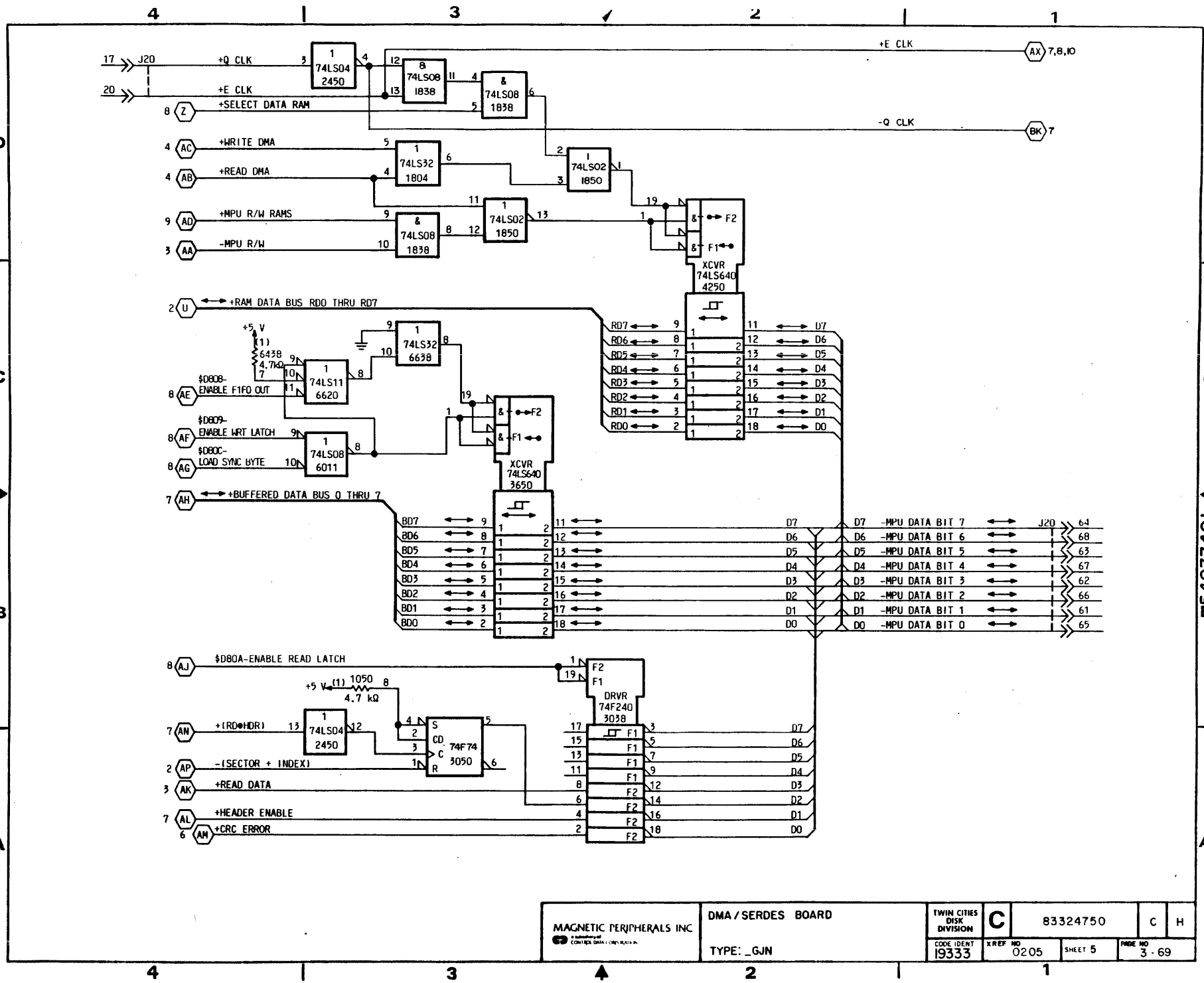
MAGNETIC PERIPHERALS INC	DMA / SERDES BOARD	TWIN CITIES DISK DIVISION	C	83324750	C H
	TYPE : _GJN	CODE IDENT 19333	XREF NO 0204	SHEET 4	PAGE NO 3 67

B 54033401



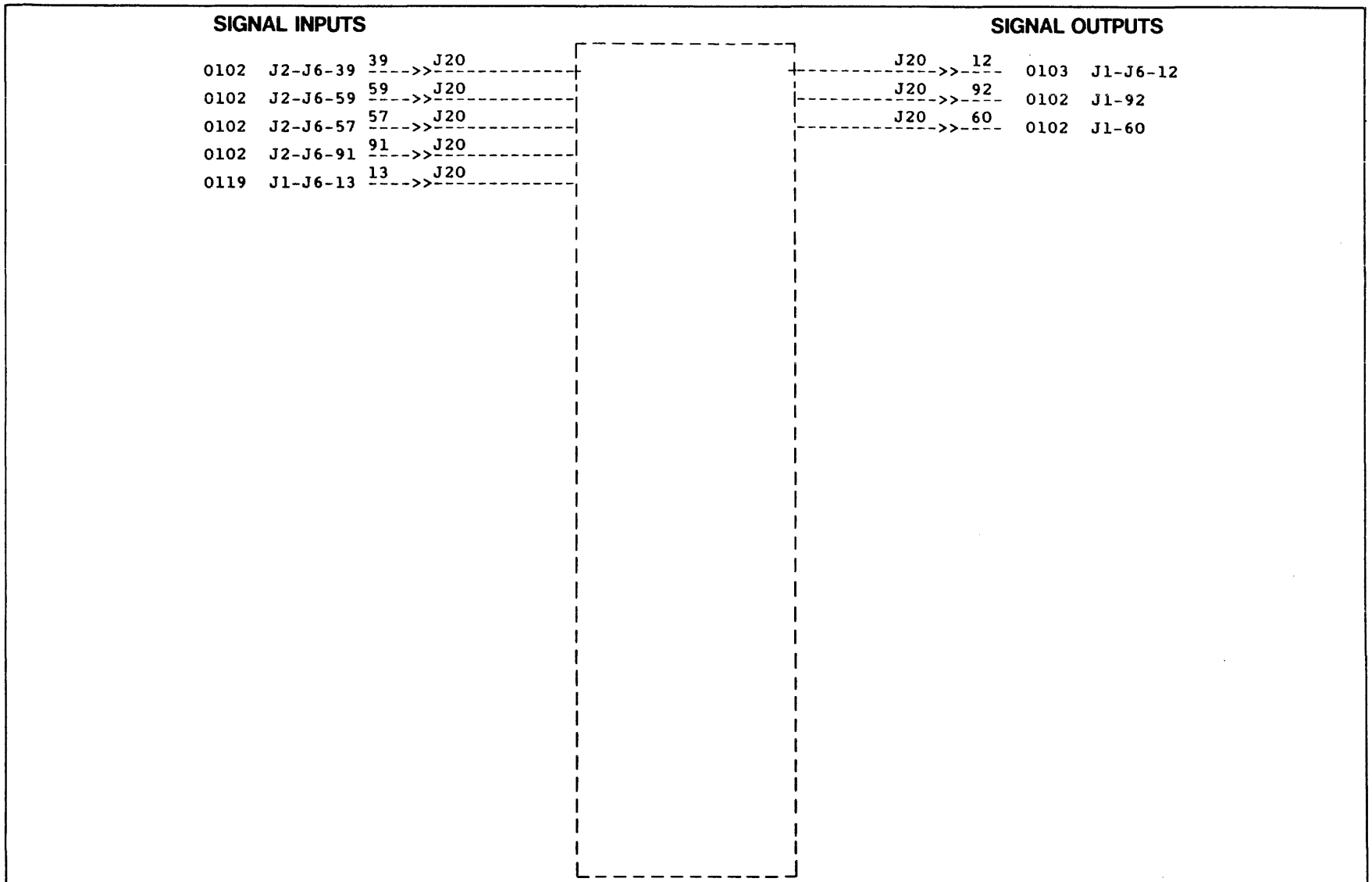
LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	A
CROSS REF NO: 0205	PAGE: 3-68



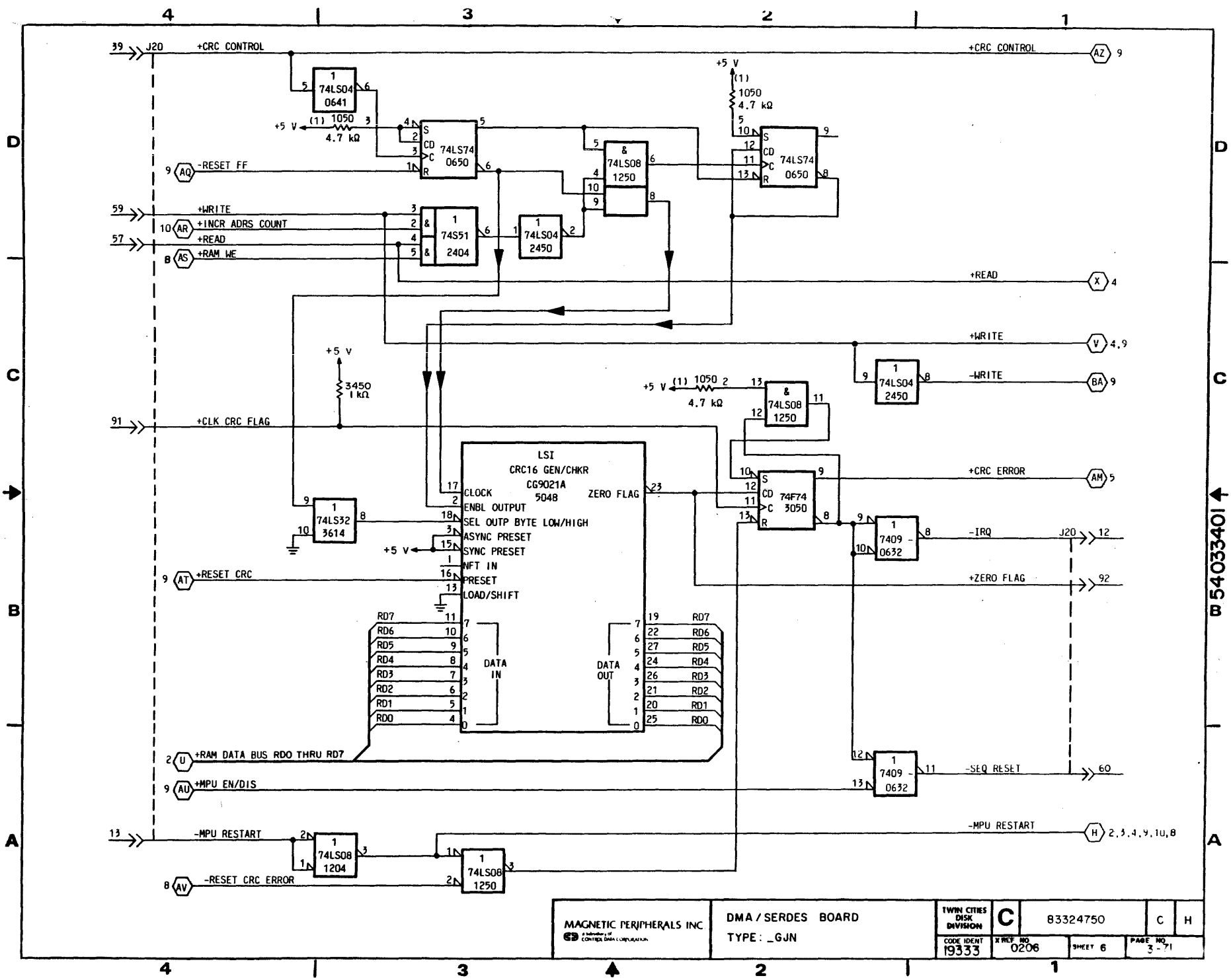
MAGNETIC PERIPHERALS INC	DMA / SERDES BOARD	TWIN CITIES DISK DIVISION	C	83324750	C H
	TYPE: _GJN	CODE IDENT 19333	XREF NO 0205	SHEET 5	PAGE NO 3 - 69

B54033401



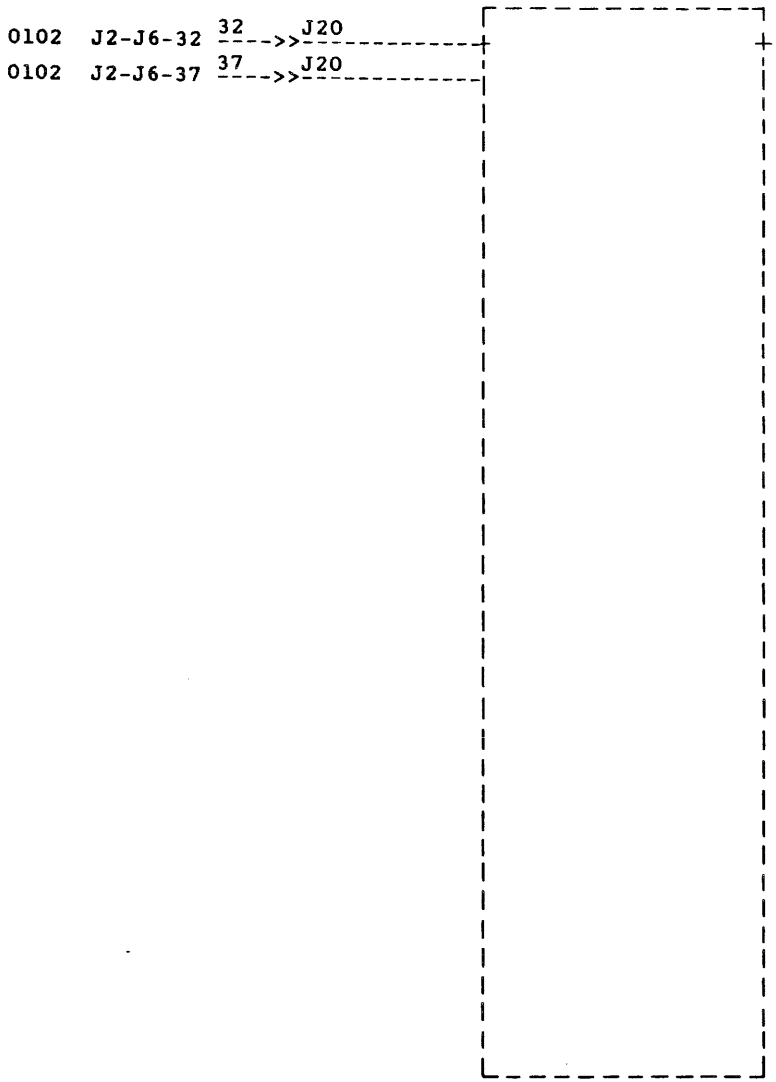
LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	A
CROSS REF NO 0206	PAGE 3-70


+CRC CONTROL
+WRITE
+READ
+INCR ADRS COUNT
+RAM WE
-RESET FF
+CLK CRC FLAG
+RESET CRC
+MPU EN/DIS
-MPU RESTART
-RESET CRC ERROR
+RAM DATA BUS RD0 THRU RD7
LSI
CRC16 GEN/CHKR
CG9021A
5048
CLOCK
ENBL OUTPUT
SEL OUTP BYTE LOW/HIGH
ASYNC PRESET
SYNC PRESET
NFT IN
PRESET
LOAD/SHIFT
ZERO FLAG
DATA IN
DATA OUT
-WRITE
+CRC ERROR
-IRQ
+ZERO FLAG
-SEQ RESET
74LS04 0641
74LS74 0650
74LS08 1250
74S51 2404
74LS04 2450
74LS32 3614
74F74 3050
7409 0632
74LS08 1204
1050 4.7 kΩ
3450 1 kΩ
MAGNETIC PERIPHERALS INC
DMA / SERDES BOARD
TYPE: _GJN
TWIN CITIES DISK DIVISION
83324750
CODE IDENT 19333
X REF NO 0206
SHEET 6
PAGE NO 3-71

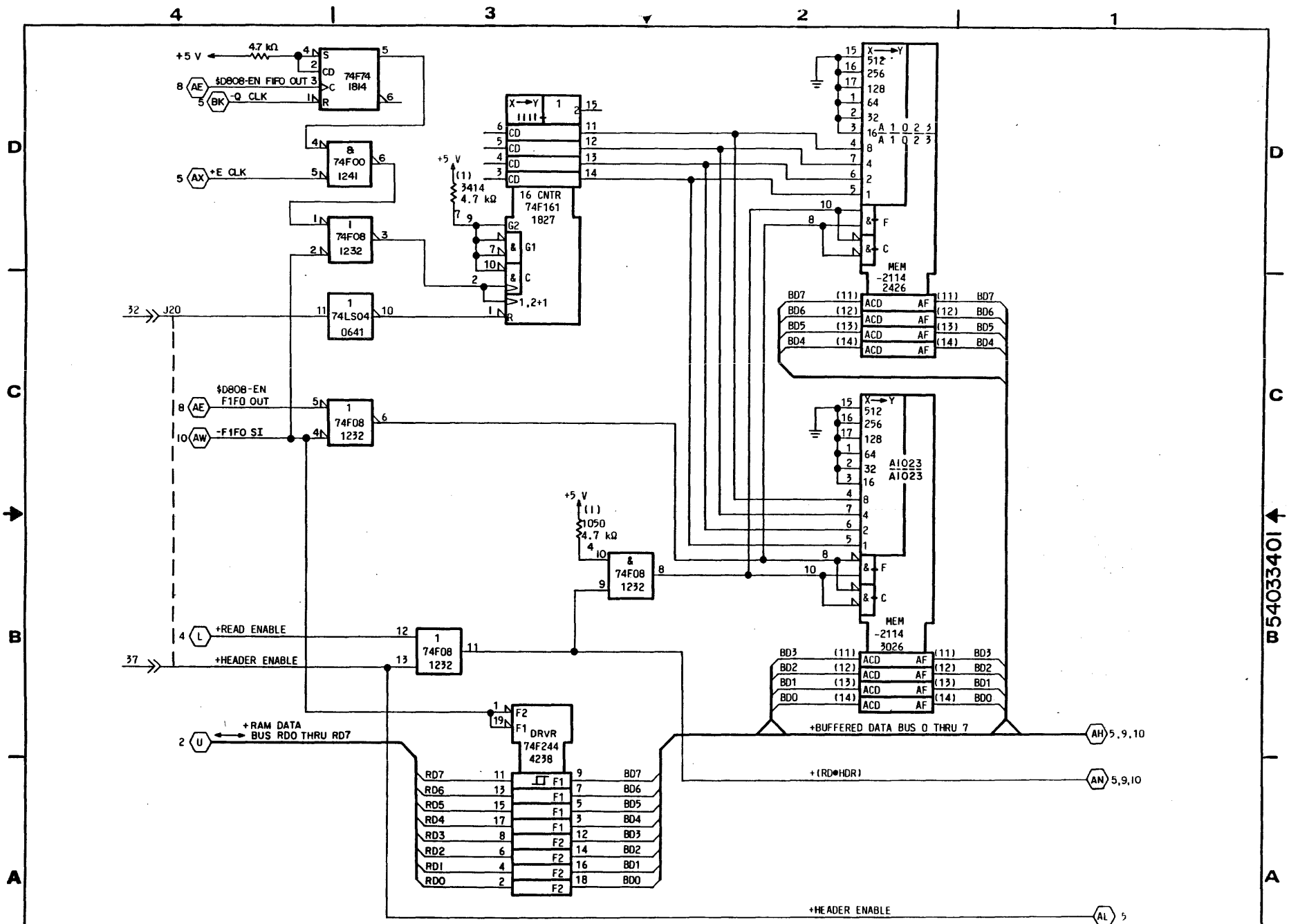
SIGNAL INPUTS

SIGNAL OUTPUTS



LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	A
CROSS REF NO 0207	PAGE 3-72

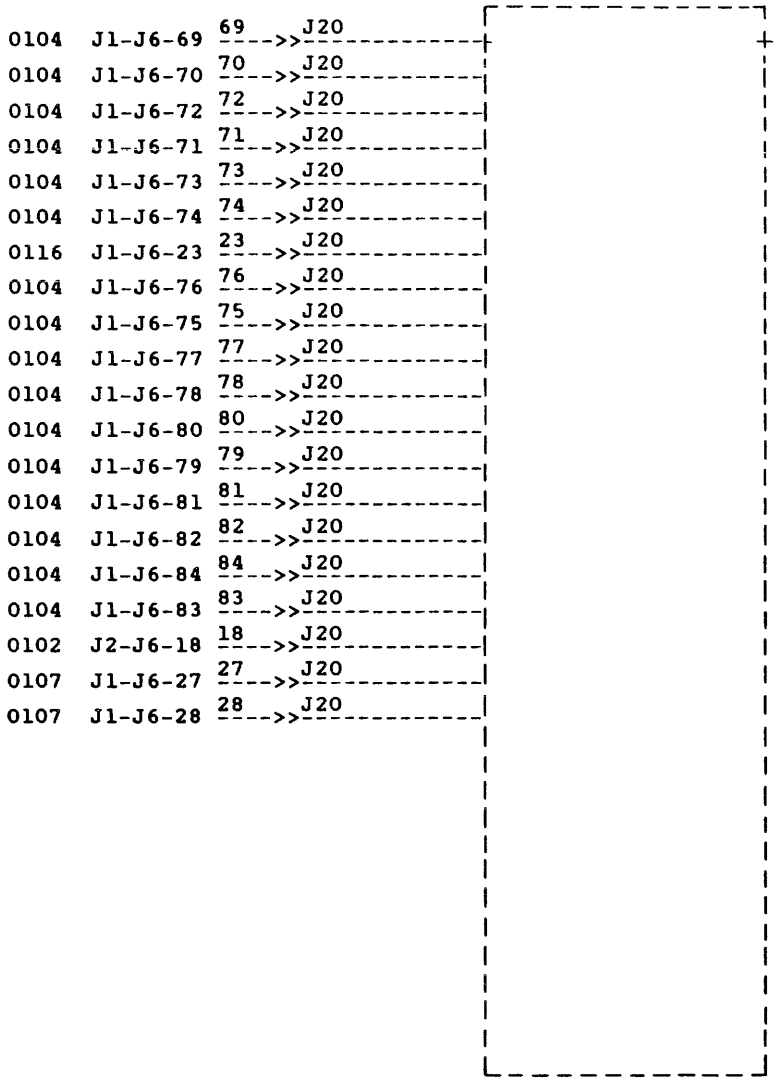


MAGNETIC PERIPHERALS INC. a subsidiary of CONTROL DATA CORPORATION	DMA/SERDES BOARD TYPE: _GJN	TWIN CITIES DISK DIVISION	C	83324750	C H
		CODE IDENT 19333	XREF NO. 0207	SHEET 7	PAGE NO. 3-73

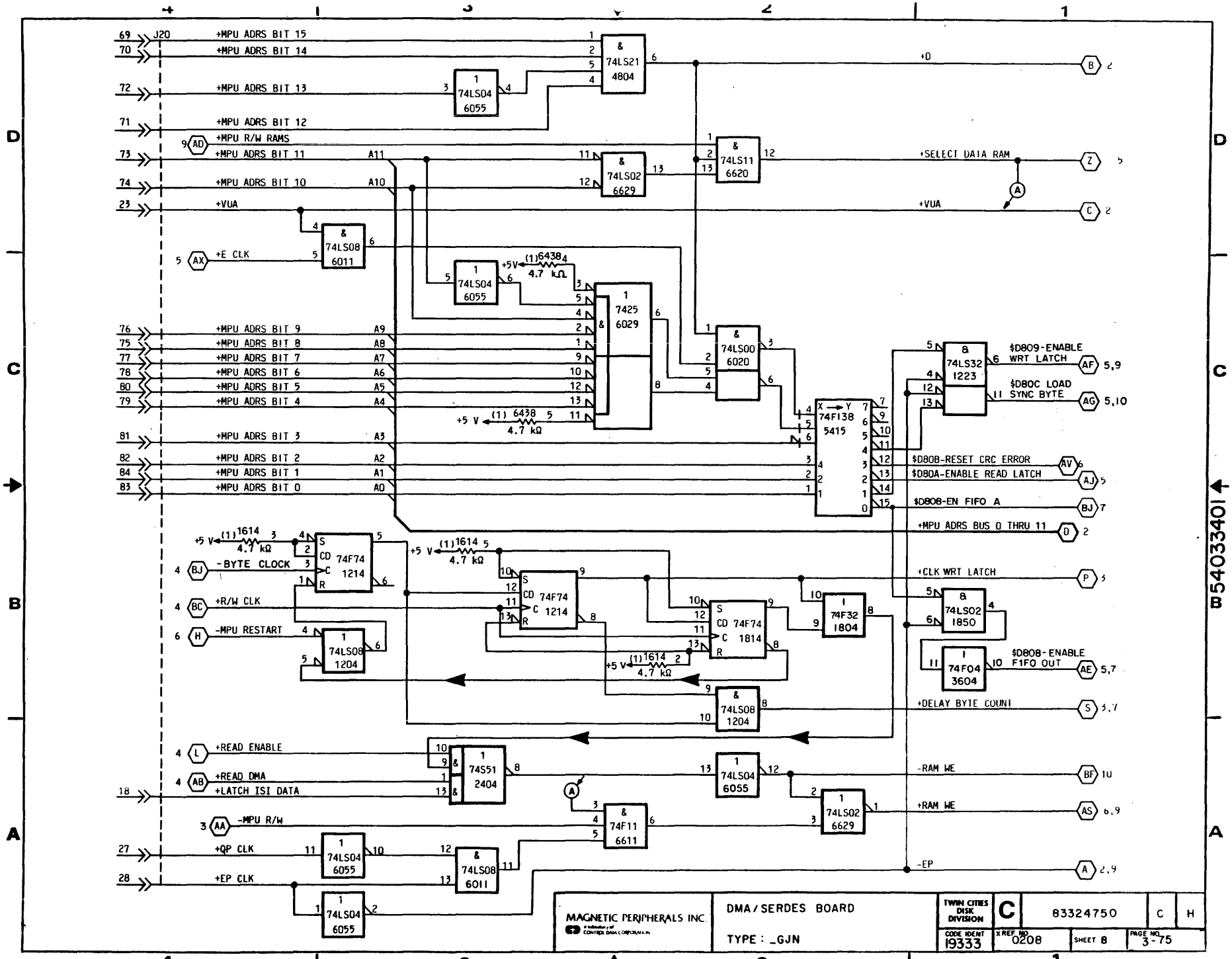
B 54033401

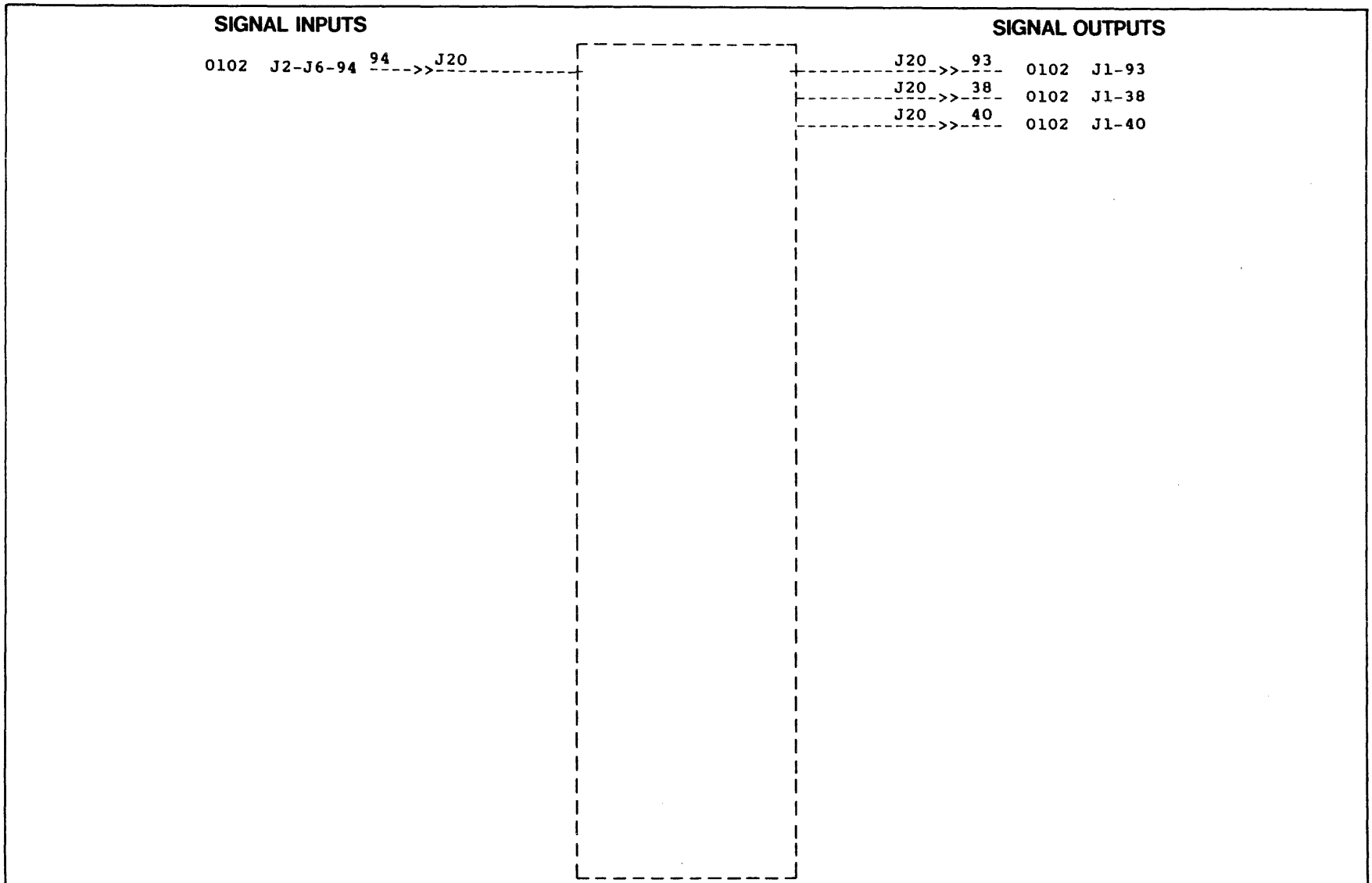
SIGNAL INPUTS

SIGNAL OUTPUTS



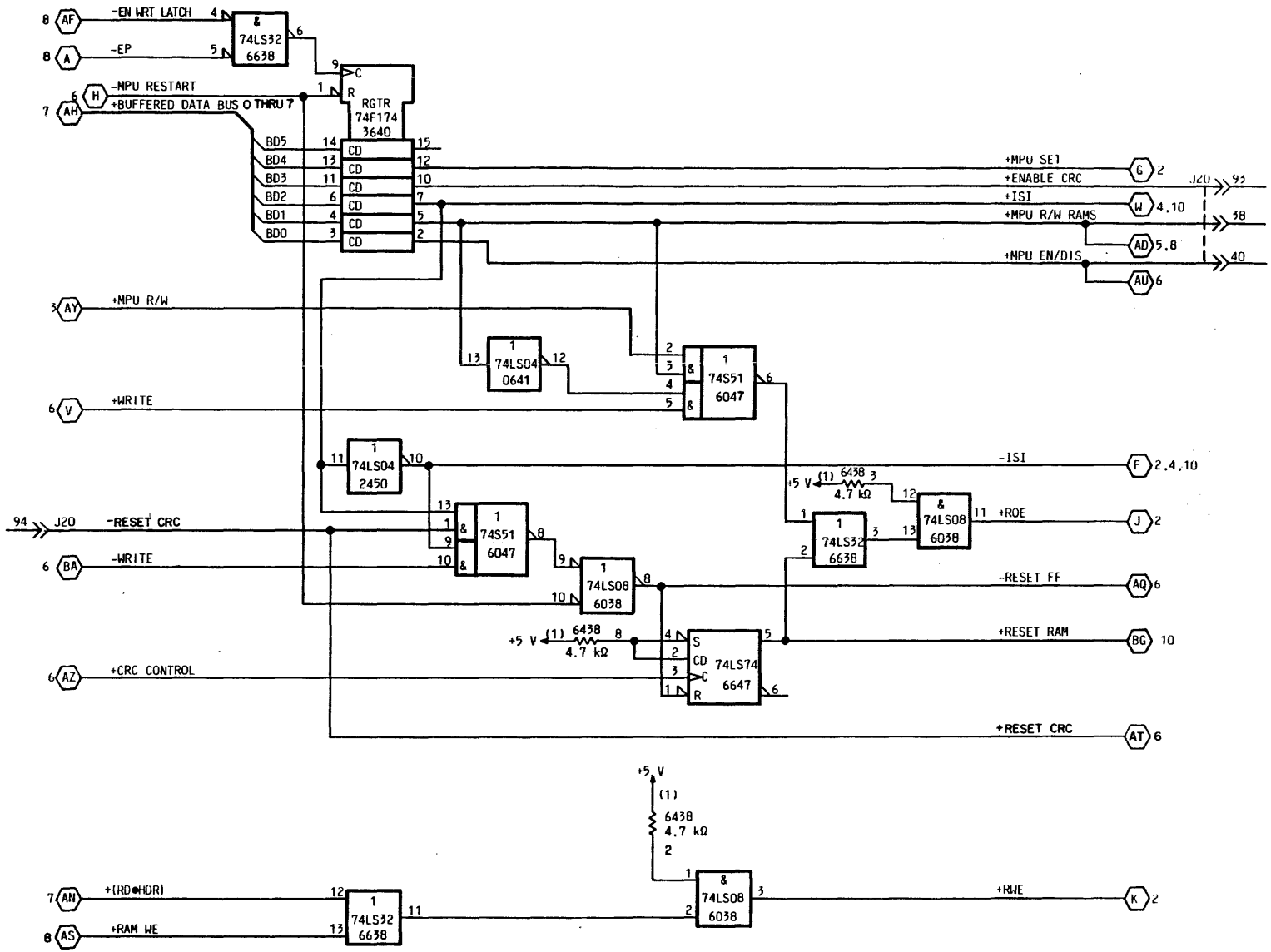
LOGIC CROSS REFERENCE INFORMATION


J20
+MPU ADRS BIT 15
+MPU ADRS BIT 14
+MPU ADRS BIT 13
+MPU ADRS BIT 12
+MPU R/W RAMS
+MPU ADRS BIT 11
+MPU ADRS BIT 10
+VUA
+E CLK
+MPU ADRS BIT 9
+MPU ADRS BIT 8
+MPU ADRS BIT 7
+MPU ADRS BIT 6
+MPU ADRS BIT 5
+MPU ADRS BIT 4
+MPU ADRS BIT 3
+MPU ADRS BIT 2
+MPU ADRS BIT 1
+MPU ADRS BIT 0
A11
A10
A9
A8
A7
A6
A5
A4
A3
A2
A1
A0
74LS21 4804
74LS04 6055
74LS11 6620
74LS02 6629
74LS00 6020
74LS08 6011
7425 6029
4.7 kΩ
74F138 5415
74LS32 1223
74F74 1214
74F32 1804
74LS02 1850
74F04 3604
74LS08 1204
74S51 2404
74F11 6611
+D
+SELECT DATA RAM
+VUA
$D809-ENABLE WRT LATCH
$D80C LOAD SYNC BYTE
$D80B-RESET CRC ERROR
$D80A-ENABLE READ LATCH
$D808-EN FIFO A
+MPU ADRS BUS 0 THRU 11
-BYTE CLOCK
+R/W CLK
-MPU RESTART
+CLK WRT LATCH
$D808-ENABLE F1FO OUT
+DELAY BYTE COUNT
+READ ENABLE
+READ DMA
+LATCH ISI DATA
-MPU R/W
+QP CLK
+EP CLK
-RAM WE
+RAM WE
-EP
MAGNETIC PERIPHERALS INC.
DMA/SERDES BOARD
TYPE : _GJN
TWIN CITIES DISK DIVISION
83324750
CODE IDENT 19333
XREF NO 0208
SHEET 8
PAGE NO 3-75
B 54033401



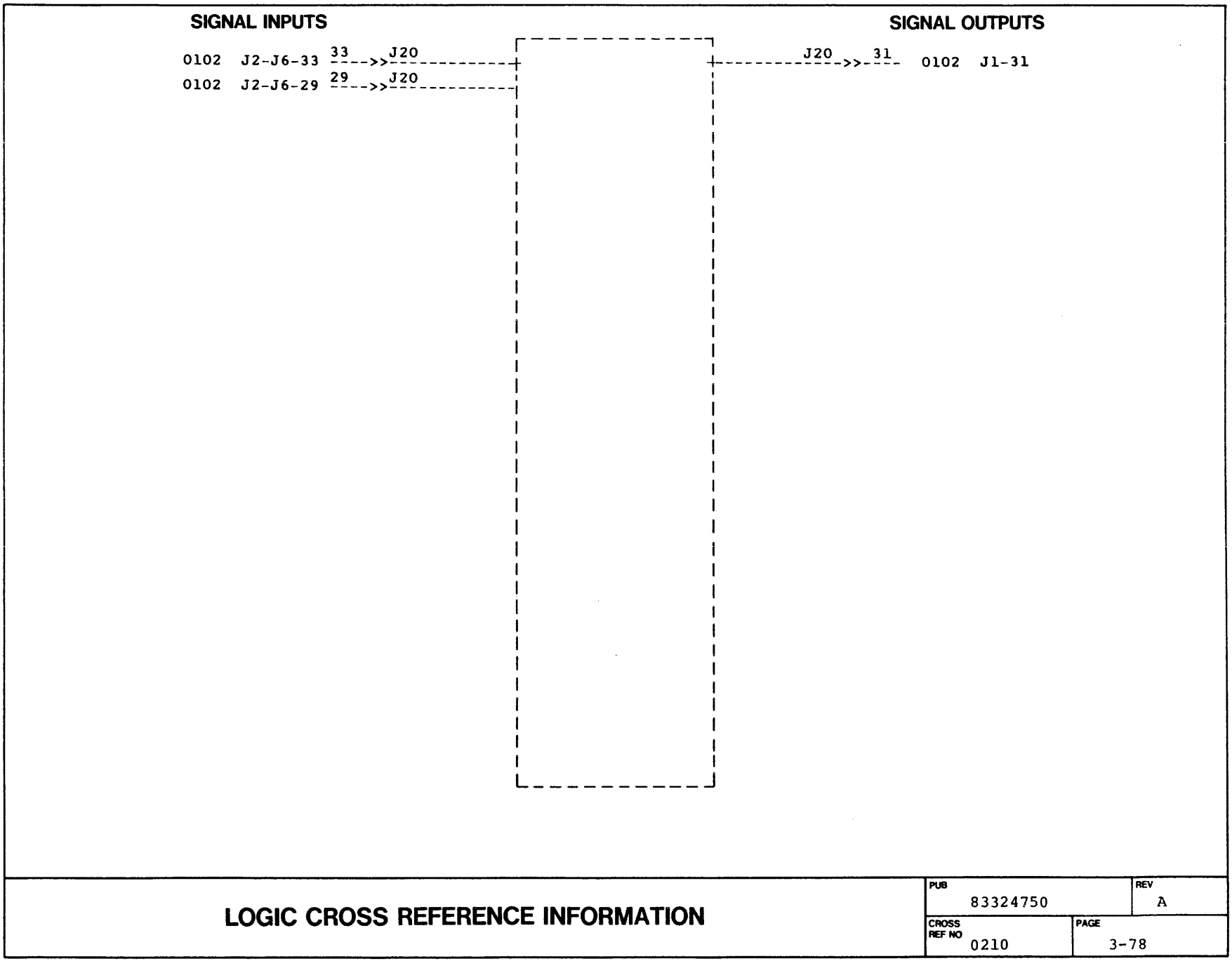
LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	A
CROSS REF NO 0209	PAGE 3-76



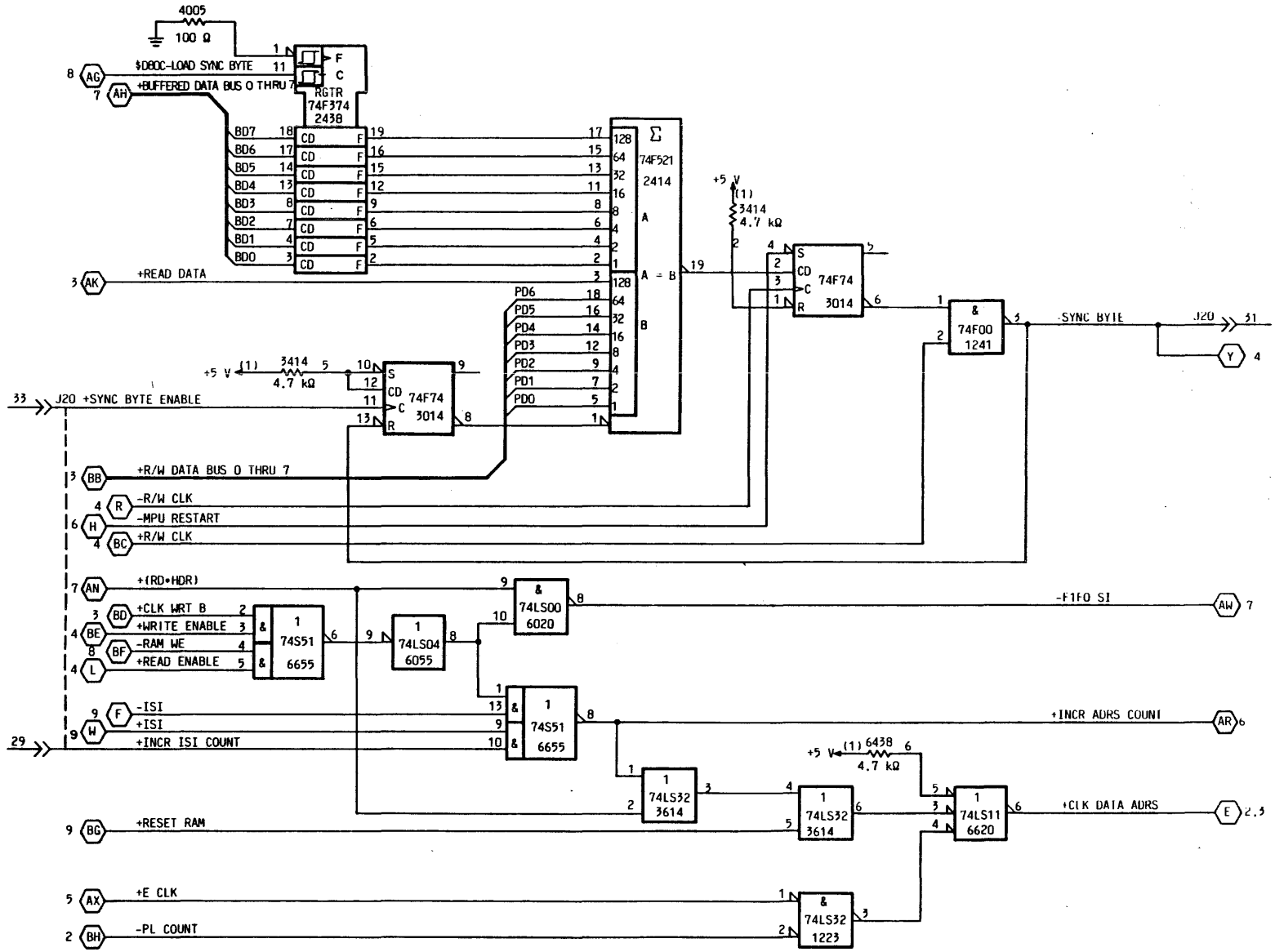
54033401

MAGNETIC PERIPHERALS INC.	DMA / SERDES BOARD	TWIN CITIES DISK DIVISION	C 83324750	A A
	TYPE : _GJN	CODE IDENT 19333	XREF NO 0209 SHEET 9	PAGE NO 3-77



LOGIC CROSS REFERENCE INFORMATION

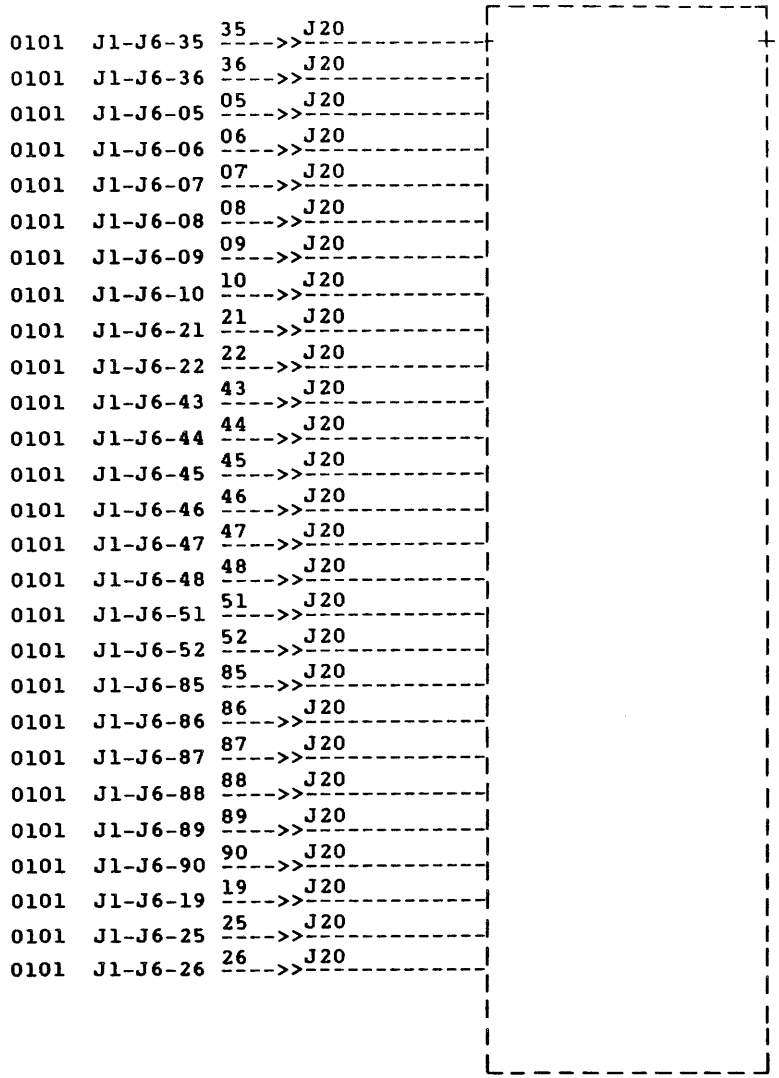
PUB	REV
83324750	A
CROSS REF NO: 0210	PAGE: 3-78



MAGNETIC PERIPHERALS INC.	DMA/SERDES BOARD	TWIN CITIES DISK DIVISION	C	83324750	B E
	TYPE: _GJN	CODE IDENT 19333	XREF NO 0210	SHEET 10	PAGE NO 3-79

SIGNAL INPUTS

SIGNAL OUTPUTS



LOGIC CROSS REFERENCE INFORMATION

FILTER CAPS ⚠2

.22 µF	
+5 V	
0307	4307
0318	4328
0330	4340
0707	4352
1207	4807
1219	4828
1231	4840
1241	4852
1550	5207
1607	5228
2119	5252
2250	5707
2531	5718
2541	5752
3018	6119
3050	6128
3452	6607
3907	6628
3918	6641
3941	6655
3952	7007

UNUSED LOGIC ELEMENTS

TYPE	LOCATION	OUTPUT PIN(S)
74LS04	7057	6
74F74	6932	8,9
74LS00	6121	3 11
74LS08	3421	11
7409	2543	8
74LS11	2121	12
74S51	1243	8
9602	0342	9.10

UNUSED RESISTOR PACKS

LOCATION	PIN(S)
3709	5
6620	7

REVSION RECORD

REV	ECO	DESCRIPTION	DRFT	DATE	CHKD	APP
A	DJ23000	RELEASED				H
B	DJ07036	UPDATE SCHEMATIC	KKB	2-7-84	DGD	
C	DJ07050	CHANGE PINS	KKB	2-7-84	DGD	
D	DJ07064	ADDRESS DECODE TIMING	KKB	2-7-84	DGD	
E	DJ07126	BGLN TO CGLN	BJP	3-27-85		
F	DJ07152	CORRECT ERRORS	BJP	3-27-85		
G	DJ07142	CGLN TO DGLN	BJP	3-27-85		

NOTES.

1. UNLESS OTHERWISE SPECIFIED.

ALL 14 PIN IC'S HAVE PIN 7 CONNECTED TO GROUND AND PIN 14 CONNECTED TO +5 V.

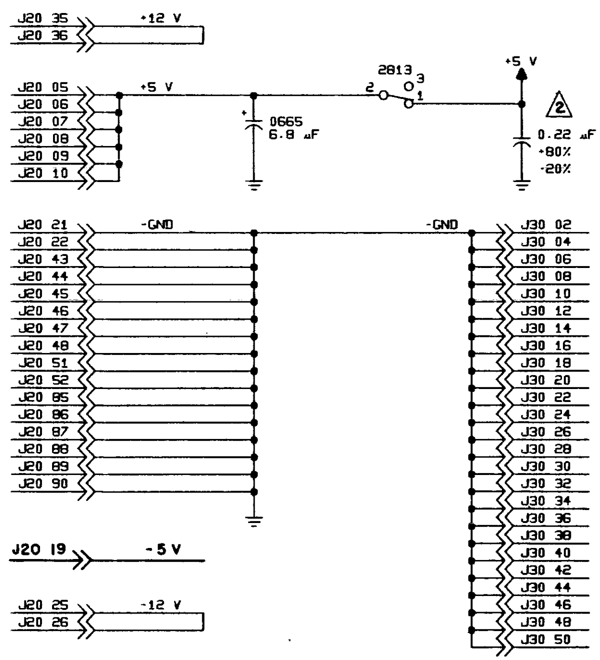
ALL 16 PIN IC'S HAVE PIN 8 CONNECTED TO GROUND AND PIN 16 CONNECTED TO +5 V.

ALL 20 PIN IC'S HAVE PIN 10 CONNECTED TO GROUND AND PIN 20 CONNECTED TO +5 V.

ALL 24 PIN IC'S HAVE PIN 12 CONNECTED TO GROUND AND PIN 24 CONNECTED TO +5 V.

ALL RESISTOR PACK RESISTORS. 1/8 W. ±2%.

⚠2 SEE TABLE FOR .22uF FILTER CAPACITOR LOCATIONS.



B54034203

REFERENCE DRAWING	
COMP ASSY	
CTR	

COMPONENTS, EXCEPT AS NOTED

	TOLERANCE	VALUE	RATING
RES	±5 %	OHMS	1/4 W
CAP	±10 %		

MAGNETIC PERIPHERALS, INC. A Control Data Company

FIRST USED ON: TB2A3A — NEXT ASSEMBLY

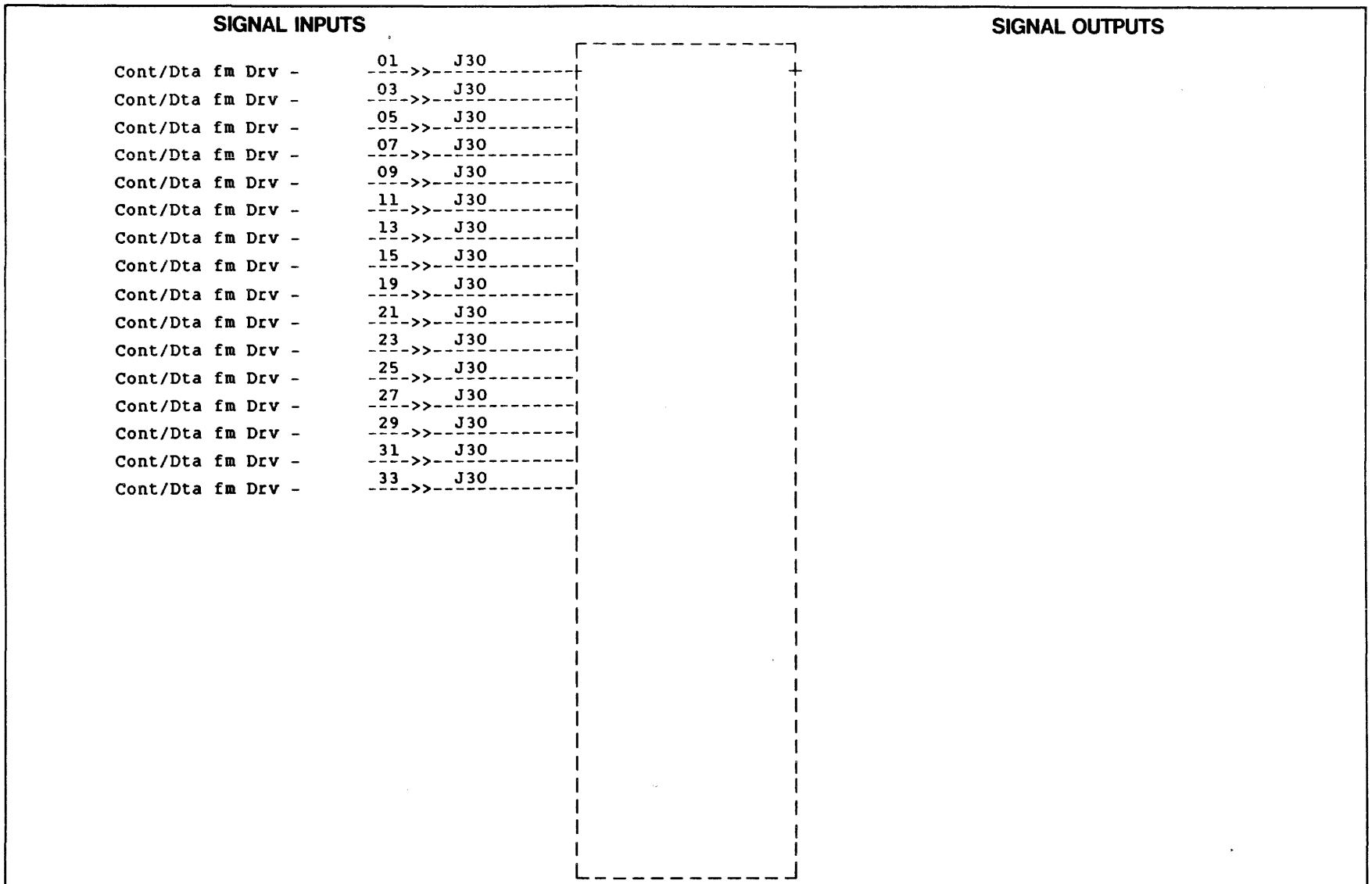
DWN	S. K. JOHNSON	12/09/82
CHKD	(signature)	8-24-83
ENGR	Karen Hagen	8-24-83
MFG	(signature)	8-24-83
QA	M. Hainda	8-24-83

TITLE

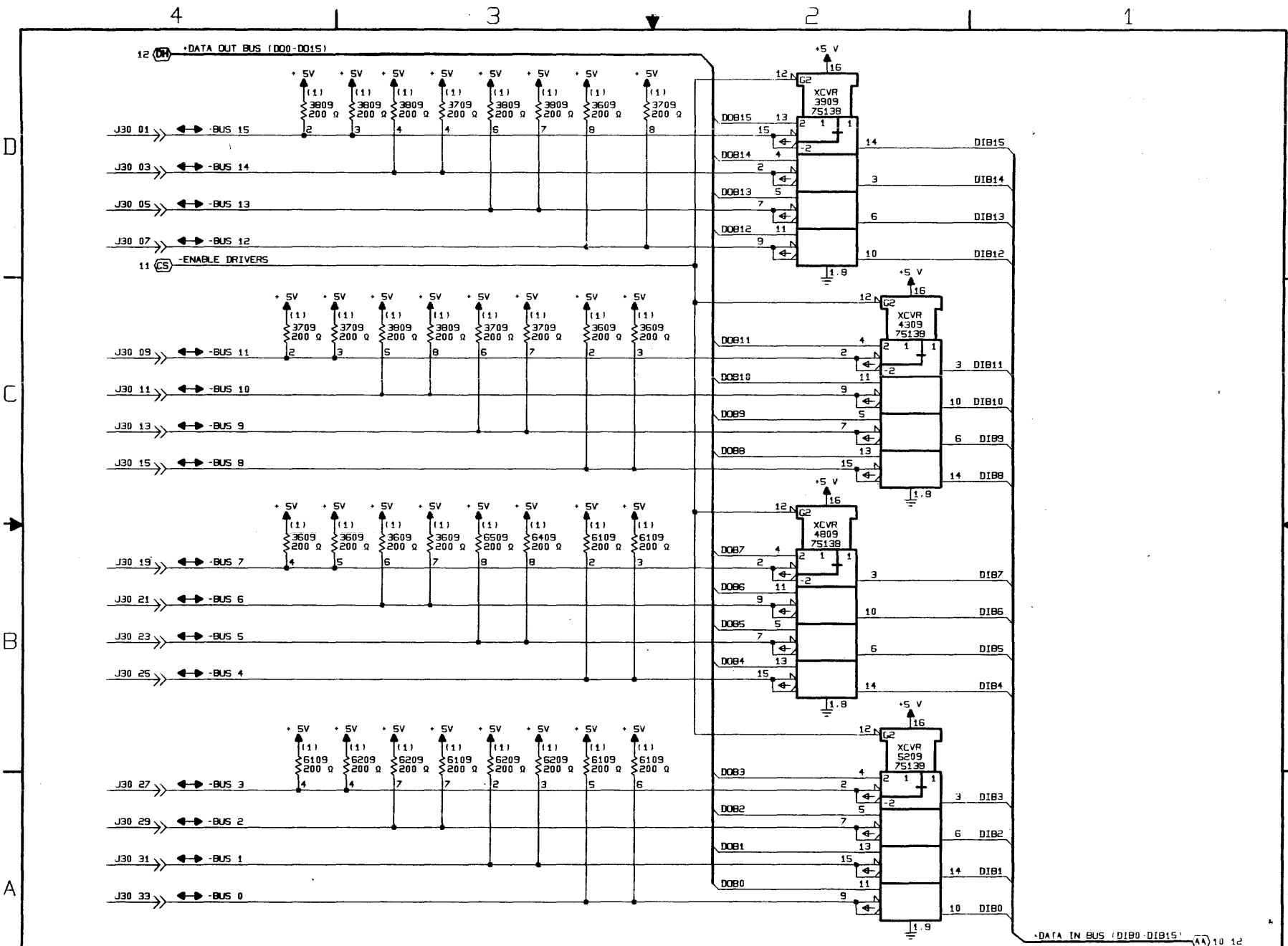
SCHEMATIC DIAGRAM ISI CONTROL BOARD TYPE: BGLN/CGLN/DGLN

TWIN CITIES DISK DIVISION — SIZE C — 83324750 — D — G

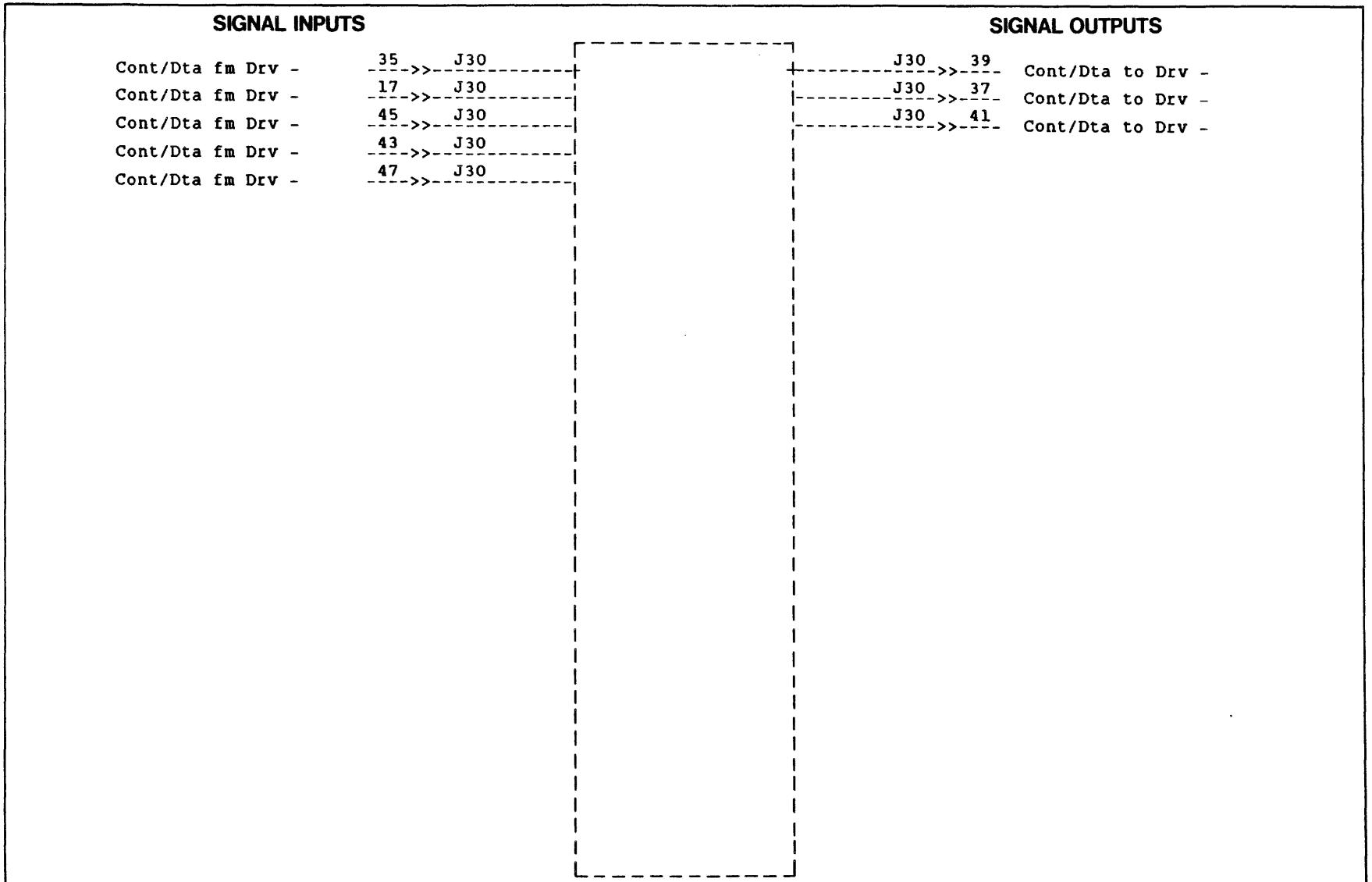
FSCM NO 19333 — CROSS REF NO 0301 — SHEET 1 OF 12 — PAGE 3-81



LOGIC CROSS REFERENCE INFORMATION

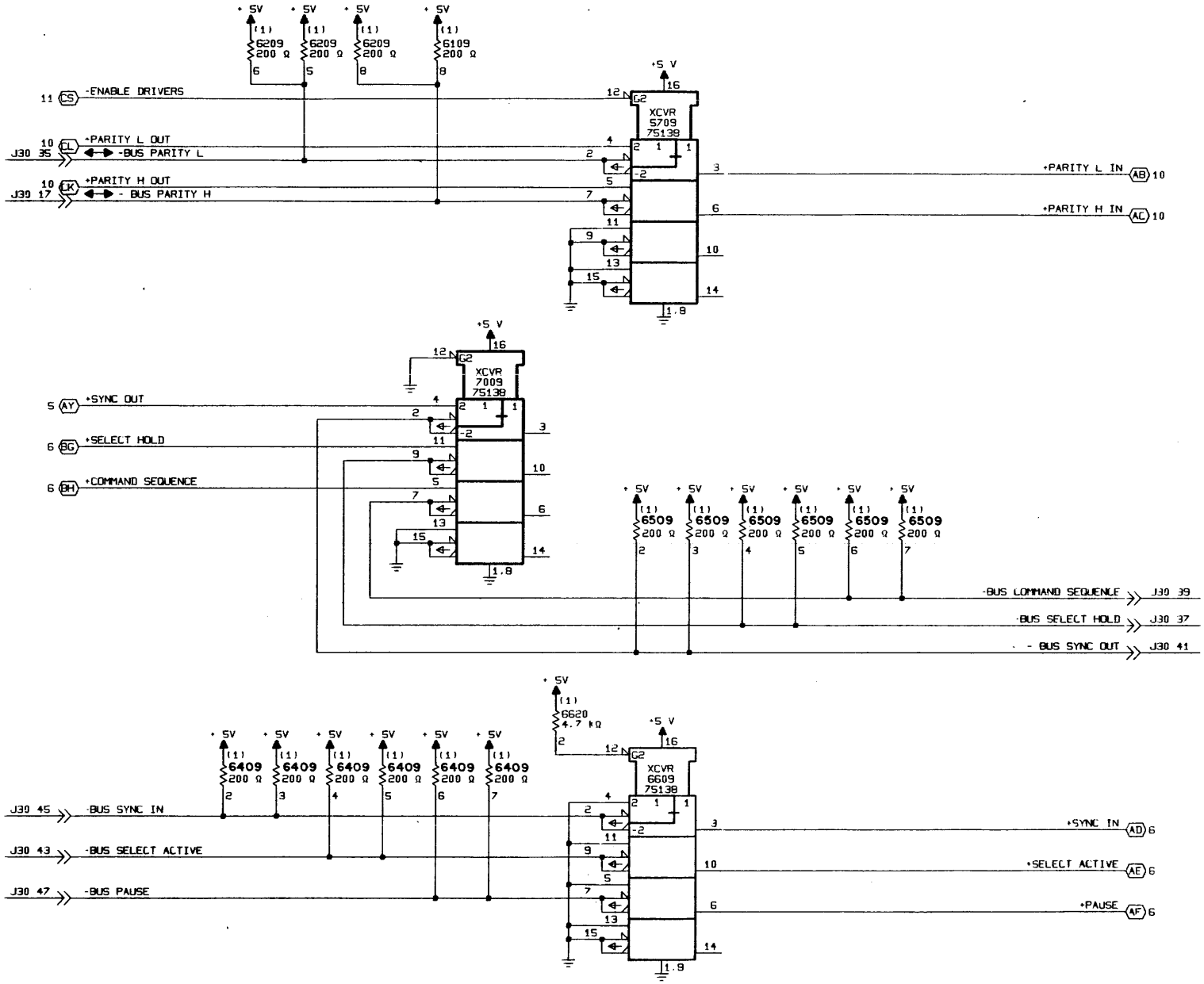


MAGNETIC PERIPHERALS, INC. A Control Data Company	TITLE: SCHEMATIC DIAGRAM TYPE _GLN	TWIN CITIES DISK DIVISION	83324750	D	F
		FSCM NO 19333	CROSS REF NO 0302	SHEET 2	PAGE 3-83



LOGIC CROSS REFERENCE INFORMATION

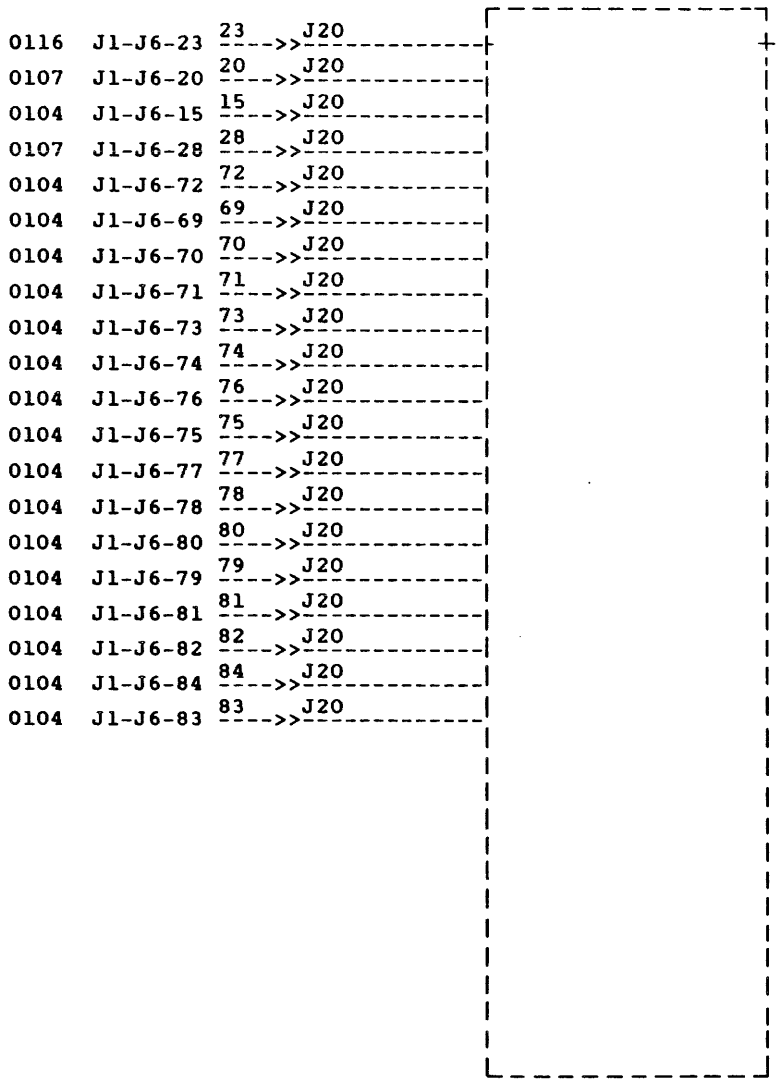
PUB	REV
83324750	A
CROSS REF NO: 0303	PAGE: 3-84



MAGNETIC PERIPHERALS, INC. A Control Data Company	TITLE SCHEMATIC DIAGRAM TYPE _GLN	TWIN CITIES DISK DIVISION	83324750	D	F
		FSCM NO 19333	CROSS REF NO 0303	SHEET 3	PAGE 3-85

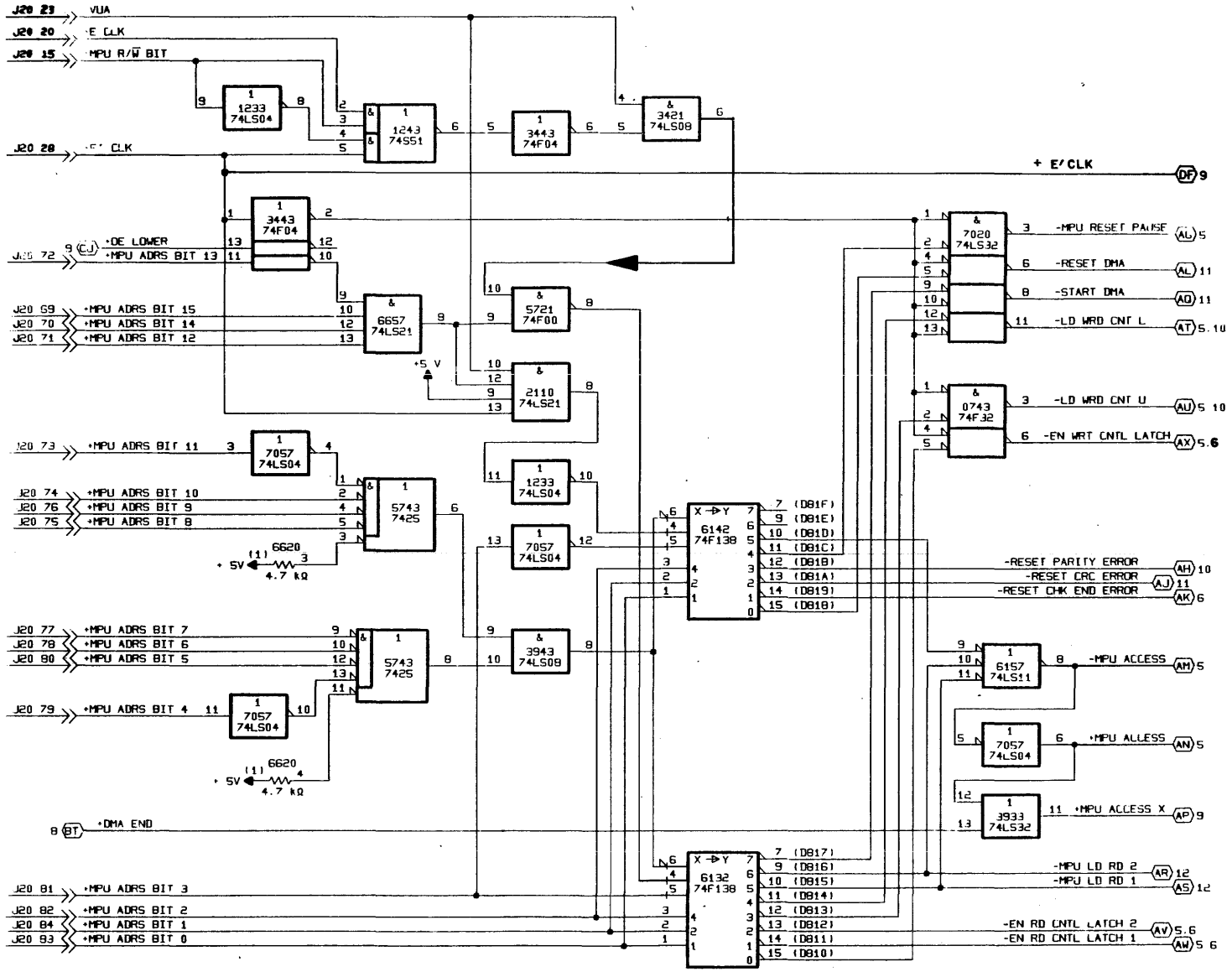
SIGNAL INPUTS

SIGNAL OUTPUTS



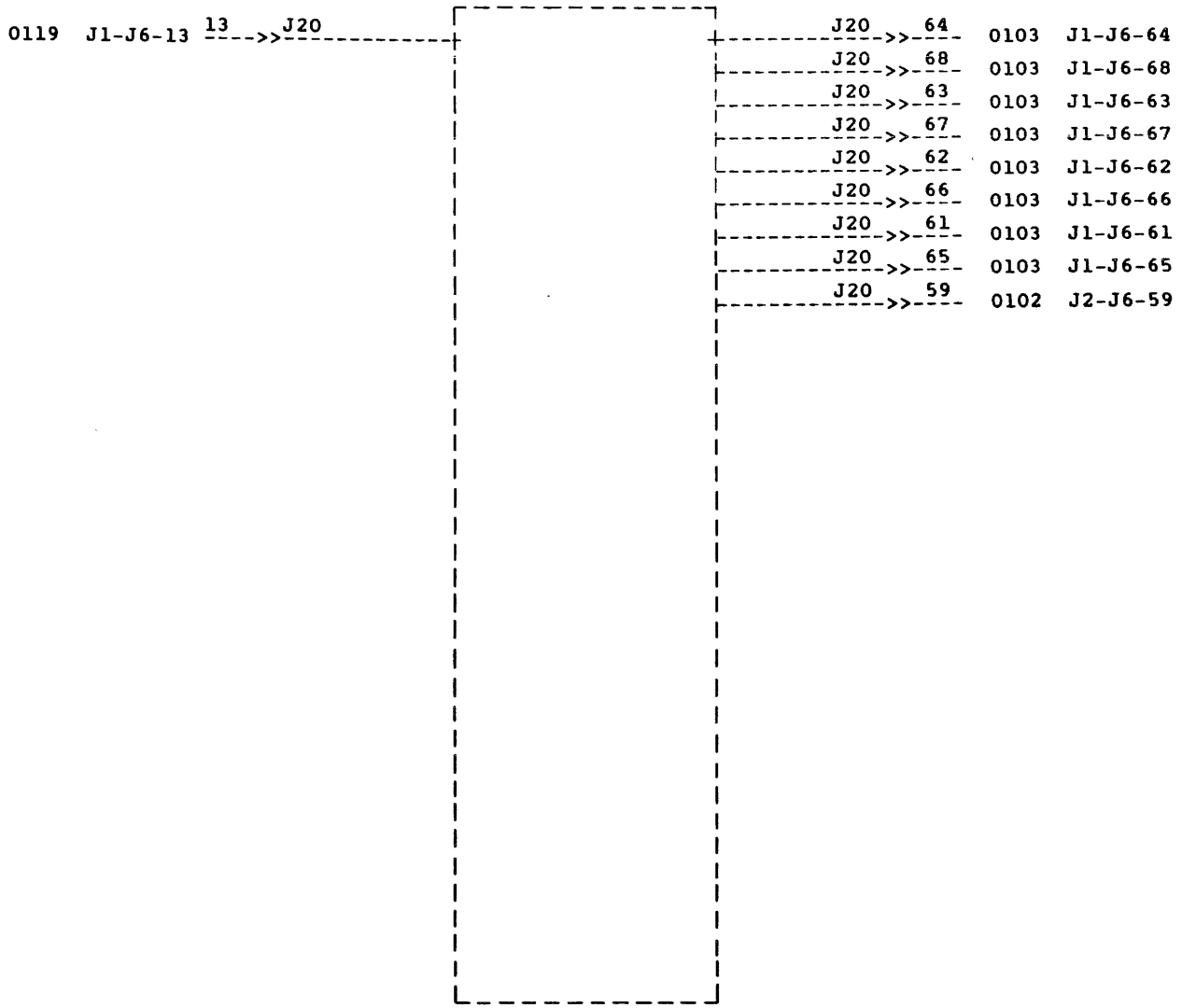
LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	B
CROSS REF NO 0304	PAGE 3-86

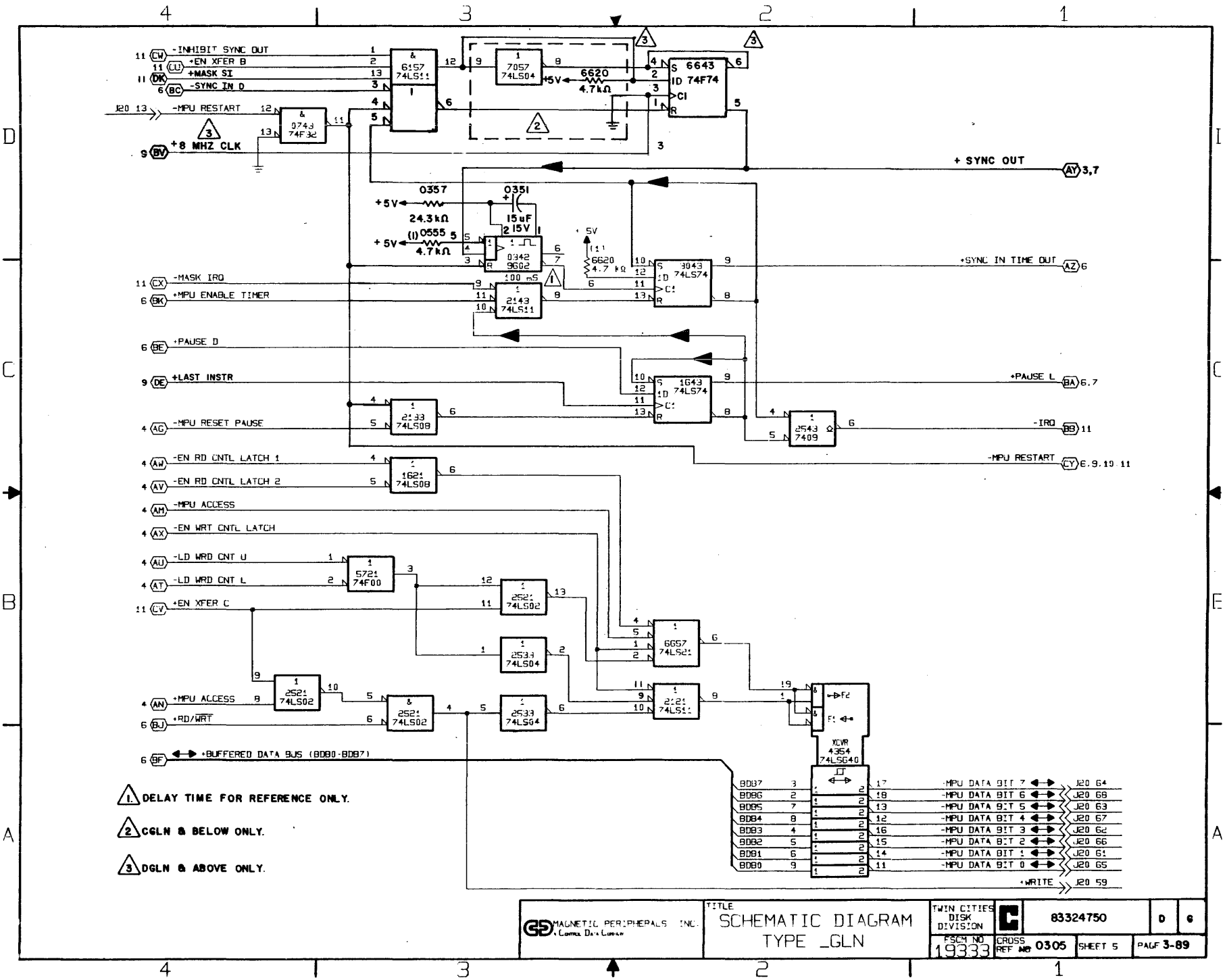


MAGNETIC PERIPHERALS, INC. A Control Data Company	TITLE SCHEMATIC DIAGRAM TYPE _GLN	TWIN CITIES DISK DIVISION	83324750	D	F
		FSCM NO 19333	CROSS REF NO 0304	SHEET 4	PAGE 3-87

CAD



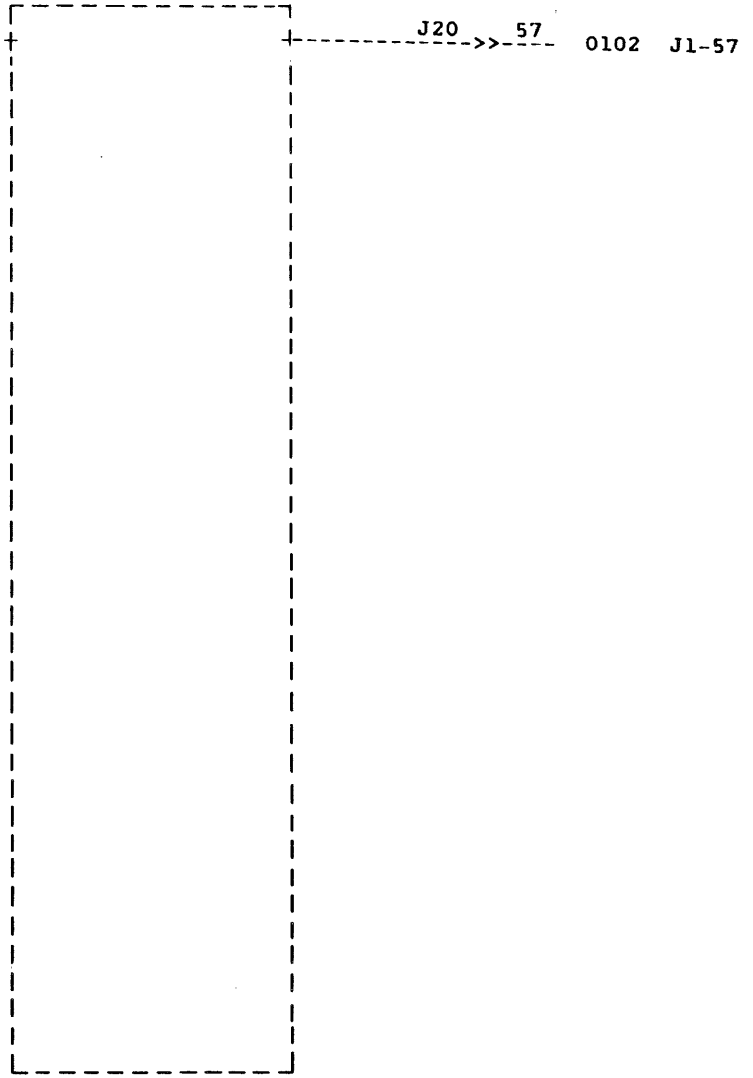
LOGIC CROSS REFERENCE INFORMATION



MAGNETIC PERIPHERALS INC.	TITLE: SCHEMATIC DIAGRAM TYPE _GLN	TWIN CITIES DISK DIVISION	83324750	D 6
		FSCM NO 19333	CROSS REF NO 0305	SHEET 5 PAGE 3-89

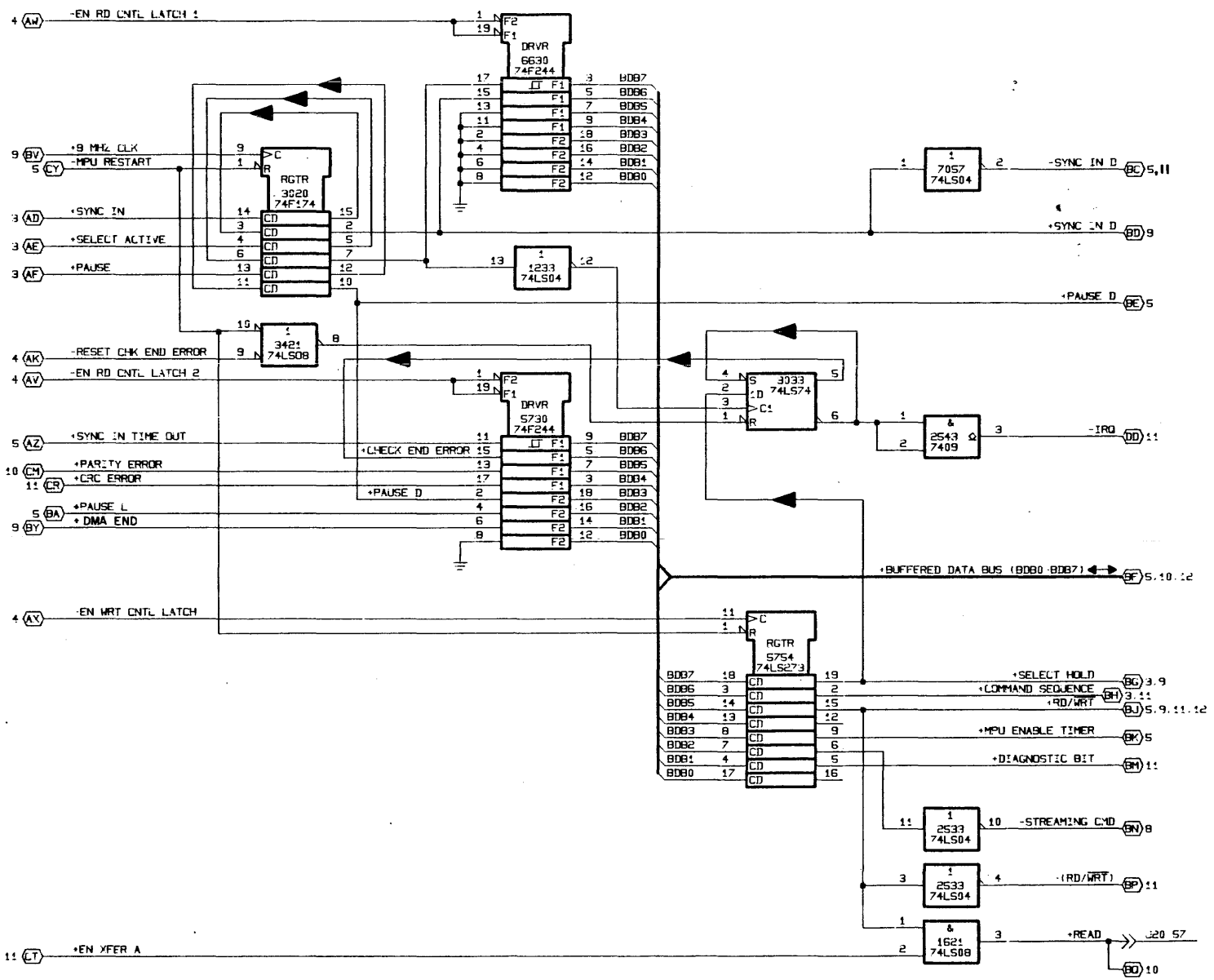
SIGNAL INPUTS

SIGNAL OUTPUTS

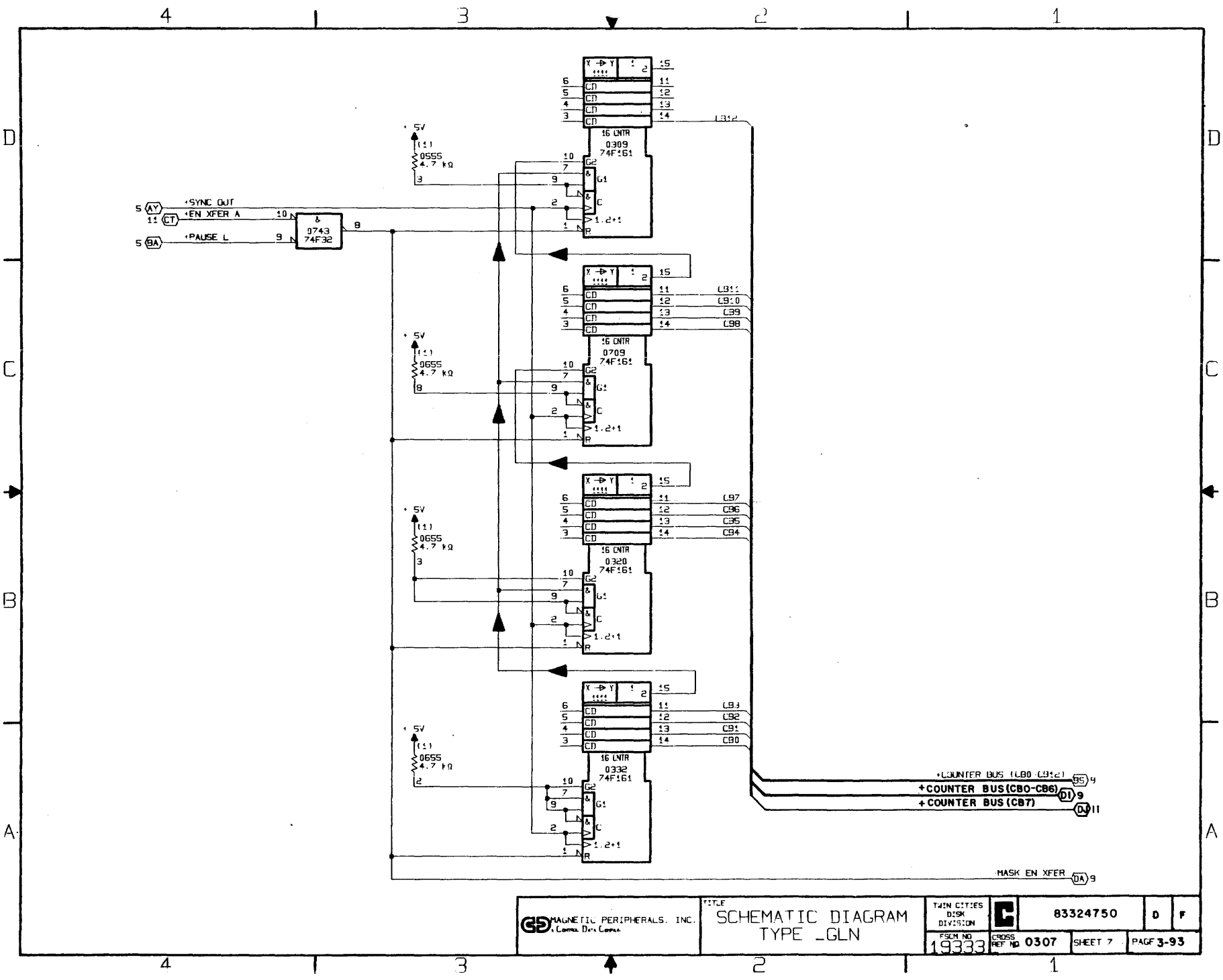


LOGIC CROSS REFERENCE INFORMATION

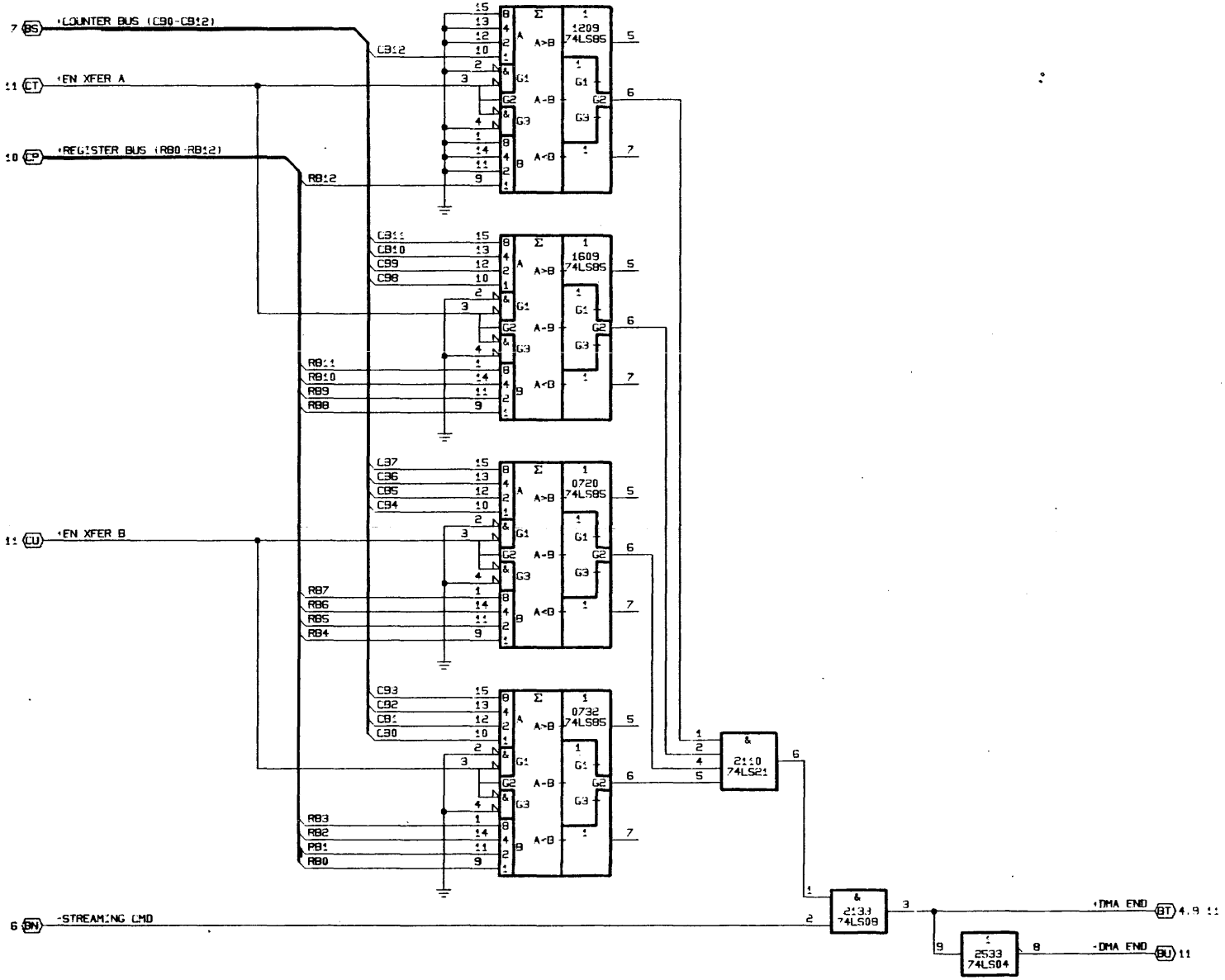
PUB	REV
83324750	A
CROSS REF NO: 0306	PAGE: 3-90



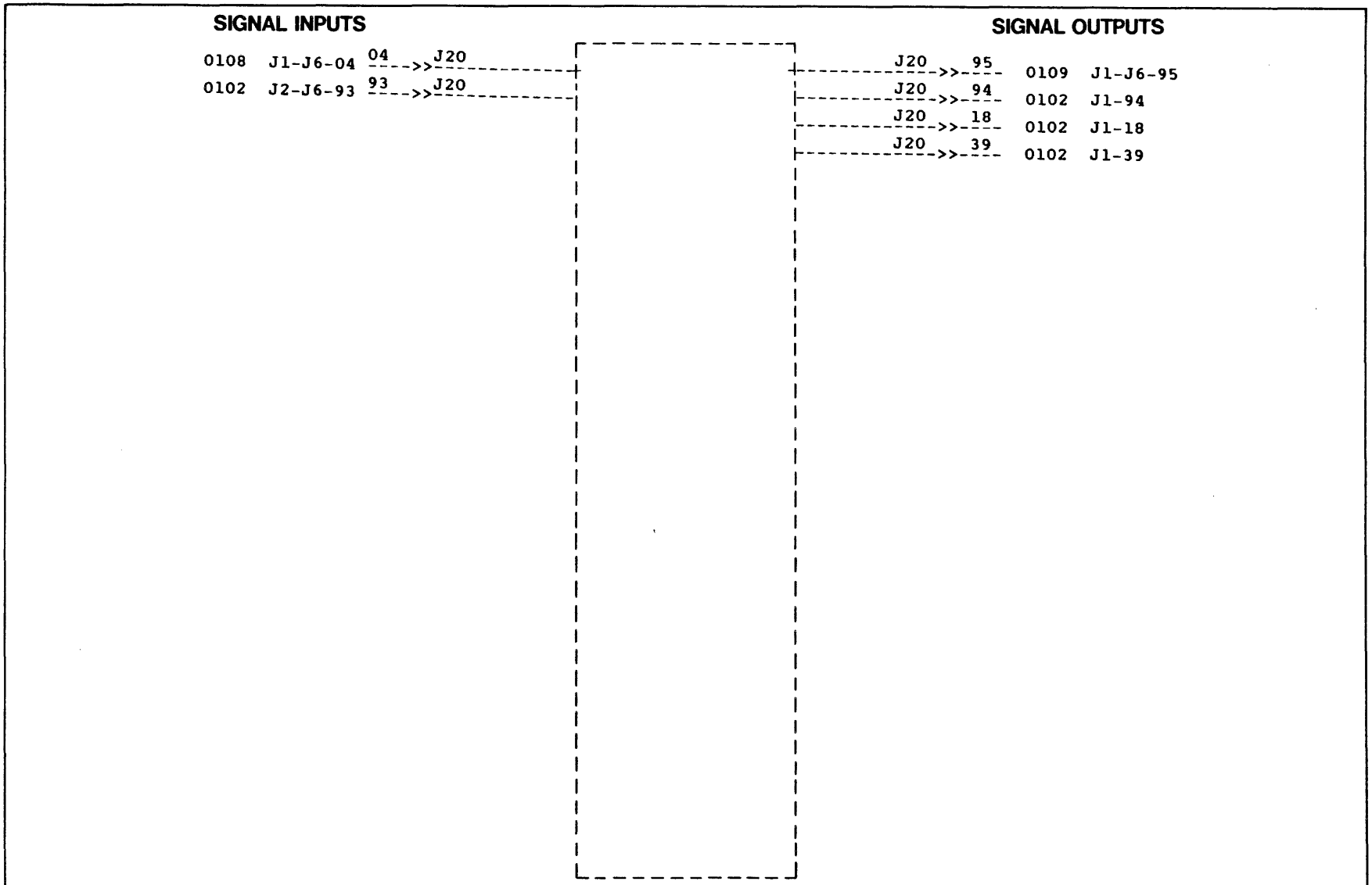
MAGNETIC PERIPHERALS INC. (Control Data Corp.)	TITLE: SCHEMATIC DIAGRAM TYPE _GLN	TWIN CITIES DISK DIVISION	83324750	D F
		FSCM NO 19333	CROSS REF NO 0306	SHEET 6 PAGE 3-91



MAGNETIC PERIPHERALS, INC. A Control Data Company	TITLE: SCHEMATIC DIAGRAM TYPE _GLN	TWIN CITIES DISK DIVISION	83324750	D F
		FSCM NO 19333	CROSS REF NO 0307	SHEET 7 PAGE 3-93

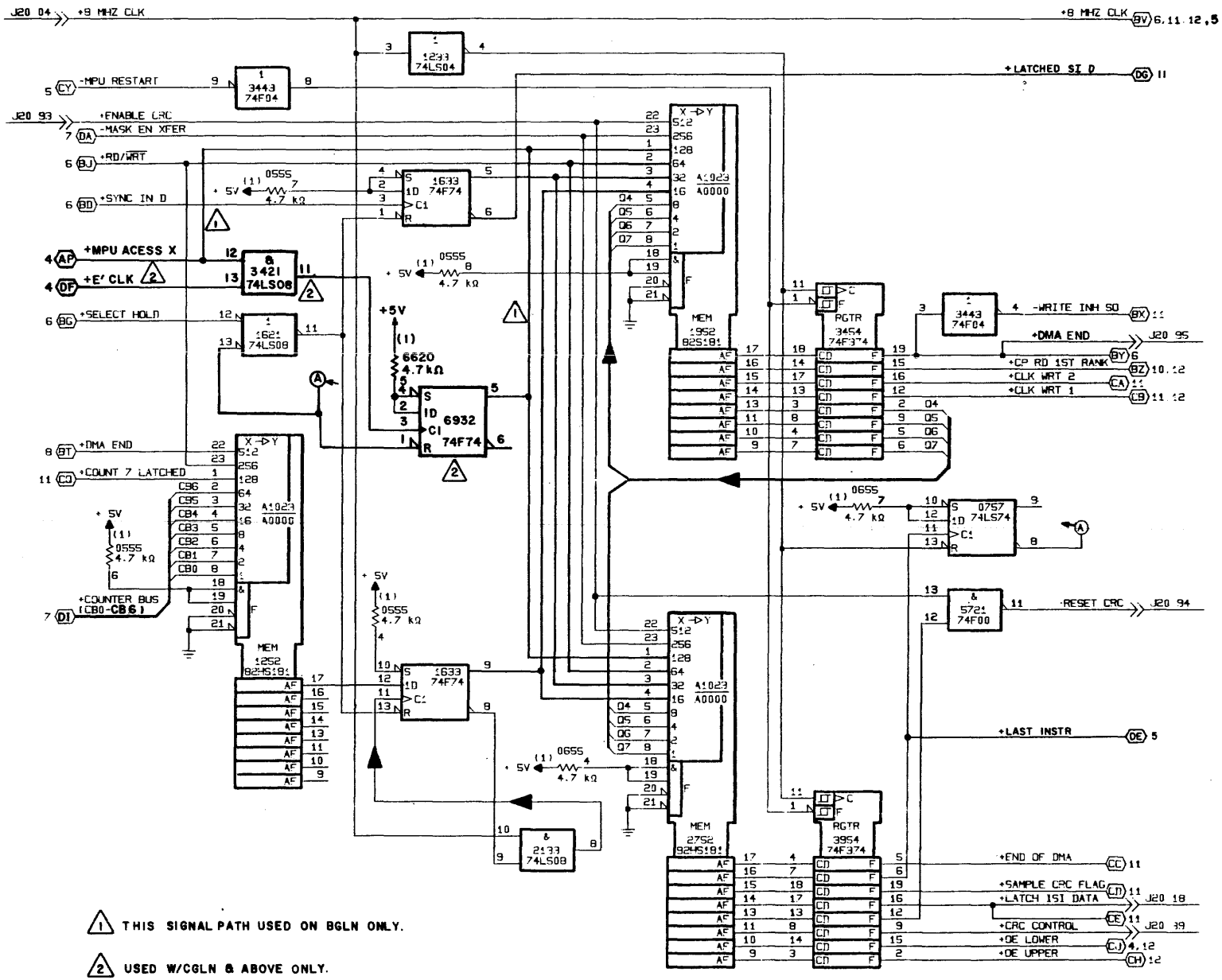


REDAC DUMP NAME: PBEREV	MAGNETIC PERIPHERALS, INC.	TITLE: SCHEMATIC DIAGRAM TYPE _GLN	TWIN CITIES DISK DIVISION	83324750	A	A
ARCHIVE DISK NO. ORIGINAL: S1 BACKUP: S1B			FSCM NO 19333	CROSS REF NO 0308	SHEET 8	PAGE 3-95

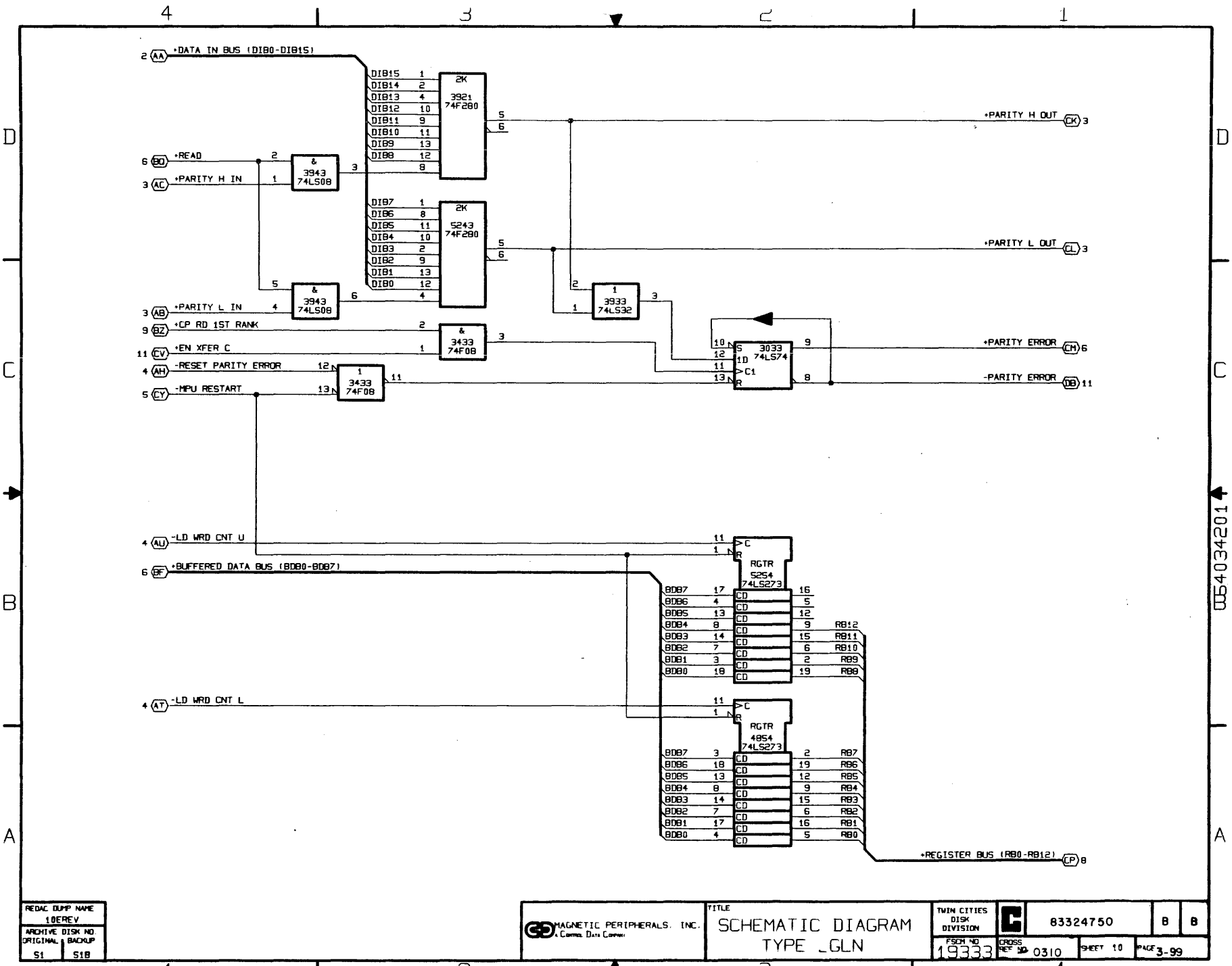


LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	A
CROSS REF NO: 0309	PAGE: 3-96

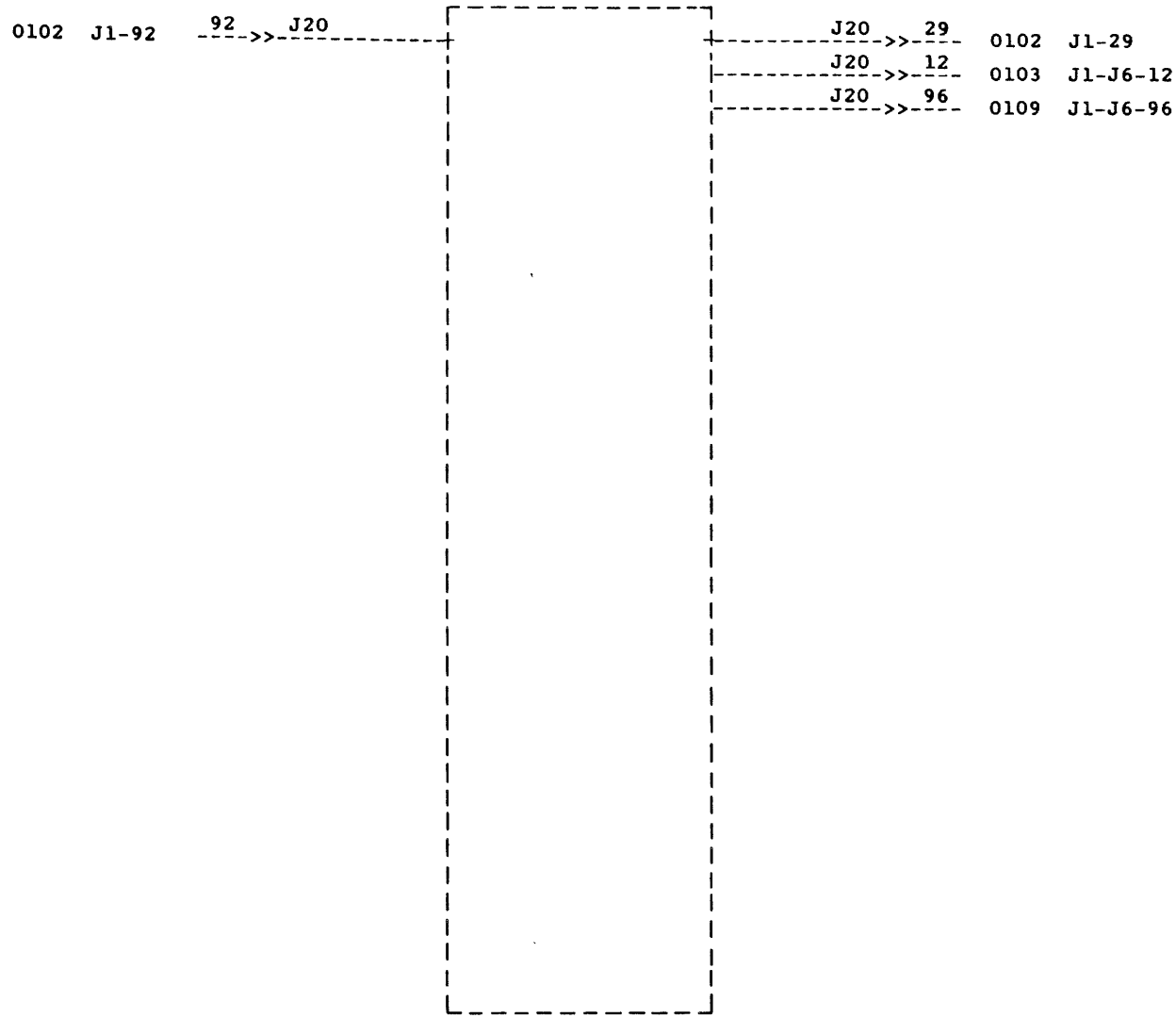


MAGNETIC PERIPHERALS, INC. A Control Data Company	TITLE: SCHEMATIC DIAGRAM TYPE _GLN	TWIN CITIES DISK DIVISION	83324750	D 6
		FSCM NO 19333	CROSS REF NO 0309	SHEET 9 PAGE 3-97



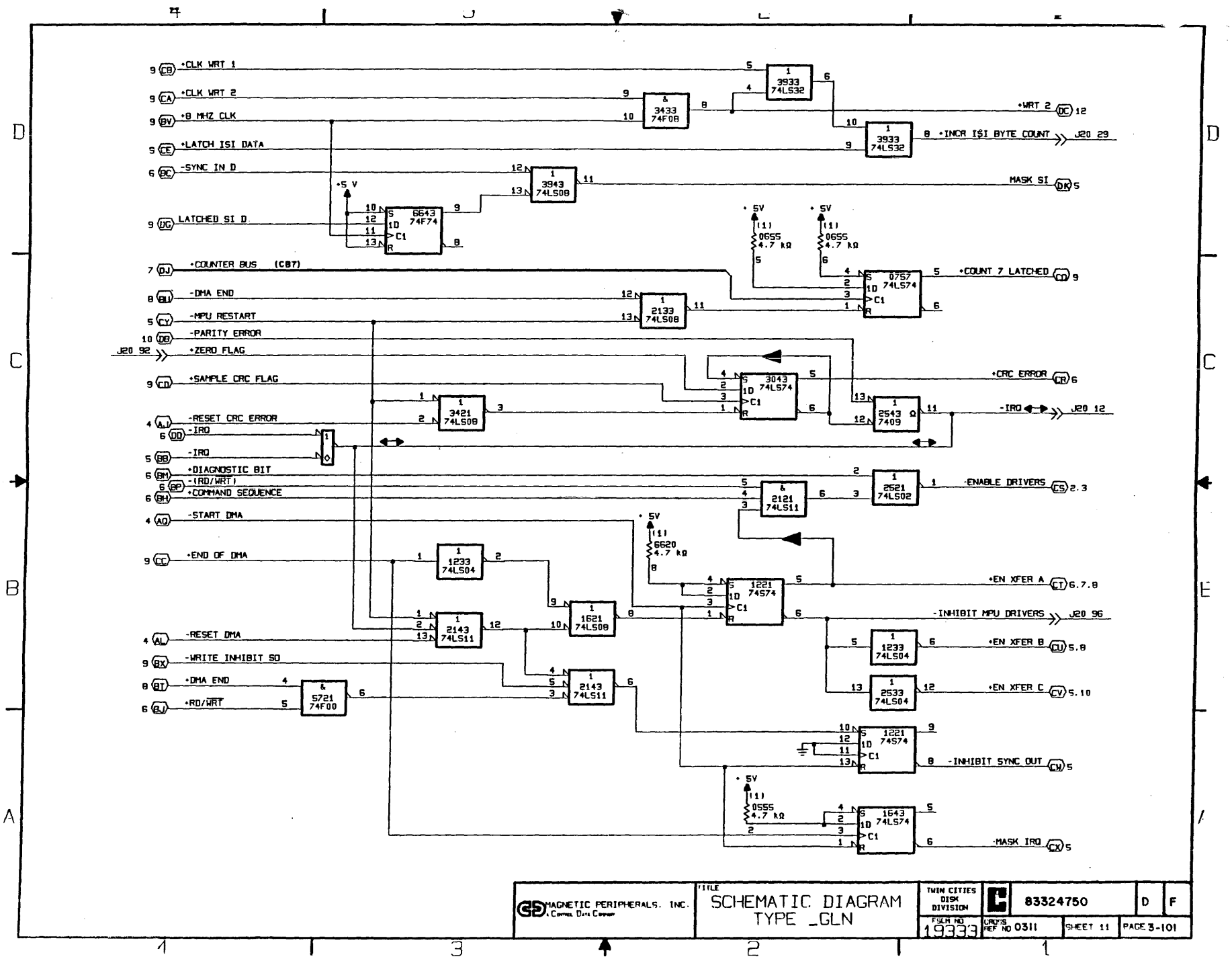
REDAC DUMP NAME: 10EREV	MAGNETIC PERIPHERALS, INC. A Control Data Company	TITLE: SCHEMATIC DIAGRAM TYPE _GLN	TWIN CITIES DISK DIVISION	83324750	B	B
ARCHIVE DISK NO. ORIGINAL: S1 BACKUP: S1B			FSCM NO 19333	CROSS REF NO 0310	SHEET 10	PAGE 3-99

1054034201

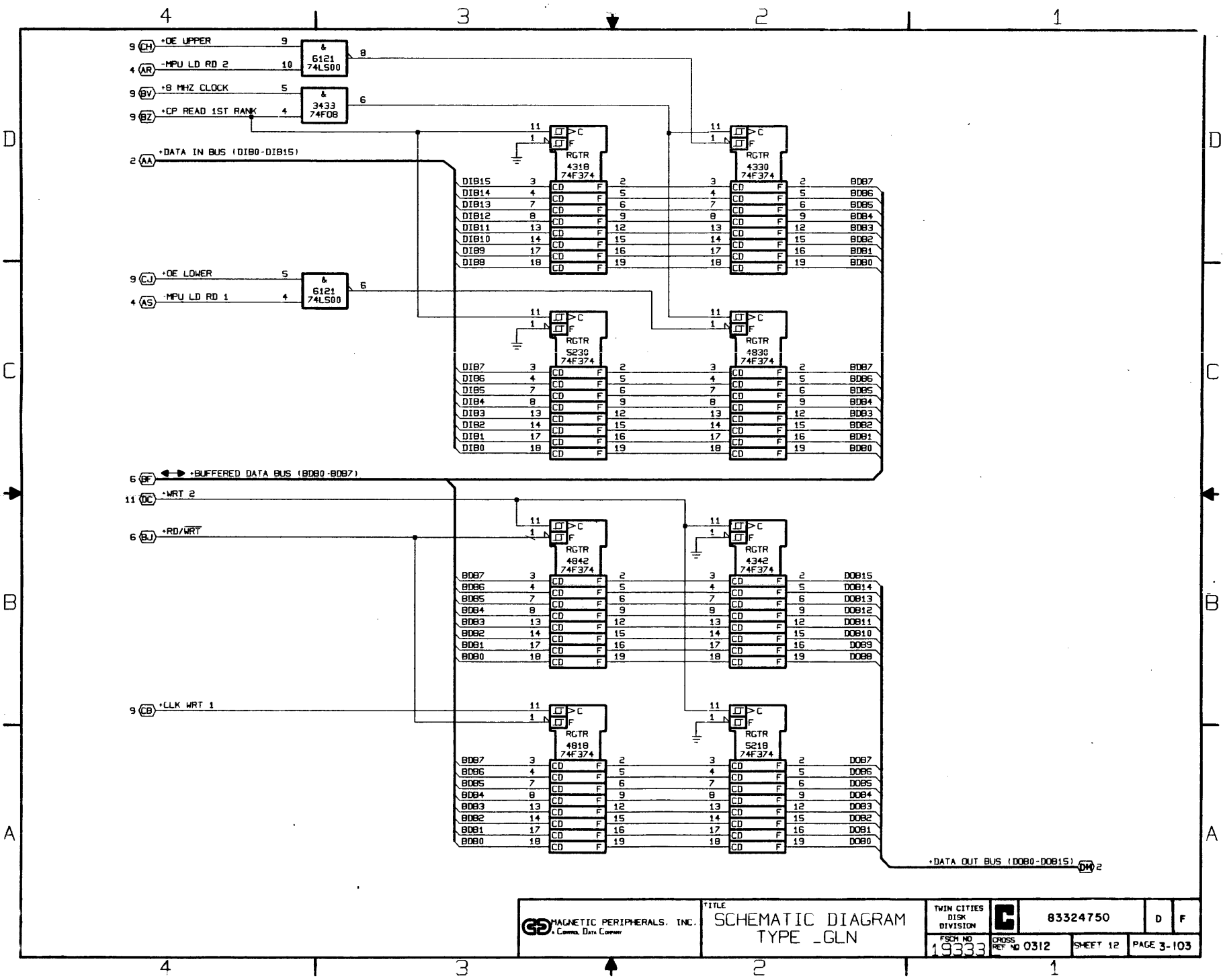


LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	A
CROSS REF NO: 0311	PAGE: 3-100



MAGNETIC PERIPHERALS, INC. A Control Data Company	TITLE SCHEMATIC DIAGRAM TYPE _GLN	TWIN CITIES DISK DIVISION	83324750	D	F
		FSCM NO 19333	CAGE'S REF NO 0311	SHEET 11	PAGE 3-101



MAGNETIC PERIPHERALS, INC. A Control Data Company

TITLE: SCHEMATIC DIAGRAM TYPE _GLN

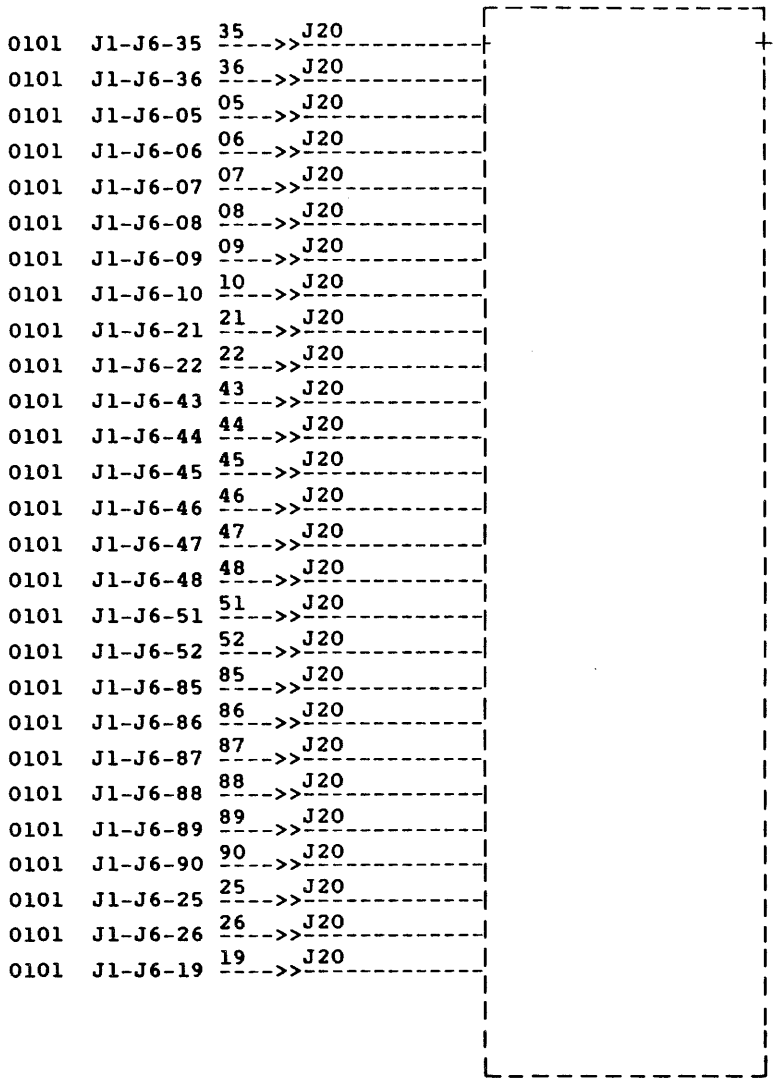
TWIN CITIES DISK DIVISION

83324750 D F

FSCM NO 19333 CROSS REF NO 0312 SHEET 12 PAGE 3-103

SIGNAL INPUTS

SIGNAL OUTPUTS



LOGIC CROSS REFERENCE INFORMATION

UNUSED LOGIC ELEMENT

TYPE	LOCATION	OUTPUT PIN(S)
74LS04	B254	4
75127	A410	15
74368	A910	3,5,7,9
74LS123	D710	5,12
74F04	C522	4,10,12
74F08	D921	8
74F00	E421	8,11
7438	F421	6,11
7409	F821	3,6,11
74LS02	A331	4
74LS00	G233	3
74LS04	C455	12
		3
74LS08	A354	11,3,6

UNUSED RESISTOR PACKS

LOCATION	PIN(S)
A310	8
B909	4
E810	8
F310	6,7,8
H033	3,5

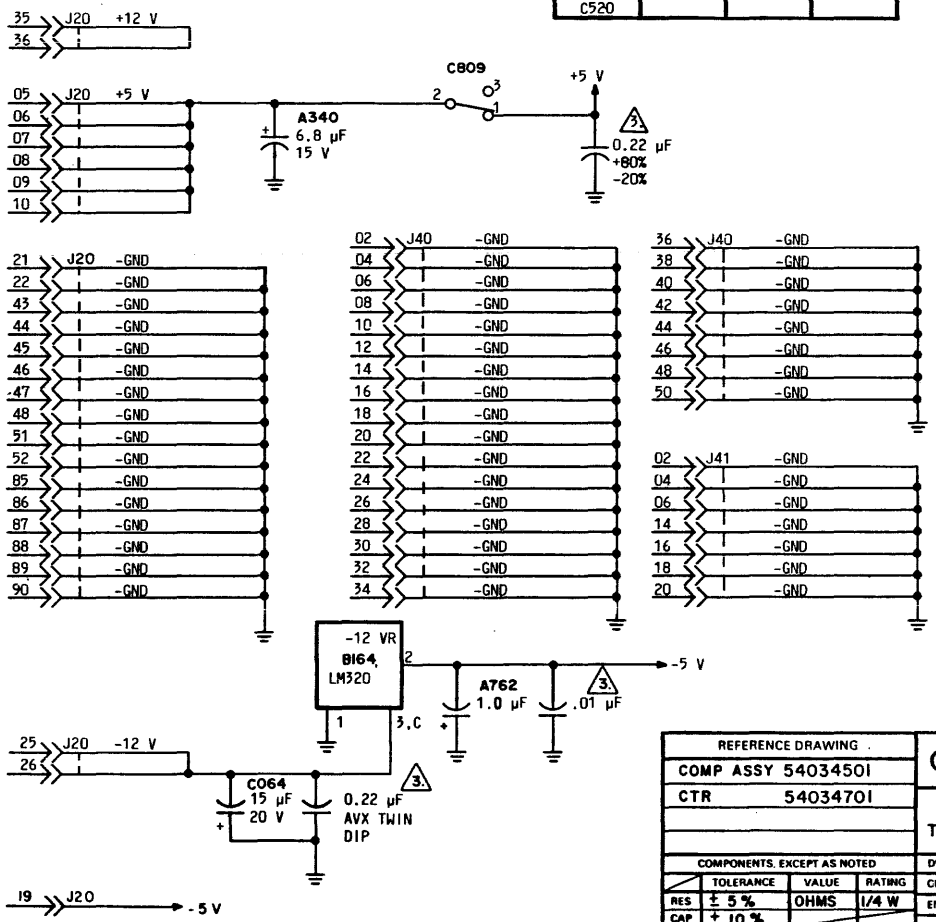
FILTER CAPS

.22 µF +5 V			.01 µF -5 V
A409	A919	E839	B308
A909	A419	D939	B320
C511	A329	D339	B908
D011	A729	C643	B920
D709	C130	C143	
E409	C530	B243	
E909	D030	A743	
F509	D430	A752	
G009	D928	C153	
G609	E428	C853	
H109	F428	D353	
H119	F832	D753	
G719	G232	E253	
G219	G632	E753	
F419	H232	F353	
E919	H143	F753	
E419	G643	G253	
D919	G243	G653	
D519	F743	H153	
D020	F343	C062	
C520			

PART NO. RANGE	
01 THRU 01	

REVISION RECORD

REV	ECO	DESCRIPTION	DRFT	DATE	CHKD	APP
A		RELEASED		8-26-83		CSM
B	DJ07037	CHANGE IC	KKB	2-14-84	D&D	
C	DJ07051	CORRECT PINS	C B D	3-21-84		
D	DJ07058	ADDRESS DECODE PROBLEM	C B D	3-21-84		
E	DJ07092	CHG RES VALUE	JL	10-17-84		



NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   ALL 14 PIN IC'S HAVE PIN 7 CONNECTED TO GROUND AND PIN 14 CONNECTED TO +5 V.
   ALL 15 PIN IC'S HAVE PIN 8 CONNECTED TO GROUND AND PIN 16 CONNECTED TO +5 V.
   ALL 20 PIN IC'S HAVE PIN 10 CONNECTED TO GROUND AND PIN 20 CONNECTED TO +5 V.
   ALL 24 PIN IC'S HAVE PIN 12 CONNECTED TO GROUND AND PIN 24 CONNECTED TO +5 V.
   ALL RESISTOR PACK RESISTORS, 1/8 W, ±3%.
2. DELAY TIME FOR REFERENCE ONLY.
3. SEE TABLE FOR FILTER CAP LOCATIONS.
4. DWG'S WHERE TAB NUMBERS CREATE NEW COVER SHEET. TABS 00-99 ARE RESERVED.

B54034601

REFERENCE DRAWING	
COMP ASSY	54034501
CTR	54034701

COMPONENTS, EXCEPT AS NOTED	TOLERANCE	VALUE	RATING
RES	± 5 %	OHMS	1/4 W
CAP	± 10 %		

MAGNETIC PERIPHERALS, INC. a Control Data Company

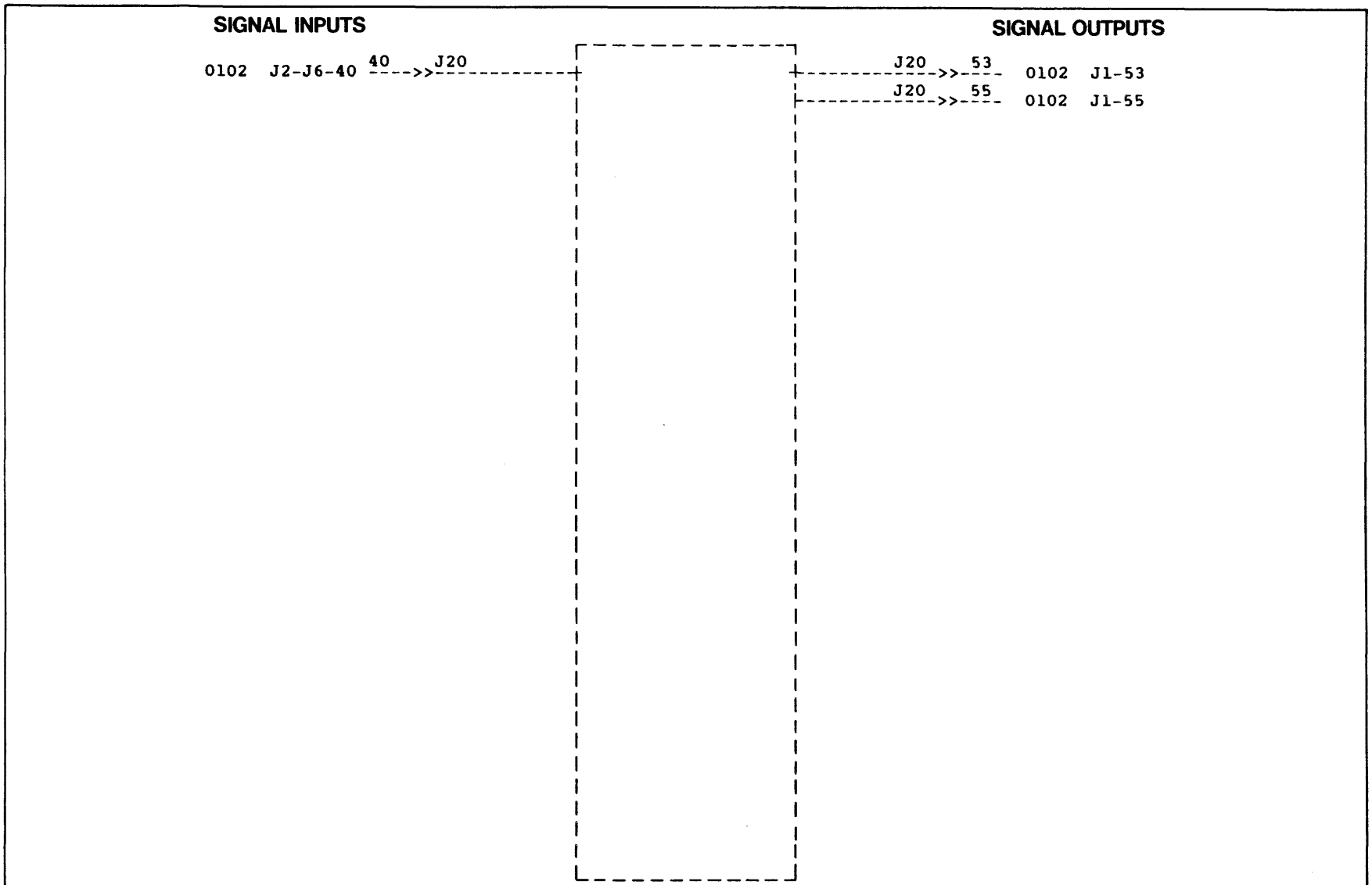
FIRST USED ON	NEXT ASSEMBLY
TB2A3-A	

DWN	E & D	6-3-83
CHKD	Semakula	7-14-83
ENGR	Karen Hagen	8-8-83
MFG	Carl Brandt	8-23-83
QA	[illegible]	8-23-83

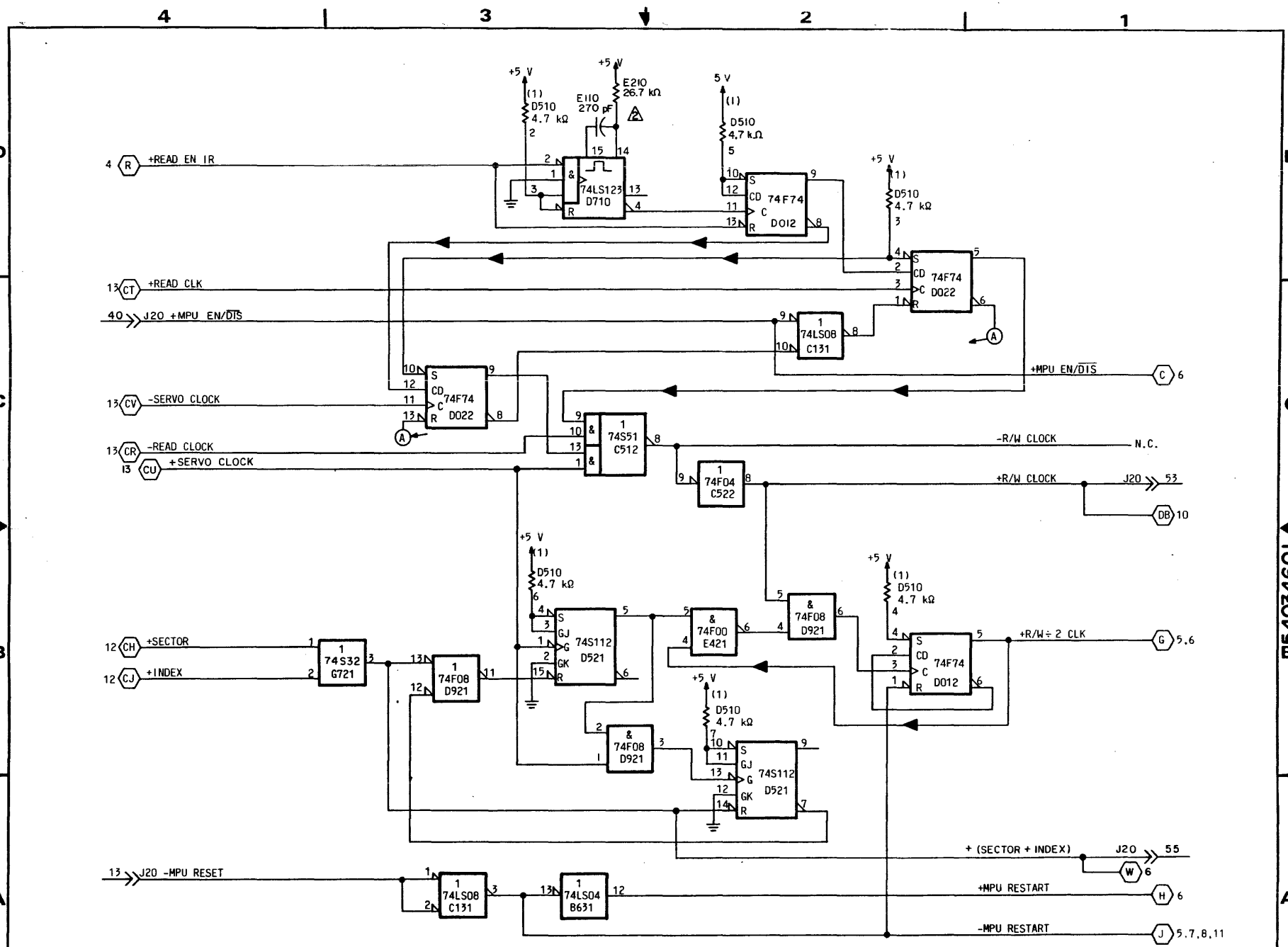
TITLE
SCHEMATIC DIAGRAM SDI BOARD TYPE BGMN

TWIN CITIES DISK DIVISION	C	83324750	C	E
FSCM NO. 19333	XREF NO 0401	SHEET 1 OF 14	PAGE NO 3-105	

1 REF: 54034601



LOGIC CROSS REFERENCE INFORMATION

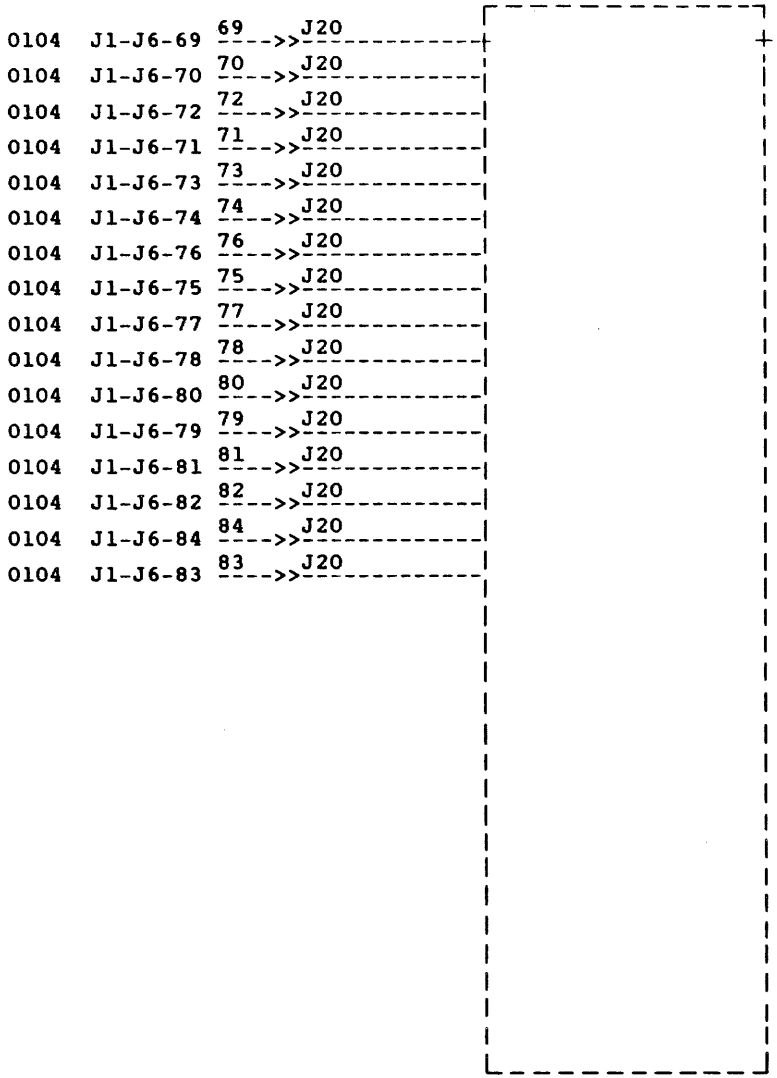


MAGNETIC PERIPHERALS INC.	SDI BOARD TYPE: _GMN	TWIN CITIES DISK DIVISION	C 83324750	C E
		CODE IDENT 19333	KREF NO 0402 SHEET 2	PAGE NO 3-107

B54034601

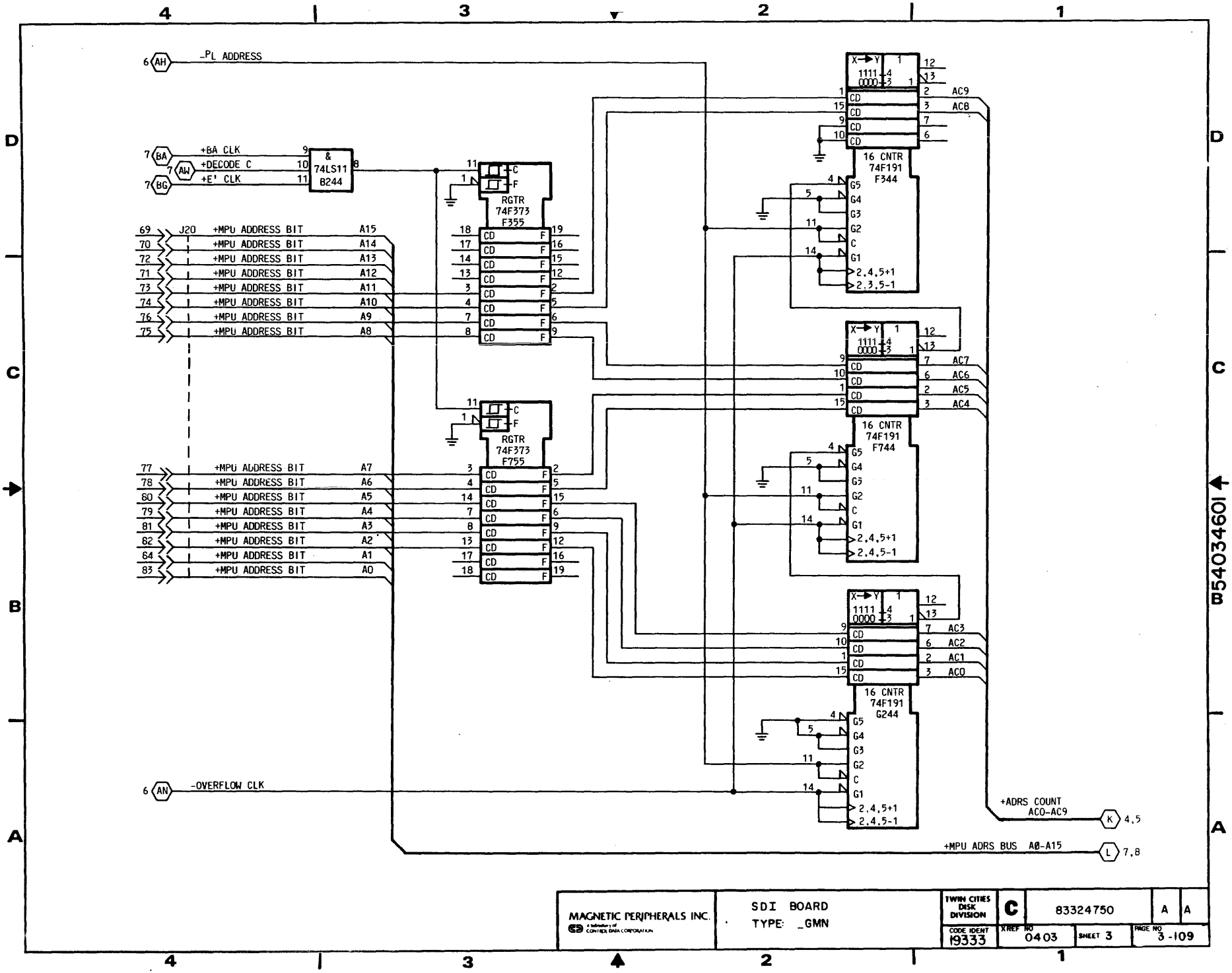
SIGNAL INPUTS

SIGNAL OUTPUTS

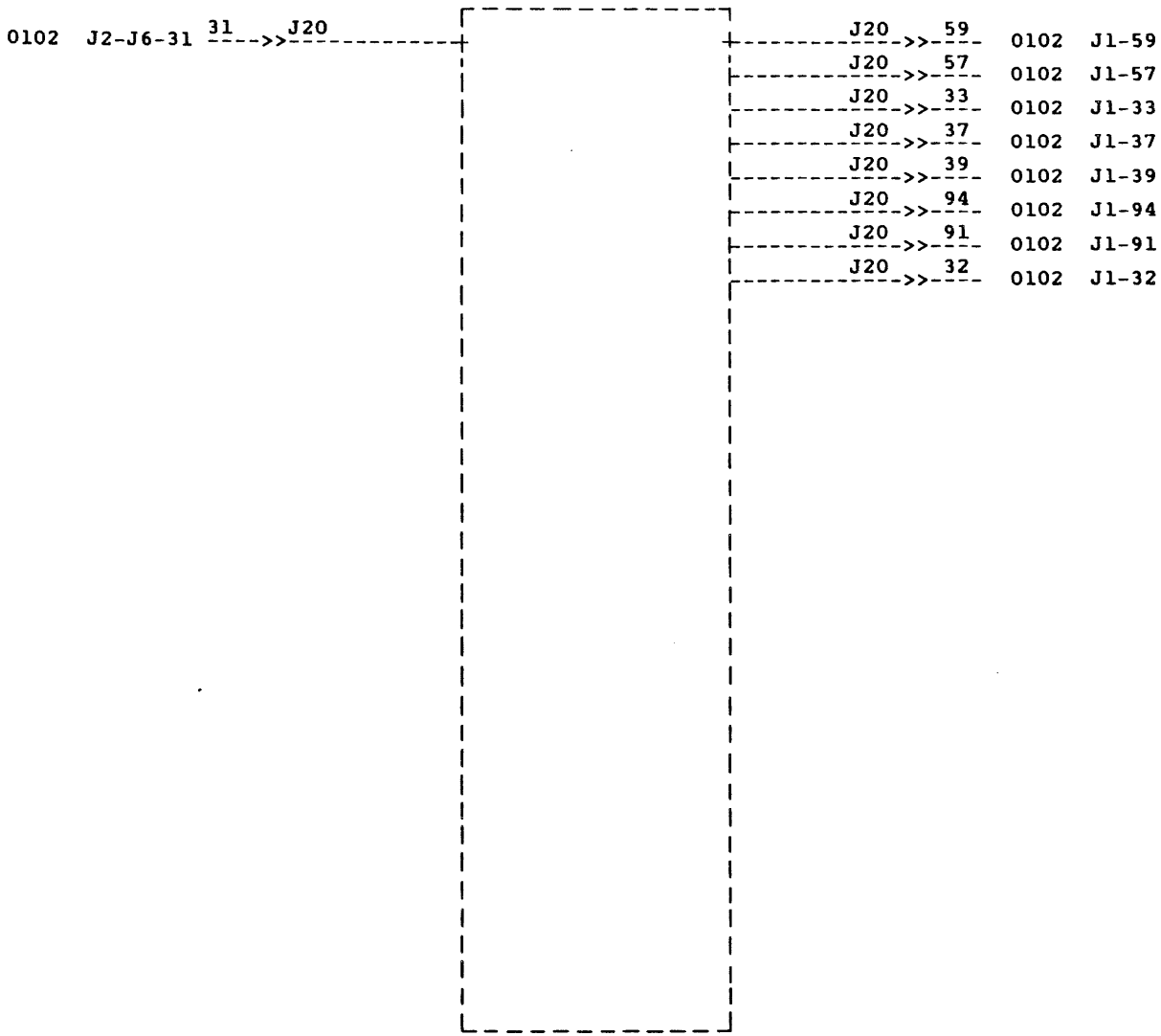


LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	A
CROSS REF NO: 0403	PAGE: 3-108

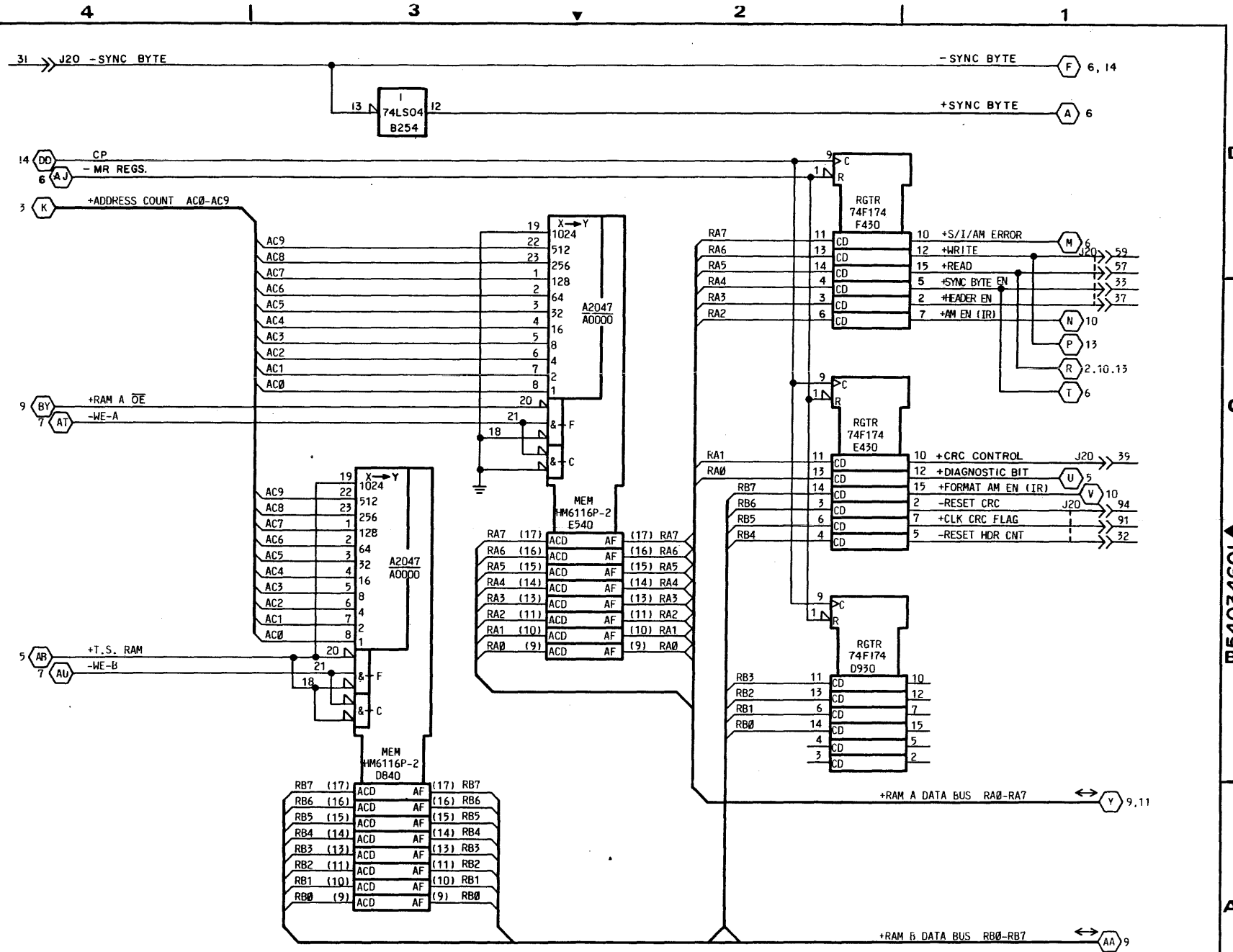


MAGNETIC PERIPHERALS INC.	SDI BOARD TYPE: _GMN	TWIN CITIES DISK DIVISION	C	83324750	A A
		CODE IDENT 19333	XREF NO 0403	SHEET 3	PAGE NO 3-109



LOGIC CROSS REFERENCE INFORMATION

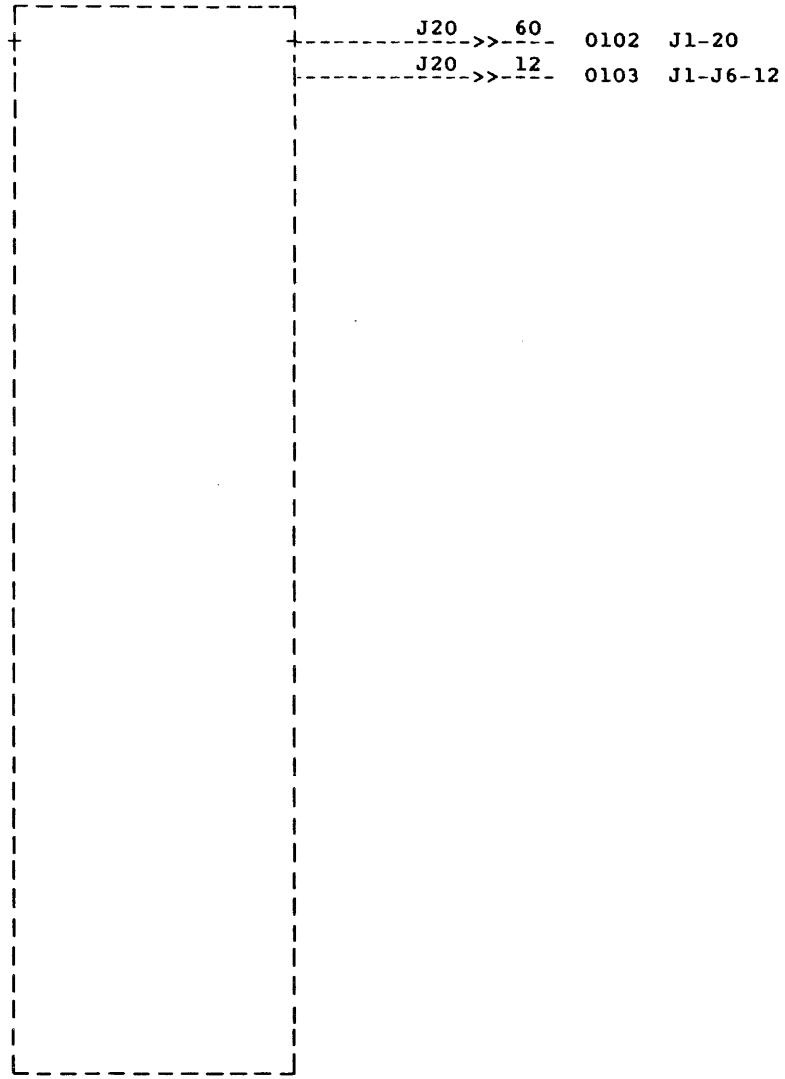
PUB	REV
83324750	A
CROSS REF NO: 0404	PAGE: 3-110


31 J20 -SYNC BYTE
-SYNC BYTE
F 6, 14
74LS04 B254
+SYNC BYTE
A 6
CP
- MR REGS.
+ADDRESS COUNT AC0-AC9
+RAM A OE
-WE-A
+T.S. RAM
-WE-B
A2047 A0000
MEM HM6116P-2 E540
MEM HM6116P-2 D840
RGTR 74F174 F430
RGTR 74F174 E430
RGTR 74F174 D930
+S/I/AM ERROR
+WRITE
+READ
+SYNC BYTE EN
+HEADER EN
+AM EN (IR)
+CRC CONTROL
+DIAGNOSTIC BIT
+FORMAT AM EN (IR)
-RESET CRC
+CLK CRC FLAG
-RESET HDR CNT
+RAM A DATA BUS RA0-RA7
+RAM B DATA BUS RB0-RB7
MAGNETIC PERIPHERALS INC.
SDI BOARD
TYPE: _GMN
TWIN CITIES DISK DIVISION
C
83324750
A
A
CODE IDENT 19333
XREF NO 0404
SHEET 4
PAGE NO 3-111

B54034601

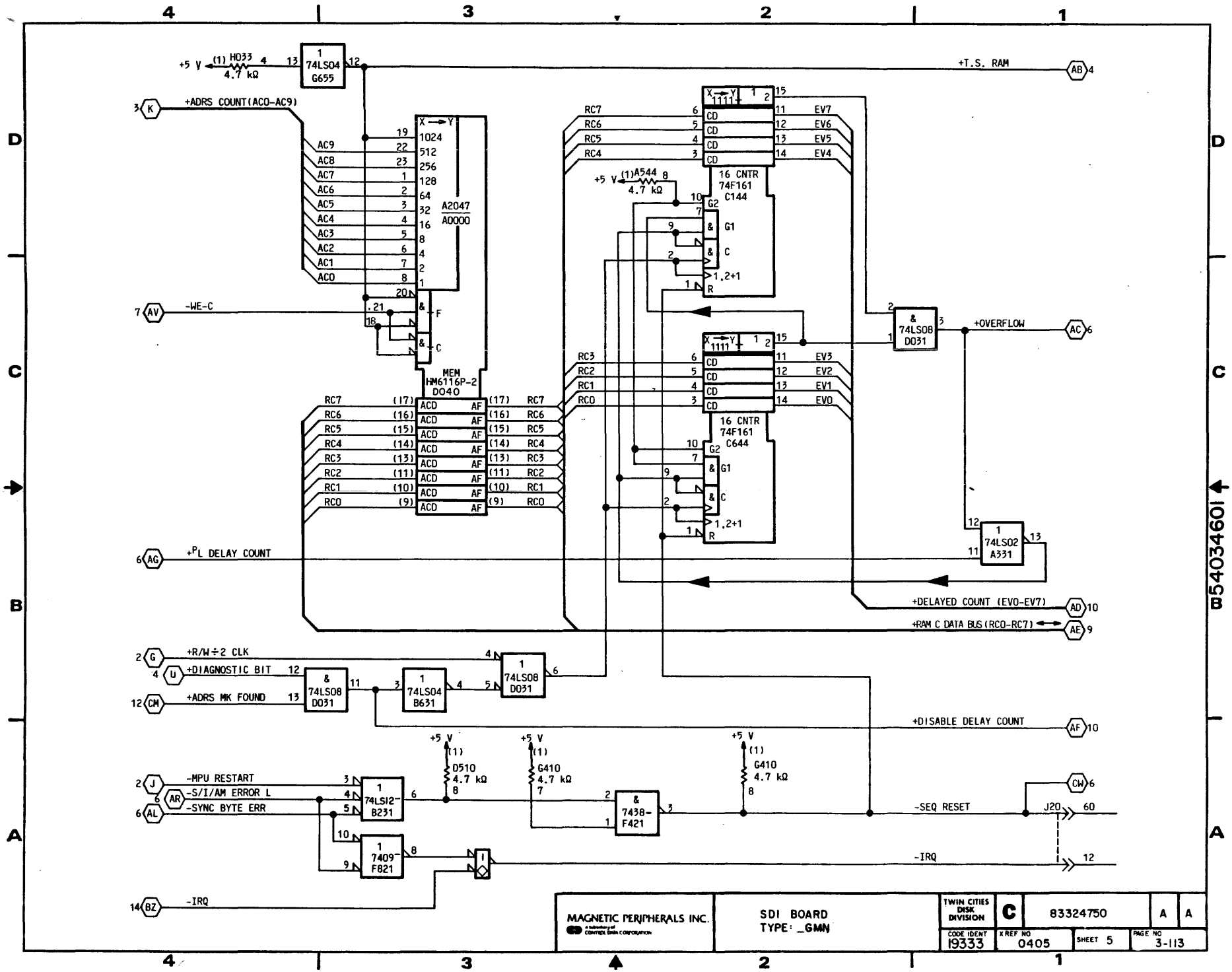
SIGNAL INPUTS

SIGNAL OUTPUTS



LOGIC CROSS REFERENCE INFORMATION

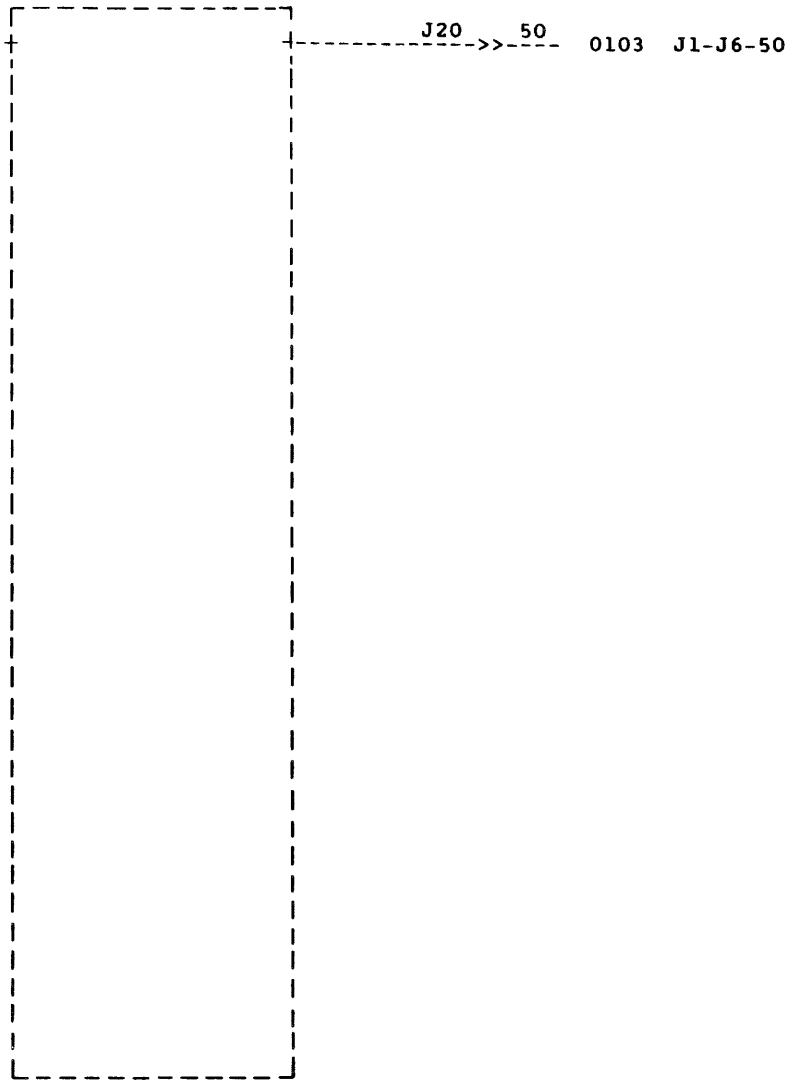
PUB	REV
83324750	A
CROSS REF NO: 0405	PAGE: 3-112


+5 V
(1) H033
4.7 kΩ
74LS04 G655
+T.S. RAM
AB 4
+ADRS COUNT(AC0-AC9)
AC9
AC8
AC7
AC6
AC5
AC4
AC3
AC2
AC1
AC0
1024
512
256
128
64
32
16
8
4
2
1
A2047 A0000
-WE-C
MEM HM6116P-2 D040
RC7
RC6
RC5
RC4
RC3
RC2
RC1
RC0
16 CNTR 74F161 C144
16 CNTR 74F161 C644
(1)A544
4.7 kΩ
74LS08 D031
+OVERFLOW
AC 6
EV7
EV6
EV5
EV4
EV3
EV2
EV1
EV0
74LS02 A331
+PL DELAY COUNT
+DELAYED COUNT (EV0-EV7)
AD 10
+RAM C DATA BUS (RC0-RC7)
AE 9
+R/W÷2 CLK
+DIAGNOSTIC BIT
+ADRS MK FOUND
74LS04 B631
74LS08 D031
+DISABLE DELAY COUNT
AF 10
-MPU RESTART
-S/I/AM ERROR L
-SYNC BYTE ERR
74LS12 B231
7409 F821
7438 F421
D510 4.7 kΩ
G410 4.7 kΩ
G410 4.7 kΩ
-SEQ RESET
CW 6
J20 60
-IRQ
12
-IRQ
MAGNETIC PERIPHERALS INC.
SDI BOARD
TYPE: _GMN
TWIN CITIES DISK DIVISION
C
83324750
A
A
CODE IDENT 19333
X REF NO 0405
SHEET 5
PAGE NO 3-113

B5403460I

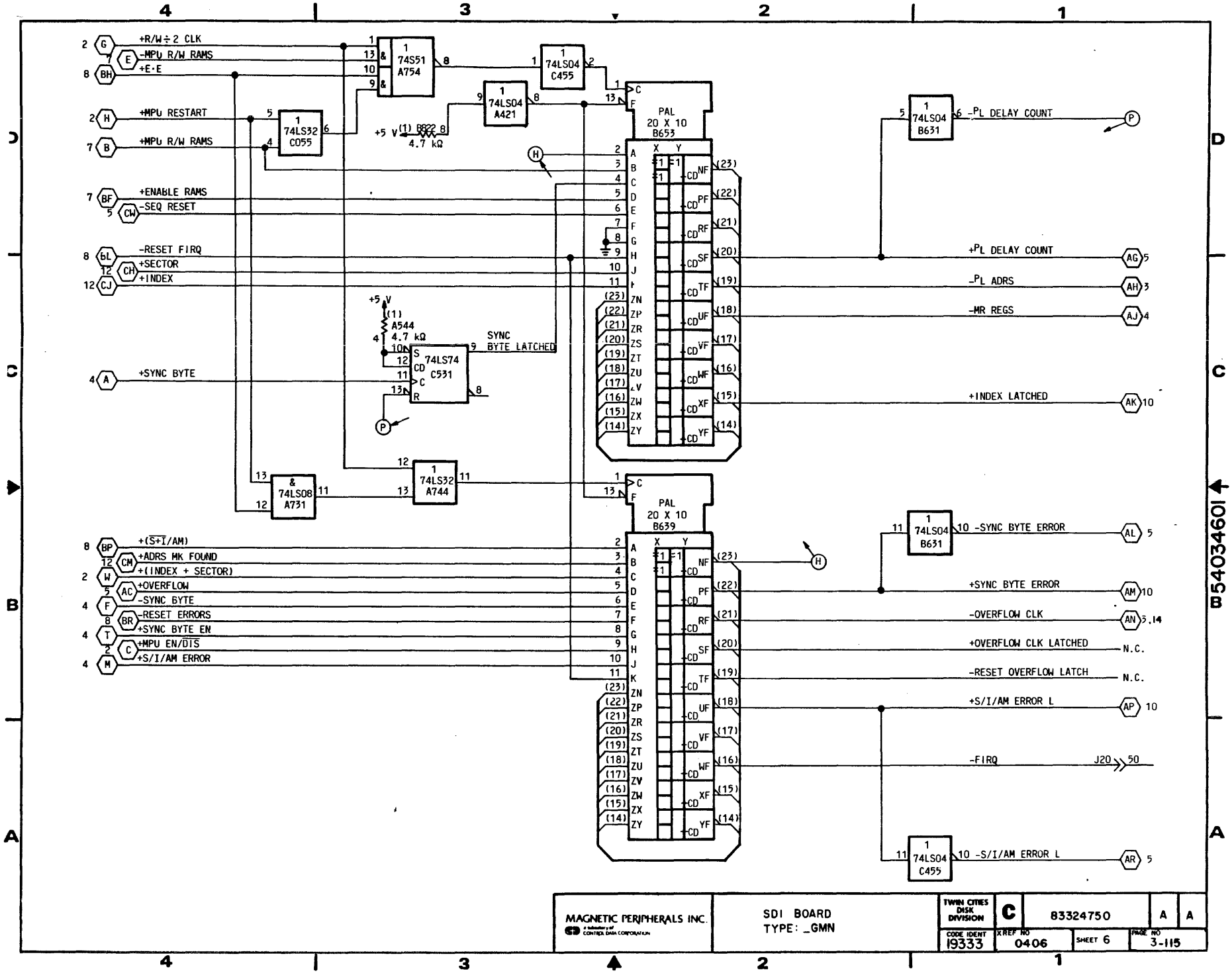
SIGNAL INPUTS

SIGNAL OUTPUTS



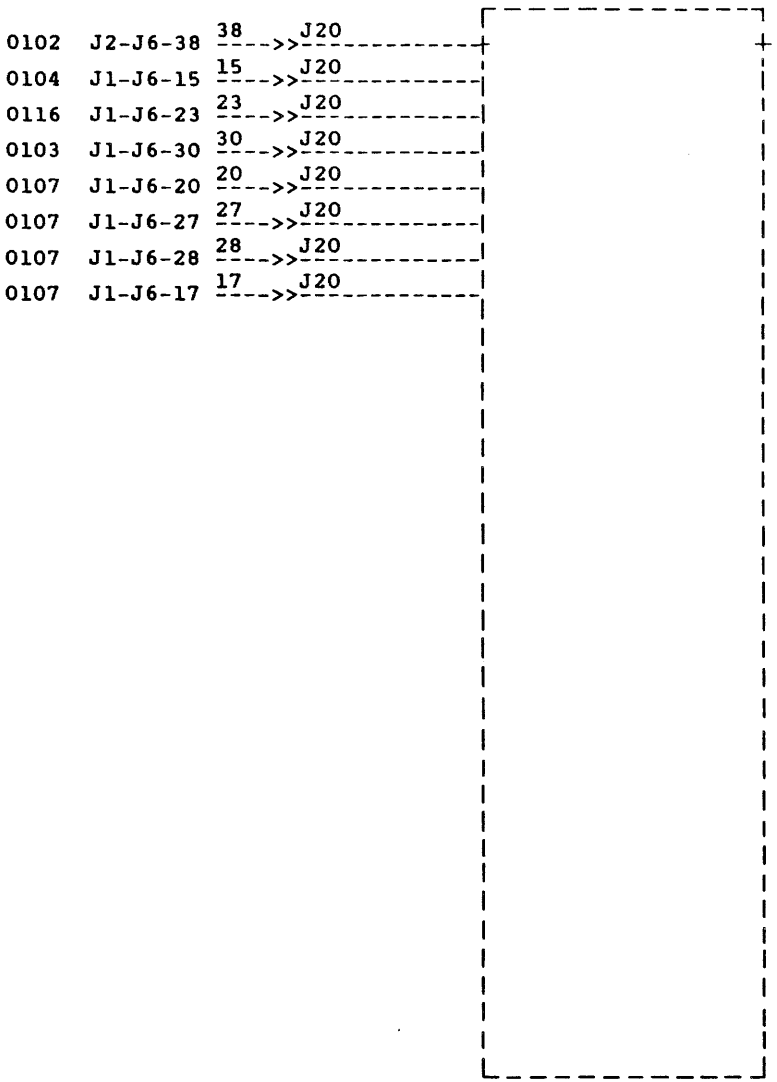
LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	A
CROSS REF NO	PAGE
0406	3-114


+R/W÷2 CLK
-MPU R/W RAMS
+E·E
+MPU RESTART
+MPU R/W RAMS
+ENABLE RAMS
-SEQ RESET
-RESET FIRQ
+SECTOR
+INDEX
+SYNC BYTE
+(S+I/AM)
+ADRS MK FOUND
+(INDEX + SECTOR)
+OVERFLOW
-SYNC BYTE
-RESET ERRORS
+SYNC BYTE EN
+MPU EN/DIS
+S/I/AM ERROR
74S51 A754
74LS04 C455
74LS04 A421
74LS32 C055
74LS74 C531
74LS08 A731
74LS32 A744
4.7 kΩ
A544
SYNC BYTE LATCHED
PAL 20 X 10 B653
PAL 20 X 10 B639
74LS04 B631
-PL DELAY COUNT
+PL DELAY COUNT
-PL ADRS
-MR REGS
+INDEX LATCHED
-SYNC BYTE ERROR
+SYNC BYTE ERROR
-OVERFLOW CLK
+OVERFLOW CLK LATCHED
-RESET OVERFLOW LATCH
+S/I/AM ERROR L
-FIRQ
-S/I/AM ERROR L
N.C.
J20
MAGNETIC PERIPHERALS INC.
SDI BOARD
TYPE: _GMN
TWIN CITIES DISK DIVISION
C
83324750
A
A
CODE IDENT 19333
XREF NO 0406
SHEET 6
PAGE NO 3-115
B 5403460 1

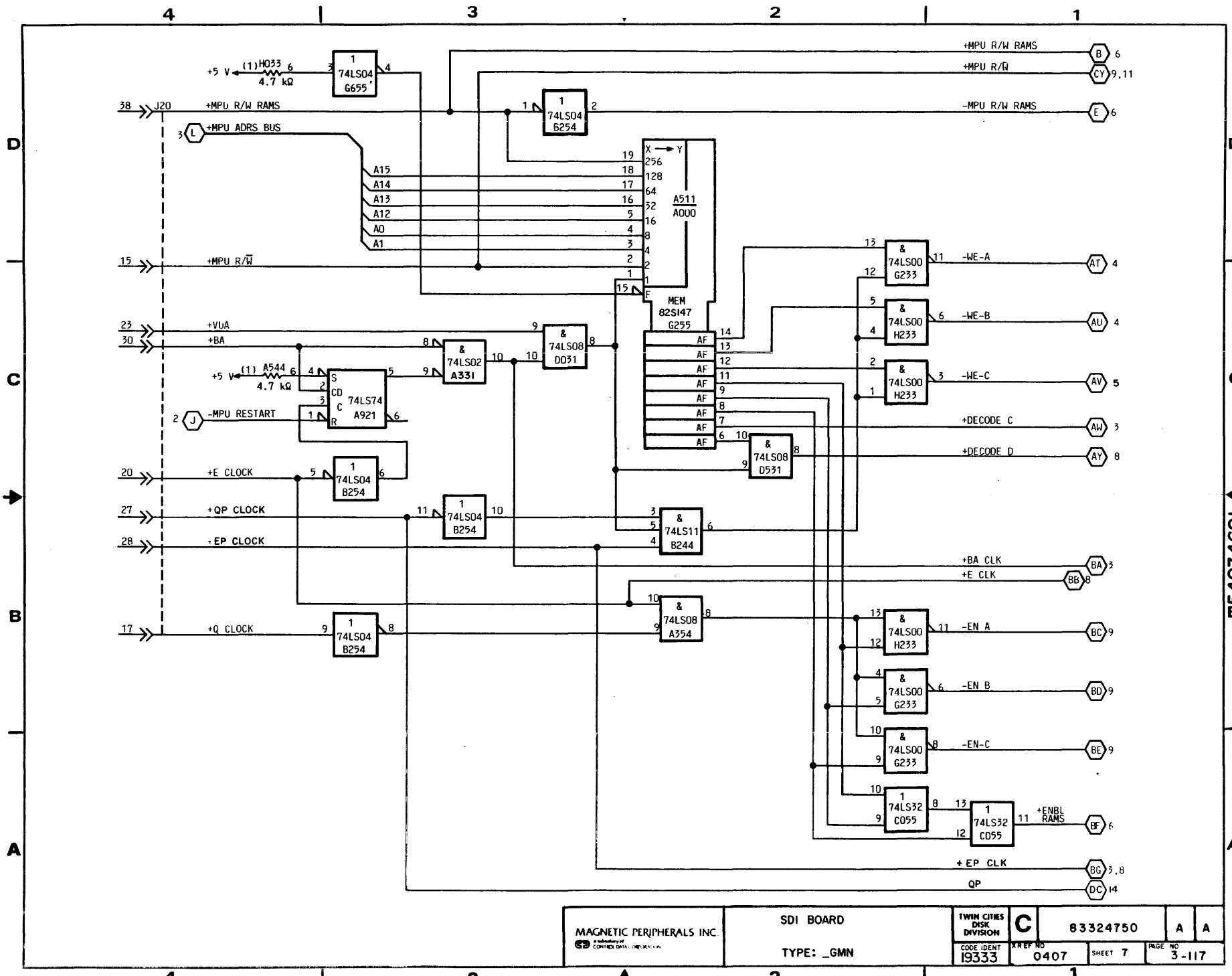
SIGNAL INPUTS

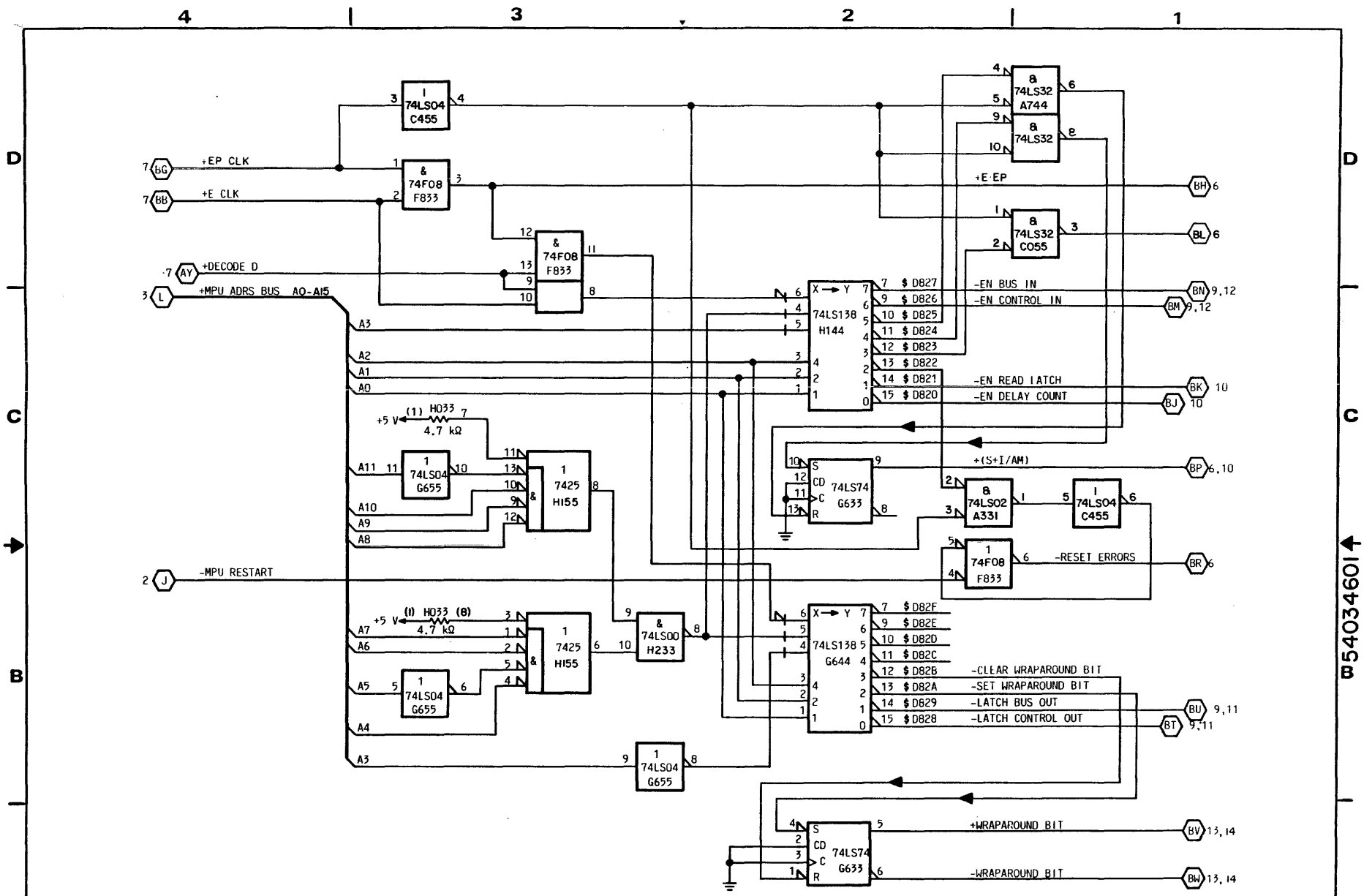
SIGNAL OUTPUTS



LOGIC CROSS REFERENCE INFORMATION

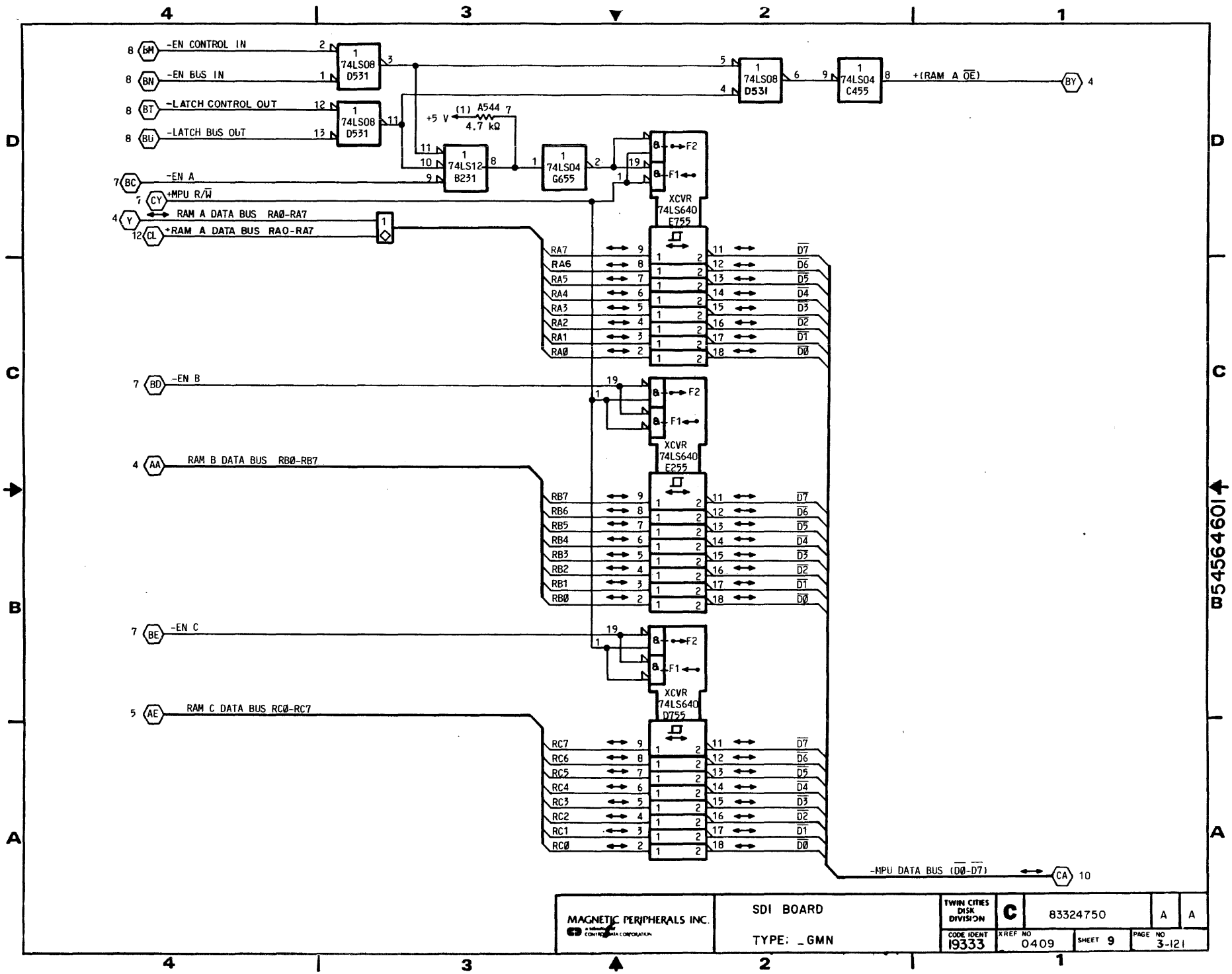
PUB	REV
83324750	A
CROSS REF NO: 0407	PAGE: 3-116


+MPU R/W RAMS
+MPU R/W
-MPU R/W RAMS
+MPU ADRS BUS
+MPU R/W
+VUA
+BA
-MPU RESTART
+E CLOCK
+QP CLOCK
+EP CLOCK
+Q CLOCK
MEM 82S147 G255
A511 A000
-WE-A
-WE-B
-WE-C
+DECODE C
+DECODE D
+BA CLK
+E CLK
-EN A
-EN B
-EN-C
+ENBL RAMS
+ EP CLK
QP
MAGNETIC PERIPHERALS INC
SDI BOARD
TYPE: _GMN
TWIN CITIES DISK DIVISION
83324750
CODE IDENT 19333
XREF NO 0407
SHEET 7
PAGE NO 3-117



MAGNETIC PERIPHERALS INC	SDI BOARD	TWIN CITIES DISK DIVISION	C	83324750 B D
	TYPE: _GMN	CODE IDENT 19333	XREF NO 0408	SHEET 8 PAGE NO 3-119

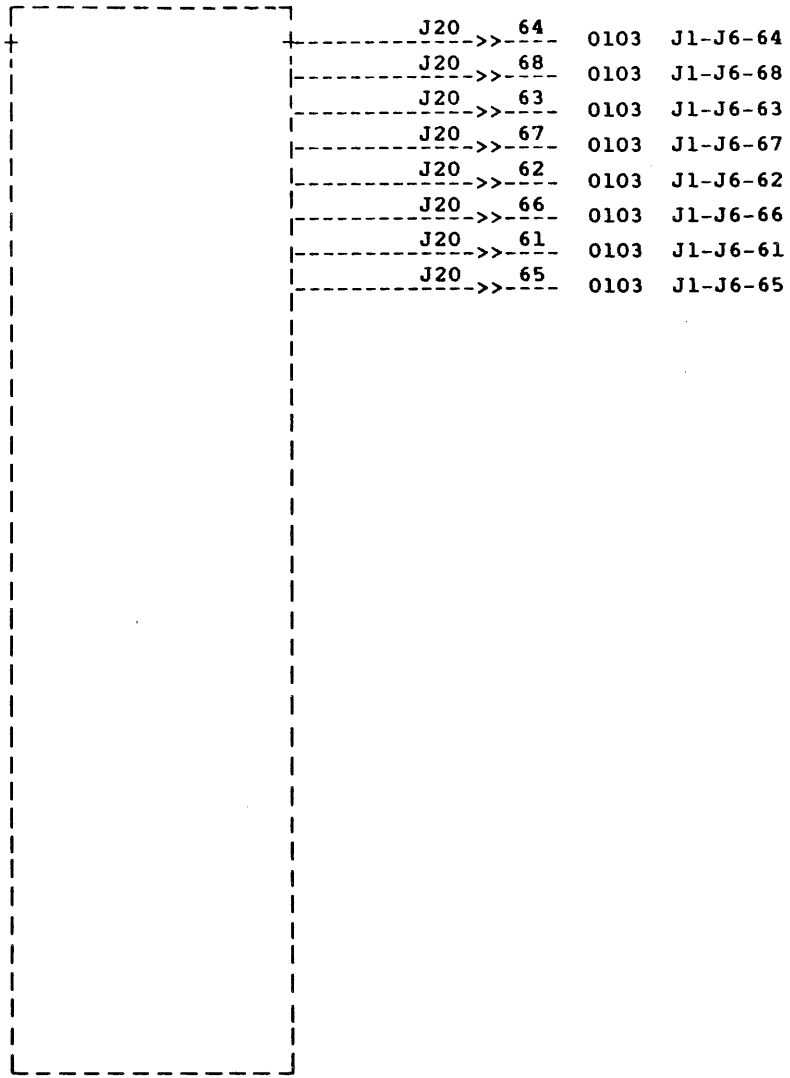
B 54034601



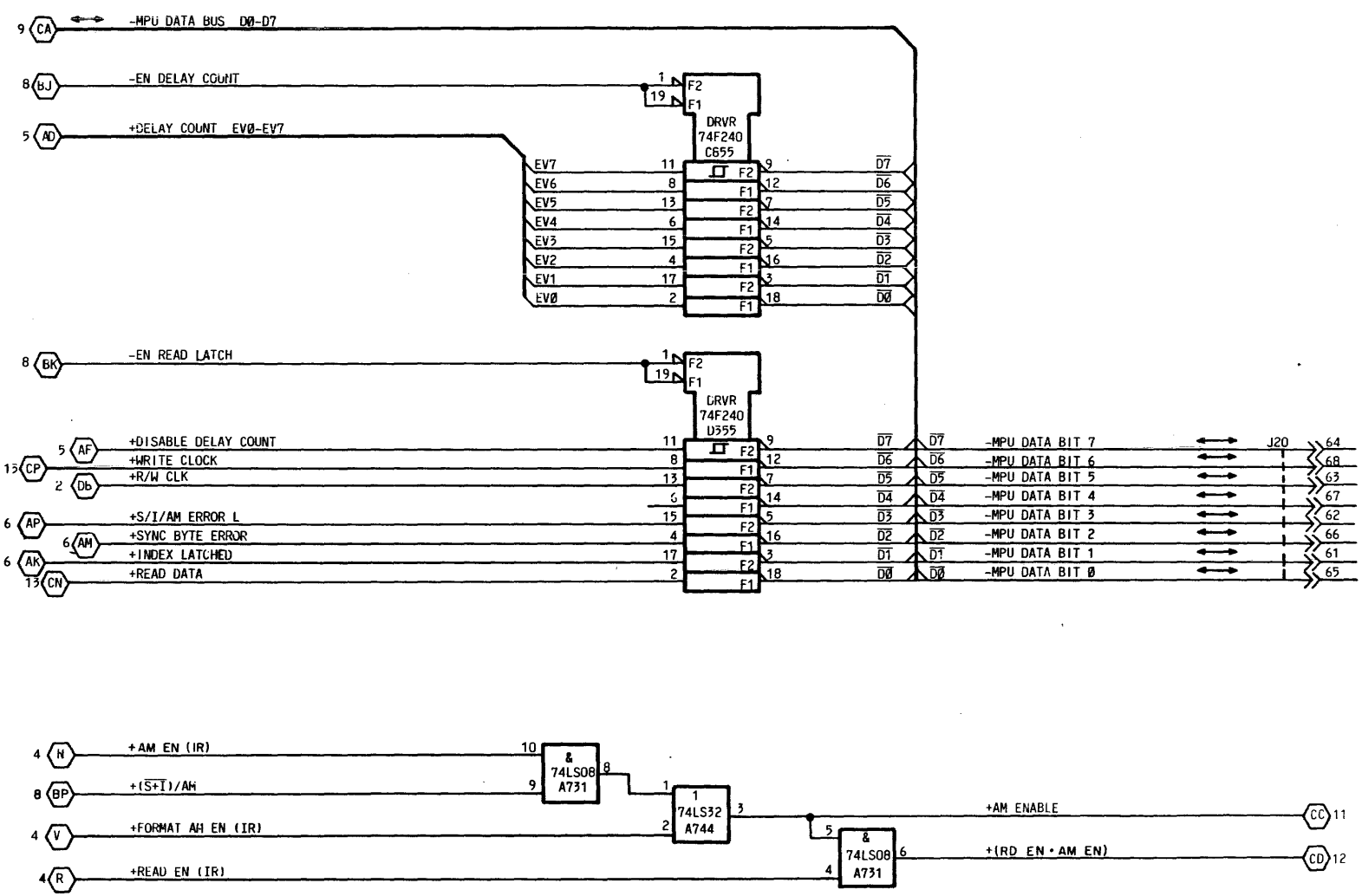
MAGNETIC PERIPHERALS INC.	SDI BOARD	TWIN CITIES DISK DIVISION	C	83324750	A A
	TYPE: _GMN	CODE IDENT 19333	XREF NO 0409	SHEET 9	PAGE NO 3-121

SIGNAL INPUTS

SIGNAL OUTPUTS



LOGIC CROSS REFERENCE INFORMATION

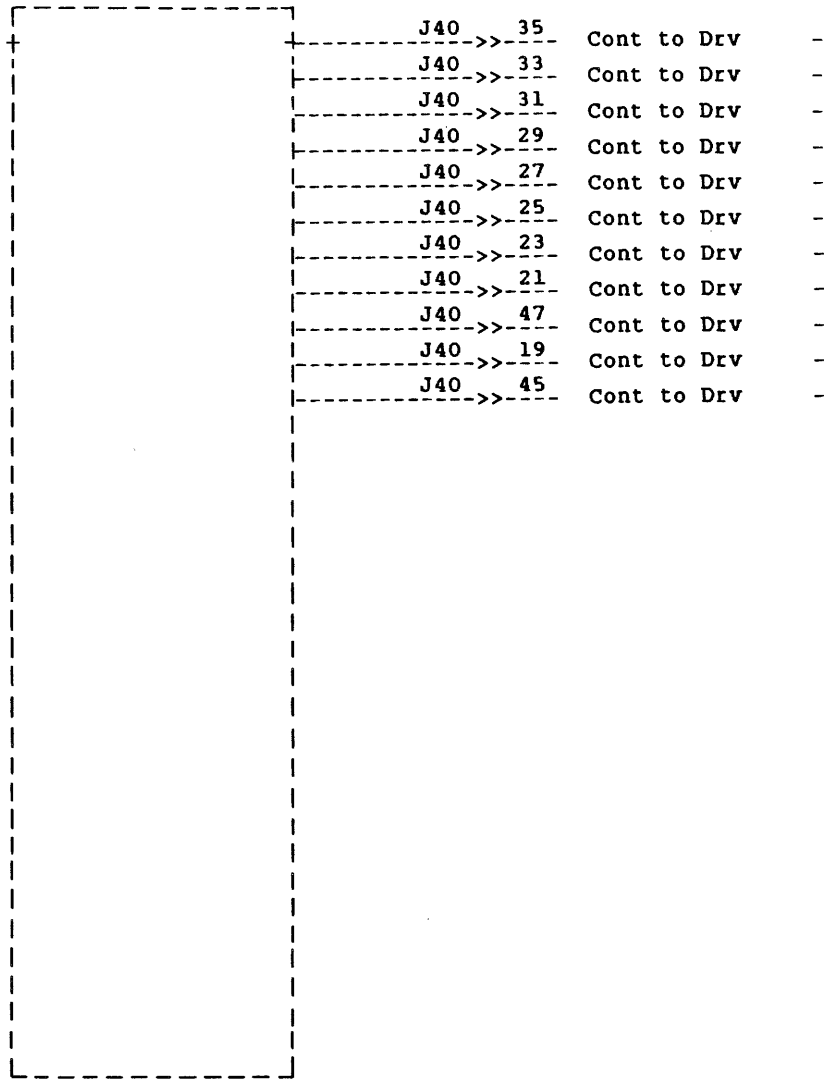


MAGNETIC PERIPHERALS INC.	SDI BOARD	NORMANDALE OPERATIONS	C	83324750	A A
	TYPE: _GMN	CODE IDENT 19333	XREF NO 0410	SHEET 10	PAGE NO 3-123

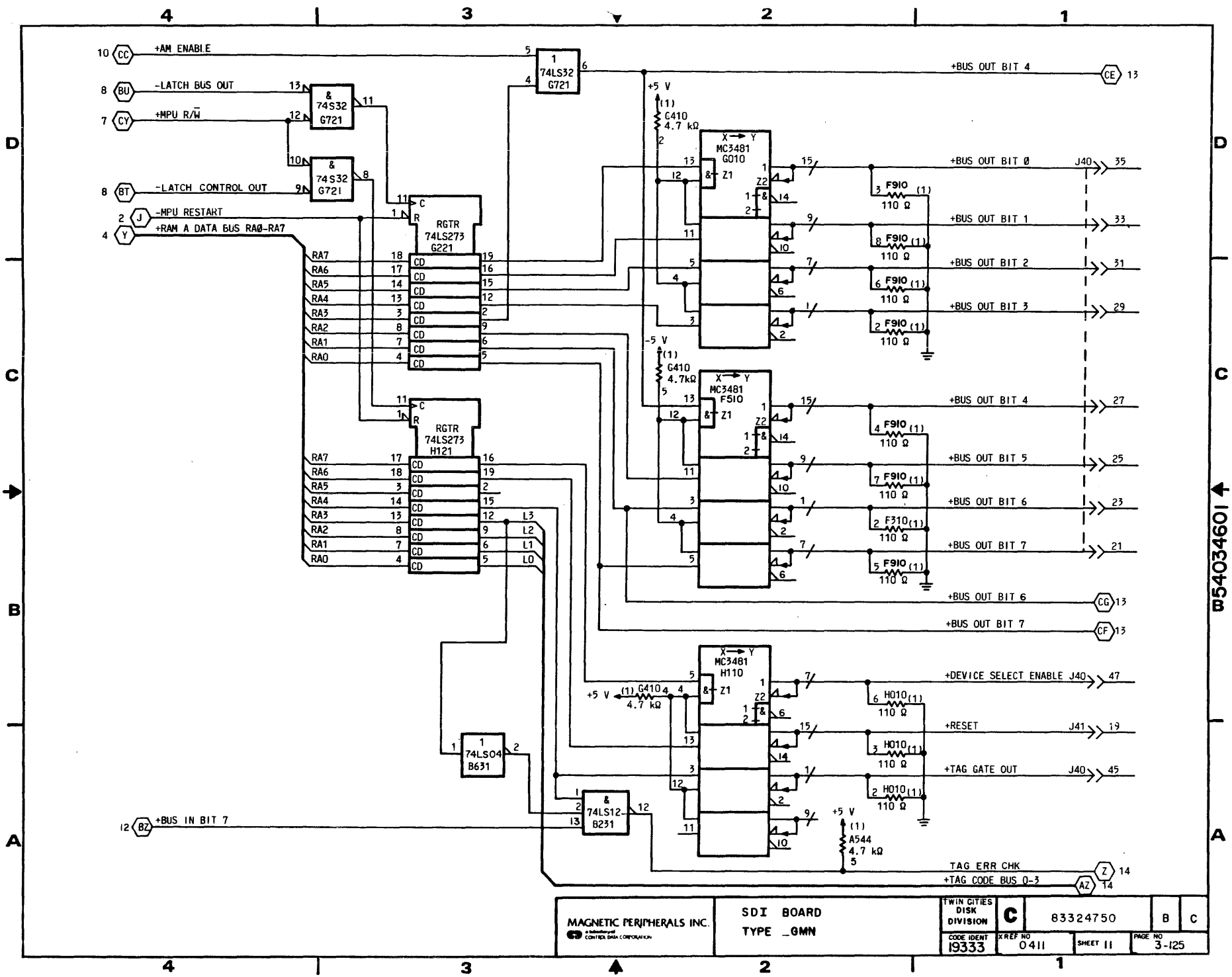
B5403601

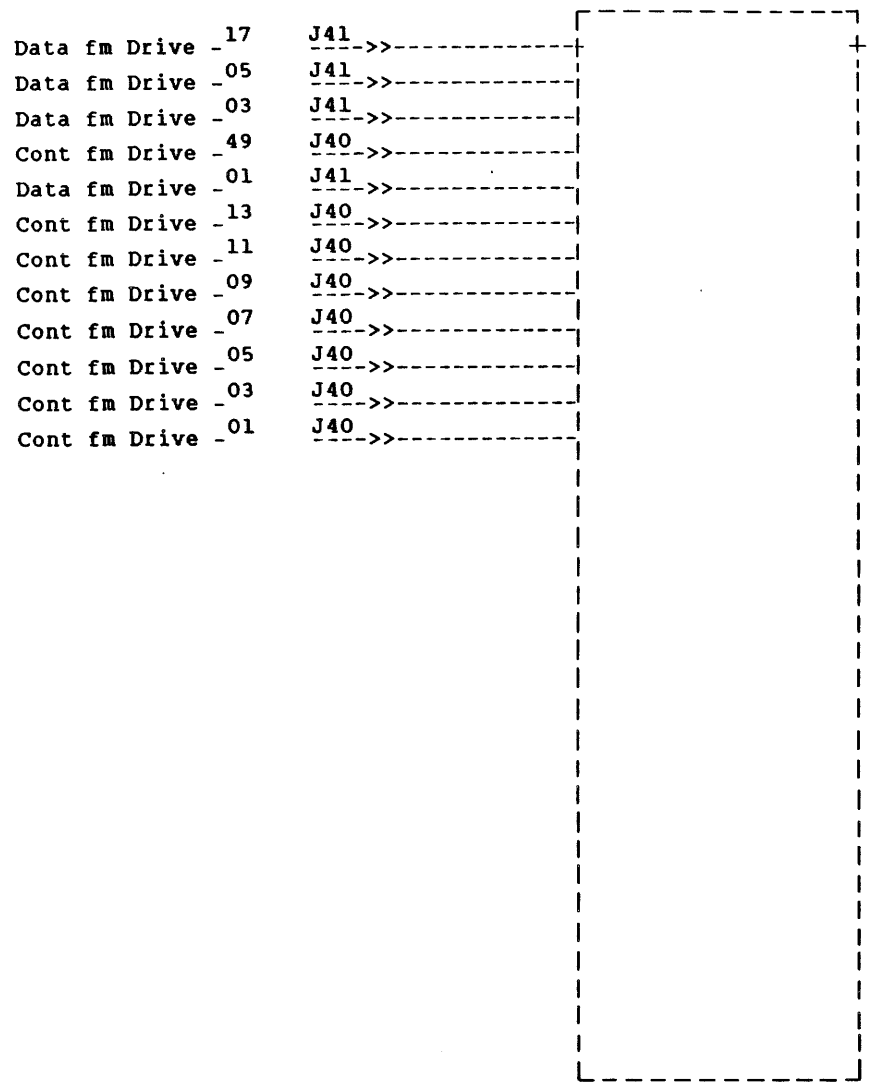
SIGNAL INPUTS

SIGNAL OUTPUTS



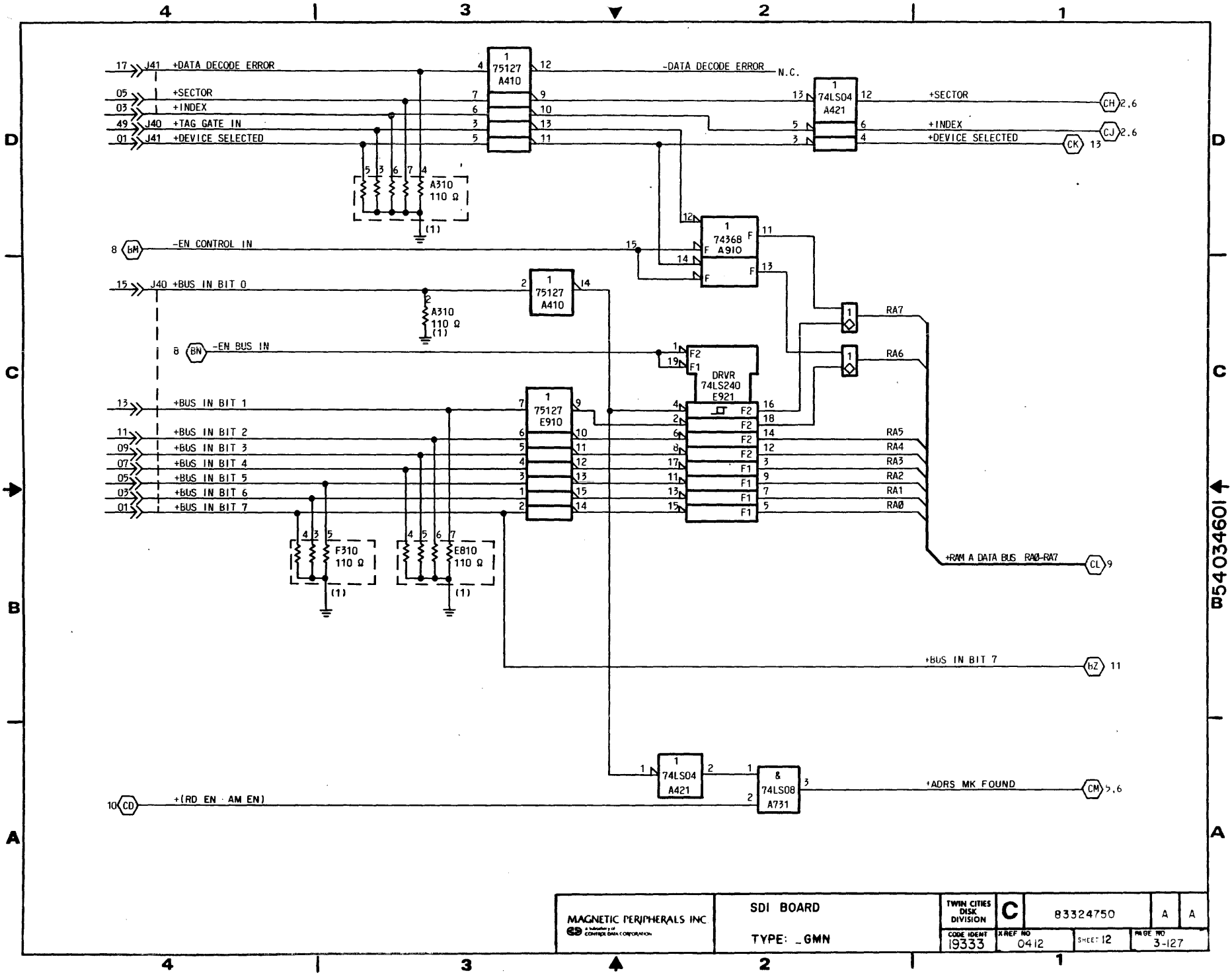
LOGIC CROSS REFERENCE INFORMATION


+AM ENABLE
-LATCH BUS OUT
+MPU R/W
-LATCH CONTROL OUT
-MPU RESTART
+RAM A DATA BUS RA0-RA7
+BUS IN BIT 7
+BUS OUT BIT 4
+BUS OUT BIT 0
+BUS OUT BIT 1
+BUS OUT BIT 2
+BUS OUT BIT 3
+BUS OUT BIT 5
+BUS OUT BIT 6
+BUS OUT BIT 7
+DEVICE SELECT ENABLE J40
+RESET
+TAG GATE OUT
TAG ERR CHK
+TAG CODE BUS 0-3
RGTR 74LS273 G221
RGTR 74LS273 H121
MC3481 G010
MC3481 F510
MC3481 H110
74S32 G721
74LS32 G721
74LS04 B631
74LS12 B231
G410 4.7 kΩ
A544 4.7 kΩ
F910 110 Ω
F310 110 Ω
H010 110 Ω
+5 V
-5 V
MAGNETIC PERIPHERALS INC.
SDI BOARD
TYPE _GMN
TWIN CITIES DISK DIVISION
83324750
CODE IDENT 19333
SHEET 11
PAGE NO 3-125

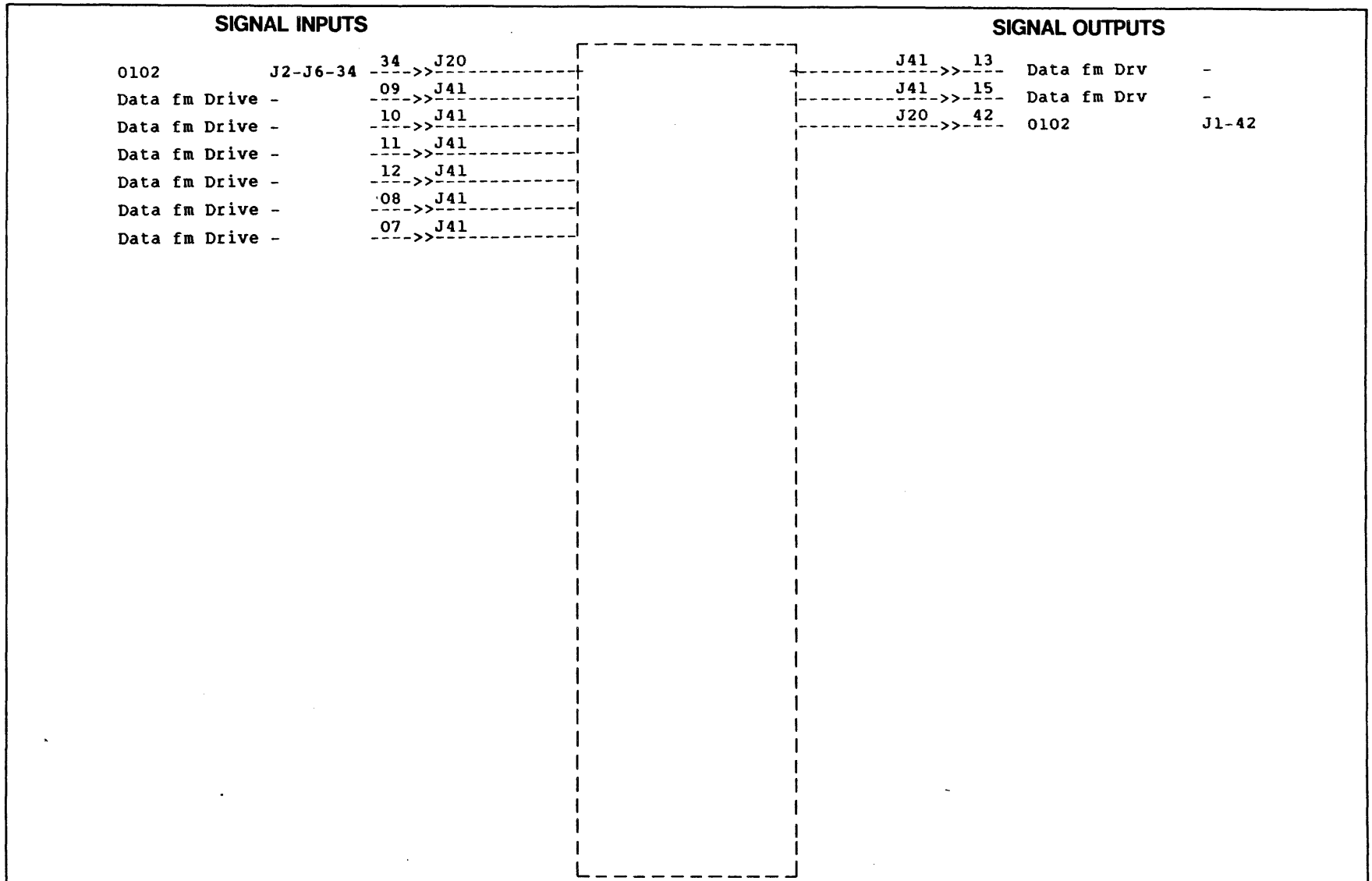


LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	A
CROSS REF NO 0412	PAGE 3-126

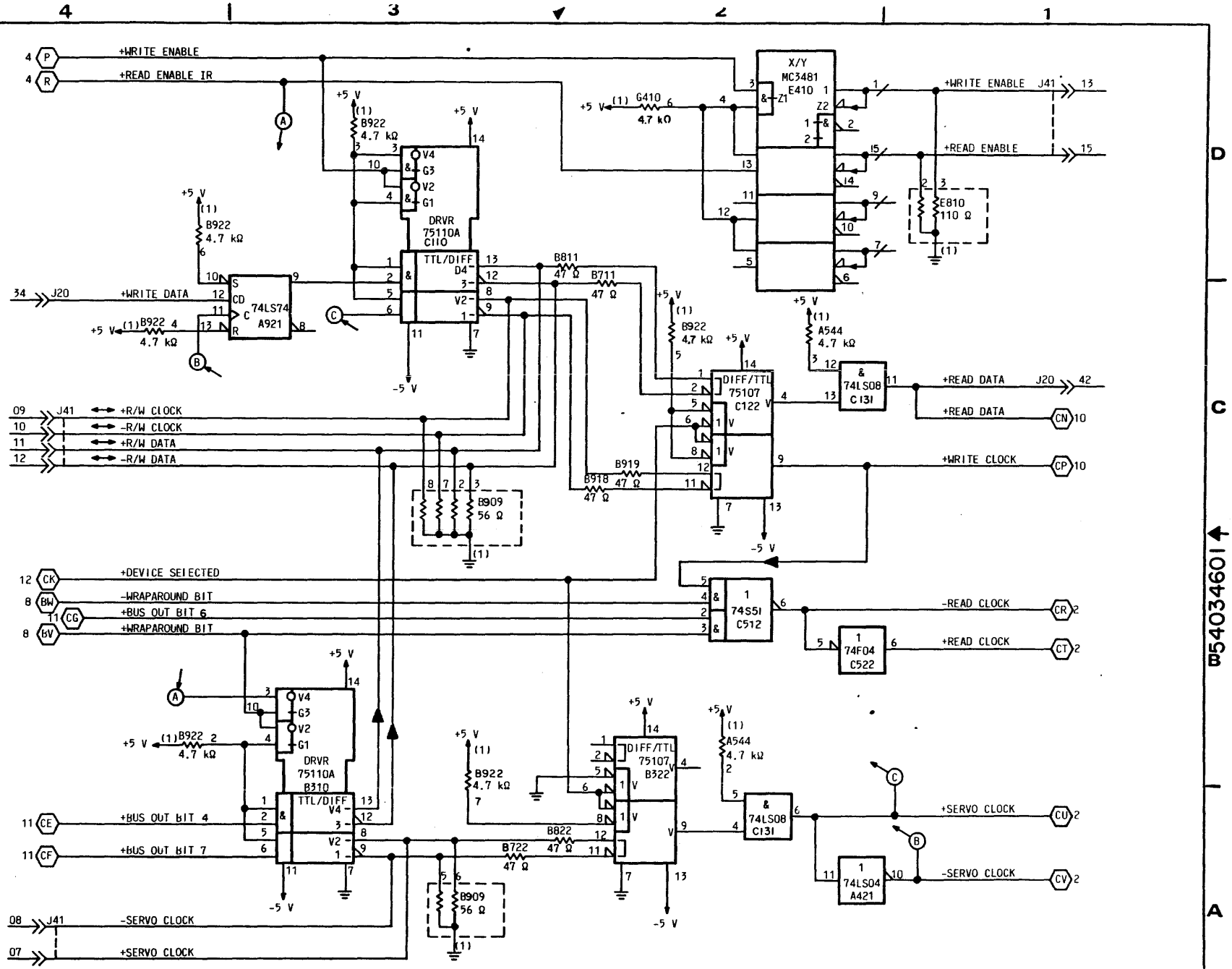


MAGNETIC PERIPHERALS INC. a subsidiary of CONTROL DATA CORPORATION	SDI BOARD TYPE: _GMN	TWIN CITIES DISK DIVISION	C	83324750	A A
		CODE IDENT 19333	X REF NO 0412	SHEET 12	PAGE NO 3-127



LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	A
CROSS REF NO: 0413	PAGE: 3-128

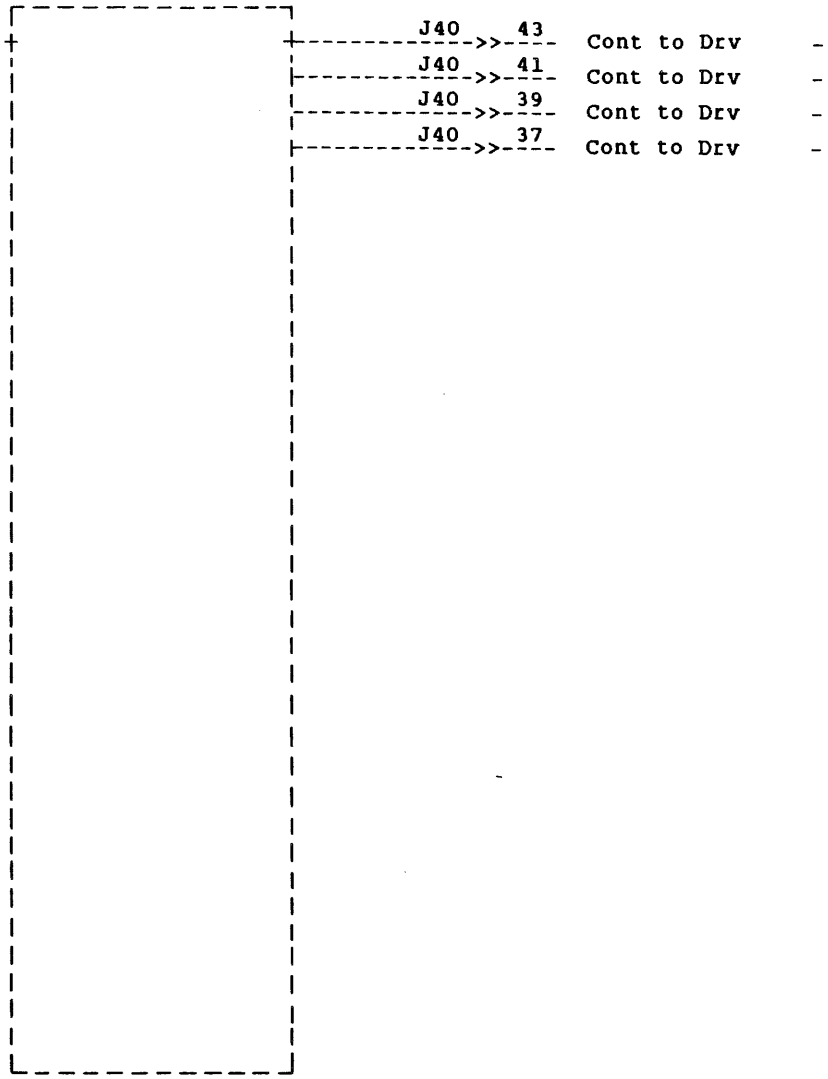


MAGNETIC PERIPHERALS INC.	SDI BOARD	TWIN CITIES DISK DIVISION	C	83324750 A A
	TYPE : _GMN	CODE IDENT 19333	XREF NO 0413	SHEET 13 PAGE NO 3-129

B54034601

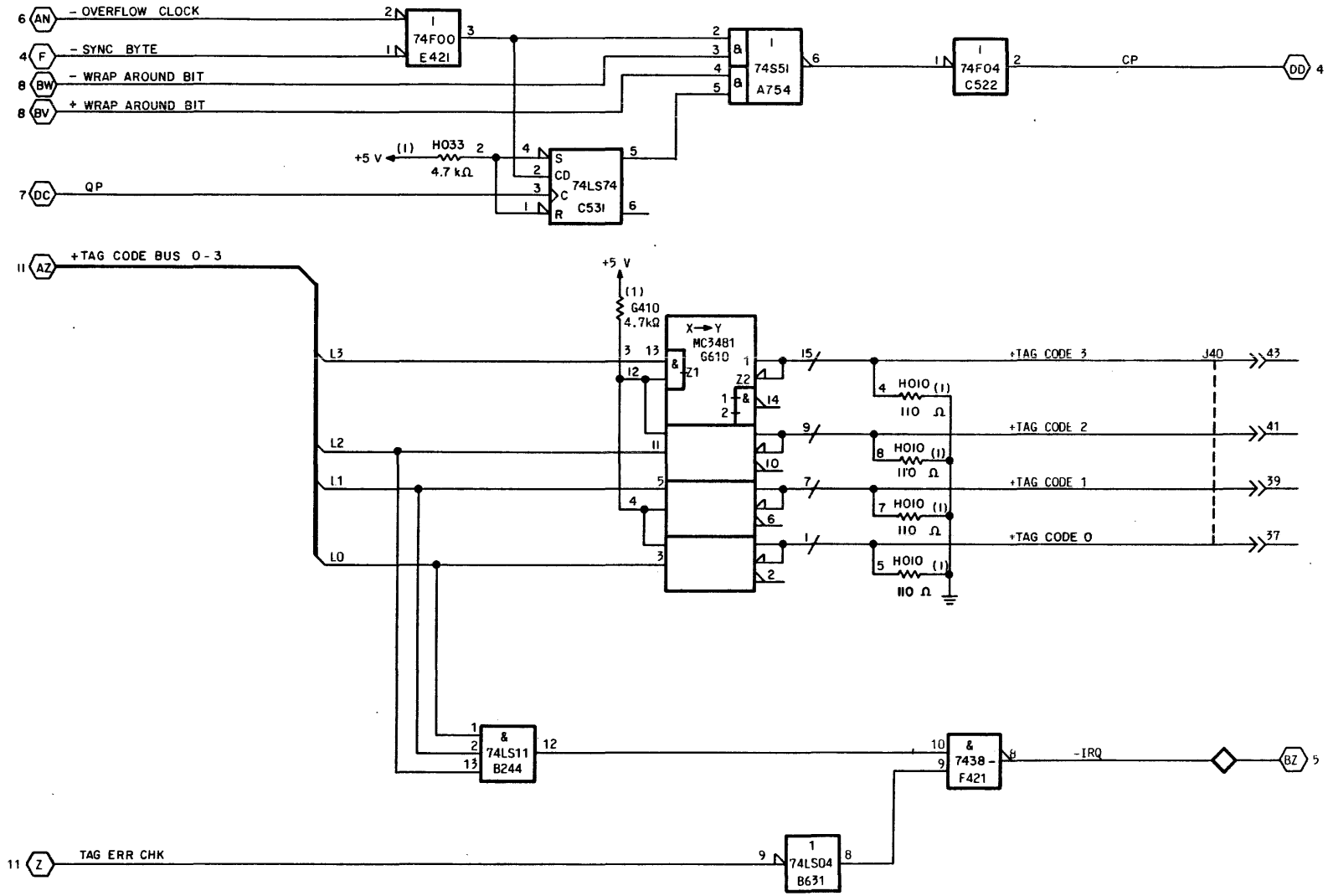
SIGNAL INPUTS

SIGNAL OUTPUTS



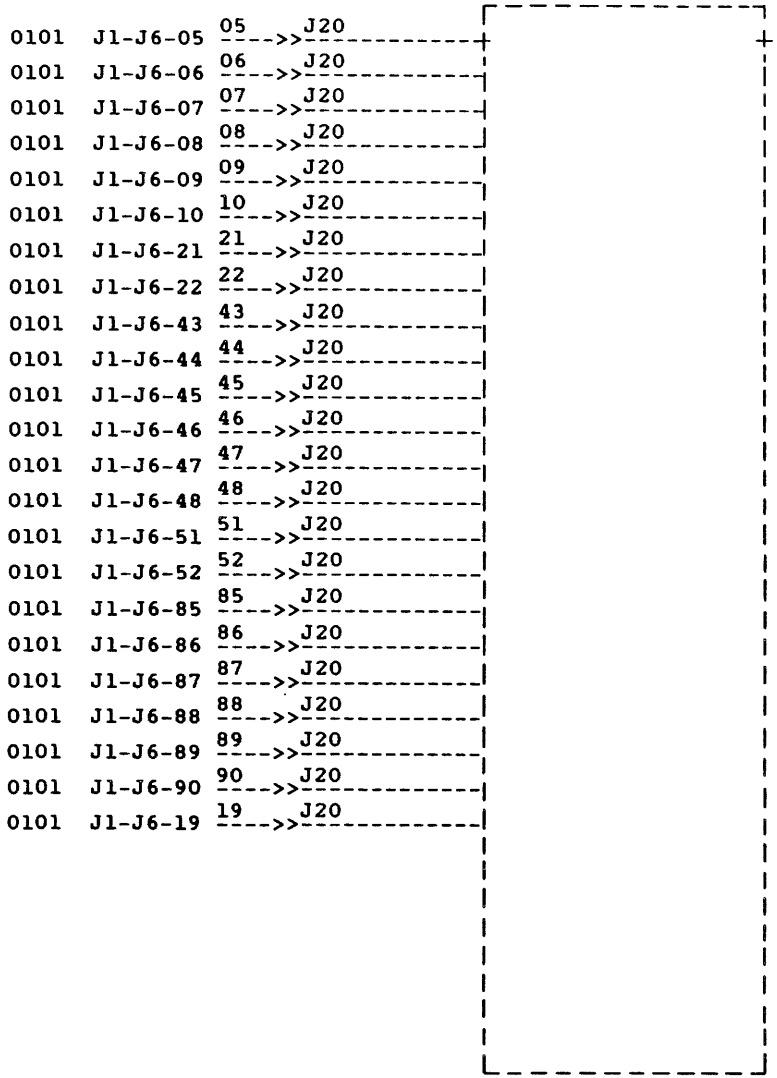
LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	A
CROSS REF NO 0414	PAGE 3-130


- OVERFLOW CLOCK
- SYNC BYTE
- WRAP AROUND BIT
+ WRAP AROUND BIT
74F00 E421
74S51 A754
74F04 C522
CP
+5 V
H033 4.7 kΩ
QP
74LS74 C531
+TAG CODE BUS 0-3
G410 4.7kΩ
MC3481 G610
+TAG CODE 3
+TAG CODE 2
+TAG CODE 1
+TAG CODE 0
H010 110 Ω
74LS11 B244
7438 F421
-IRQ
TAG ERR CHK
74LS04 B631
MAGNETIC PERIPHERALS INC
SDI BOARD
TYPE: _GMN
TWIN CITIES DISK DIVISION
83324750
CODE IDENT 19333
XREF NO 0414
SHEET 14
PAGE NO 3-131

SIGNAL INPUTS

SIGNAL OUTPUTS



LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	C
CROSS REF NO: 0501	PAGE: 3-132

UNUSED LOGIC ELEMENTS

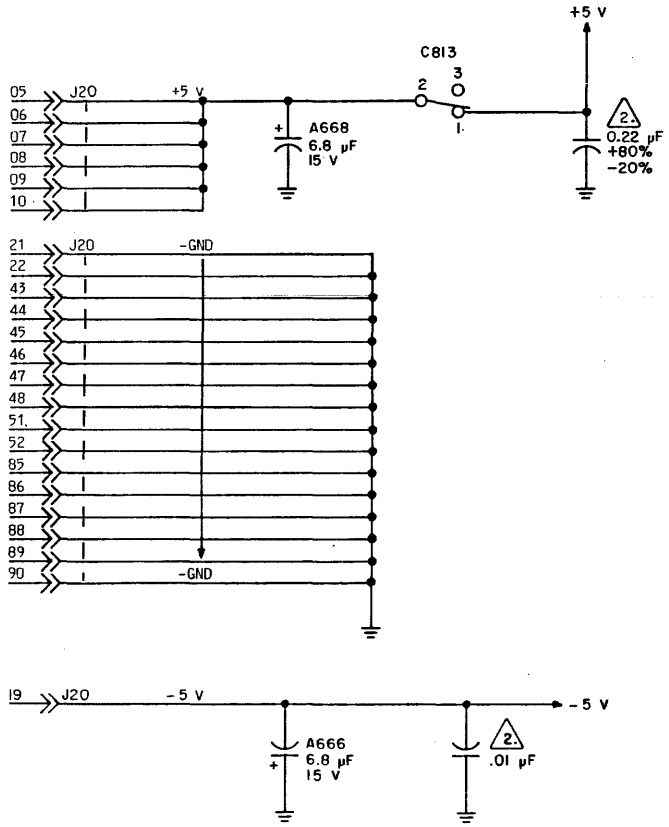
TYPE	LOCATION	OUTPUT PIN(S)
7409	B241	3, 6, 8
7438	G722	6, 11
74F00	H241	8, 11
74F04	D530	2, 4, 6, 10, 12
74F08	H252	8
74LS02	H230	10, 13
74LS04	E419	12
74LS08	D019	3
74LS08	F841	6, 8
74LS00	G341	11
74LS11	F830	12
74F74	A210	5, 6
74LS123	A641	5, 12
MC3450	A610	13
MC3450	G310	13

UNUSED RESISTOR PACKS

LOCATION	PIN(S)
B119	8
B219	8
D410	3, 4, 5
H152	7

REVISION RECORD

REV	ECO	DESCRIPTION	DRFT	DATE	CHKD	APP
A	DJ23000	RELEASED		1-26-84		LSR
B	DJ07139	ADD PULLUP RESIST	TT	9-11-84	SR	—
C	DJ07116	SCHEMATIC ERRORS	TT	9-11-84	SR	—
D	DJ07171	BGPN TO CGPN	CB	7-15-86		



FILTER CAPACITORS 2.

.22 uF		.01 uF
+5 V		-5 V
A218	F839	B112
A628	G319	C112
A639	G339	C119
A663	G350	D912
B239	G719	E412
B563	G739	F212
B728	H219	F712
C238	H239	G212
C363	H250	G219
C627		G720
C638		
D027		
D038		
D063		
D527		
D538		
D963		
E027		
E427		
E439		
E450		
E839		
F319		
F339		
F350		
F819		

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   ALL 14 PIN IC'S HAVE PIN 7 CONNECTED TO GROUND AND PIN 14 CONNECTED TO +5 V.
   ALL 16 PIN IC'S HAVE PIN 8 CONNECTED TO GROUND AND PIN 16 CONNECTED TO +5 V.
   ALL 20 PIN IC'S HAVE PIN 10 CONNECTED TO GROUND AND PIN 20 CONNECTED TO +5 V.
   ALL 24 PIN IC'S HAVE PIN 12 CONNECTED TO GROUND AND PIN 24 CONNECTED TO +5 V.
   ALL RESISTOR PACK RESISTORS, 1/8W, ±2%

2. SEE TABLE FOR FILTER CAP LOCATIONS.

REFERENCE DRAWING	
COMP ASSY	
CTR	

COMPONENTS, EXCEPT AS NOTED			
	TOLERANCE	VALUE	RATING
RES	±5%	OHMS	1/4 W
CAP	±10%		

MAGNETIC PERIPHERALS INC. a Control Data Company

FIRST USED ON: TB2A3-A

NEXT ASSEMBLY:

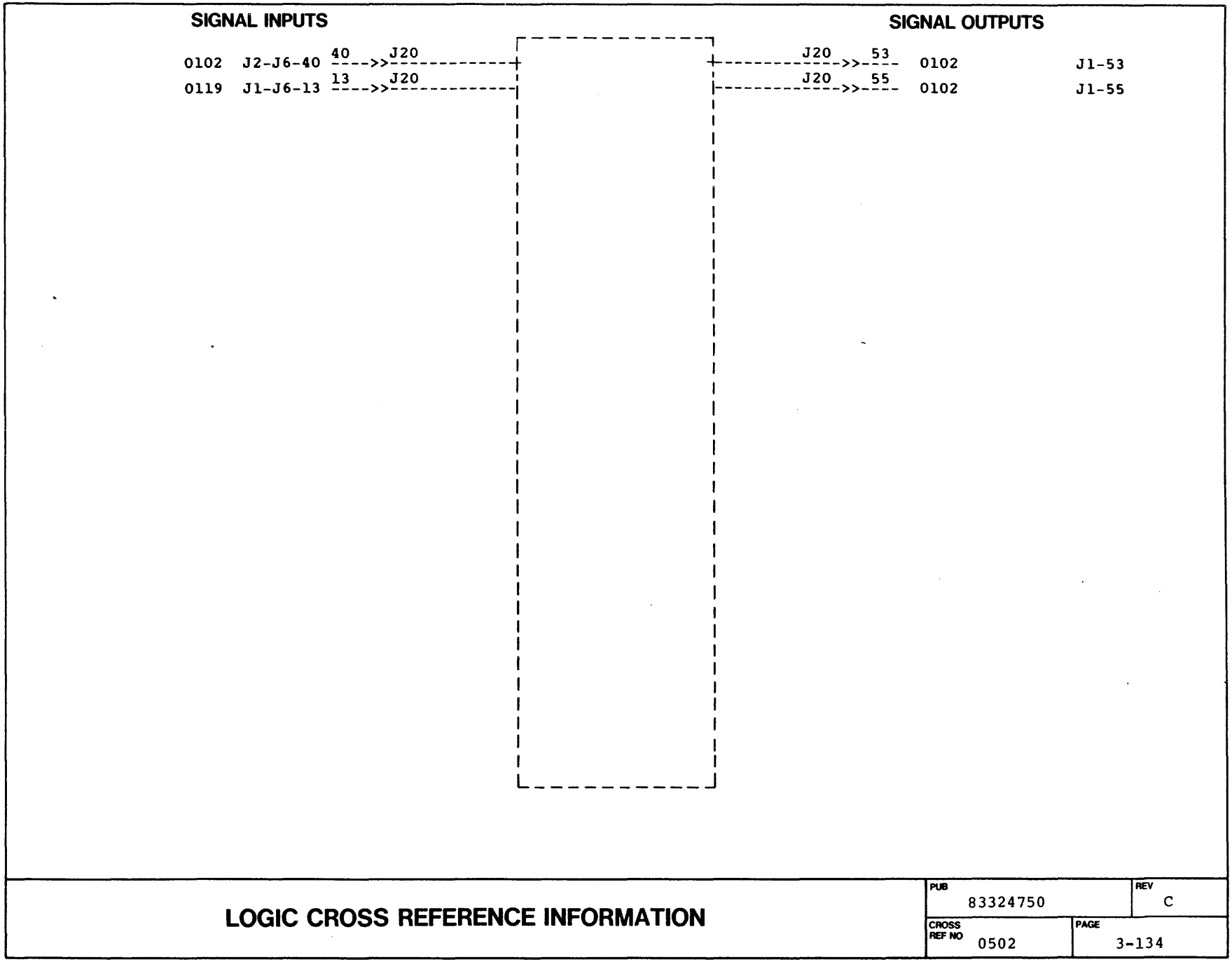
DWN	K. JOHNSON	9/1/83
CHKD		11/9/83
ENGR	Karen Hagen Nohe	12/1/83
MFG	D. Burandt	1-16-84
QA	M. Hails	1-17-84

TITLE

SCHEMATIC DIAGRAM SMD-0 BOARD TYPE BGPN/CGPN

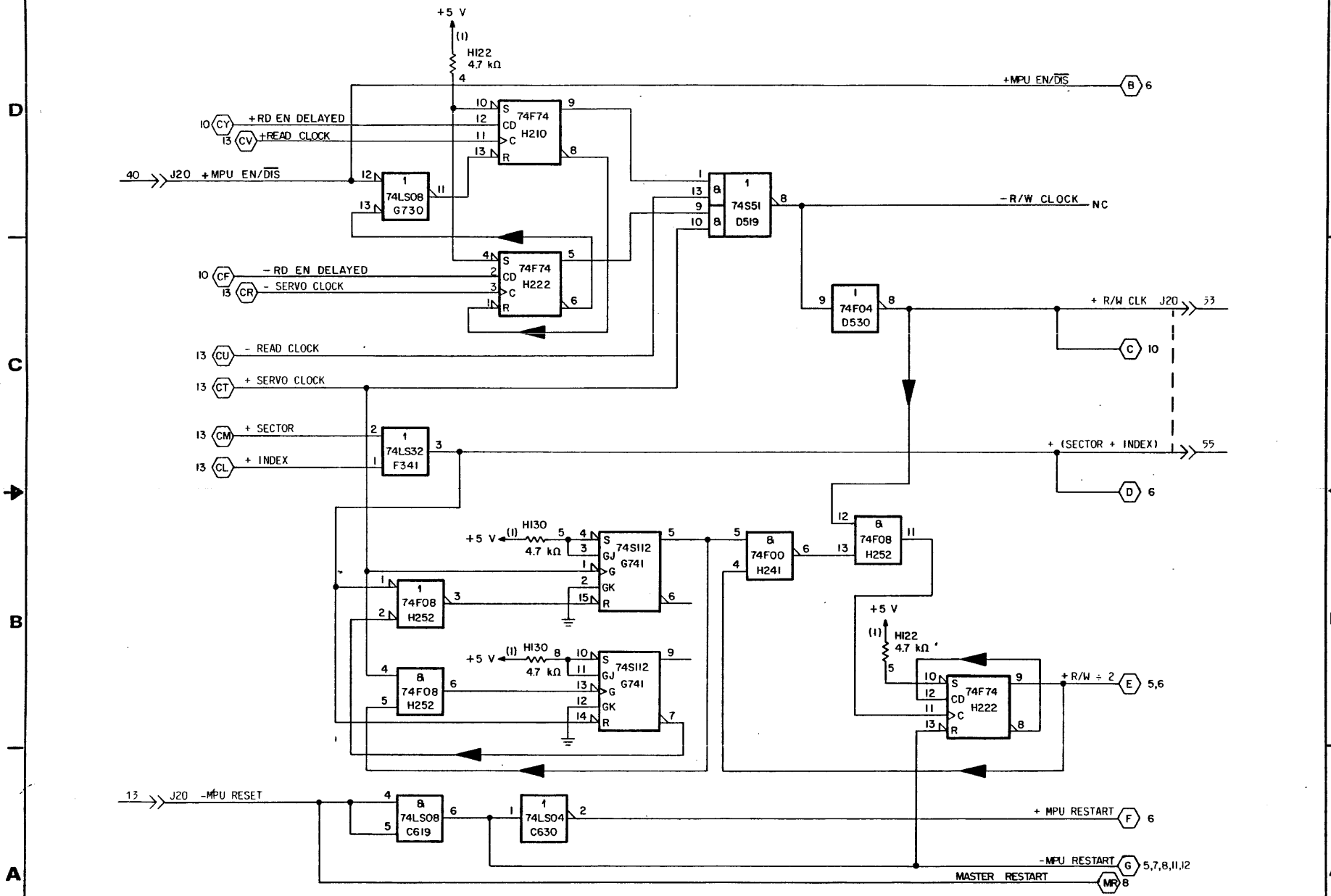
TWIN CITIES DISK DIVISION	C	83324750	E	D
FSCM NO. 19333	0501	SHEET 1 OF 13	3-133	

B 54035402



LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	C
CROSS REF NO 0502	PAGE 3-134

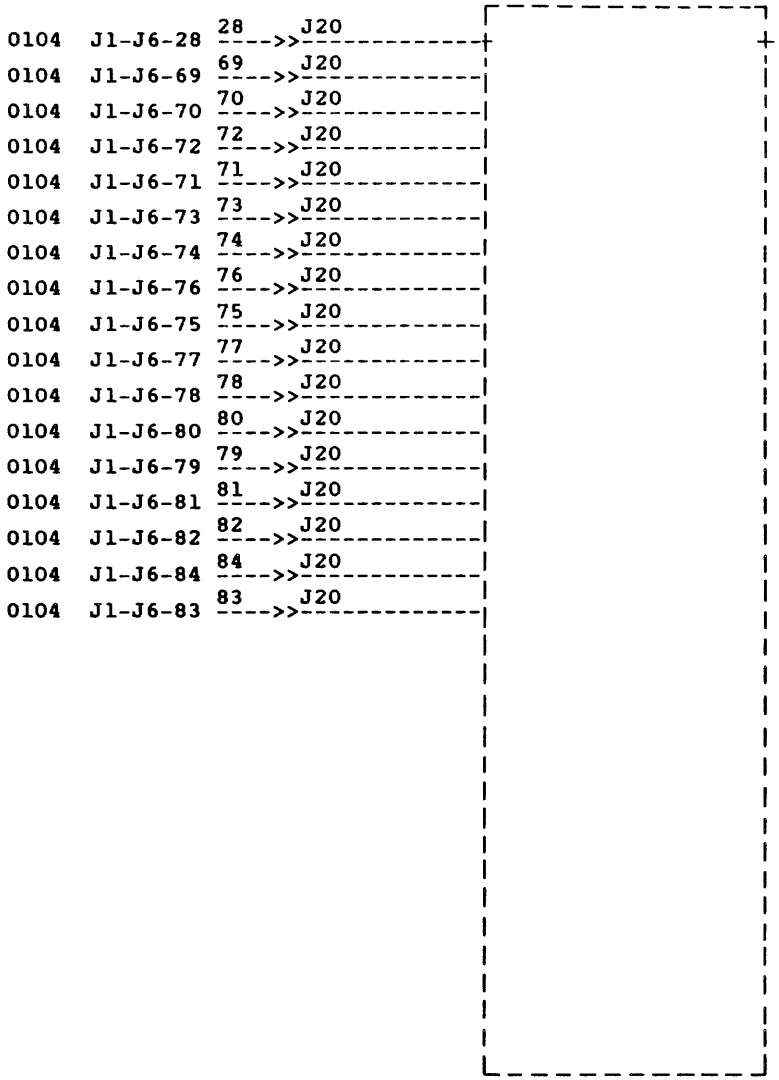


MAGNETIC PERIPHERALS INC. (CDC)	SCHEMATIC DIAGRAM TYPE : _GPN	TWIN CITIES DISK DIVISION	C 83324750	C C
		CODE IDENT 19333	0502 SHEET 2	3-135

54035401 B

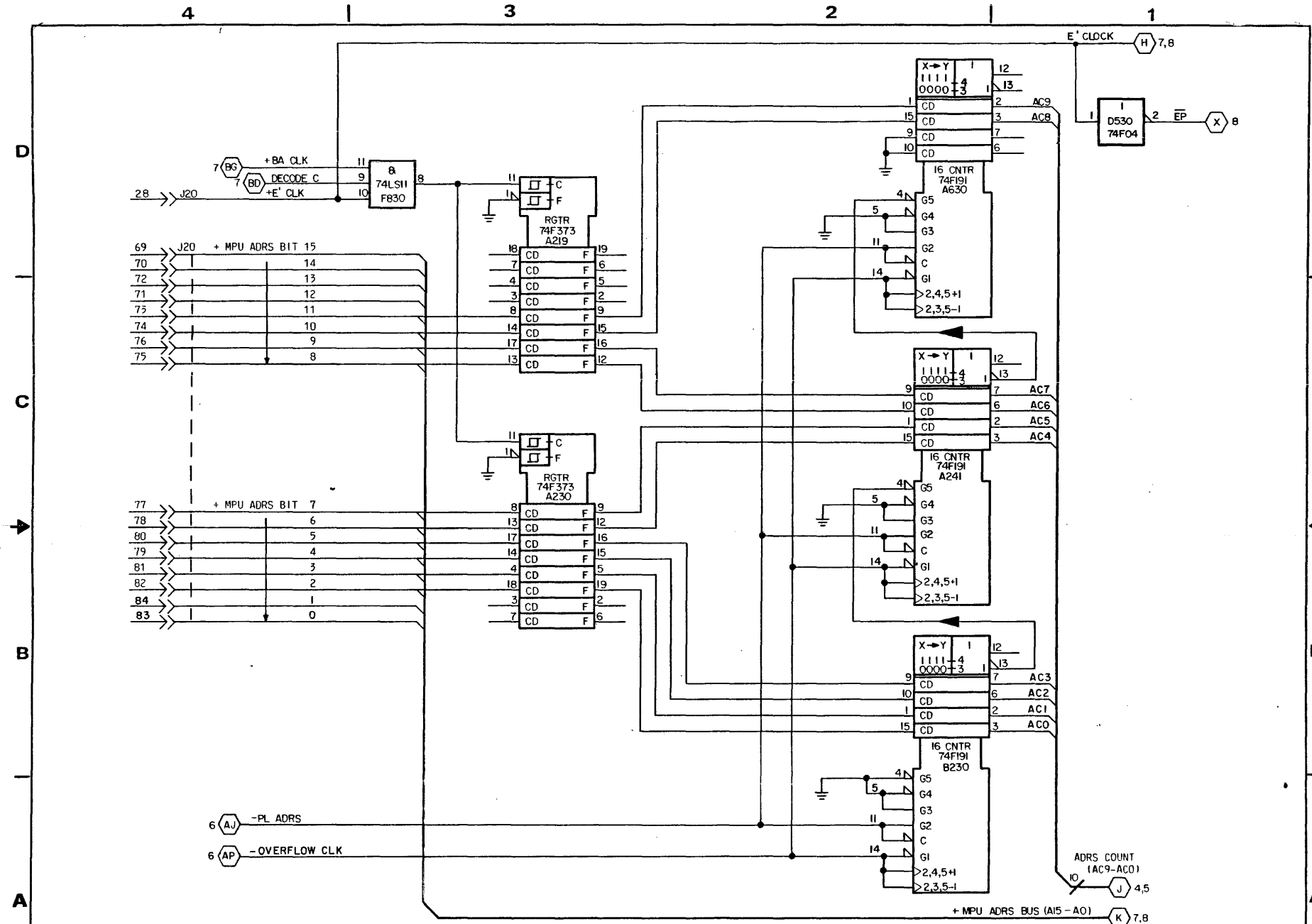
SIGNAL INPUTS

SIGNAL OUTPUTS



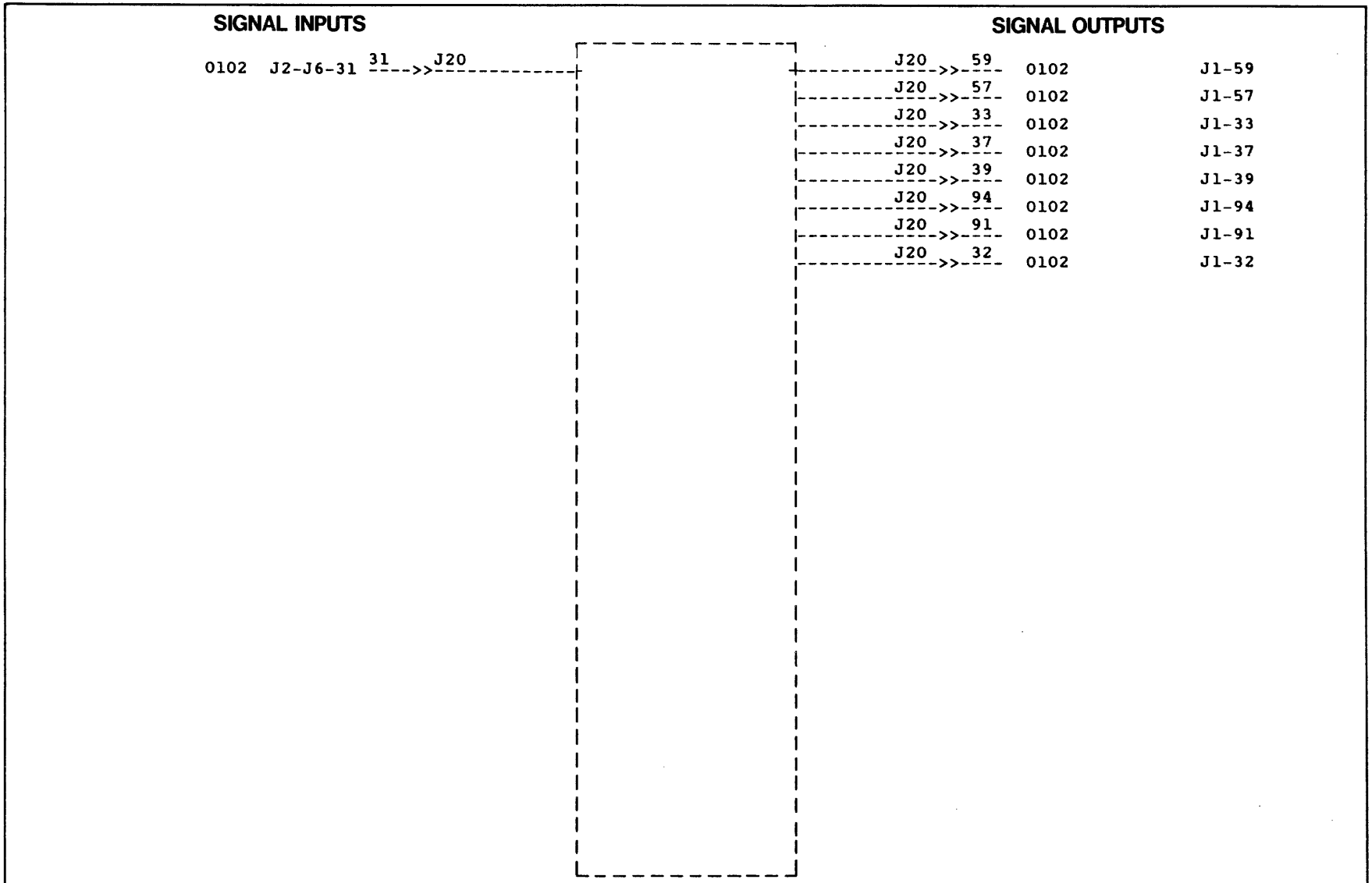
LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	C
CROSS REF NO: 0503	PAGE: 3-136

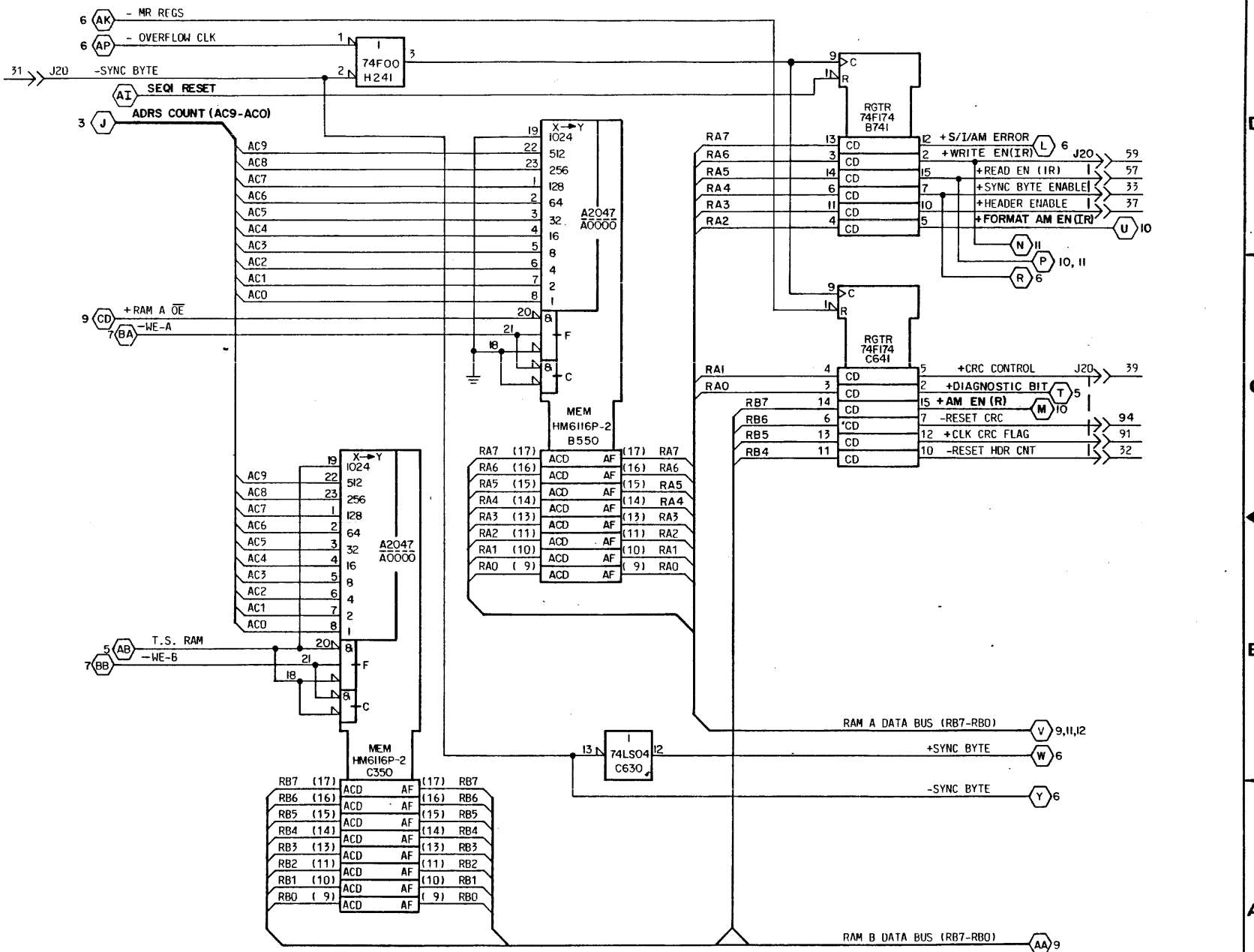


MAGNETIC PERIPHERALS INC.	SCHEMATIC DIAGRAM TYPE: -GPN	TWIN CITIES DISK DIVISION	C	83324750	C C
		CODE IDENT 19333	0503	SHEET 3	3-137

54035401



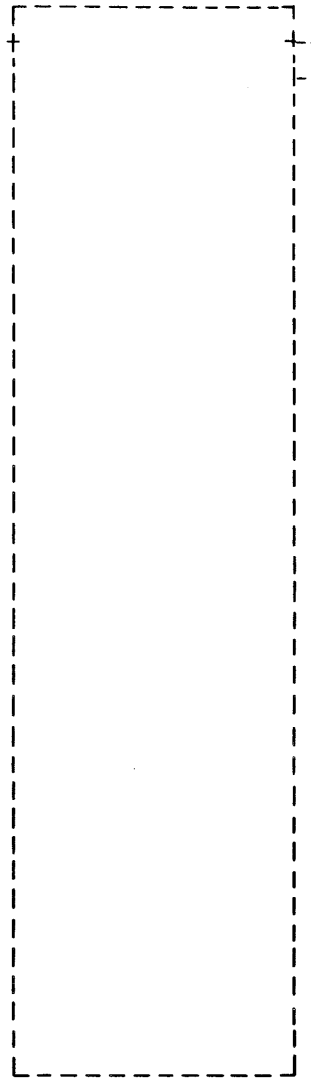
LOGIC CROSS REFERENCE INFORMATION



MAGNETIC PERIPHERALS INC	SCHEMATIC DIAGRAM	TWIN CITIES DISK DIVISION	C	83324750 E D
	TYPE: _GPN	CODE IDENT 19333	0504	SHEET 4 3-139

SIGNAL INPUTS

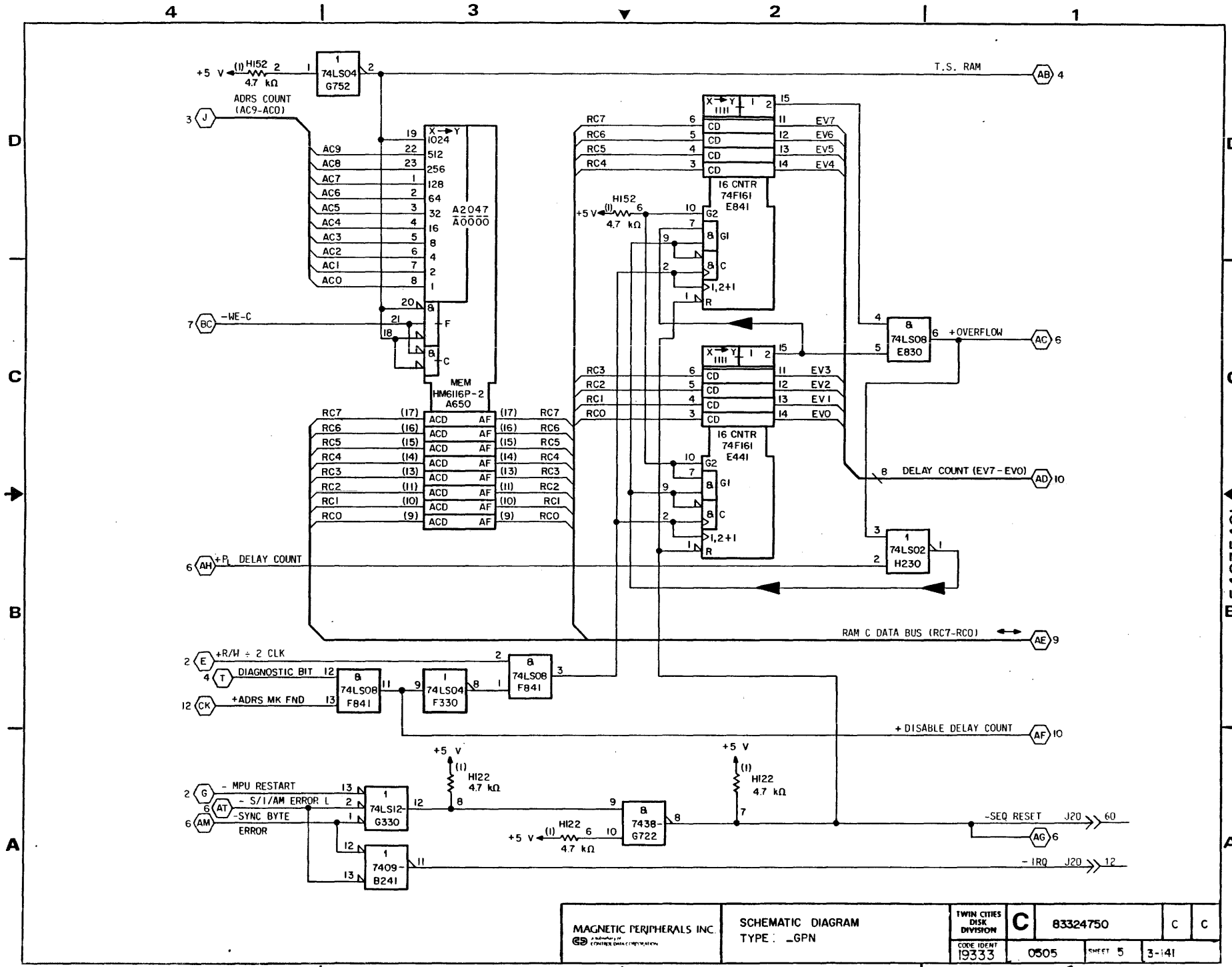
SIGNAL OUTPUTS



J20	60	0102	J1-60
J20	12	0103	J1-J6-12

LOGIC CROSS REFERENCE INFORMATION

PUB 83324750	REV C
CROSS REF NO 0505	PAGE 3-140

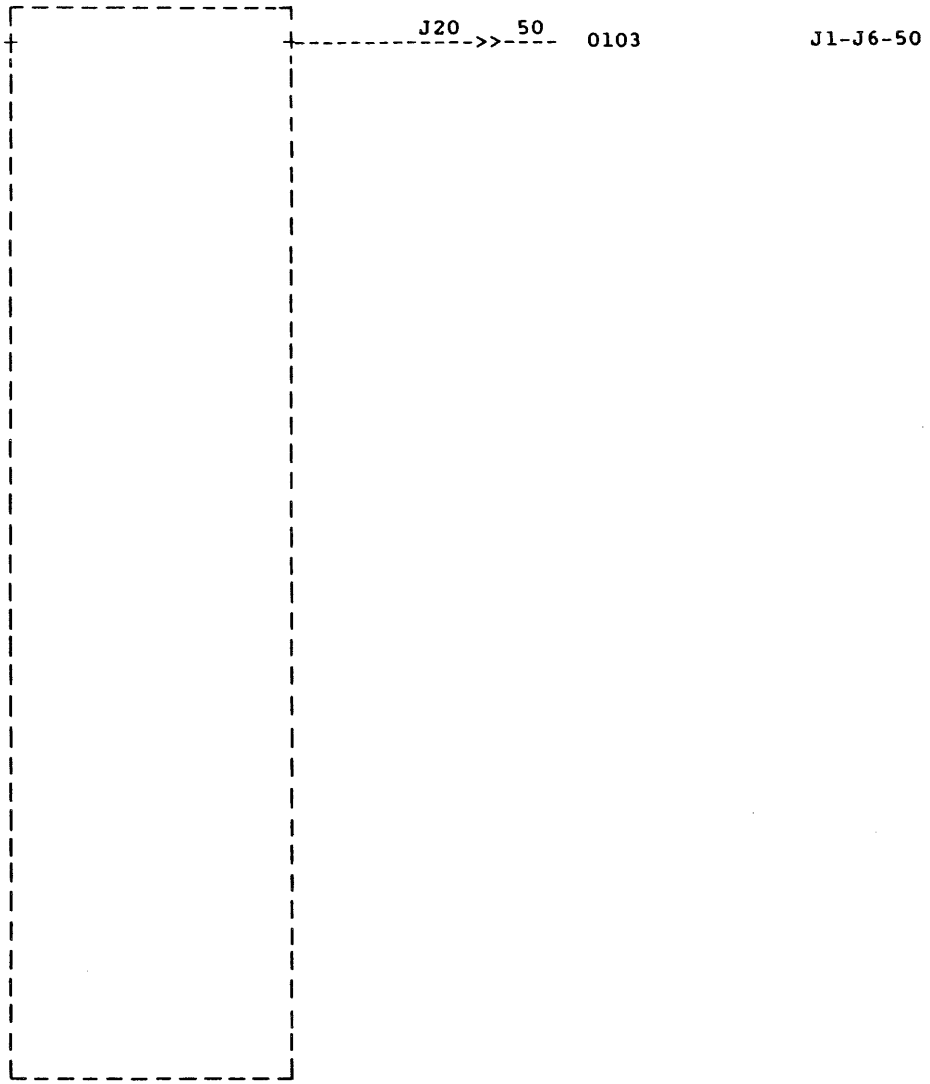


MAGNETIC PERIPHERALS INC.	SCHEMATIC DIAGRAM TYPE: _GPN	TWIN CITIES DISK DIVISION	C 83324750	C C
		CODE IDENT 19333	0505 SHEET 5	3-141

54035401

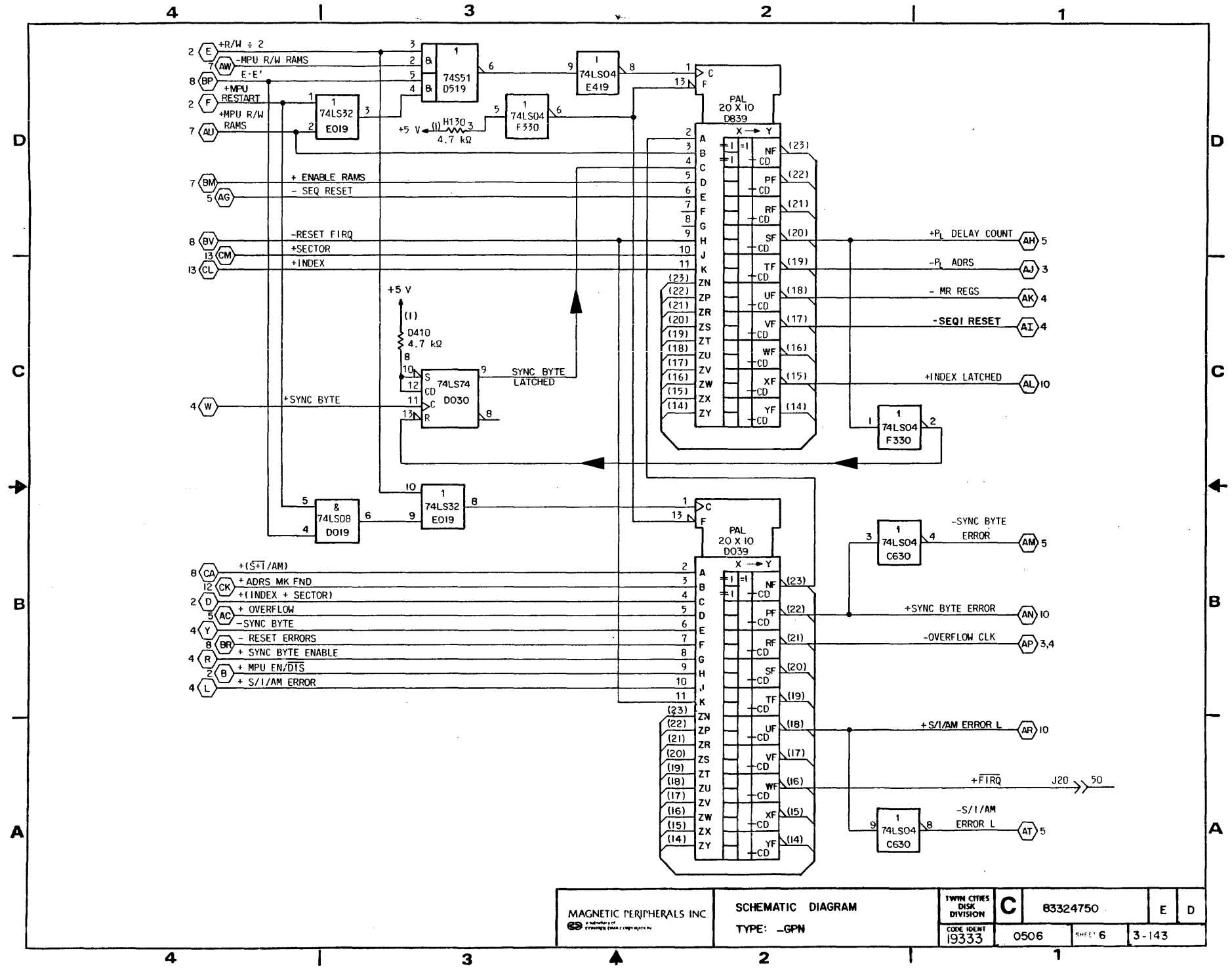
SIGNAL INPUTS

SIGNAL OUTPUTS



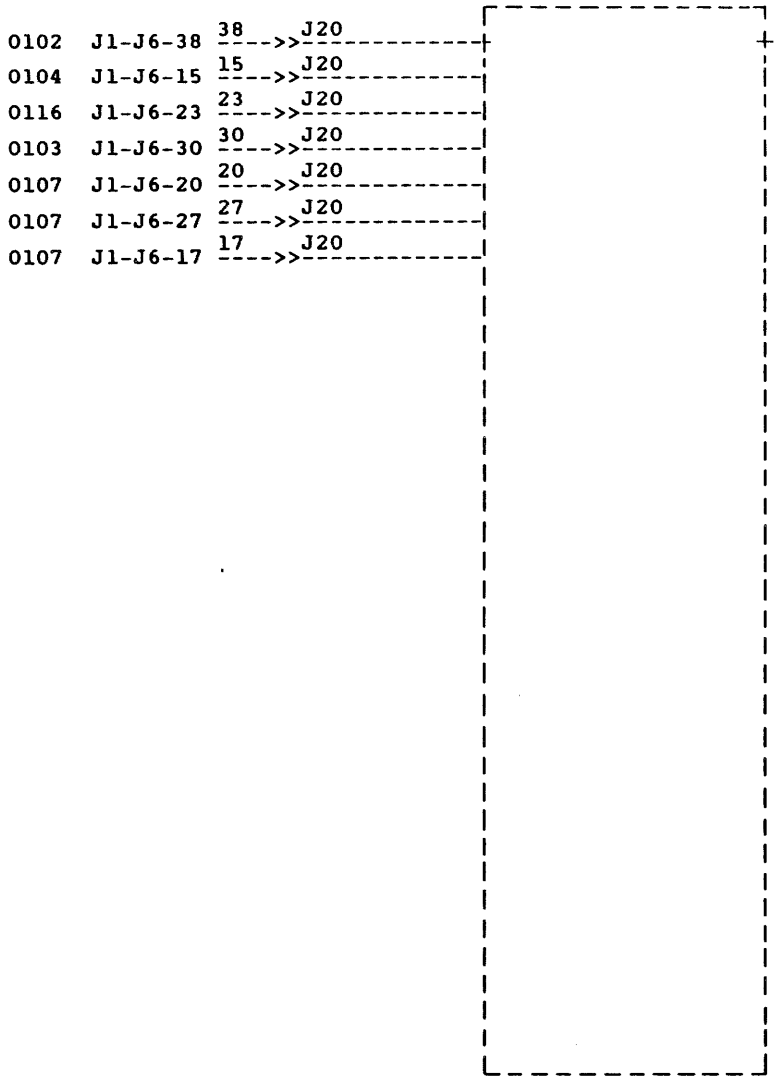
LOGIC CROSS REFERENCE INFORMATION

PUB	REV
83324750	C
CROSS REF NO 0506	PAGE 3-142

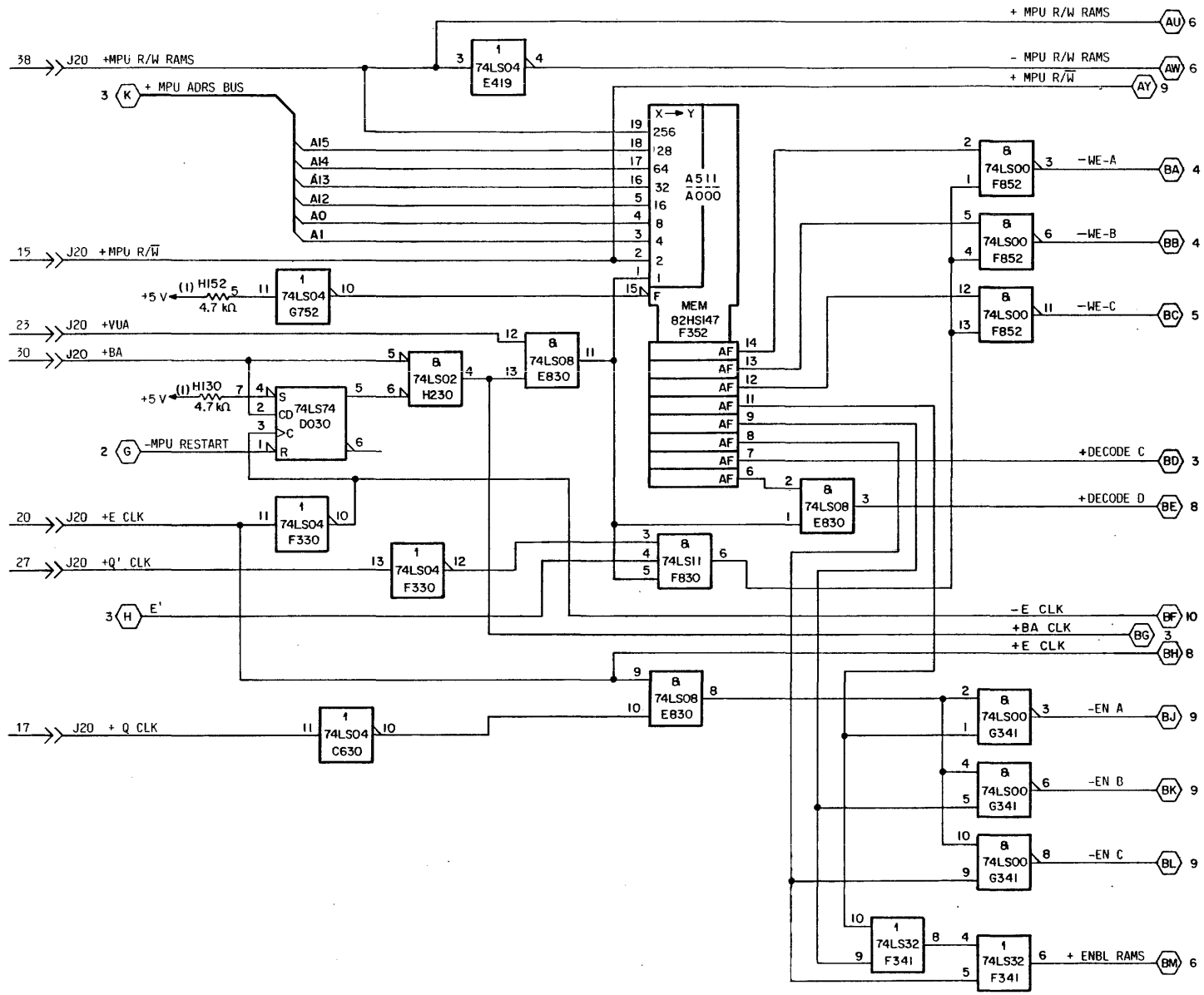

+R/W ÷ 2
-MPU R/W RAMS
E·E'
+MPU RESTART
+MPU R/W RAMS
74S51 D519
74LS32 E019
74LS04 E419
74LS04 F330
+5 V
H130 4.7 kΩ
PAL 20 X 10 D839
+ ENABLE RAMS
- SEQ RESET
-RESET FIRQ
+SECTOR
+INDEX
+P_L DELAY COUNT
-P_L ADRS
- MR REGS
-SEQI RESET
+INDEX LATCHED
D410 4.7 kΩ
74LS74 D030
SYNC BYTE LATCHED
+SYNC BYTE
74LS08 D019
74LS32 E019
PAL 20 X 10 D039
+(S+I/AM)
+ADRS MK FND
+(INDEX + SECTOR)
+ OVERFLOW
-SYNC BYTE
- RESET ERRORS
+ SYNC BYTE ENABLE
+ MPU EN/DIS
+ S/I/AM ERROR
74LS04 C630
-SYNC BYTE ERROR
+SYNC BYTE ERROR
-OVERFLOW CLK
+S/I/AM ERROR L
+FIRQ
J20
-S/I/AM ERROR L
MAGNETIC PERIPHERALS INC.
SCHEMATIC DIAGRAM
TYPE: -GPN
TWIN CITIES DISK DIVISION
C
83324750
E
D
CODE IDENT 19333
0506
SHEET 6
3-143

SIGNAL INPUTS

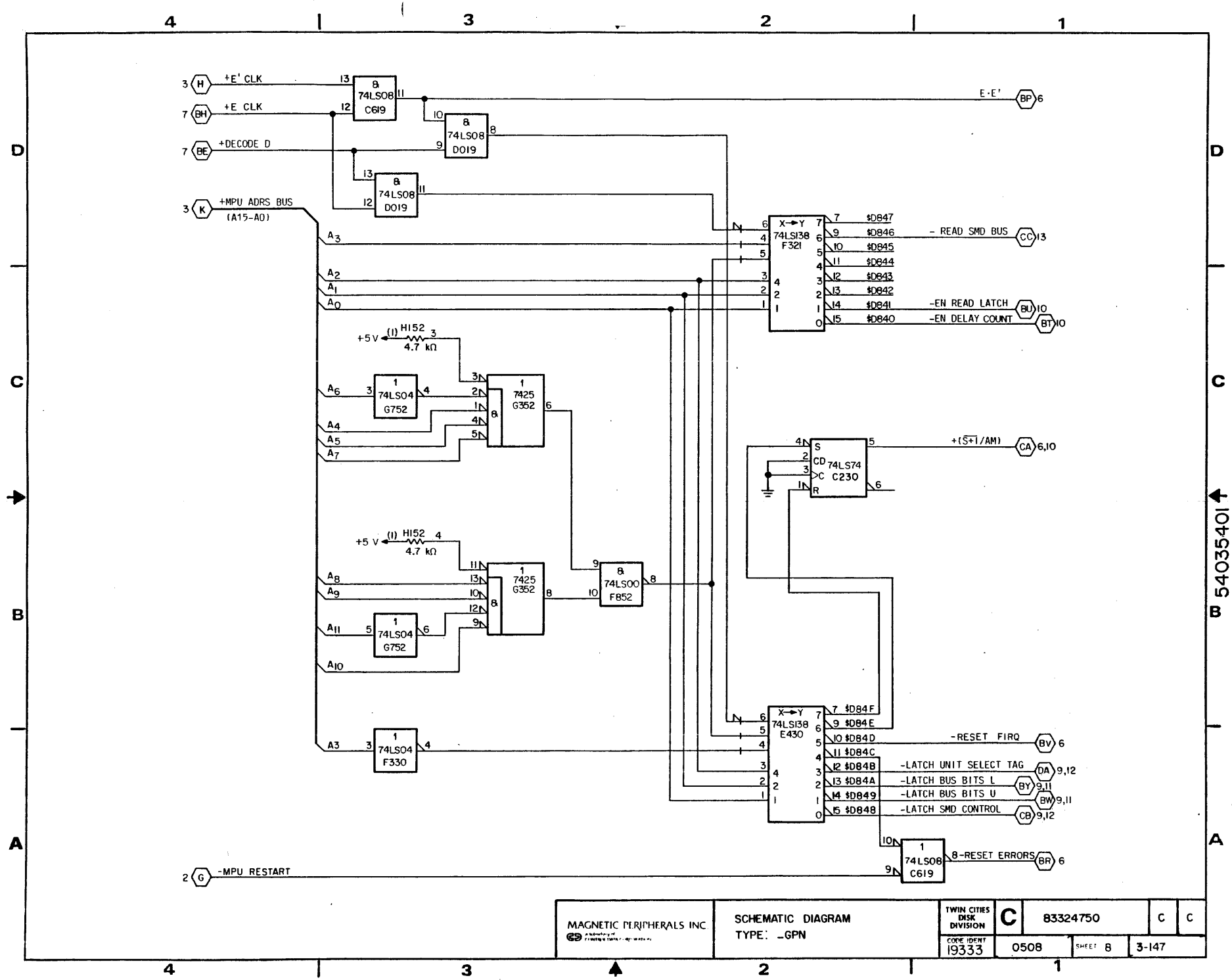
SIGNAL OUTPUTS

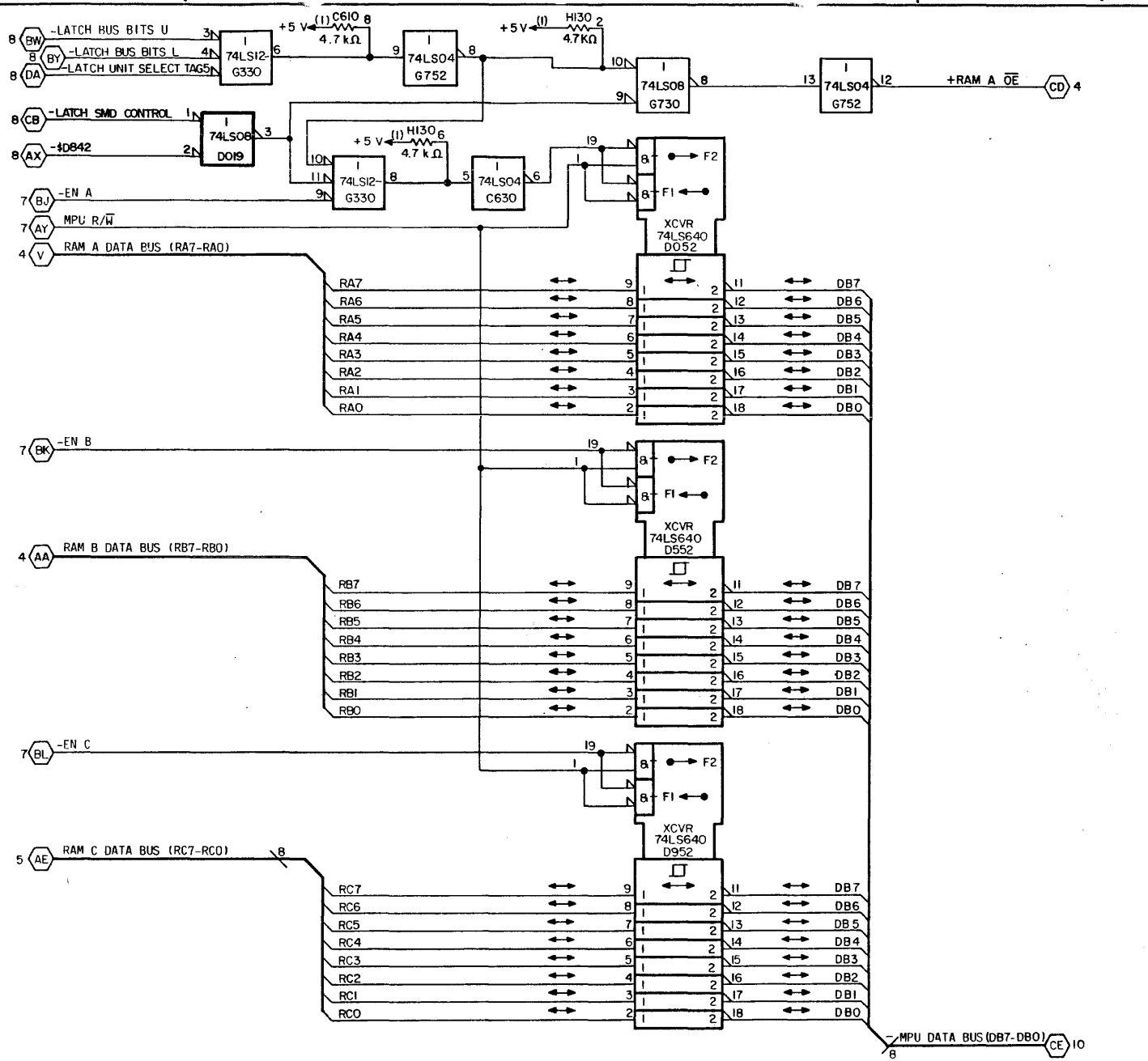


LOGIC CROSS REFERENCE INFORMATION



MAGNETIC PERIPHERALS INC.	SCHEMATIC DIAGRAM TYPE: _GPN	TWIN CITIES DISK DIVISION	C	83324750	E D
		CODE IDENT 19333	0507	SHEET 7	3-145


+E' CLK
+E CLK
+DECODE D
+MPU ADRS BUS (A15-A0)
-MPU RESTART
74LS08 C619
74LS08 D019
74LS08 D019
E-E'
74LS138 F321
$D847
$D846
$D845
$D844
$D843
$D842
$D841
$D840
- READ SMD BUS
-EN READ LATCH
-EN DELAY COUNT
+5 V
HI52
4.7 kΩ
74LS04 G752
7425 G352
74LS74 C230
+(S+I/AM)
74LS00 F852
74LS04 G752
74LS04 F330
74LS138 E430
$D84F
$D84E
$D84D
$D84C
$D84B
$D84A
$D849
$D848
-RESET FIRQ
-LATCH UNIT SELECT TAG
-LATCH BUS BITS L
-LATCH BUS BITS U
-LATCH SMD CONTROL
74LS08 C619
8-RESET ERRORS
MAGNETIC PERIPHERALS INC
SCHEMATIC DIAGRAM
TYPE: _GPN
TWIN CITIES DISK DIVISION
83324750
CODE IDENT 19333
0508
SHEET 8
3-147

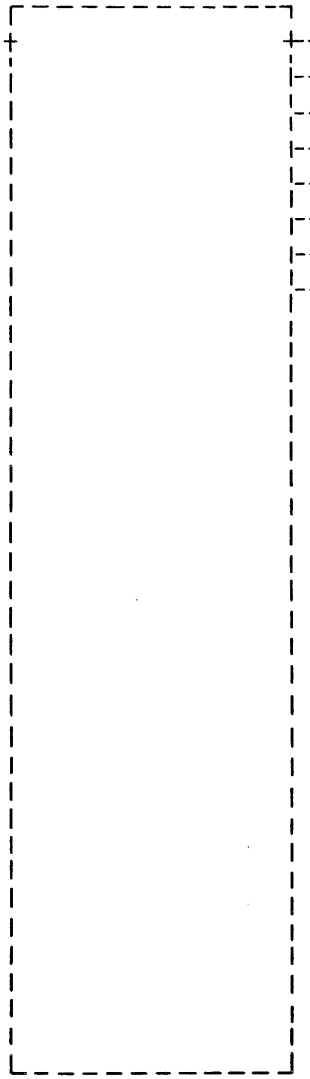


MAGNETIC PERIPHERALS INC	SCHEMATIC DIAGRAM TYPE: _GPN	TWIN CITIES DISK DIVISION	C	83324750	C C
		CODE IDENT 19333	0509	SHEET 9	3-149

54035401

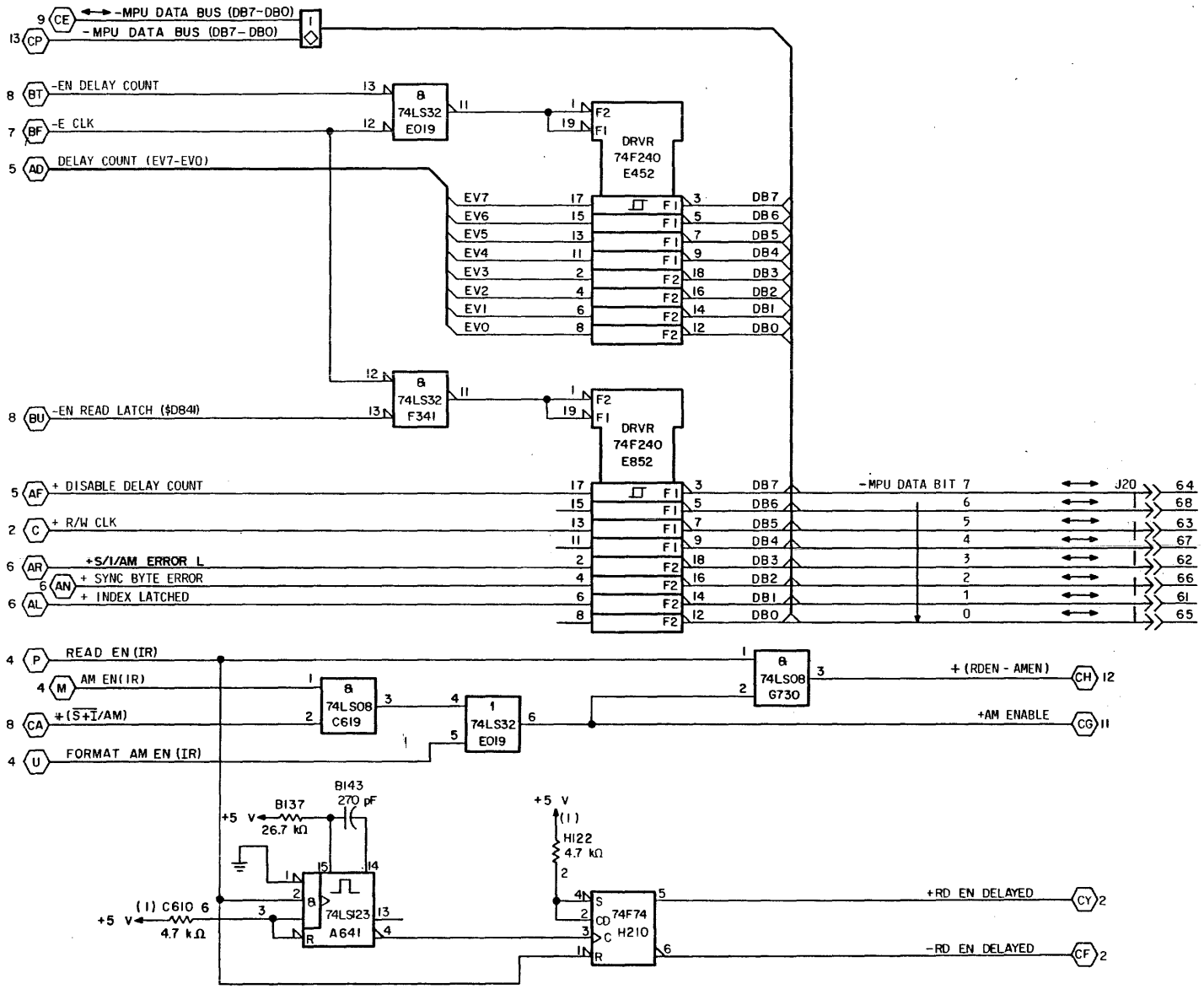
SIGNAL INPUTS

SIGNAL OUTPUTS



J20 64	0103	J1-J6-64
J20 68	0103	J1-J6-68
J20 63	0103	J1-J6-63
J20 67	0103	J1-J6-67
J20 62	0103	J1-J6-62
J20 66	0103	J1-J6-66
J20 61	0103	J1-J6-61
J20 65	0103	J1-J6-65

LOGIC CROSS REFERENCE INFORMATION

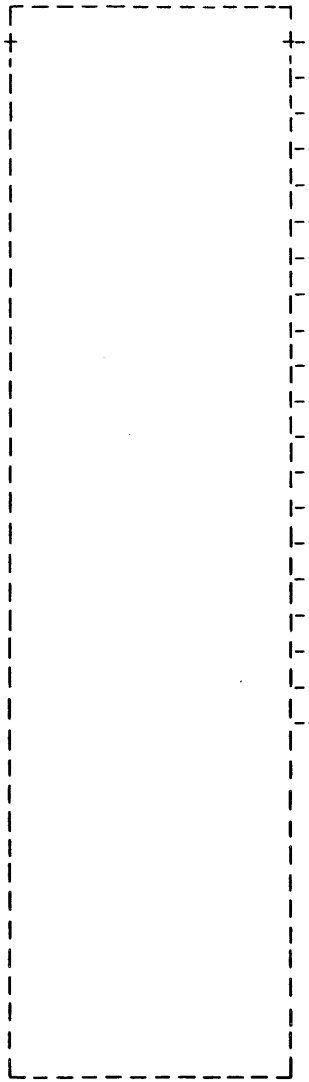


MAGNETIC PERIPHERALS INC	SCHEMATIC DIAGRAM TYPE: _GPN	TWIN CITIES DISK DIVISION	C 83324750	C C
		CODE IDENT 19333	0510 SHEET 10	3-151

54035401

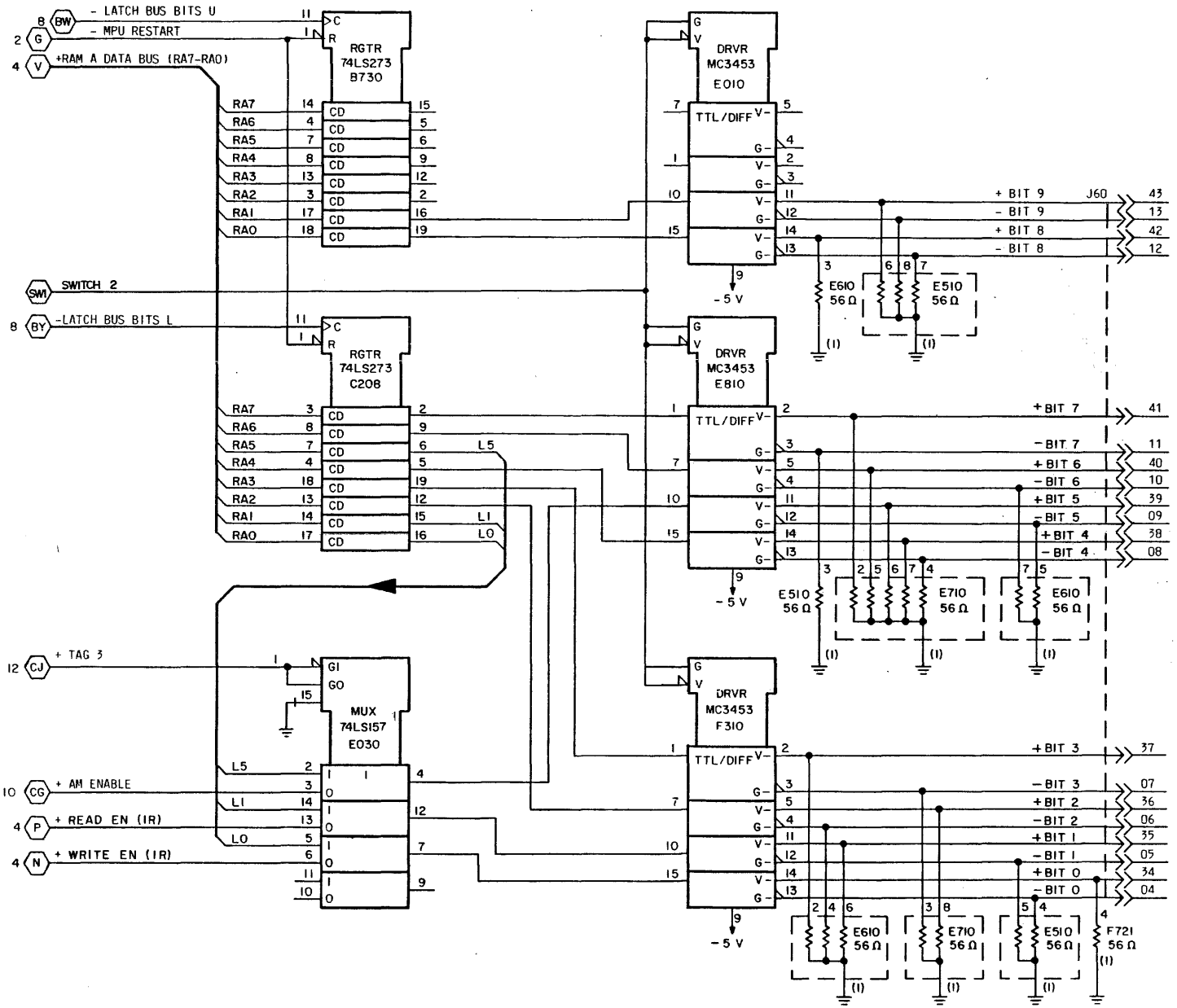
SIGNAL INPUTS

SIGNAL OUTPUTS



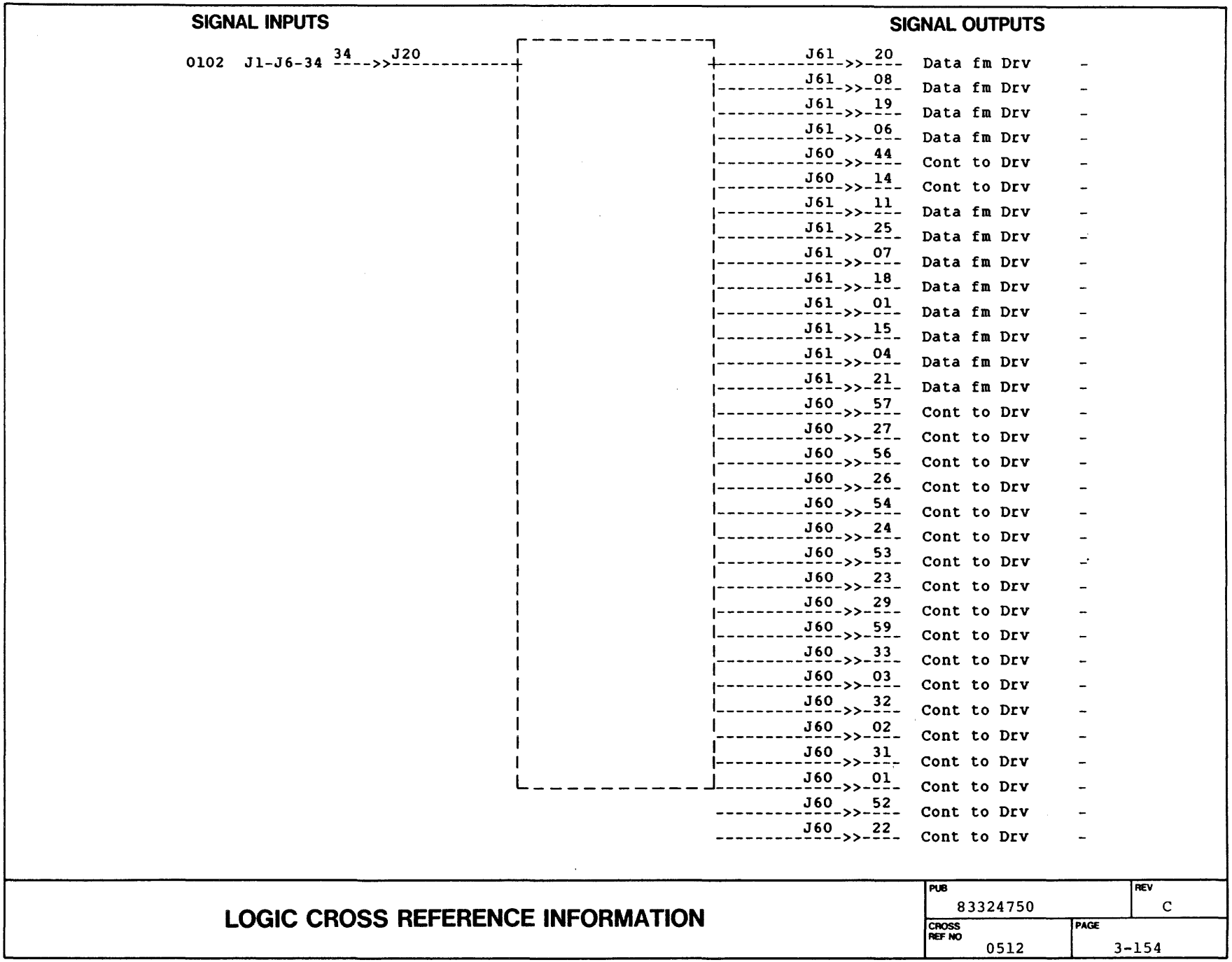
J60	43	Cont to Drv	-
J60	13	Cont to Drv	-
J60	42	Cont to Drv	-
J60	12	Cont to Drv	-
J60	41	Cont to Drv	-
J60	11	Cont to Drv	-
J60	40	Cont to Drv	-
J60	10	Cont to Drv	-
J60	39	Cont to Drv	-
J60	09	Cont to Drv	-
J60	38	Cont to Drv	-
J60	08	Cont to Drv	-
J60	37	Cont to Drv	-
J60	07	Cont to Drv	-
J60	36	Cont to Drv	-
J60	06	Cont to Drv	-
J60	35	Cont to Drv	-
J60	05	Cont to Drv	-
J60	34	Cont to Drv	-
J60	04	Cont to Drv	-

LOGIC CROSS REFERENCE INFORMATION

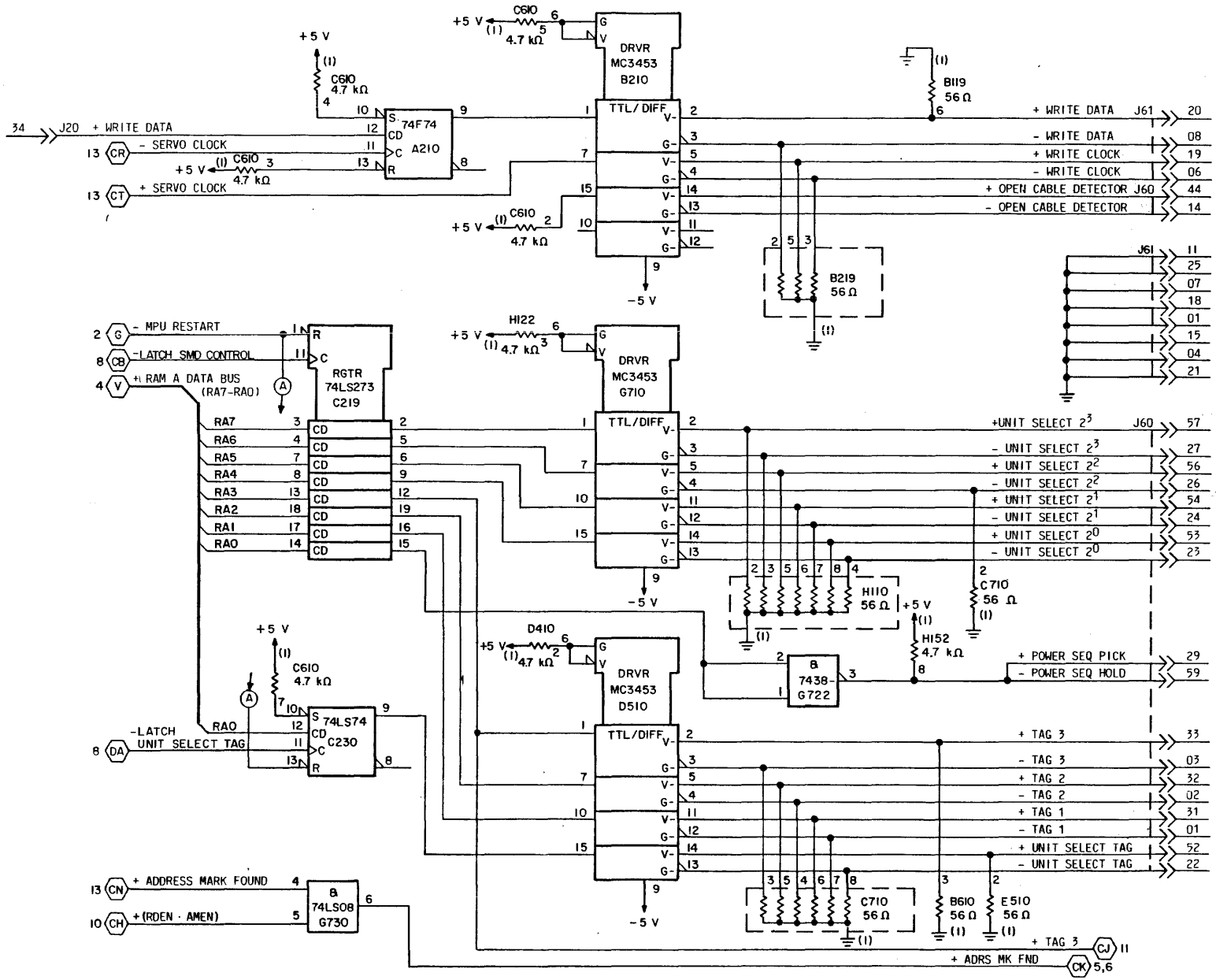


MAGNETIC PERIPHERALS INC.	SCHEMATIC DIAGRAM	TWIN CITIES DISK DIVISION	C 83324750	C C
	TYPE: _GPN	CODE IDENT 19333	0511 SHEET 11	3-153

54035401

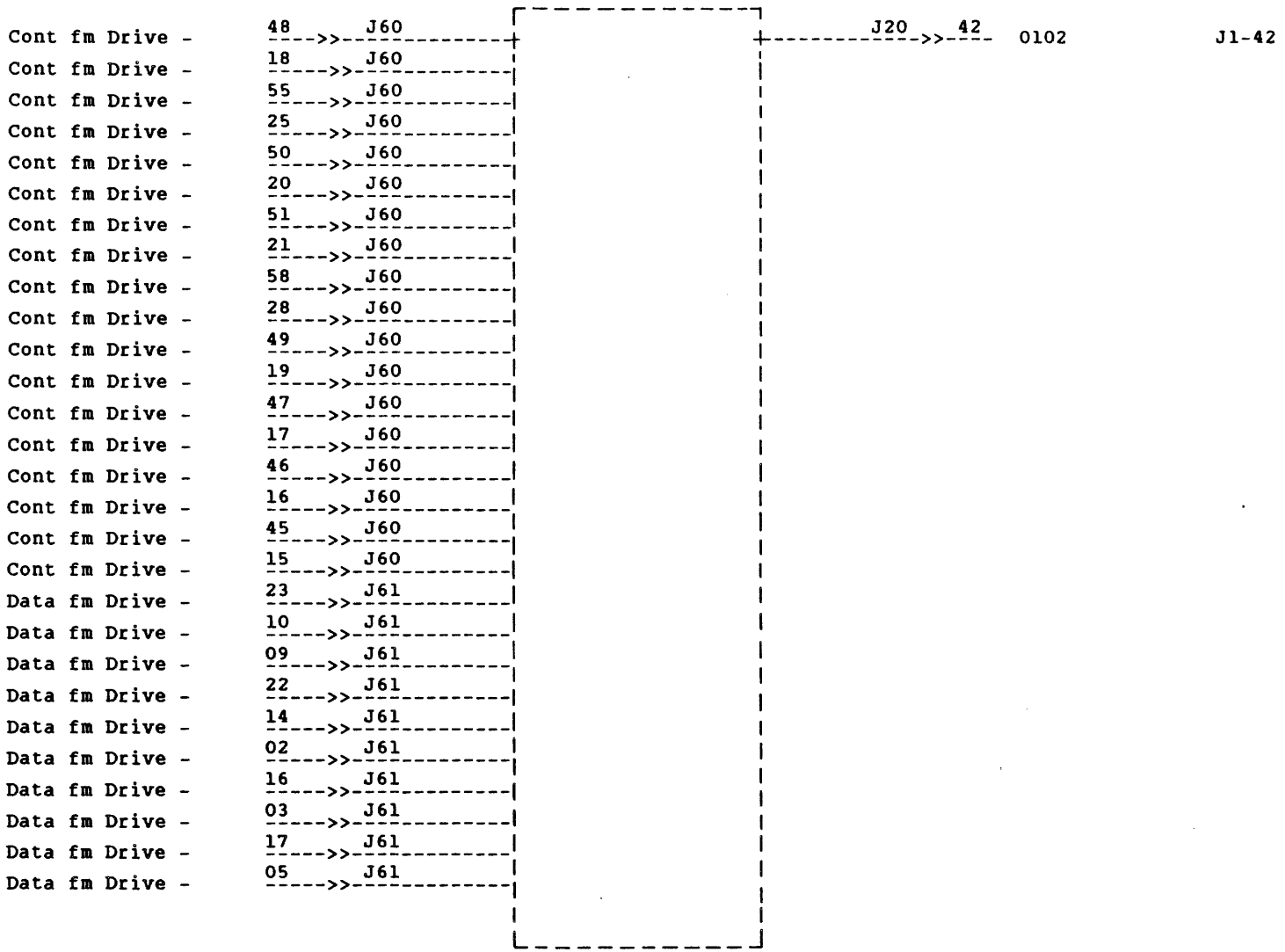


LOGIC CROSS REFERENCE INFORMATION

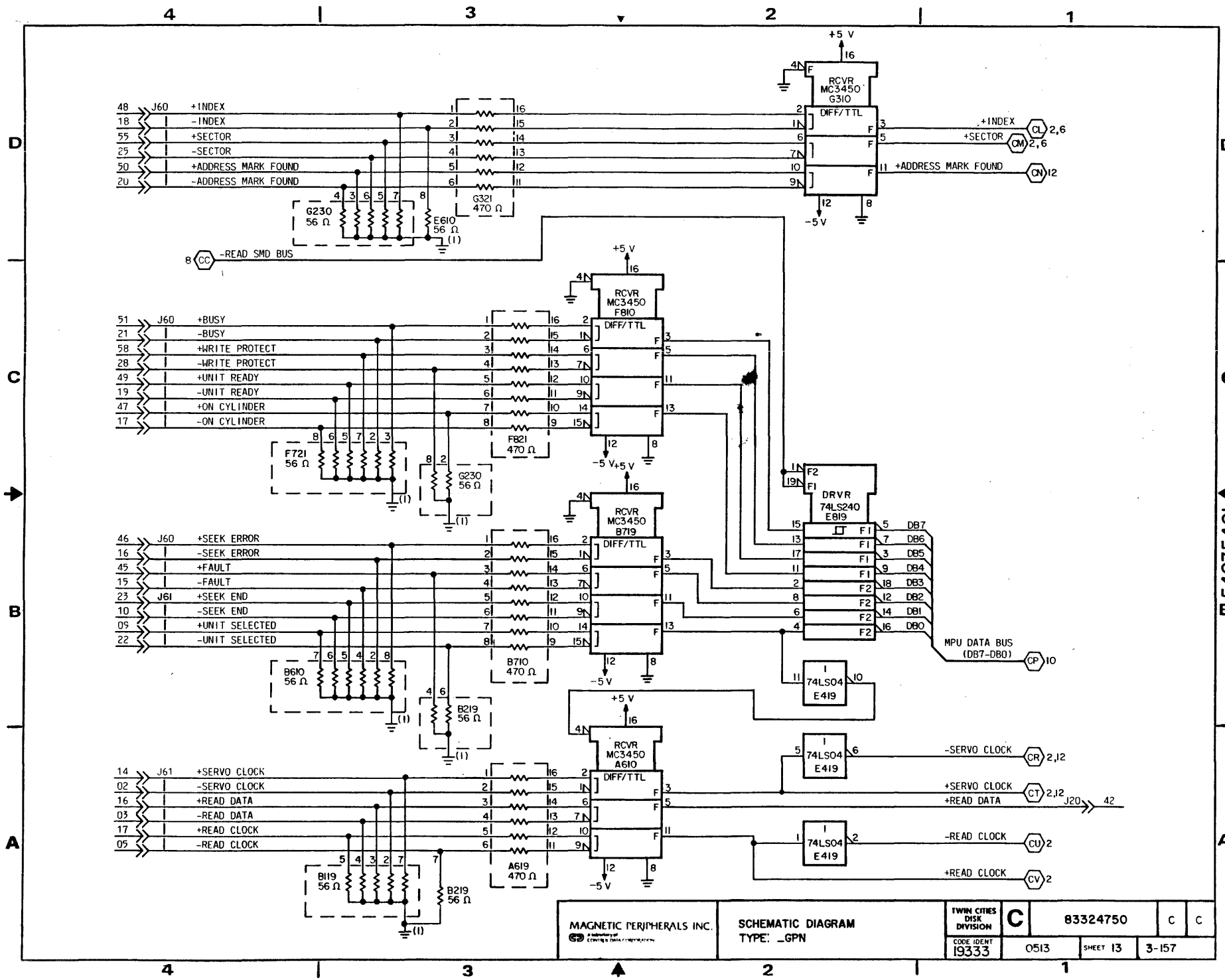


MAGNETIC PERIPHERALS INC.	SCHEMATIC DIAGRAM TYPE: _GPN	TWIN CITIES DISK DIVISION	C 83324750	C C
		CODE IDENT 19333	0512	SHEET 12 3-155

54035401 B

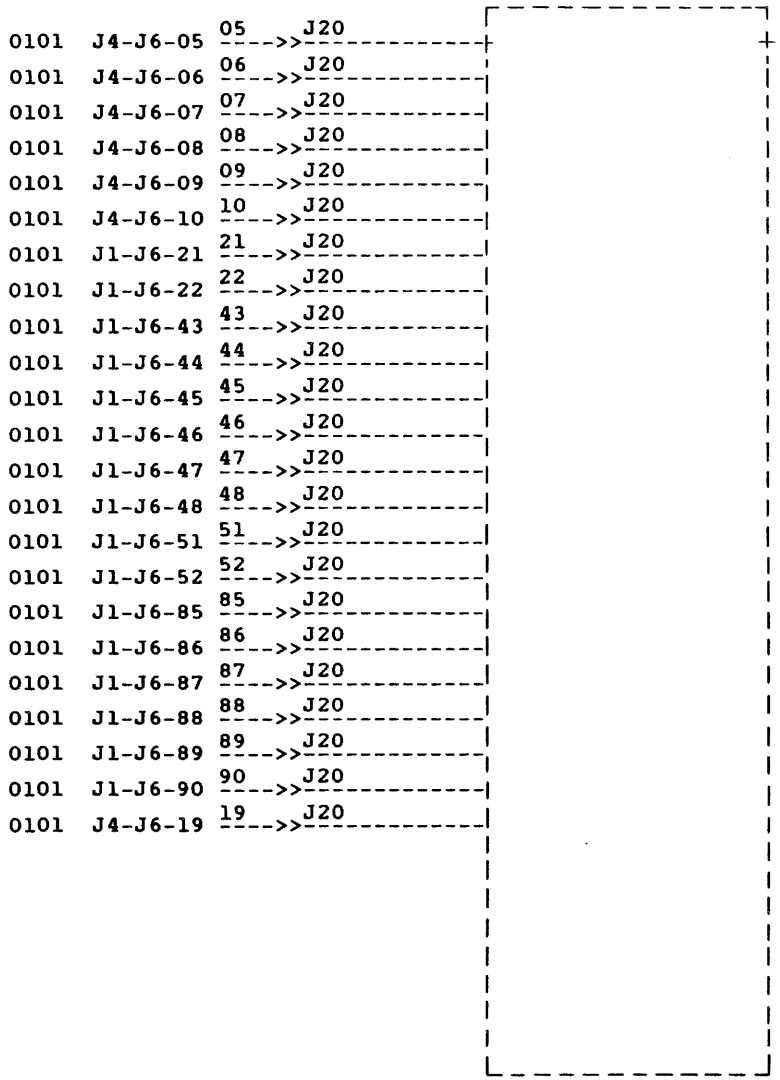


LOGIC CROSS REFERENCE INFORMATION


+5 V
RCVR MC3450 G310
DIFF/TTL
48 J60 +INDEX
18 -INDEX
55 +SECTOR
25 -SECTOR
50 +ADDRESS MARK FOUND
20 -ADDRESS MARK FOUND
G230 56 Ω
G321 470 Ω
E610 56 Ω (1)
8 CC -READ SMD BUS
+INDEX CL 2,6
+SECTOR CM 2,6
+ADDRESS MARK FOUND CN 12
-5 V
RCVR MC3450 F810
51 J60 +BUSY
21 -BUSY
58 +WRITE PROTECT
28 -WRITE PROTECT
49 +UNIT READY
19 -UNIT READY
47 +ON CYLINDER
17 -ON CYLINDER
F721 56 Ω
F821 470 Ω
G230 56 Ω
RCVR MC3450 B719
46 J60 +SEEK ERROR
16 -SEEK ERROR
45 +FAULT
15 -FAULT
23 J61 +SEEK END
10 -SEEK END
09 +UNIT SELECTED
22 -UNIT SELECTED
B610 56 Ω
B710 470 Ω
B219 56 Ω
DRVR 74LS240 E819
DB7
DB6
DB5
DB4
DB3
DB2
DB1
DB0
MPU DATA BUS (DB7-DB0) CP 10
74LS04 E419
RCVR MC3450 A610
14 J61 +SERVO CLOCK
02 -SERVO CLOCK
16 +READ DATA
03 -READ DATA
17 +READ CLOCK
05 -READ CLOCK
B119 56 Ω
B219 56 Ω
A619 470 Ω
-SERVO CLOCK CR 2,12
+SERVO CLOCK CT 2,12
+READ DATA
J20 42
-READ CLOCK CU 2
+READ CLOCK CV 2
MAGNETIC PERIPHERALS INC.
SCHEMATIC DIAGRAM
TYPE: _GPN
TWIN CITIES DISK DIVISION
C
83324750
CODE IDENT 19333
0513
SHEET 13
3-157
B 54035401

SIGNAL INPUTS

SIGNAL OUTPUTS



LOGIC CROSS REFERENCE INFORMATION

UNUSED LOGIC ELEMENTS

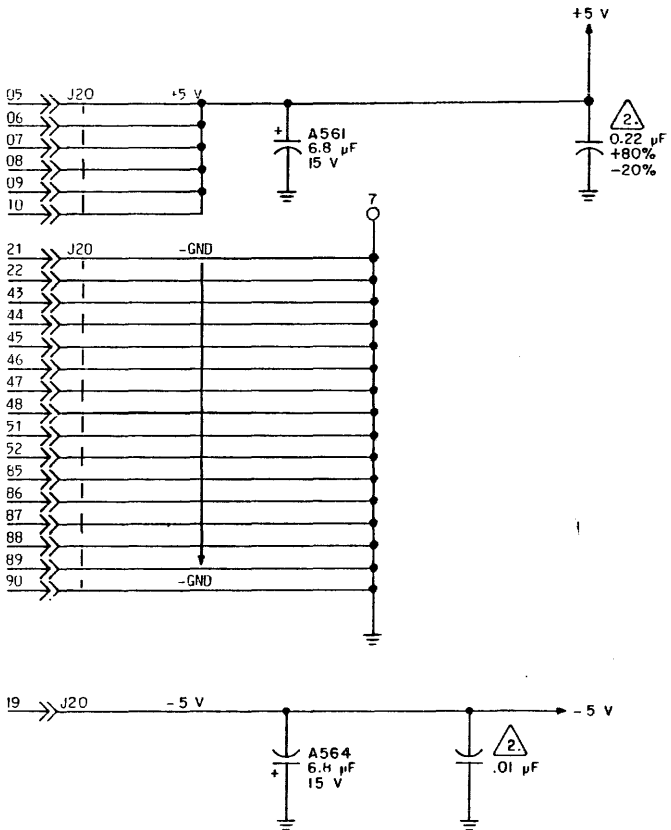
TYPE	LOCATION	OUTPUT PIN(S)
74LS74	B342	5,6
74LS04	A852	4,6,8
74LS32	B842	11
74LS02	C718	10,13
74LS00	B352	11
74F00	C318	8,11
74F74	A352	5,6
74LS123	B329	5,12
74LS08	A342	3,6,8
7433	D642	1,4,10
74LS00	D252	8
74LS04	B818	8
7438	F718	8,11
74F04	A842	11

UNUSED RESISTOR PACKS

LOCATION	PIN(S)
F009	7, 8
E018	2
B729	2,4,6,7
F142	2,4,5,7
B742	2
A718	3,6,7,8
C225	5,6,7,8

REVISION RECORD

REV	ECO	DESCRIPTION	DRFT	DATE	CHKD	APP
A	DJ23000	RELEASED		9-13-84		CSH



FILTER CAPACITORS 2.

.22 µF		.01 µF
+5 V		-5 V
H216	B340	A610
A327	G240	D101
A827	G740	G109
B327	A351	G709
B826	A851	B220
B827	B351	B718
C327	B851	E518
C727	C351	F018
D227	C751	E029
D627	D251	
E627	D651	
F227	E151	
F727	E651	
G227	F251	
G727	F751	
H227	G251	
A340		
A840		
A326		

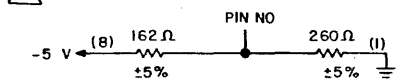
NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   ALL 14 PIN IC'S HAVE PIN 7 CONNECTED TO GROUND AND PIN 14 CONNECTED TO +5 V.
   ALL 16 PIN IC'S HAVE PIN 8 CONNECTED TO GROUND AND PIN 16 CONNECTED TO +5 V.
   ALL 20 PIN IC'S HAVE PIN 10 CONNECTED TO GROUND AND PIN 20 CONNECTED TO +5 V.
   ALL 24 PIN IC'S HAVE PIN 12 CONNECTED TO GROUND AND PIN 24 CONNECTED TO +5 V.
   ALL RESISTOR PACK RESISTORS, 1/8W, ±3%
   DIODE 24553500.

2. SEE TABLE FOR FILTER CAP LOCATIONS.

3. DRAWINGS WHERE TAB NUMBERS CREATE NEW COVER SHEET, TABS 00-99 ARE RESERVED.

4. TYPICAL TERMINATOR CONFIGURATION



54035403 B

REFERENCE DRAWING	
COMP ASSY	
CTR	

MAGNETIC PERIPHERALS INC. An Control Data Company

FIRST USED ON: TB2A3-A

NEXT ASSEMBLY:

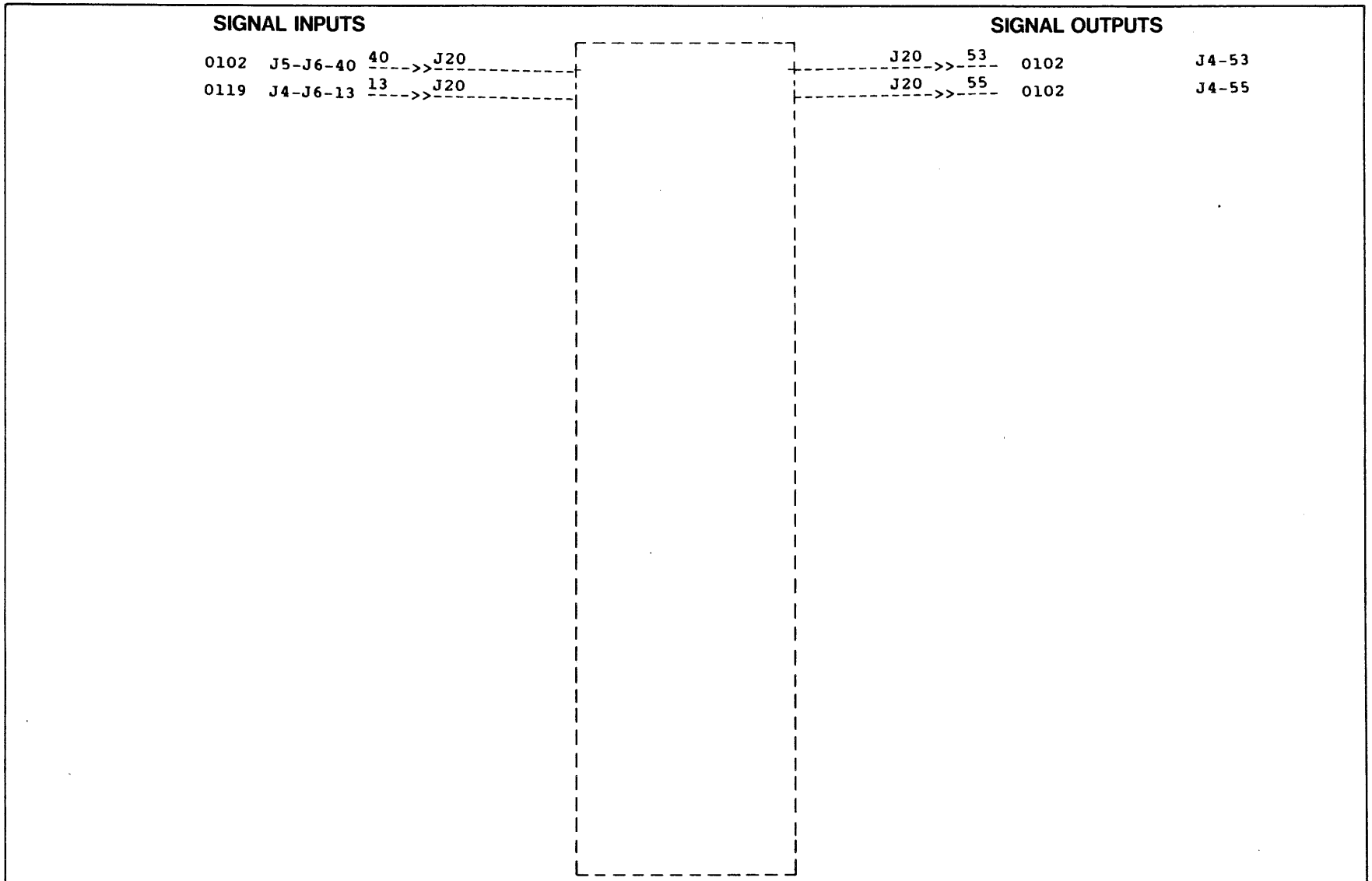
COMPONENTS EXCEPT AS NOTED	TOLERANCE	VALUE	RATING
RES	±5%	OHMS	1/4W
CAP	±10%		

DWN	Chase	8/5/85
CHKD	DG Donat	11-4-85
ENGR		
MFG		8-1-86
QA		

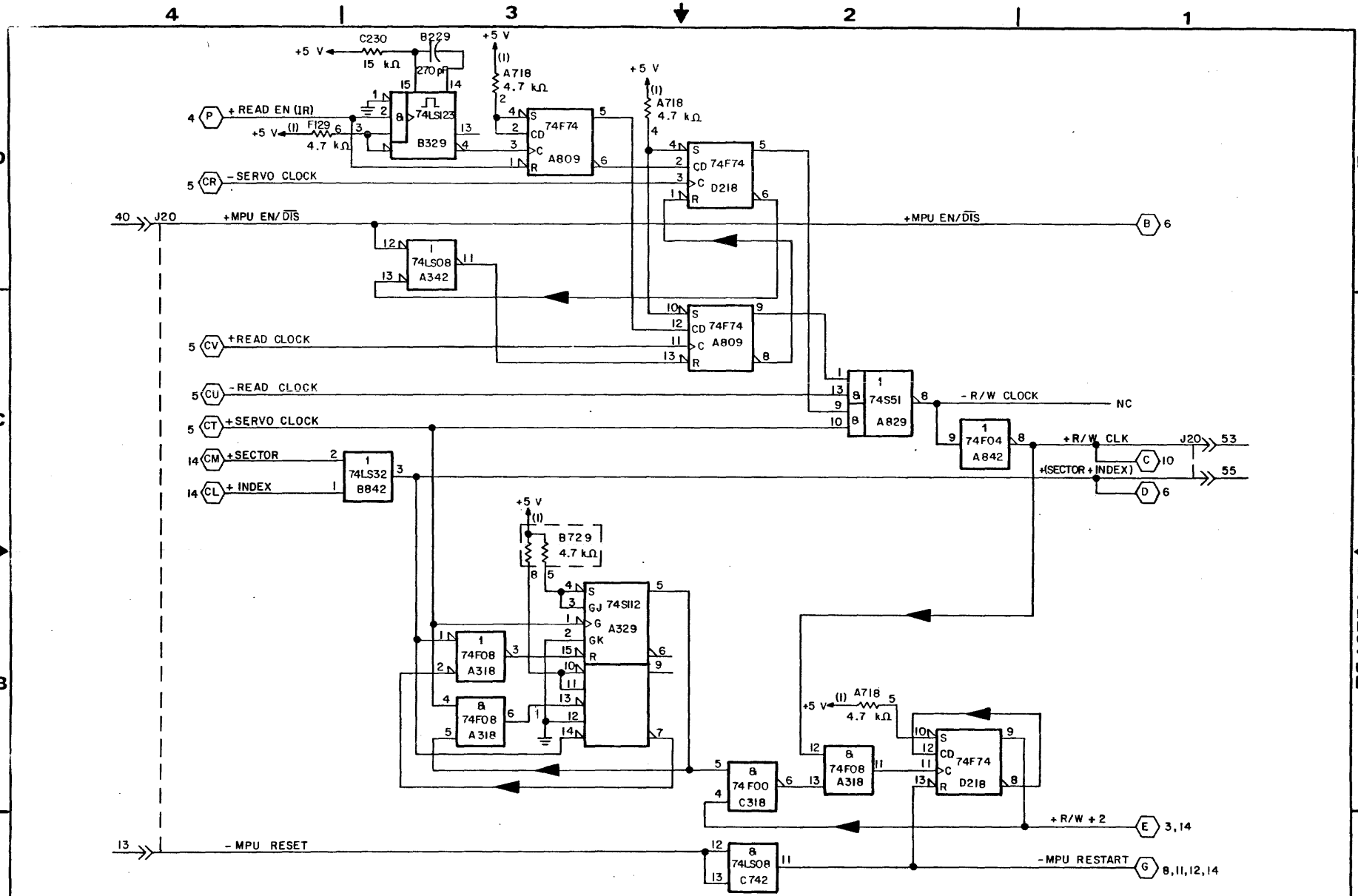
TITLE

SCHEMATIC DIAGRAM SMD-E BOARD TYPE DGPN

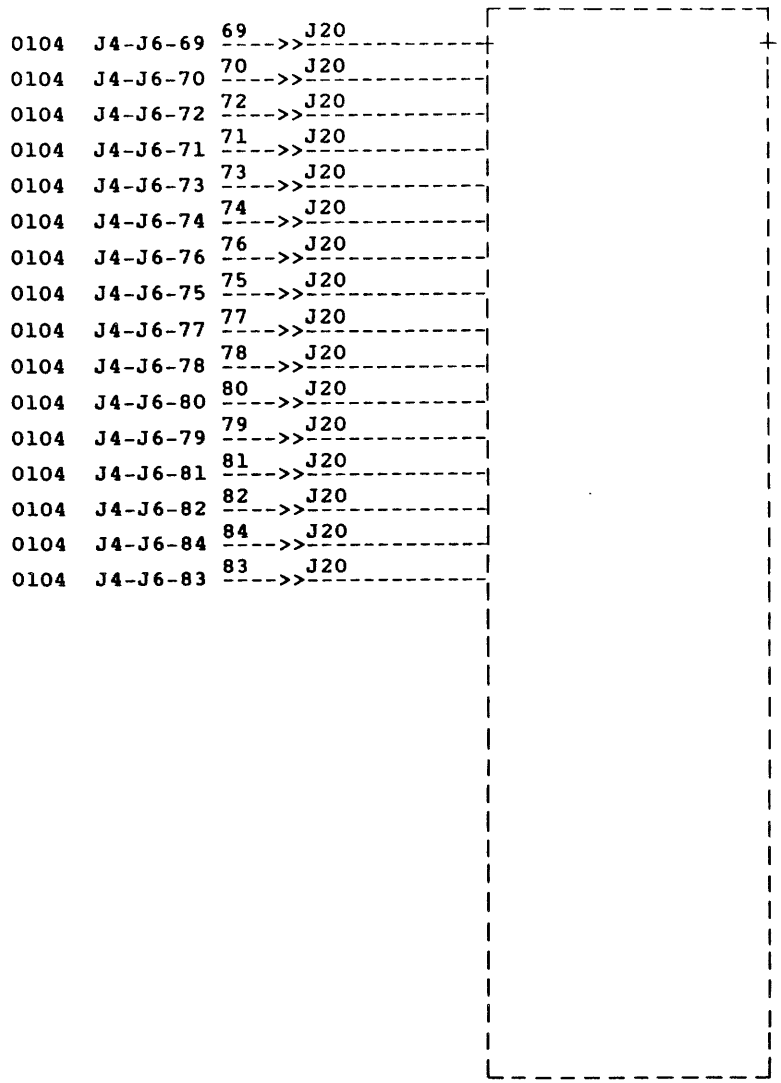
TWIN CITIES Data DIVISION	C	83324750	F
FSCM NO. 19333	0501	1 OF 14	3-159

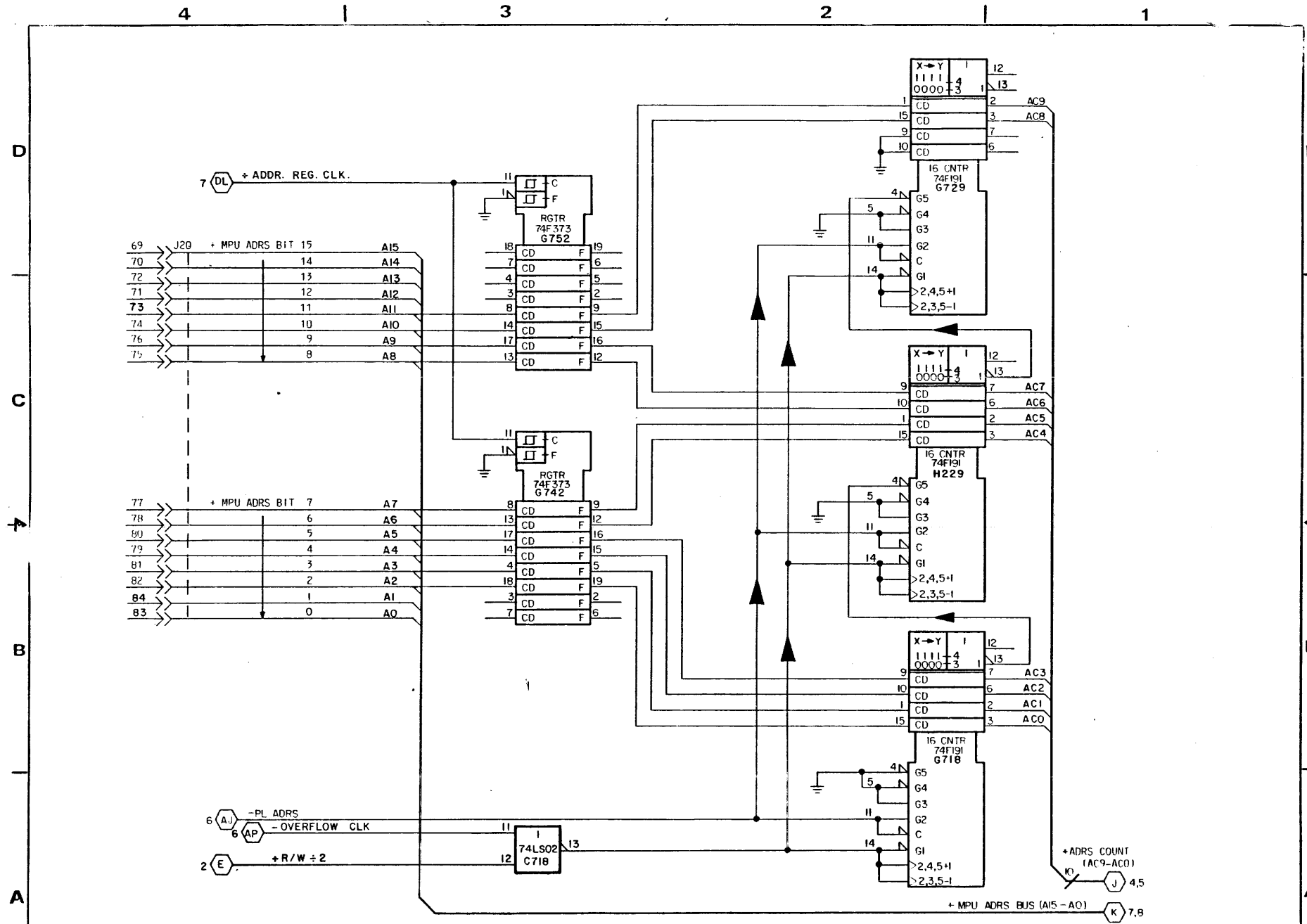


LOGIC CROSS REFERENCE INFORMATION

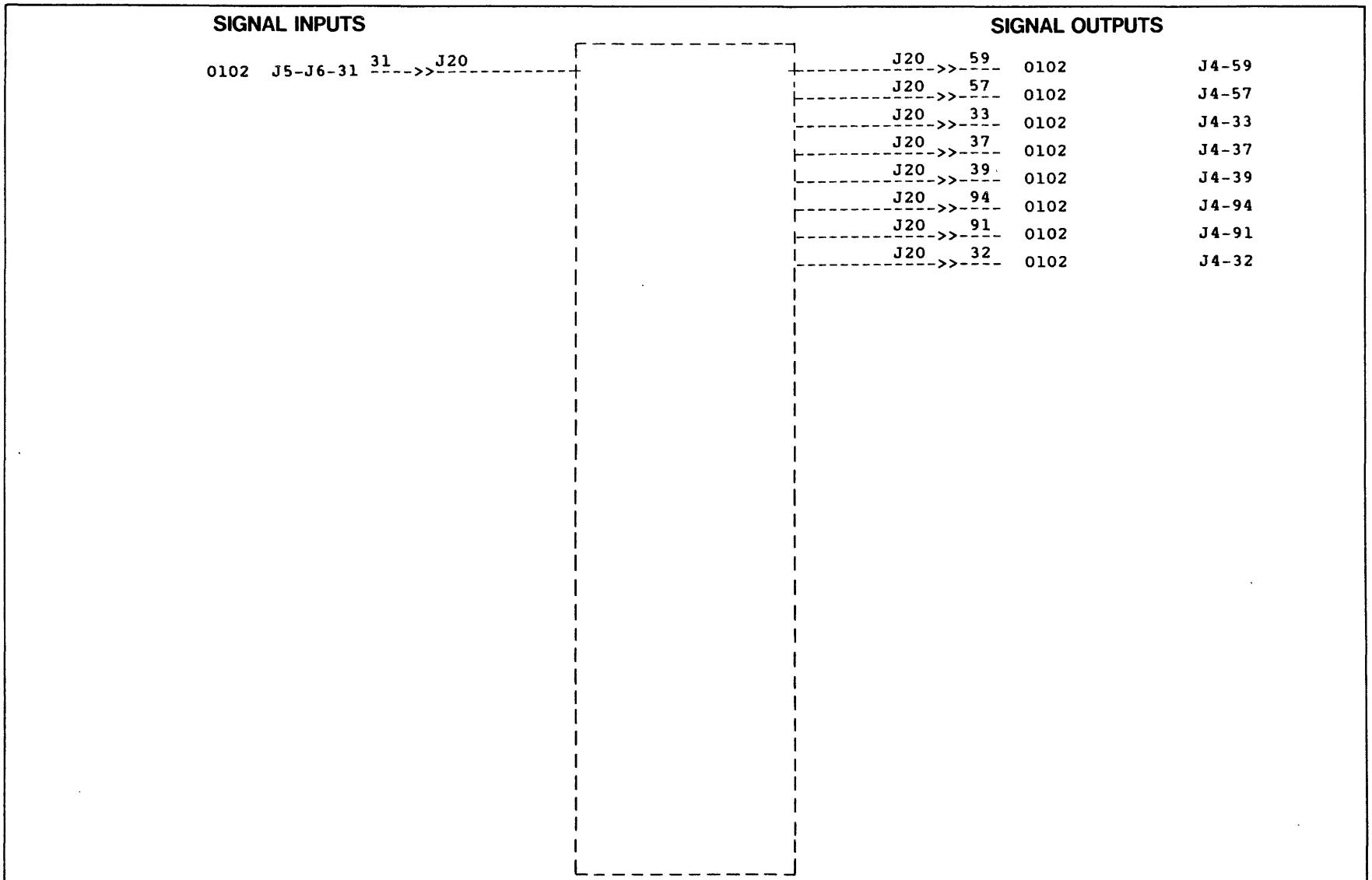


MAGNETIC PERIPHERALS INC	SCHEMATIC DIAGRAM TYPE: DPGN	TWIN CITIES DISK DIVISION	C	83324750	F
		CODE IDENT 19333	0502	SHEET 2	3-161

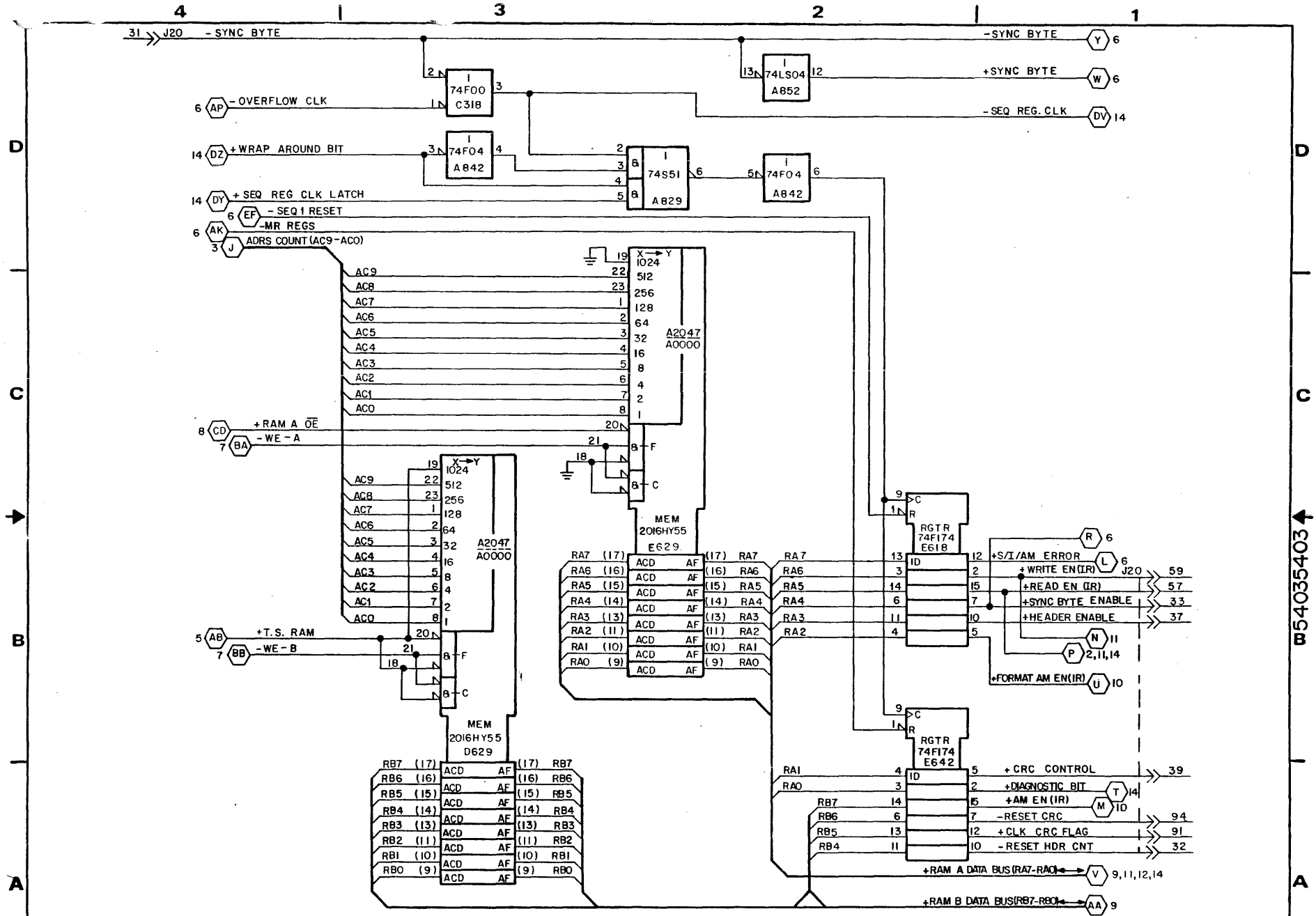

SIGNAL INPUTS
SIGNAL OUTPUTS
0104 J4-J6-69 69 ---->> J20
0104 J4-J6-70 70 ---->> J20
0104 J4-J6-72 72 ---->> J20
0104 J4-J6-71 71 ---->> J20
0104 J4-J6-73 73 ---->> J20
0104 J4-J6-74 74 ---->> J20
0104 J4-J6-76 76 ---->> J20
0104 J4-J6-75 75 ---->> J20
0104 J4-J6-77 77 ---->> J20
0104 J4-J6-78 78 ---->> J20
0104 J4-J6-80 80 ---->> J20
0104 J4-J6-79 79 ---->> J20
0104 J4-J6-81 81 ---->> J20
0104 J4-J6-82 82 ---->> J20
0104 J4-J6-84 84 ---->> J20
0104 J4-J6-83 83 ---->> J20



MAGNETIC PERIPHERALS INC	SCHEMATIC DIAGRAM TYPE: DGPN	TWIN CITIES DISK DIVISION	C 83324750	F
		CODE IDENT 19333	0503	SHEET 3	3-163



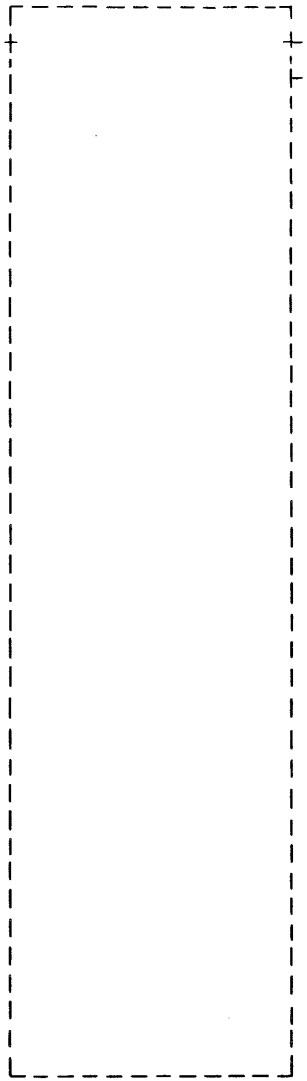
LOGIC CROSS REFERENCE INFORMATION



MAGNETIC PERIPHERALS INC a Control Data Company	SCHEMATIC DIAGRAM TYPE: DGPN	TWIN CITIES DISK DIVISION	C 83324750	F
		CODE IDENT 19333	0504	SHEET 4	3-165

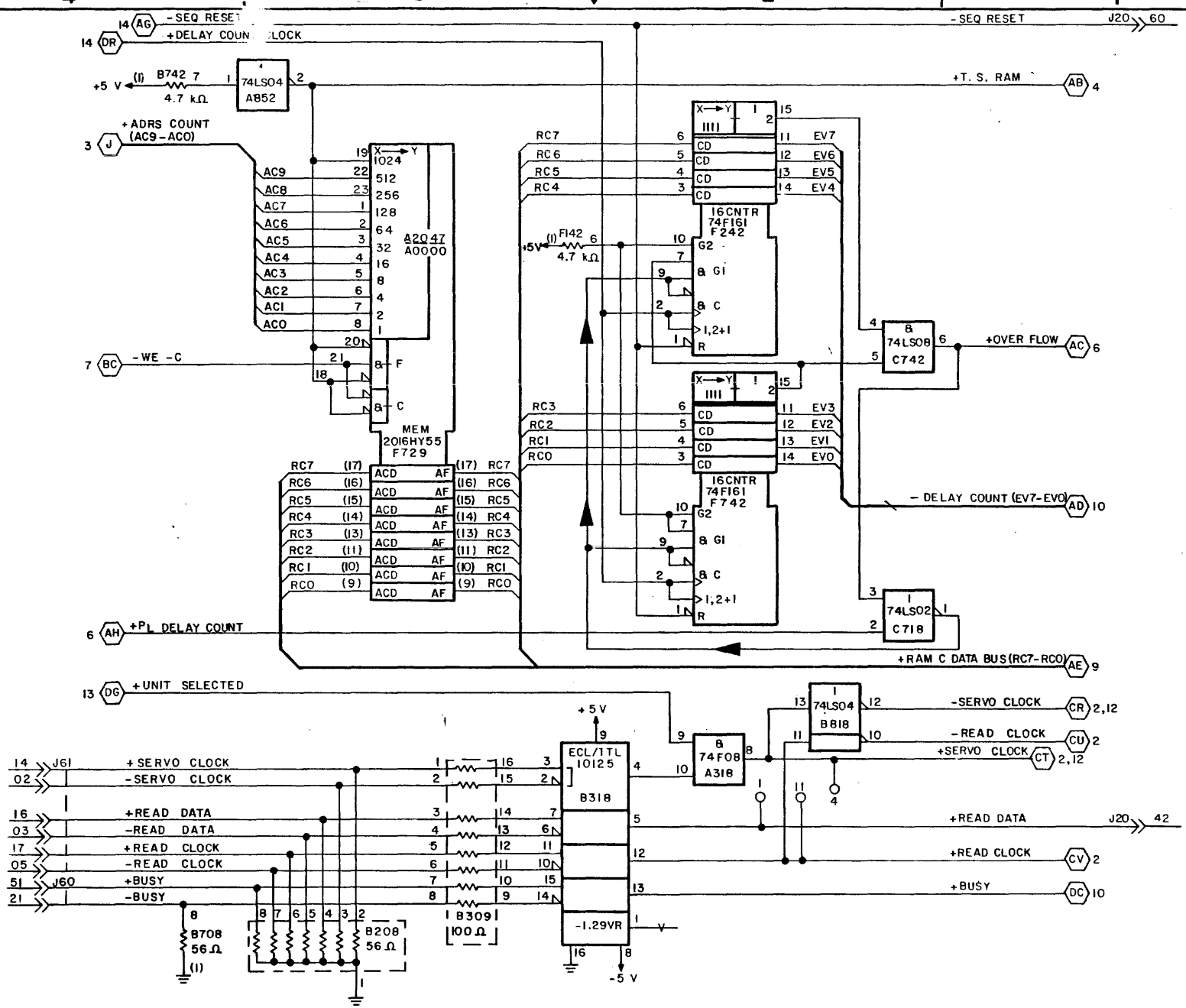
SIGNAL INPUTS

SIGNAL OUTPUTS



J20	60	0102	J4-60
J20	42	0102	J4-12

LOGIC CROSS REFERENCE INFORMATION

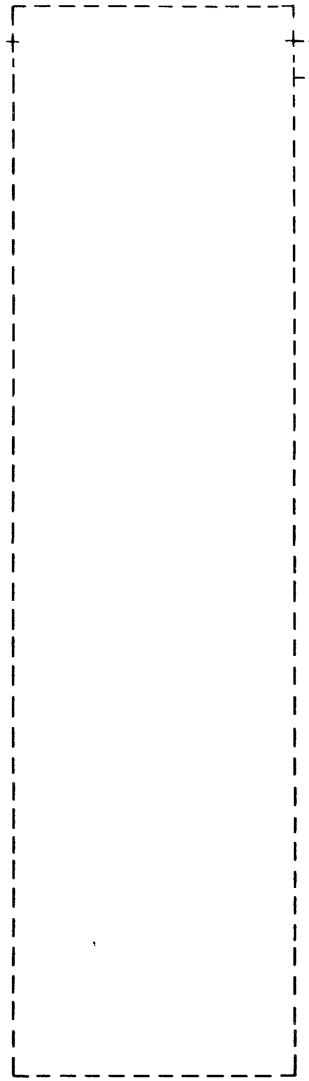


MAGNETIC PERIPHERALS INC.	SCHEMATIC DIAGRAM TYPE: DGPN	TWIN CITIES DATA DIVISION	C 83324750	F
		CODE IDENT 19333	0505	SHEET 5	3-167

54035403 B

SIGNAL INPUTS

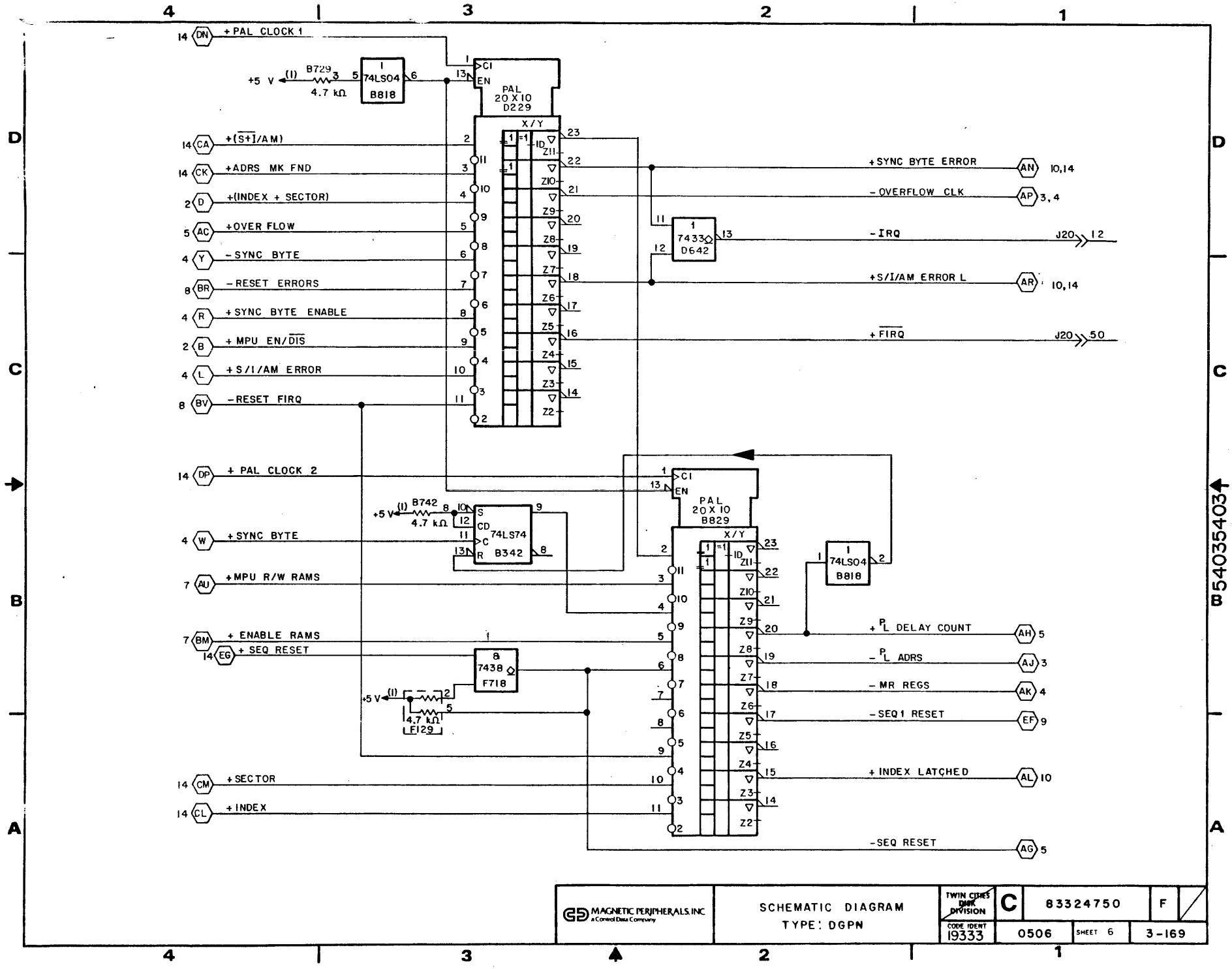
SIGNAL OUTPUTS



J20	12	0103	J4-J6-12
J20	50	0103	J4-J6-50

LOGIC CROSS REFERENCE INFORMATION

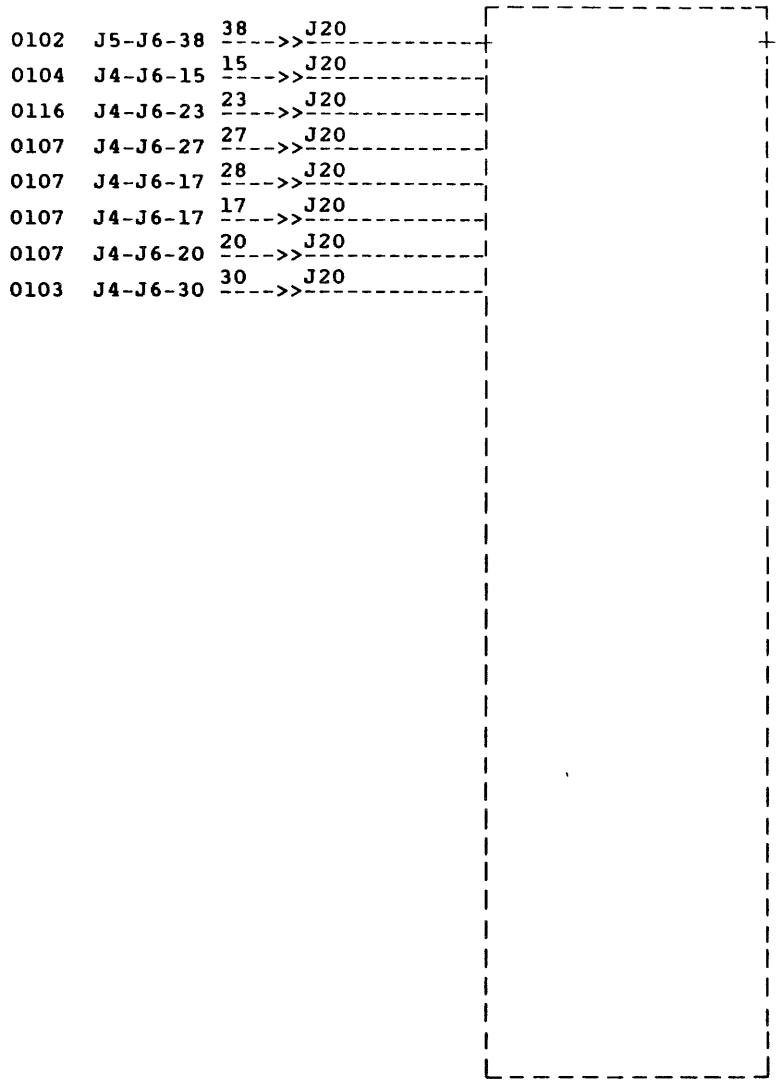
PUB	83324750	REV	F
CROSS REF NO	0506	PAGE	3-168



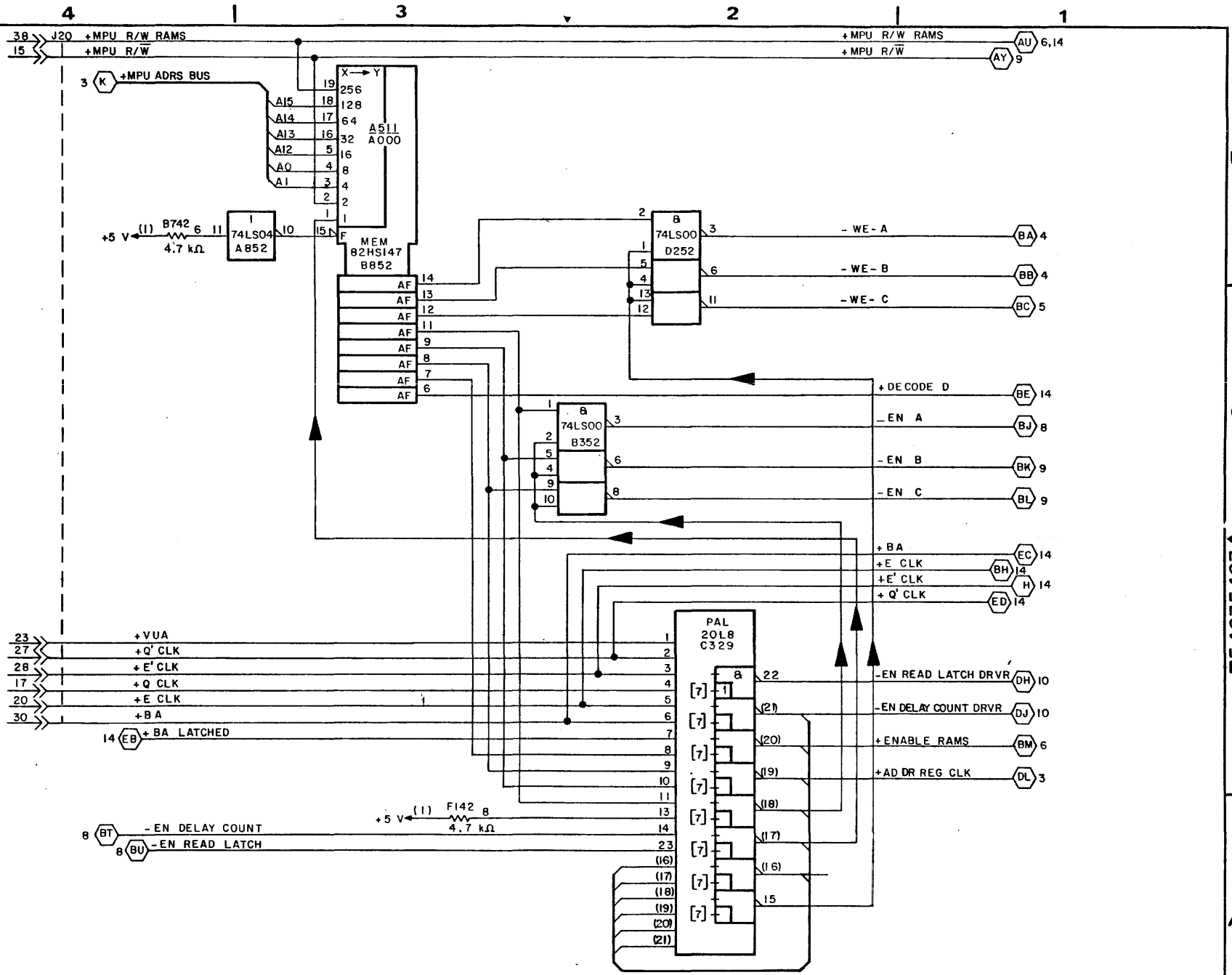
MAGNETIC PERIPHERALS INC A Control Data Company	SCHEMATIC DIAGRAM TYPE: DGPN	TWIN CITIES DISK DIVISION	C 83324750	F
		CODE IDENT 19333	0506 SHEET 6	3-169

SIGNAL INPUTS

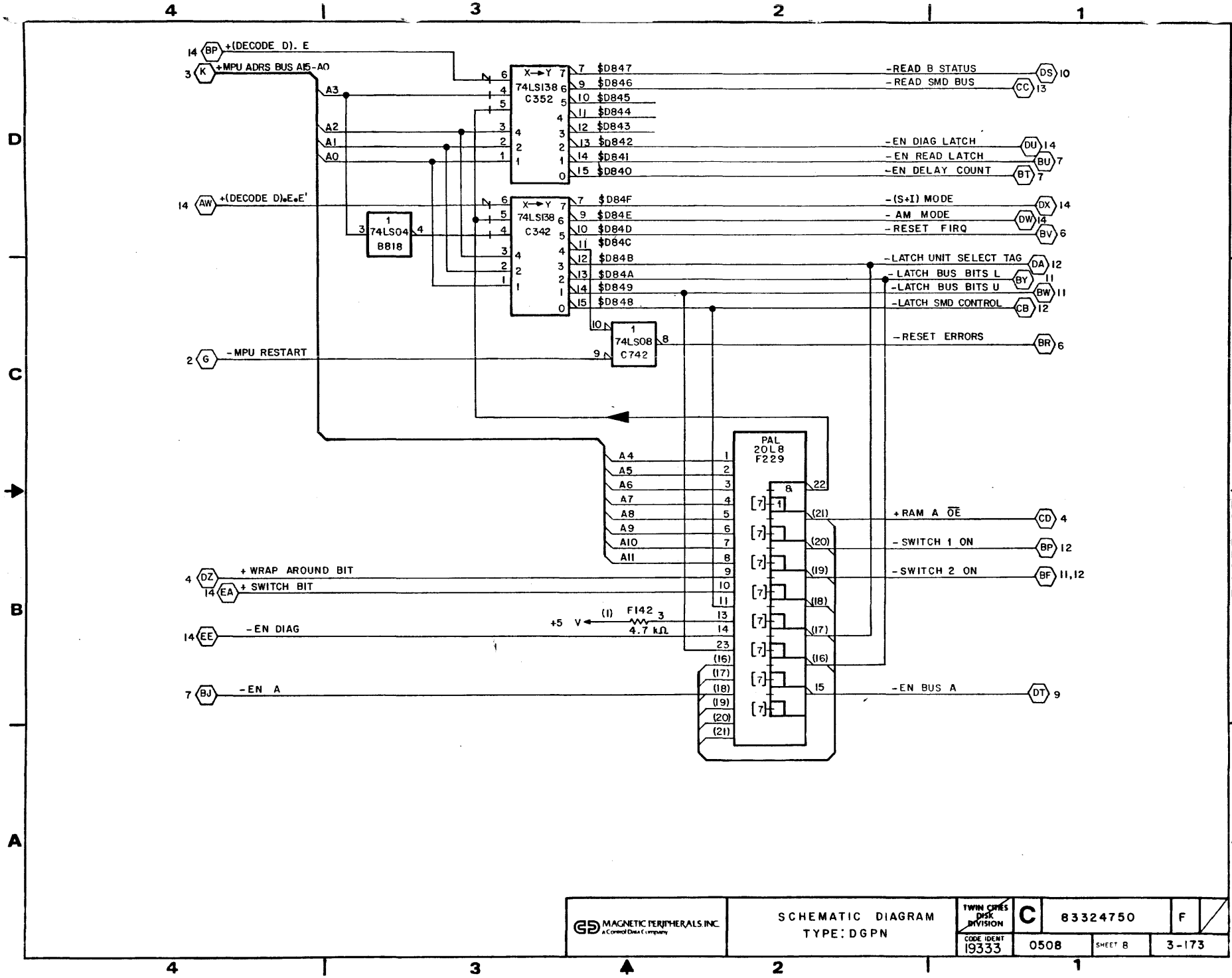
SIGNAL OUTPUTS



LOGIC CROSS REFERENCE INFORMATION



MAGNETIC PERIPHERALS INC. A Control Data Company	SCHEMATIC DIAGRAM TYPE: DGPN	TWIN CITIES DISK DIVISION	C	83324750 F
		CODE IDENT 19333	0507	SHEET 7 3-171



MAGNETIC PERIPHERALS INC. A Control Data Company	SCHEMATIC DIAGRAM TYPE: DGPN	TWIN CITIES DISK DIVISION	C	83324750	F
		CODE IDENT 19333	0508	SHEET 8	3-173

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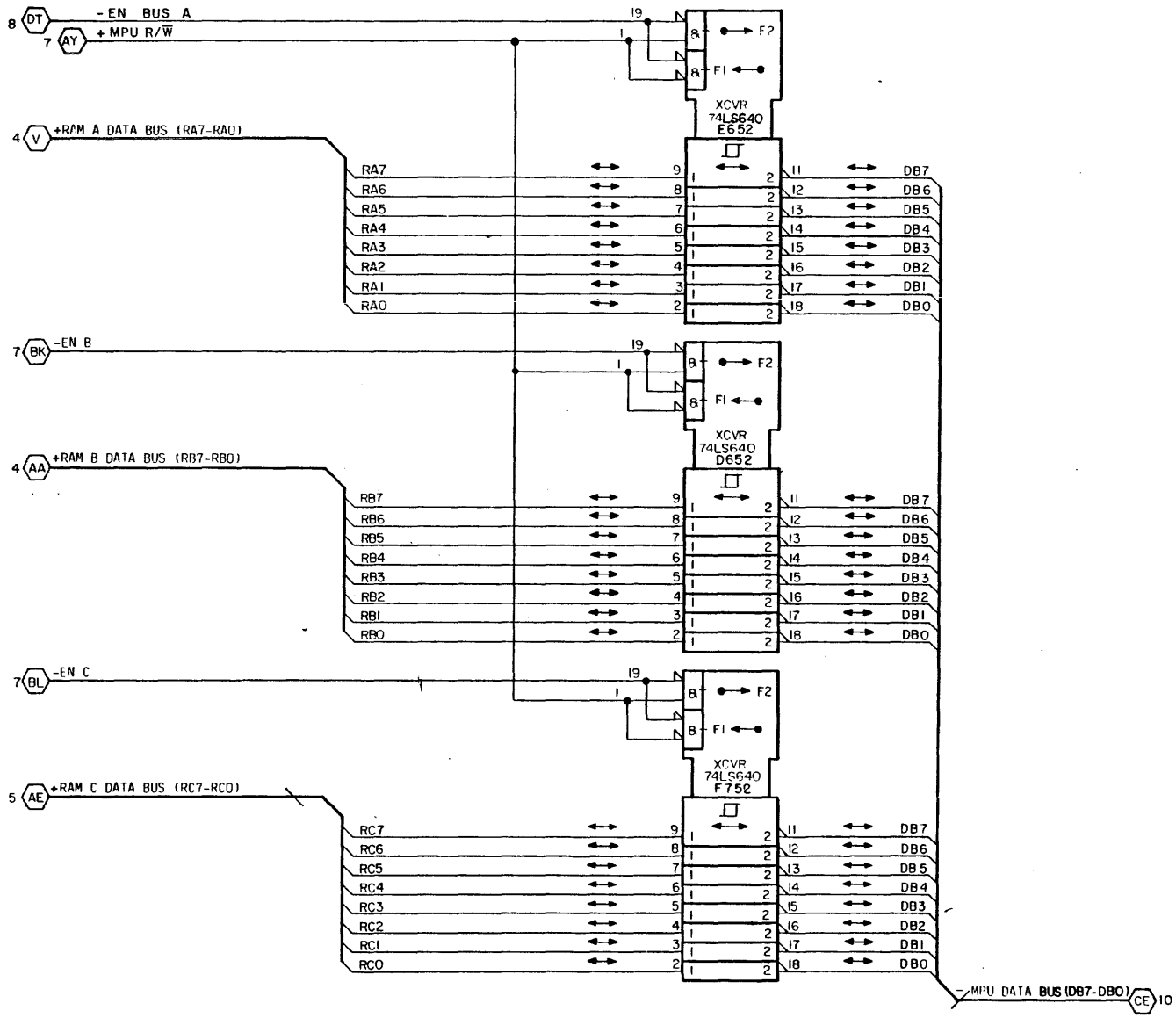
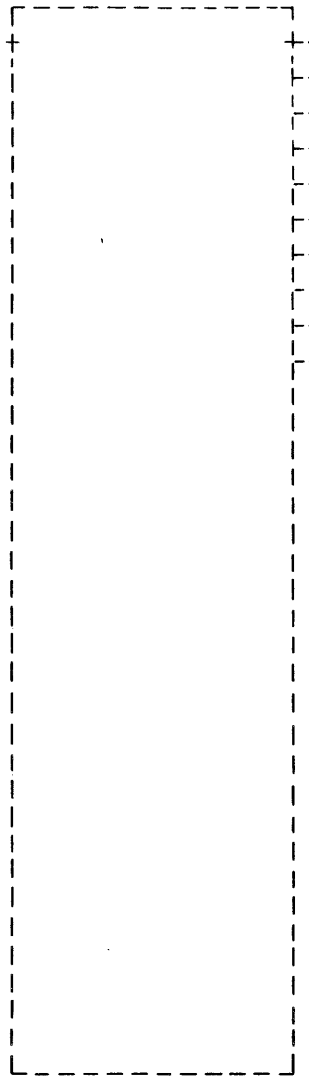


MAGNETIC PERIPHERALS INC	SCHEMATIC DIAGRAM TYPE: DGPN	TWIN CITIES DATA DIVISION	C 83324750	F
		CODE IDENT 19333	0509	SHEET 9	3-175

5403540 3

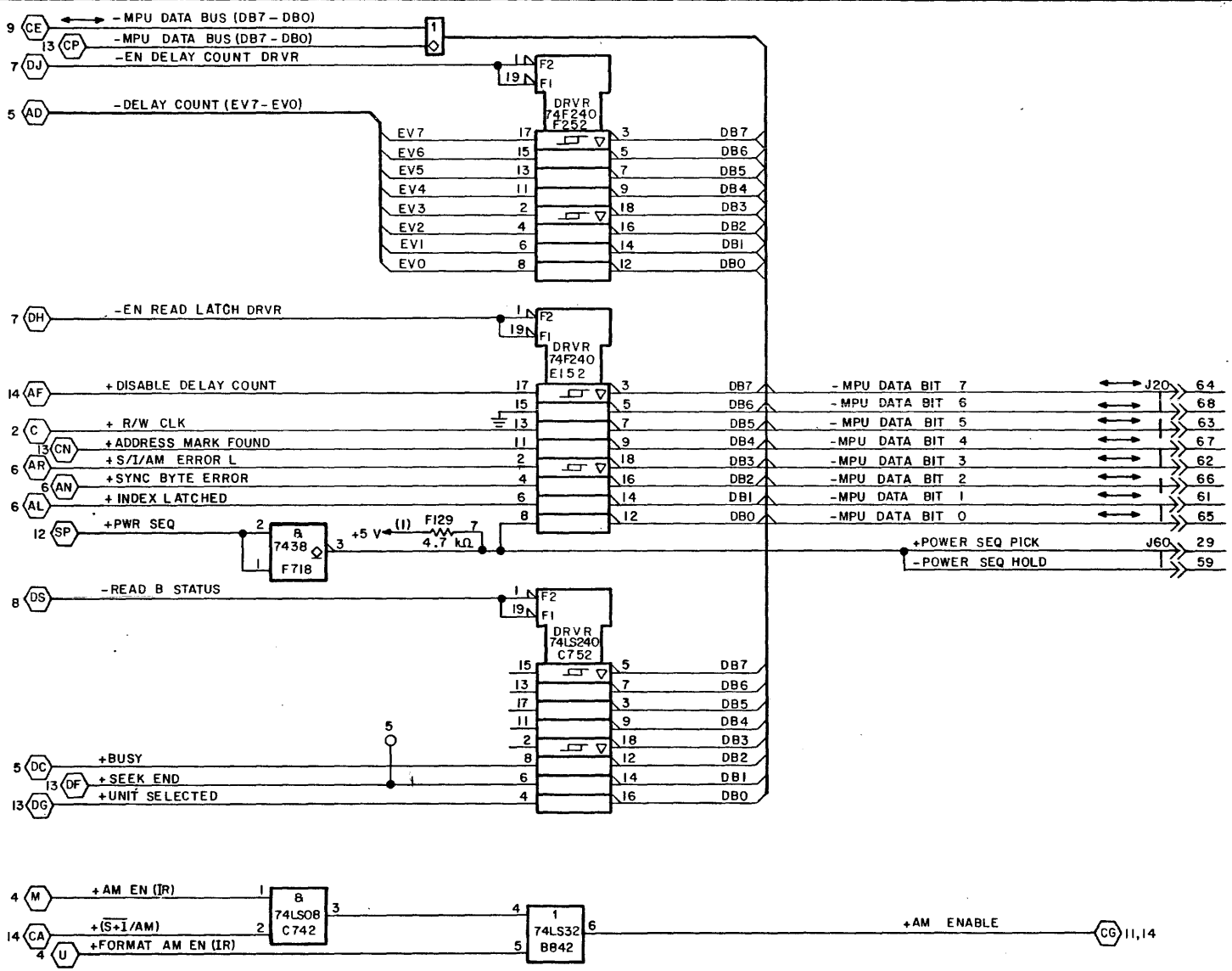
SIGNAL INPUTS

SIGNAL OUTPUTS



J20 >> 64	0103	J4-J6-64
J20 >> 68	0103	J4-J6-68
J20 >> 63	0103	J4-J6-63
J20 >> 67	0103	J4-J6-67
J20 >> 62	0103	J4-J6-62
J20 >> 66	0103	J4-J6-66
J20 >> 61	0103	J4-J6-61
J20 >> 65	0103	J4-J6-65
J60 >> 29	Cont to Drv	
J60 >> 59	Cont to Drv	

LOGIC CROSS REFERENCE INFORMATION



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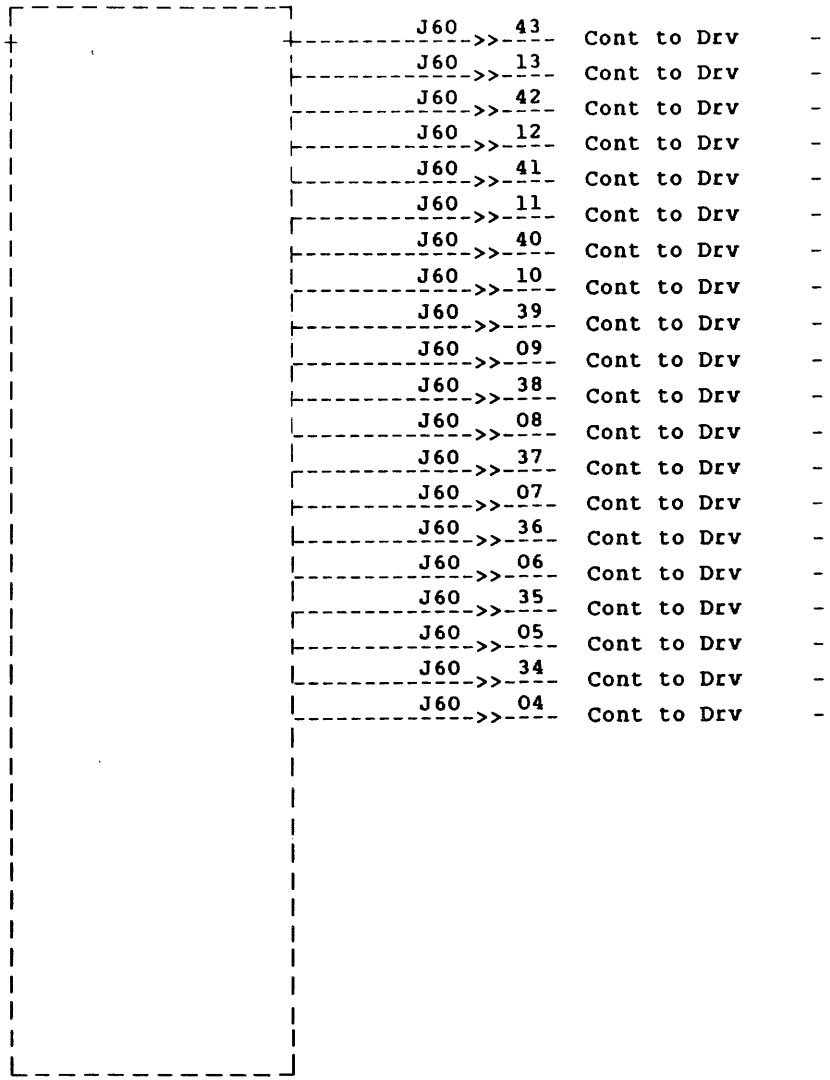
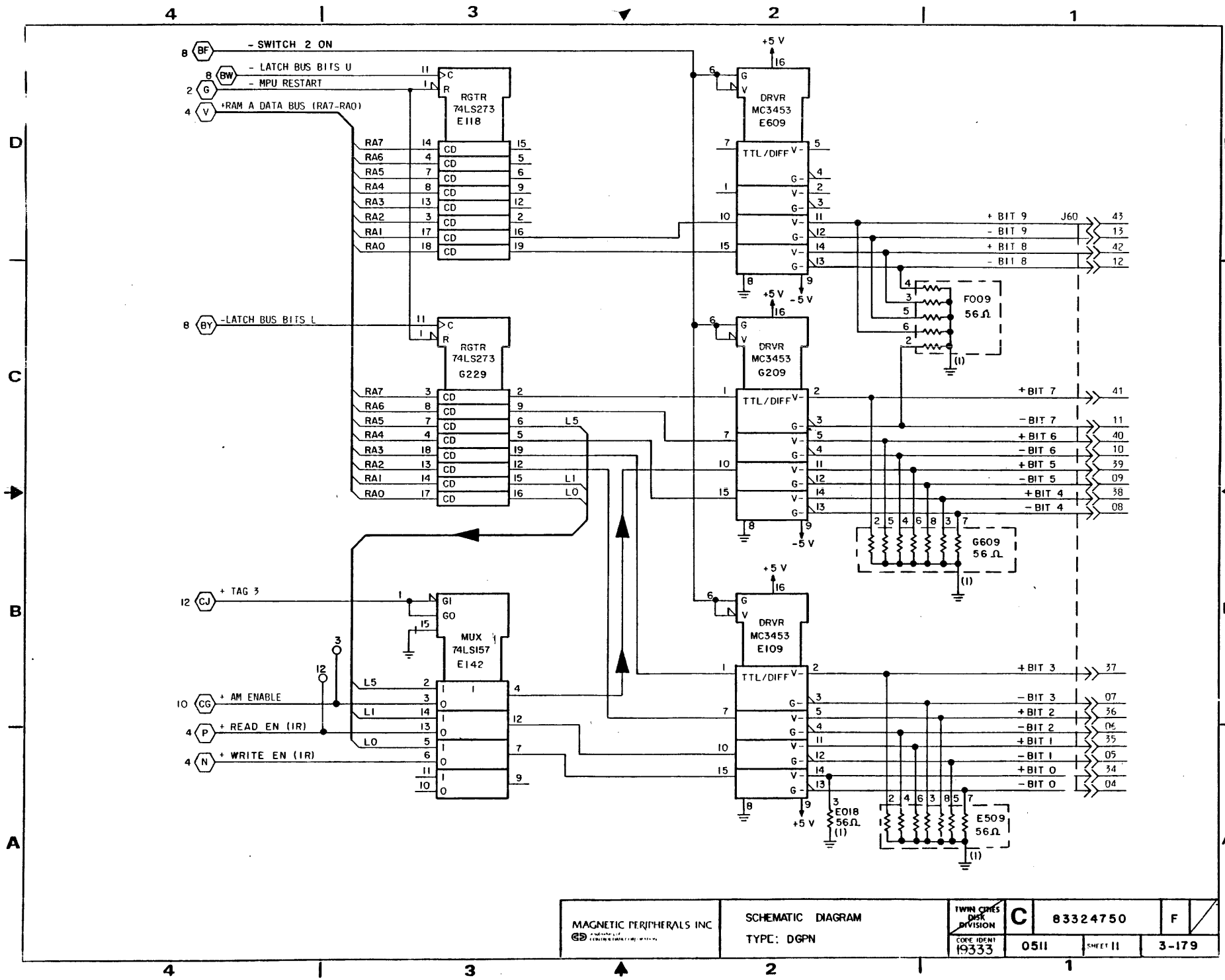
MAGNETIC PERIPHERALS INC A Control Data Company	SCHEMATIC DIAGRAM TYPE: DGPN	TWIN CITIES DISK DIVISION	C 83324750	F
		CODE IDENT 19333	0510	SHEET 10	3-177

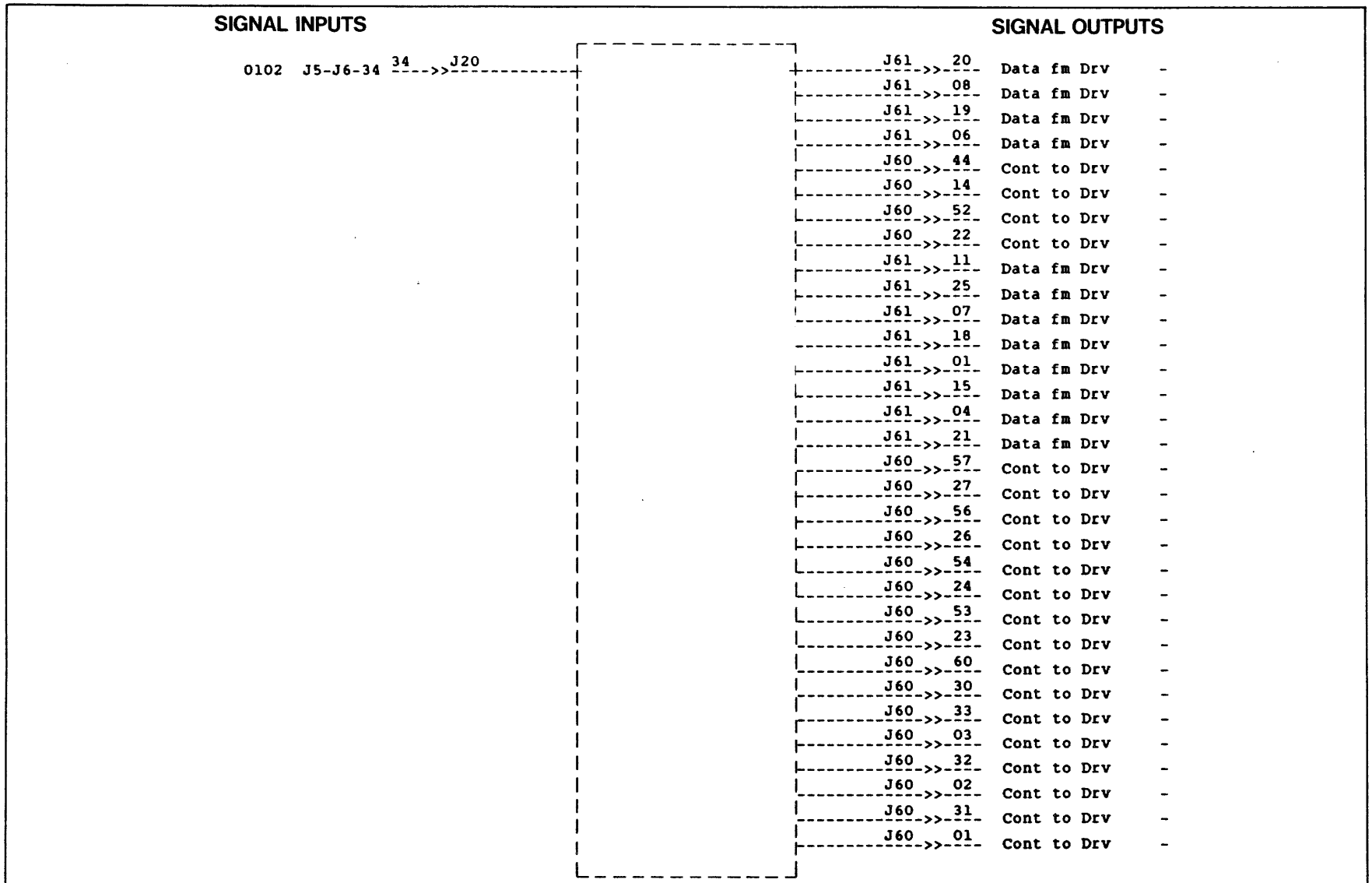
SIGNAL INPUTS

SIGNAL OUTPUTS

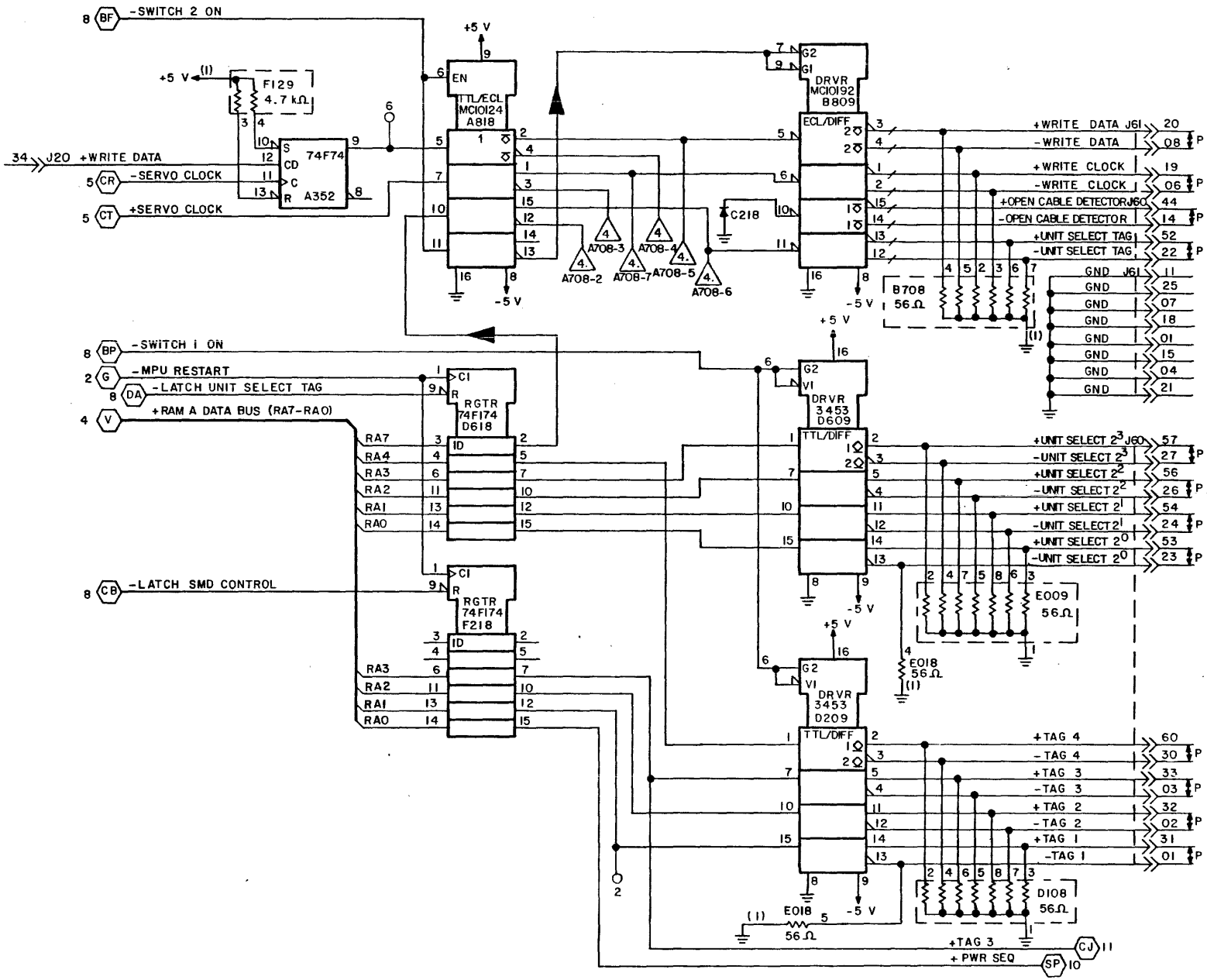


LOGIC CROSS REFERENCE INFORMATION


- SWITCH 2 ON
- LATCH BUS BITS U
- MPU RESTART
+RAM A DATA BUS (RA7-RA0)
-LATCH BUS BITS L
+ TAG 3
+ AM ENABLE
+ READ EN (IR)
+ WRITE EN (IR)
RGTR 74LS273 E118
RGTR 74LS273 G229
MUX 74LS157 E142
DRVR MC3453 E609
DRVR MC3453 G209
DRVR MC3453 E109
TTL/DIFF
+5 V
-5 V
+ BIT 9
- BIT 9
+ BIT 8
- BIT 8
+ BIT 7
- BIT 7
+ BIT 6
- BIT 6
+ BIT 5
- BIT 5
+ BIT 4
- BIT 4
+ BIT 3
- BIT 3
+ BIT 2
- BIT 2
+ BIT 1
- BIT 1
+ BIT 0
- BIT 0
J60
F009 56Ω
G609 56Ω
E018 56Ω
E509 56Ω
MAGNETIC PERIPHERALS INC
SCHEMATIC DIAGRAM
TYPE: DGPN
TWIN CITIES DISK DIVISION
C
83324750
F
CODE IDENT 19333
0511
SHEET 11
3-179
54035403

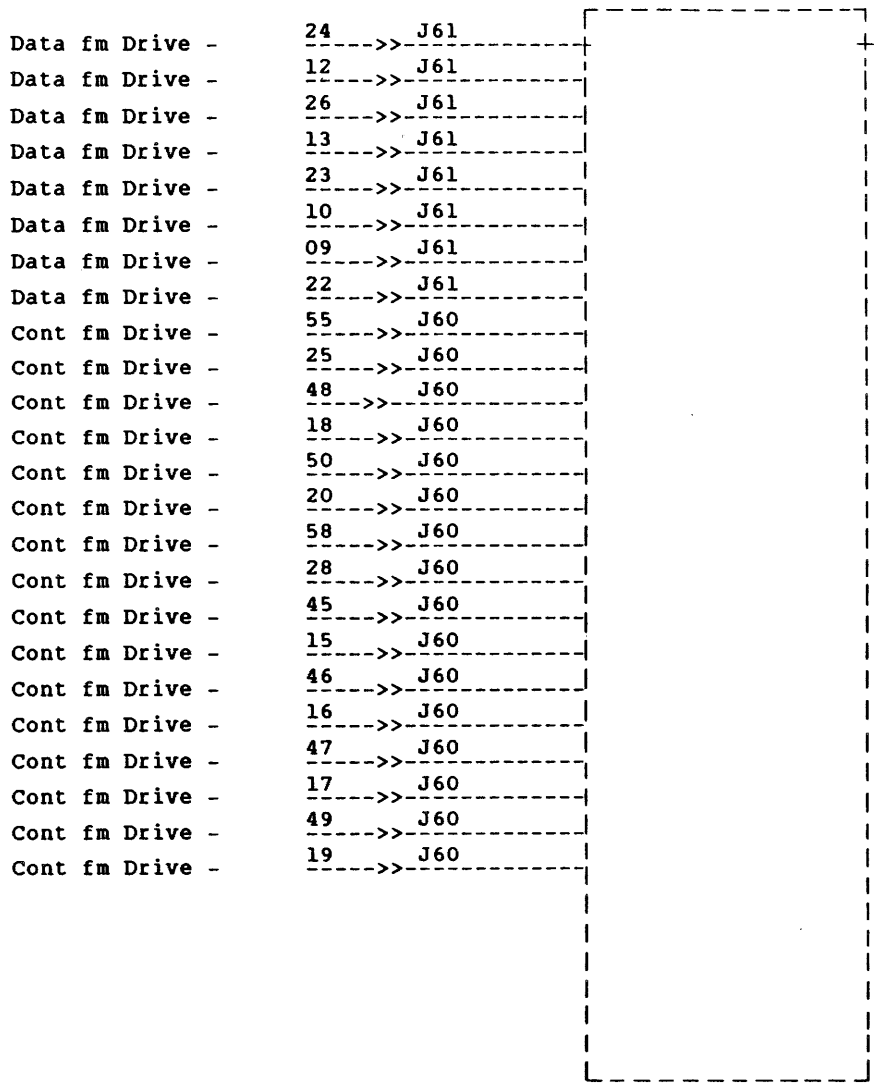


LOGIC CROSS REFERENCE INFORMATION

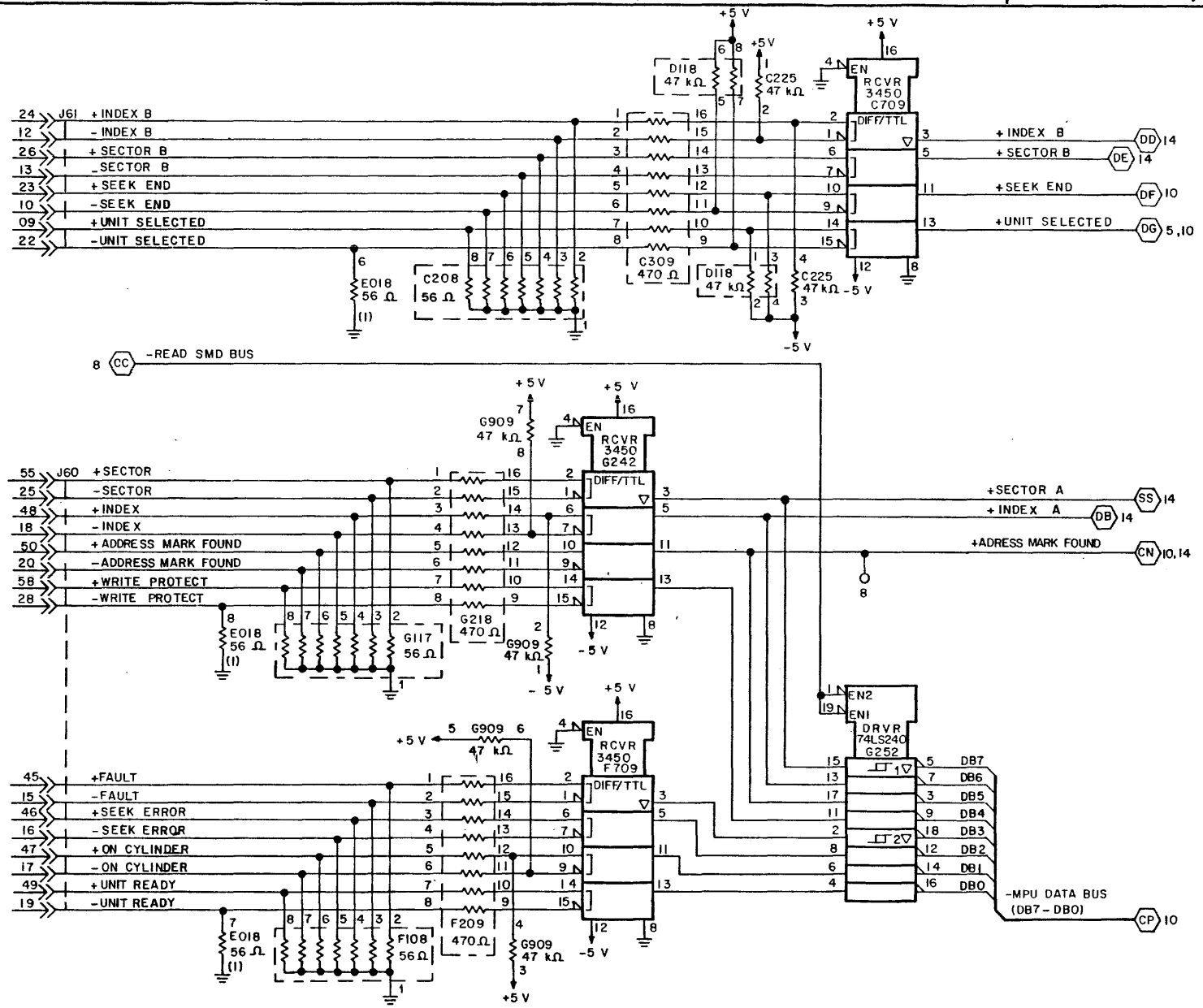

8 BF -SWITCH 2 ON
+5 V (1)
F129 4.7 kΩ
34 J20 +WRITE DATA
5 CR -SERVO CLOCK
5 CT +SERVO CLOCK
74F74 A352
TTL/ECL MC10124 A818
EN
A708-2
A708-3
A708-4
A708-5
A708-6
A708-7
C218
DRVR MC10192 B809
ECL/DIFF
+WRITE DATA J61 20
-WRITE DATA 08 P
+WRITE CLOCK 19
-WRITE CLOCK 06 P
+OPEN CABLE DETECTOR J60 44
-OPEN CABLE DETECTOR 14 P
+UNIT SELECT TAG 52
-UNIT SELECT TAG 22 P
GND J61 11
GND 25
GND 07
GND 18
GND 01
GND 15
GND 04
GND 21
B708 56Ω
8 BP -SWITCH 1 ON
2 G -MPU RESTART
8 DA -LATCH UNIT SELECT TAG
4 V +RAM A DATA BUS (RA7-RA0)
RGTR 74F174 D618
RA7
RA4
RA3
RA2
RA1
RA0
8 CB -LATCH SMD CONTROL
RGTR 74F174 F218
DRVR 3453 D609
TTL/DIFF
+UNIT SELECT 2^3 J60 57
-UNIT SELECT 2^3 27 P
+UNIT SELECT 2^2 56
-UNIT SELECT 2^2 26 P
+UNIT SELECT 2^1 54
-UNIT SELECT 2^1 24 P
+UNIT SELECT 2^0 53
-UNIT SELECT 2^0 23 P
E009 56Ω
E018 56Ω (1)
DRVR 3453 D209
+TAG 4 60
-TAG 4 30 P
+TAG 3 33
-TAG 3 03 P
+TAG 2 32
-TAG 2 02 P
+TAG 1 31
-TAG 1 01 P
D108 56Ω
+TAG 3 CJ 11
+PWR SEQ SP 10
+5 V
-5 V
B54035403
MAGNETIC PERIPHERALS INC
SCHEMATIC DIAGRAM
TYPE: DGPN
TWIN CITIES DISK DIVISION
C
83324750
F
CODE IDENT 19333
0512
SHEET 12
3-18!

SIGNAL INPUTS

SIGNAL OUTPUTS



LOGIC CROSS REFERENCE INFORMATION



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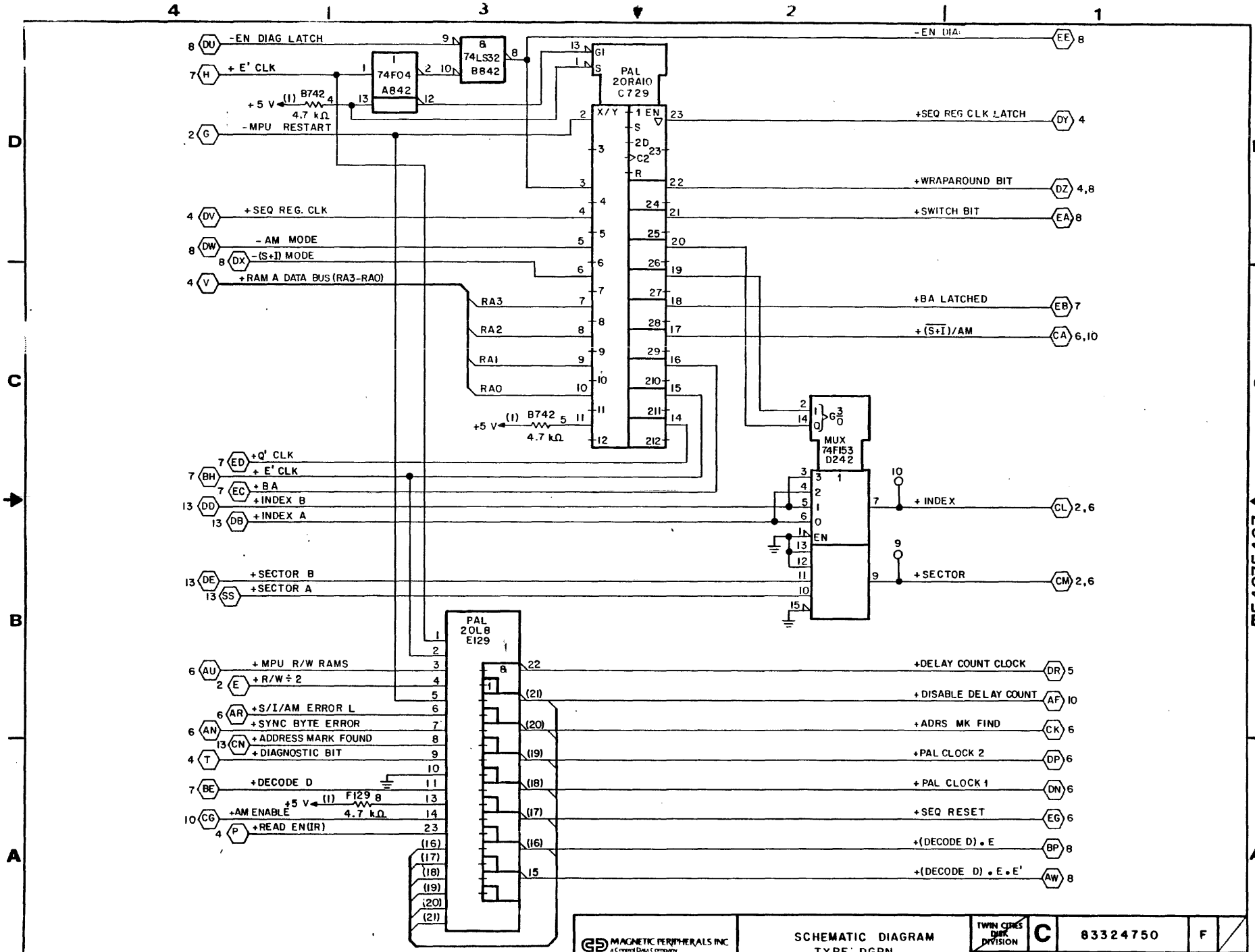
MAGNETIC PERIPHERALS INC. A Control Data Company	SCHEMATIC DIAGRAM TYPE: DGPN	TWIN CITIES DISK DIVISION	C	83324750 F
		CODE IDENT 19333	0513	SHEET 13 3-183



B54035403

MAGNETIC PERIPHERALS INC	SCHEMATIC DIAGRAM TYPE: DGPN	TWIN CITIES DATA DIVISION	C 83324750 F
		CODE IDENT 19333	0514 SHEET 14 3-185

SECTION 4

PARTS DATA

PARTS DATA 4

INTRODUCTION

This section contains listings of field replaceable parts, (including FRUs), manufacturer's recommended spare parts, and accessories. Use only CDC/MPI replacement parts. Using non-CDC/MPI replacement parts can adversely affect safety. Using other manufacturers' parts could also degrade reliability, increase maintenance downtime, and void warranty coverage.

FIELD REPLACEABLE PARTS LIST

This listing is divided into four columns:

- INDEX NO - The numbers in this column correspond to the numbers shown within the facing page illustration.

- PART NUMBER - Contains one of the following:

  1. Eight digit part number - use this number to order a replacement part. Within the continental U.S., parts may be ordered from Control Data Corporation, World Distribution Center, 304 North Dale St., St. Paul, MN, 55103, Telephone 612-292-2200.

  2. Spare - indicates that the item is a manufacturer's recommended spare part. Refer to table 4-1 for replacement part number information.

  3. CIC - the abbreviation refers to Card Interchangeability Chart. Items listed in the CIC are also manufacturer's recommended spare parts.

- PART DESCRIPTION - Contains part nomenclature/description. If an item is indented more than the previous item, it indicates it is part of the previous item (assembly).

- NOTE - Usually contains entries to define differences between machine configurations (i.e., model differences, older units vs newer units, etc.).

MANUFACTURER'S RECOMMENDED SPARE PARTS

This listing (table 4-1) is divided into three columns:

- DESCRIPTION/NOTES - Contains the part nomenclature/description and other pertinent information.
- PART NUMBER - Contains the part number of the part when the unit was manufactured or as a result of the latest FCO. This part can be used as a replacement on the series code and types of units indicated in the Description/Notes column. However, always use Replacement Part Number when ordering new parts or spares.
- REPLACEMENT PART NUMBER - Contains the interchangeable replacement part number. Use this number for ordering replacement or spare parts.

ACCESSORIES

This listing (table 4-2) contains the following:

- PART NUMBER - Use this number to order this part. See Field Replaceable Parts List for ordering information.
- DESCRIPTION - Contains the part nomenclature/description.

I/O BOARD/CONTROLWARE REFERENCE INFORMATION

This listing (table 4-3) contains the information required to order additional I/O boards and controlware to expand the interface capabilities of the PFTU. Prior to using the table, be sure to read the accompanying explanation of how to use the information provided.

CARD INTERCHANGEABILITY CHART

The card interchangeability chart (CIC) provides the latest revision level of a card, its title, and its part number for ordering purposes.

Prior to attempting to use the chart, be sure to read and understand the rules for interpreting the CIC as given on sheet 1.

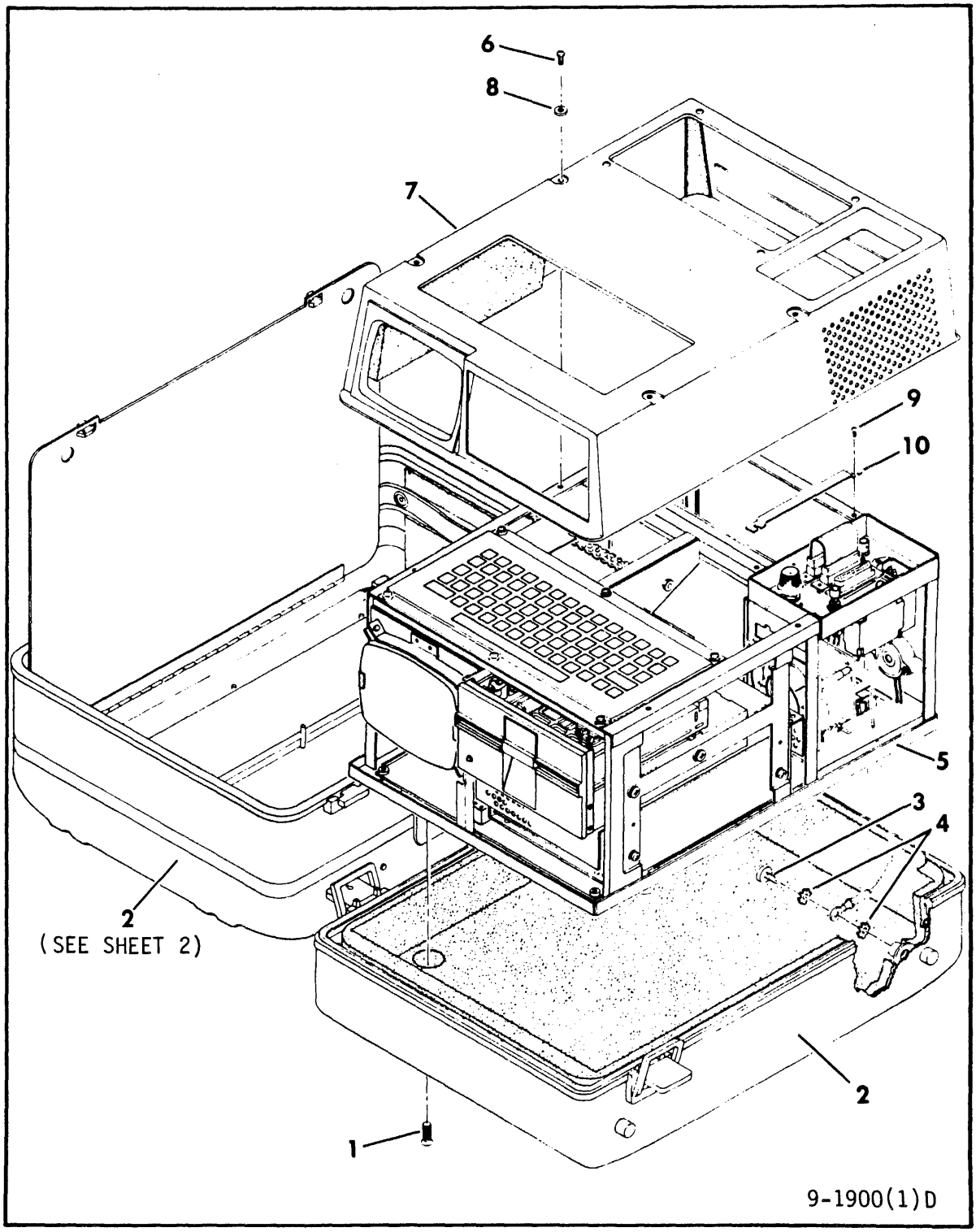


Figure 4-1. Final Assembly (Sheet 1 of 2)

INDEX NO	PART NO	PART DESCRIPTION	NOTE
4-1	73086303	FINAL ASSEMBLY (Sheet 1 of 2)	TB2A3B (ISI)
4-1	73086304	FINAL ASSEMBLY	TB2A3C (ISI/SDI)
4-1	73086305	FINAL ASSEMBLY	TB2A3D (ISI/SDI SMD-0)
4-1	73086306	FINAL ASSEMBLY	TB2A3E (SMD-0/ SDI)
4-1	73086307	FINAL ASSEMBLY	TB2A3F (SMD-0)
4-1	73086308	FINAL ASSEMBLY	TB2A3G (SMD-O/E)
4-1	73086309	FINAL ASSEMBLY	TB2A3H (ISI/ SDI/SMD-O/E
1	92956326	SCREW, PHH, 1/4-20 x 7/16	
2	73086401	CASE ASSEMBLY	
3	10126243	SCREW, Hex Socket, 10-32 x 3/8	
4	10126403	WASHER, Lock, 10	
5		CHASSIS ASSEMBLY (See Figure 4-2)	
6	10127113	SCREW, PHH, 6-32 x 3/8	
7	81417001	COVER, Chassis	S/C 03 W/O 07115 & Blw
7	81417002	COVER, Chassis	S/C 03 W/07115 & Abv
8	10125605	WASHER, Flat, 6	
9	10127320	SCREW, Slotted, 4-40 x 1/4	
10	93913897	RETAINER, Card	

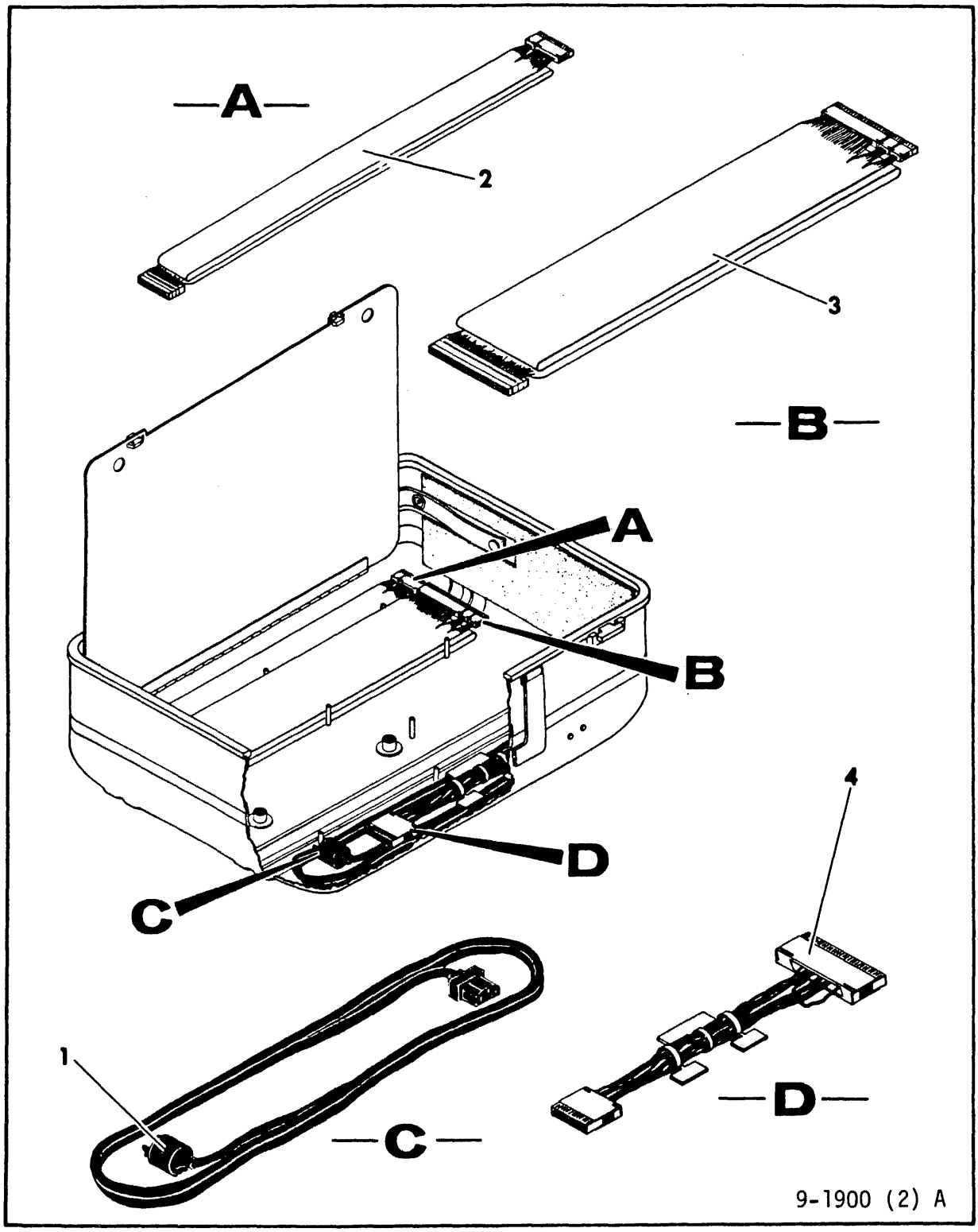


Figure 4-1. Final Assembly (Sheet 2)

INDEX NO	PART NO	PART DESCRIPTION	NOTE
4-1		FINAL ASSEMBLY (Sheet 2)	
1	75778702	CORD, Power	
2	Spare	CABLE ASSEMBLY, Universal Step Down (Small)	
3	Spare	CABLE ASSEMBLY, Universal Step Down (Large)	
4	Spare	CABLE ASSEMBLY, Wraparound	
	15387586	CABLE ASSEMBLY, Head Alignment	

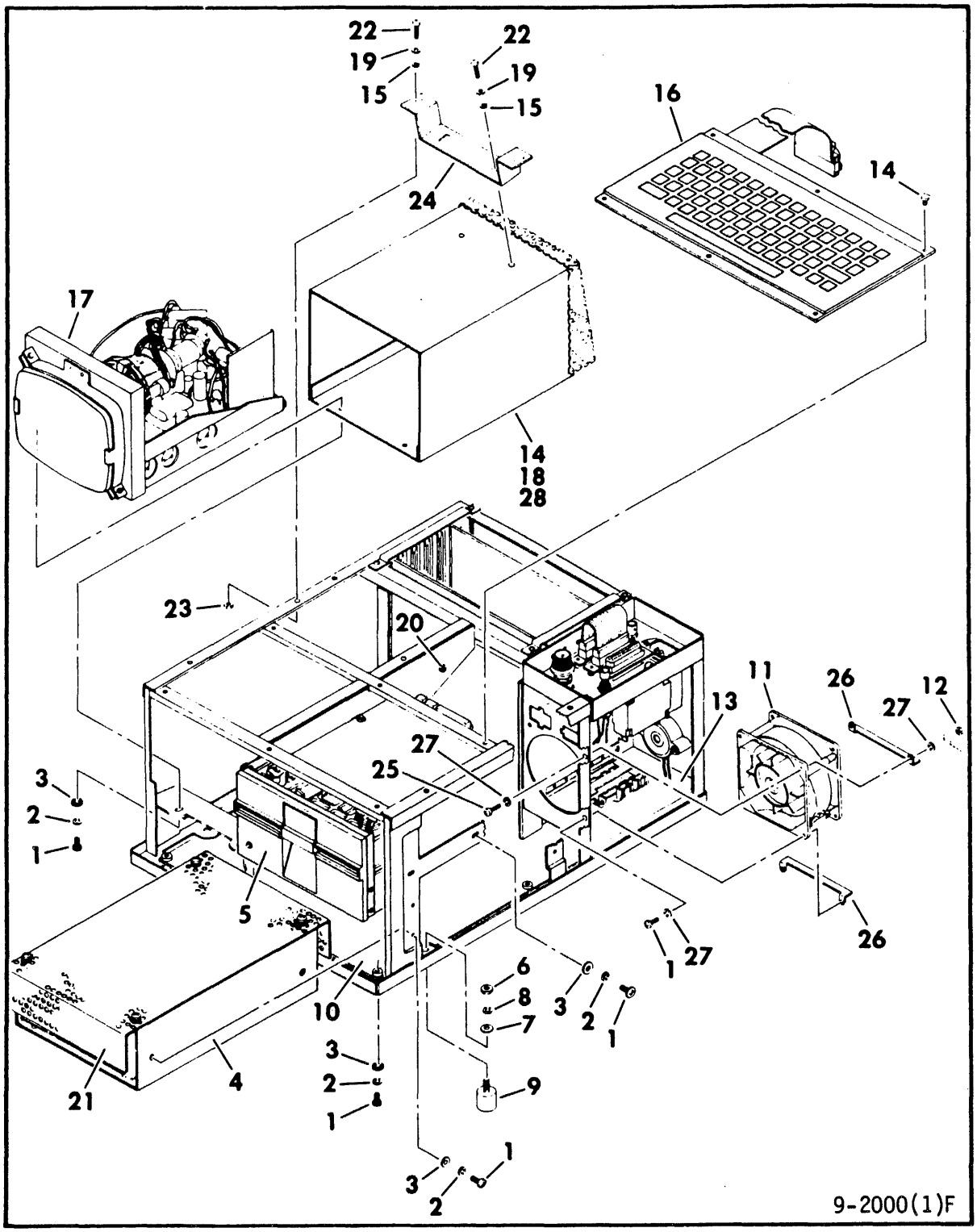


Figure 4-2. Chassis Assembly (Sheet 1 of 5)

INDEX NO	PART NO	PART DESCRIPTION	NOTE
4-2	81997001	CHASSIS ASSEMBLY (Sheet 1 of 6)	
1	10127113	SCREW, PHH, 6-32 x 3/8	
2	10125803	WASHER, Lock, 6	
3	10125605	WASHER, Flat, 6	
4	Spare	POWER SUPPLY ASSEMBLY	
		CABLE & FDD ASSEMBLY	
5	Spare	FLOPPY DISK DRIVE, Model 9409	
6	10125301	NUT, Hex, 1/4-20	
7	10125608	WASHER, Flat, 1/4	
8	10125806	WASHER, Lock, 1/4	
9	77610165	MOUNT, Shock	
10	CIC	_GKN COMPONENT ASSEMBLY	
11	15005656	FAN, DC Brushless	
12	10125105	NUT, Hex, 6-32	
13	80456310	WALL, Left, Plenum	
14	10127320	SCREW, Slotted, 4-40 x 1/4	
15	10125801	WASHER, Lock, 4	
16	Spare	KEYBOARD ASSEMBLY	
17	Spare	CRT ASSEMBLY	
18	93263475	COVER, Display	S/C 07 & Blw
18	93263476	COVER, Display	S/C 08 & Abv
19	10125603	WASHER, Flat, 4	
20	93879001	JACK, Banana	
21	45071500	COVER ASSEMBLY, Power Supply	S/C 06 W/O 07168 & Blw
21	45071501	COVER ASSEMBLY, Power Supply	S/C 06 W/07168 thru S/C 09
	81595051	COVER, Power Supply	Tab 00
	81595053	COVER, Power Supply	Tab 01
	81595052	COVER, Power Supply	S/C 09 W/07155 & Abv
	94385500	GROMMET, Extruded	
	94277400	STRAP, Cable Tie	
22	10127103	SCREW, PHH, 4-40 x 5/16	S/C 08 & Abv
23	10125103	NUT, Hex 4-40	S/C 08 & Abv
24	93148618	BRACKET, Display	S/C 08 & Abv
25	10127114	SCREW, PHH, 6-32 x 1/2	S/C 08 & Abv
26	93148619	BRACKET, Fan	S/C 08 & Abv
27	10126401	WASHER, Lock, 6	
28	92723601	SPACER, Panel	S/C 08 & Abv

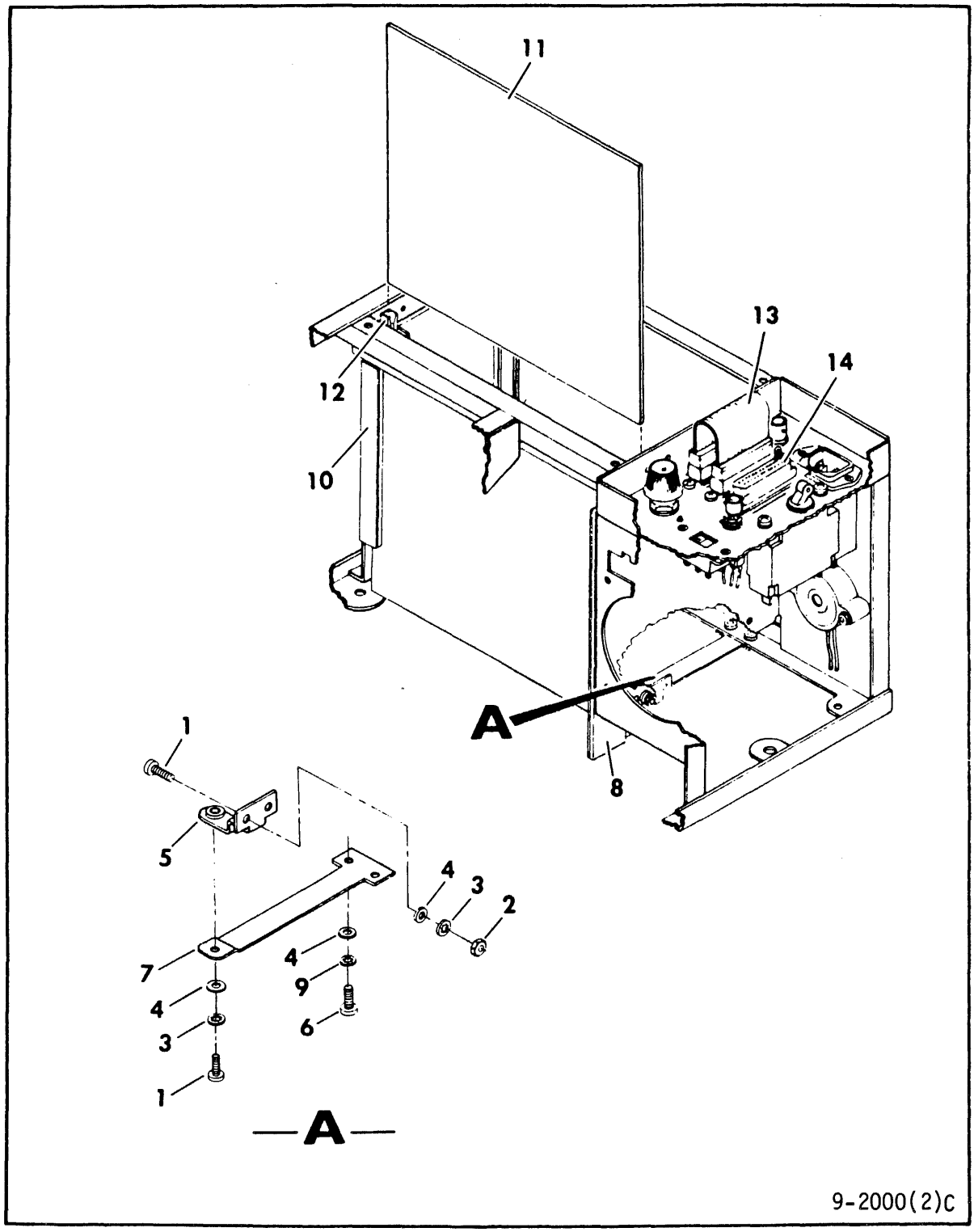


Figure 4-2. Chassis Assembly (Sheet 2)

INDEX NO	PART NO	PART DESCRIPTION	NOTE
4-2		CHASSIS ASSEMBLY (Sheet 2)	
1	10125703	SCREW, PHH, 4-40 x 5/16	
2	10125103	NUT, Hex, 4-40	
3	10125801	WASHER, Lock, 4	
4	10125603	WASHER, Flat, 4	
5	92777170	BRACKET, Upper	
6	10127112	SCREW, PHH, 6-32 x 5/16	
7	93913898	BRACKET, Lower	
8	80456320	WALL, Front, Plenum	
9	10125803	WASHER, Lock, 6	
10	80456310	WALL, Left, Plenum	
11	CIC	_GJN COMPONENT ASSEMBLY	
12	93593500	GUIDE, Card	
13	93681500	CABLE ASSEMBLY, RS232 Wrap Around	
14	93680000	CABLE ASSEMBLY, RS232 Wrap Around	

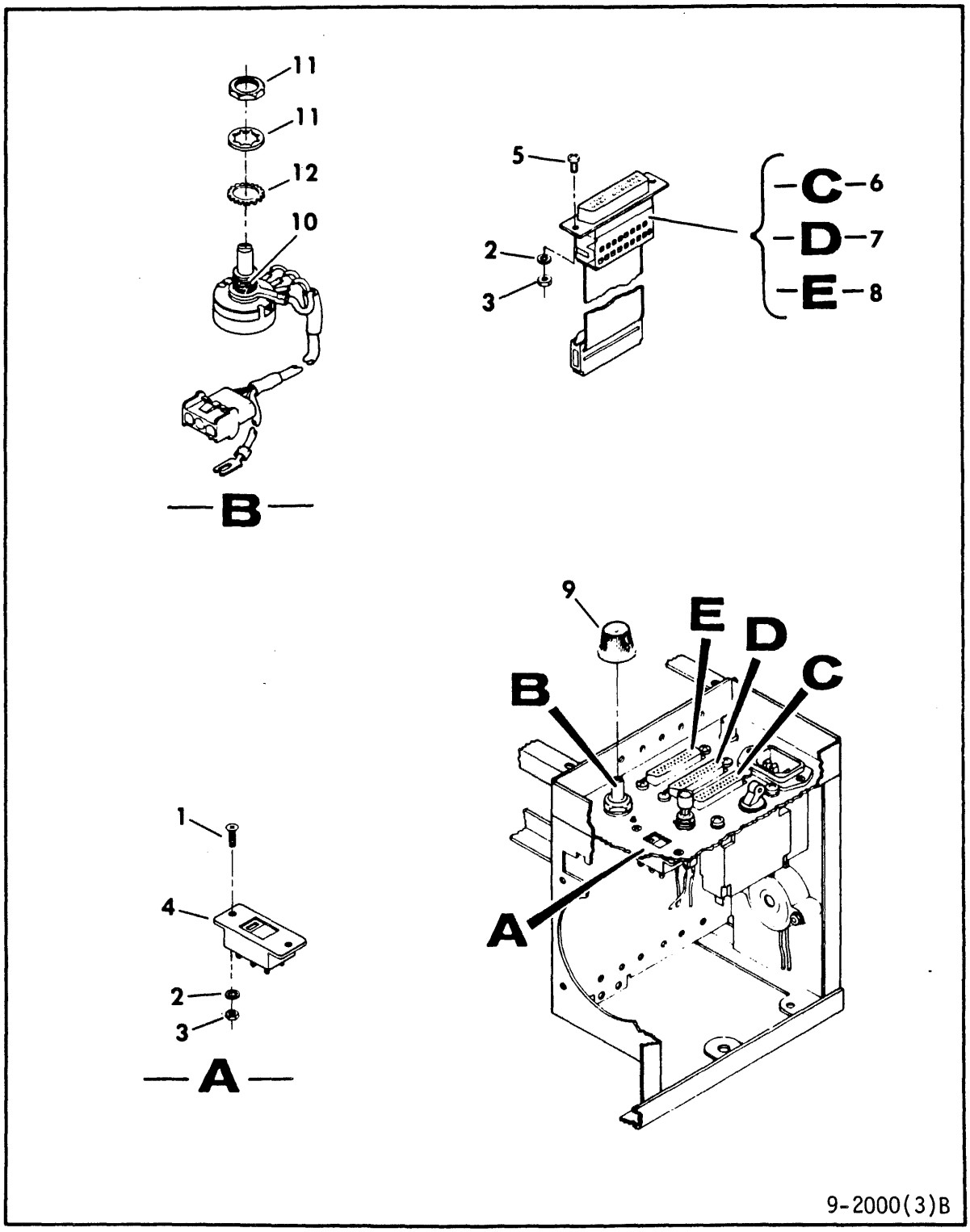


Figure 4-2. Chassis Assembly (Sheet 3)

INDEX NO	PART NO	PART DESCRIPTION	NOTE
4-2		CHASSIS ASSEMBLY (Sheet 3)	
1	10125703	SCREW, PHH, 4-40 x 5/16	
2	10125801	WASHER, Lock, 4	
3	10125103	NUT, Hex, 4-40	
4	15002347	SWITCH, Volt, Selector	
5	10127320	SCREW, Slotted, 4-40 x 1/4	
6	93180000	CABLE ASSEMBLY (J3)	
7	95077901	CABLE ASSEMBLY (J2)	
8	93681500	CABLE ASSEMBLY (J1)	
9	93152002	KNOB, Skirted	
10	94436801	RESISTOR, Variable	
11		HARDWARE, Attaching	Supplied with Resistor
12	10126406	WASHER, Lock, 3/8	

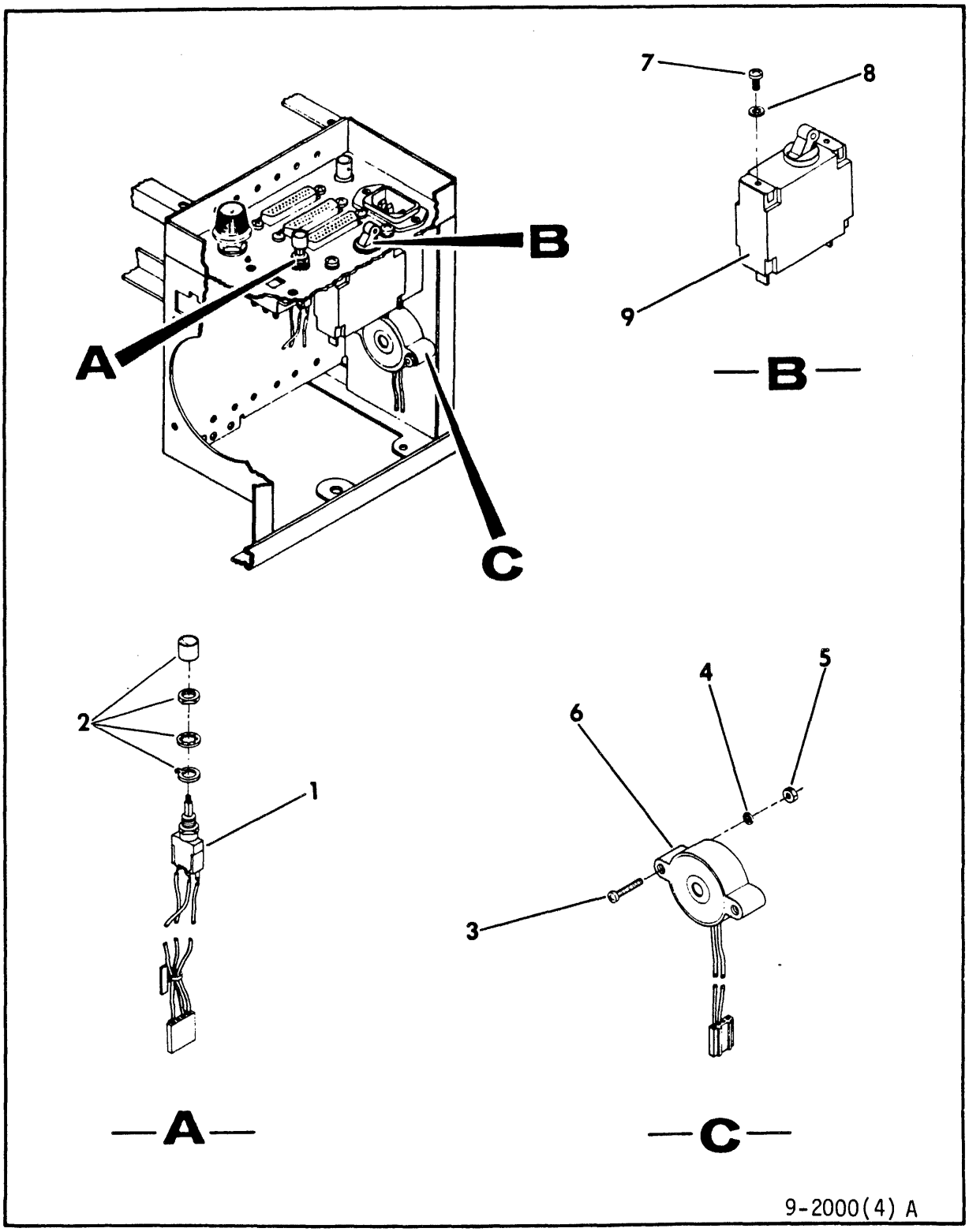


Figure 4-2. Chassis Assembly (Sheet 4)

INDEX NO	PART NO	PART DESCRIPTION	NOTE
4-2		CHASSIS ASSEMBLY (Sheet 4)	
1	Spare	SWITCH, Reset	
2		HARDWARE, Attaching	Supplied with switch
3	10127106	SCREW, PHH, 4-40 x 5/8	
4	10125801	WASHER, Lock, 4	
5	10125103	NUT, Hex, 4-40	
6	81227000	INDICATOR, Audio	
7	10127111	SCREW, PHH, 6-32 x 1/4	
8	10125803	WASHER, Lock, 6	
9	95587002	CIRCUIT BREAKER, Single Pole	S/C 01
9	95587003	CIRCUIT BREAKER, Single Pole	S/C 02 & Abv

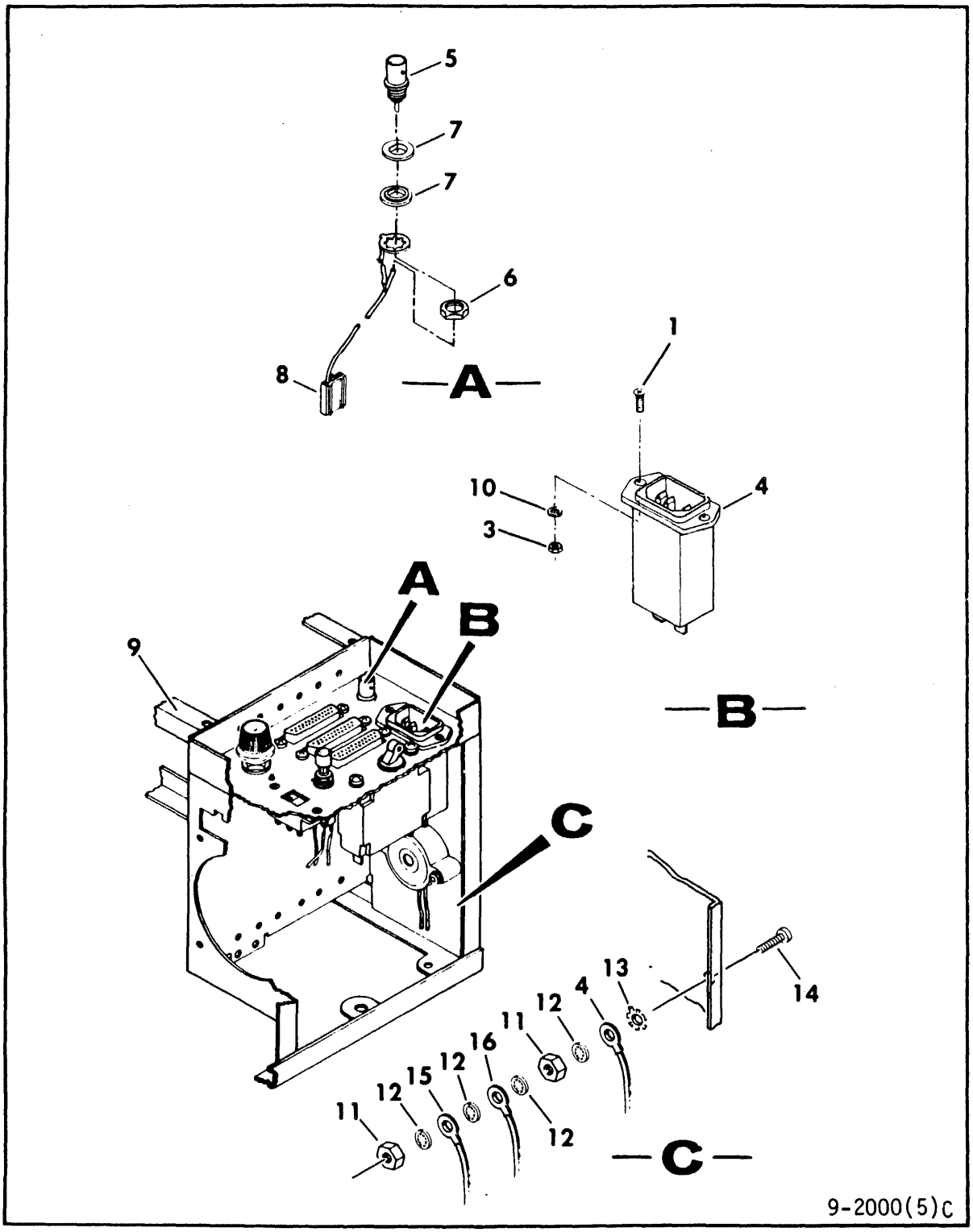


Figure 4-2. Chassis Assembly (Sheet 5)

INDEX NO	PART NO	PART DESCRIPTION	NOTE
4-2		CHASSIS ASSEMBLY (Sheet 5)	
1	10125703	SCREW, PHH, 4-40 x 5/16	
2	10126400	WASHER, Lock, 4	
3	10125103	NUT, Hex, 4-40	
4	15002320	FILTER, Line	S/C 07 W/O 07143 & Blw
4	45439200	FILTER, Line	S/C 07 W/07143 & Abv
		FRAME & CONNECTOR ASSEMBLY	
5	15185830	RECEPTACLE	
6		HARDWARE, Attaching	Supplied with Receptacle
7	15185831	BUSHING, Insulated	
8	95256700	CABLE ASSEMBLY (A2J14)	
9	93263470	FRAME, Chassis	
10	10125801	WASHER, Lock, 4	
11	10125106	NUT, Hexagon, 8-32	
12	10126104	WASHER, Lock, 8	
13	10126402	WASHER, Lock, 8	
14	10127124	SCREW, PHH, 8-32 x 5/8	
15	93150105	CABLE, Ground	Case Ground
16		CABLE, Ground	From AC cable (see Figure 4-3)

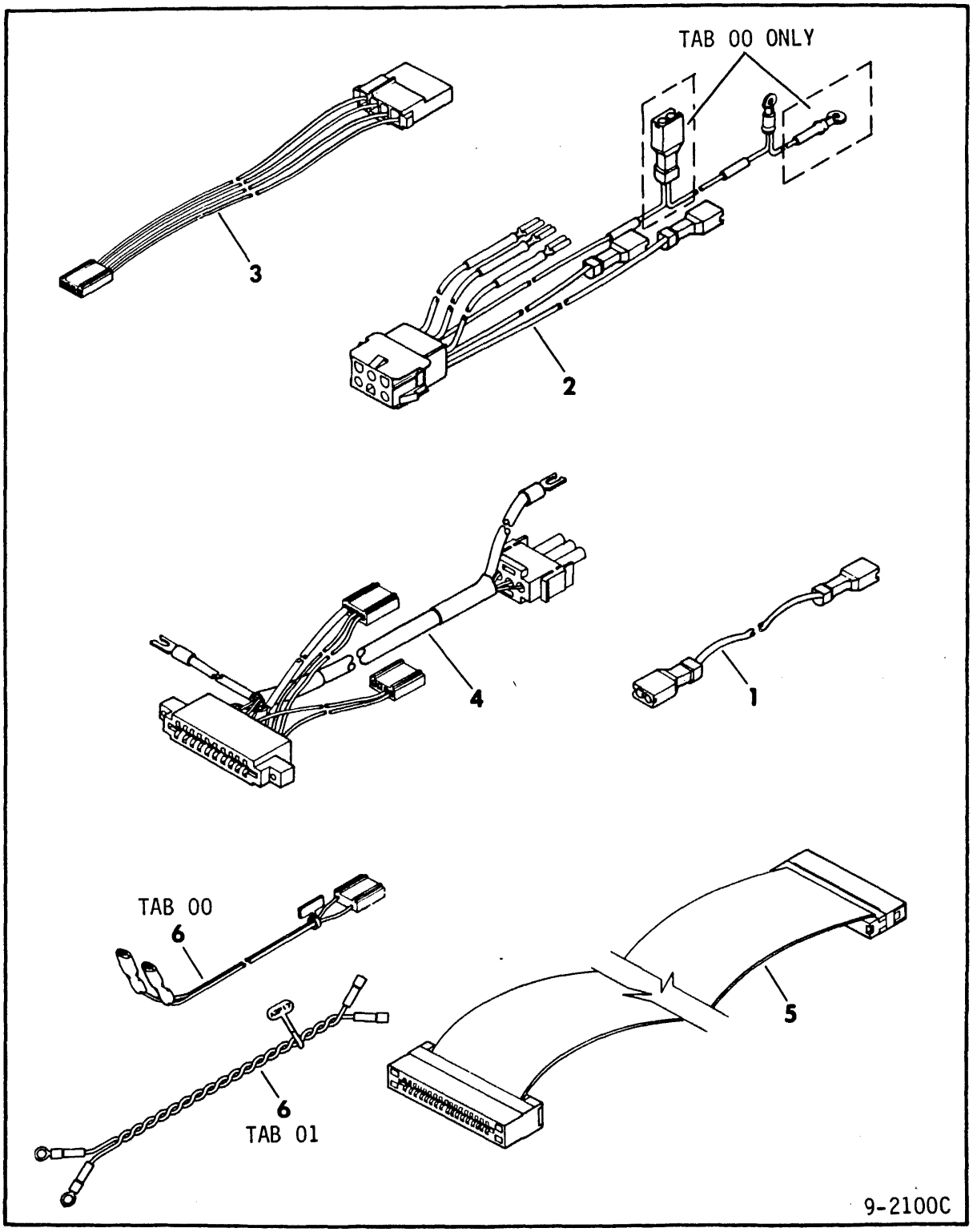


Figure 4-3. Internal Cable Assemblies

INDEX NO	PART NO	PART DESCRIPTION	NOTE
4-3		INTERNAL CABLE ASSEMBLIES	
1	81557400	CABLE ASSEMBLY (CB1-LF3)	
2	81914700	AC CABLE ASSEMBLY	S/C 07 W/O 07143 & Blw
2	81914701	AC CABLE ASSEMBLY	S/C 07 W/07143 & Abv
3	92162100	DRIVE POWER CABLE ASSEMBLY	
4	81263601	CRT INPUT CABLE ASSEMBLY	
5	81971100	DRIVE DATA INTERFACE CABLE ASSEMBLY	
6	Spare	FAN CABLE ASSEMBLY	

TABLE 4-1. MANUFACTURER'S RECOMMENDED SPARE PARTS

	PART NUMBER	REPLACEMENT PART NUMBER
CABLE ASSEMBLY, Universal Step Down (small)	95247801	95247801
CABLE ASSEMBLY, Universal Step Down (large)	95527901	95527901
CABLE ASSEMBLY, Wraparound	92639100	92639100
CRT ASSEMBLY		
Used S/C 01 - 07	95131761	95131761
Used S/C 08 and above	95131762	95131762
FAN CABLE ASSEMBLY		
Used S/C 01 - 09 (Used w/power supply tabs 01, 02)	93418500	93418500
Used S/C 10 and above (Used w/power supply tab 03)	93418501	93418501
FLOPPY DISK DRIVE, Model 9409	77680001	77680001
KEYBOARD ASSEMBLY	92266200	92266200
POWER SUPPLY ASSEMBLY		
Used S/C 01 - 06	81703901	81703903
Used S/C 07 - 09	81703902	81703903
Used S/C 10 and above	81703903	81703903
SWITCH, RESET	93181800	93181800

NOTE: Refer to Card Interchangeability Chart (following Table 4-2) for part numbers of component assemblies.

TABLE 4-2. ACCESSORIES

PART NUMBER	DESCRIPTION
12263496	Static Ground Strap, Large (6 1/2 x 8 in wrist)
12263623	Static Ground Strap, Small (up to 6 in wrist)
12263625	Static Shielding Bag (8 x 12 in)
54034100	ISI Interface Board (STO 69403-1)
54034500	SDI Interface Board (STO 69403-2)
54035300	SMD-0 Interface Board (STO 69403-3)
77425241	Head Cleaning Kit
92735700	ISI Interface Controlware
92735701	SDI Interface Controlware
92735703	SMD-0 Interface Controlware
70462700	Blank Flexible disk (for use during self test)

I/O BOARD/CONTROLWARE REFERENCE INFORMATION

Additional I/O boards and controlware may be obtained to expand the interface capabilities of the PFTU. I/O boards are available as Standard Options (STOs). An STO consists of:

- An I/O board
- An equipment I.D. label

The I.D. label provided in the STO must be installed on the PFTU to identify its configuration for future FCOs that may affect the added I/O board or its associated controlware. Procedures for installing the I/O board and loading the controlware into the PFTU are provided in the User's Guide for each interface.

STOs do not provide the floppy disk package that contains the controlware. The floppy disk package must be ordered separately. When you want to add an interface to your PFTU, order both an STO and the controlware equipment part numbers.

Reference information for each available interface is presented in the table 4-3. This table shows not only the part number, but also the latest card type of the I/O board and revision level of the controlware for each available interface.

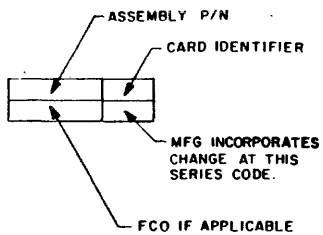
To order an STO or controlware package, contact your CDC sales representative. Although the CDC World Distribution Center is the source for replacement parts in the PFTU, it does not stock STOs or controlware packages.

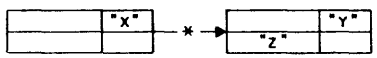
TABLE 4-3. I/O BOARD/CONTROLWARE REFERENCE INFORMATION

STANDARD OPTION (STO)			REQUIRED CONTROLWARE	
NUMBER (EQUIPMENT NUMBER	PART NUMBER	I/O BOARD (PART NUMBER)	EQUIPMENT NUMBER (PART NUMBER)	FLOPPY DISK (PART NUMBER
ISI INTERFACE				
69403-1 (BT1F2A)	81984800	DGLN (54034103)	MH403K (92735700)	Version 3A (93845702)
SDI INTERFACE				
69403-2 (BT1F1A)	81257000	BGMN (54034501)	MH404K (92735701)	Version 2A (92989601)
SMD-O/E INTERFACE				
69403-5 (BT1E8B)	92384400	* DGPN (54035303)	MH406K (92735703)	Version 3A (93290704)

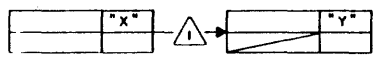
* The DGPN I/O board must be used to test extended status functions of drives with SMD-E interface. Earlier versions of this board (A, B, or CGPN) will test only SMD-O functions.

REVISION RECORD						
REV	ECO	DESCRIPTION	DRFT	DATE	CHKD	APP
A	DJ23000	CLASS A RELEASE		11-2-83		
B		NO CHANGE	JL	10-16-84		
C	DJ07127	BGJN TO CGJN	JL	10-16-84		
D	DJ07126	BGLN TO CGLN	BJP	3-27-85		
E	DJ07133	BGKN TO CGKN	BJP	3-27-85		
F	DJ07142	CGLN TO DGLN	BJP	3-27-85		
G	DJ07171	BGPN TO CGPN	CB	6-3-86		
H	DJ07194	INCORPORATE DGPN	MK			

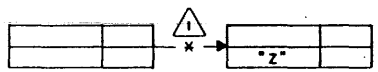




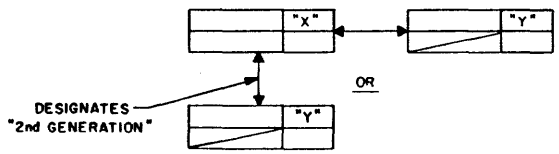
"Y" WILL REPLACE "X" ONLY IF FCO "Z" IS INSTALLED
(* INDICATES CABLE WIRING CHANGES)



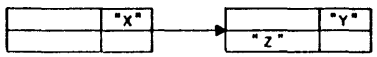
"Y" WILL REPLACE "X" ONLY IF CHANGES INDICATED BY NOTE ARE INSTALLED.



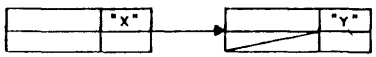
"Y" WILL REPLACE "X" ONLY IF CHANGES INDICATED BY NOTE, AND CABLE CHANGES INDICATED BY * , ARE INSTALLED.



"Y" WILL REPLACE "X"
"X" WILL REPLACE "Y"



"Y" WILL REPLACE "X", LOG FCO "Z"



"Y" WILL REPLACE "X", (NO FCO)

REFERENCE DRAWING

MAGNETIC PERIPHERALS INC.
A Control Data Company

FIRST USED ON | NEXT ASSEMBLY

COMPONENTS EXCEPT AS NOTED

	TOLERANCE	VALUE	RATING
RES			
CAP			

DWN	Nancy Paulsen	11-2-83
CHKD		
ENGR		
MFG		
QA		

TITLE

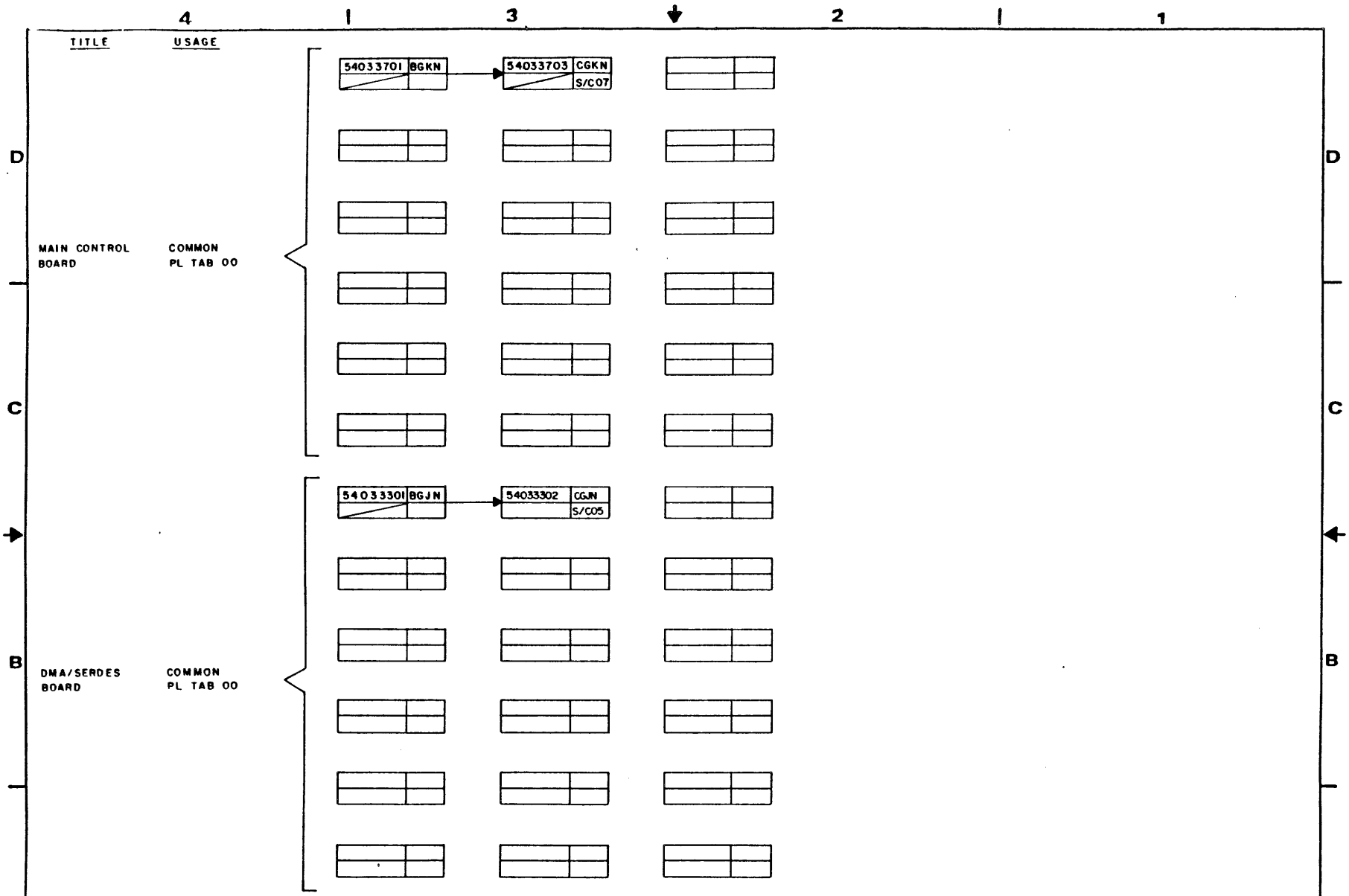
CARD INTERCHANGEABILITY CHART ASSEMBLY - PFTU

TWIN CITIES DISK DIVISION

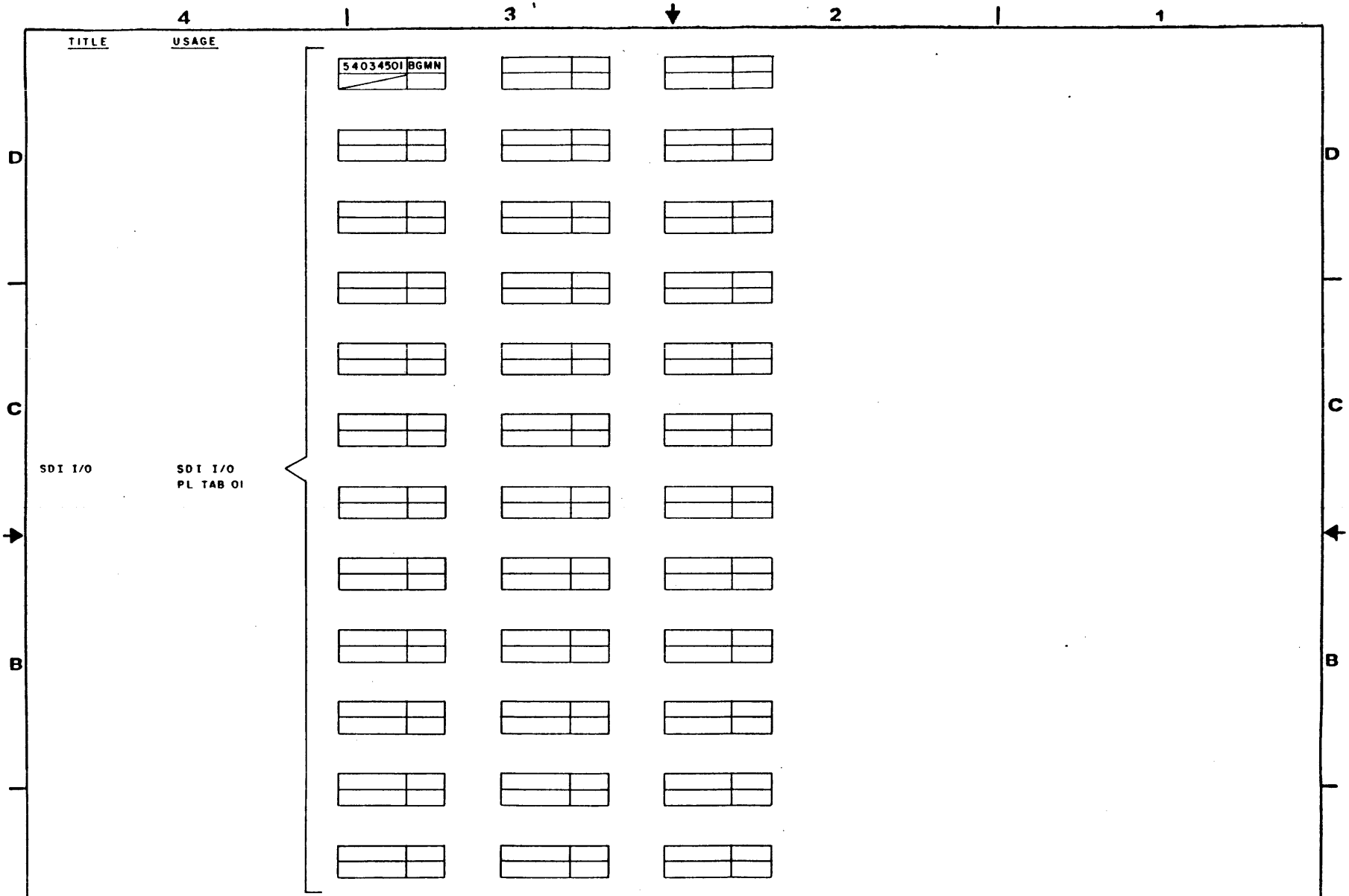
C | 83324750 | F

ISCM NO. 19333 | CROSS REF NO | SHEET 1 OF 6 | PAGE 4-27

1 REF: 81676400



MAGNETIC PERIPHERALS INC	CARD INTERCHANGEABILITY CHART ASSEMBLY - PFTU	TWIN CITIES DISK DIVISION	C	83324750	F
		FSCM NO 19333	CROSS REF NO	SHEET 2	PAGE 4-28



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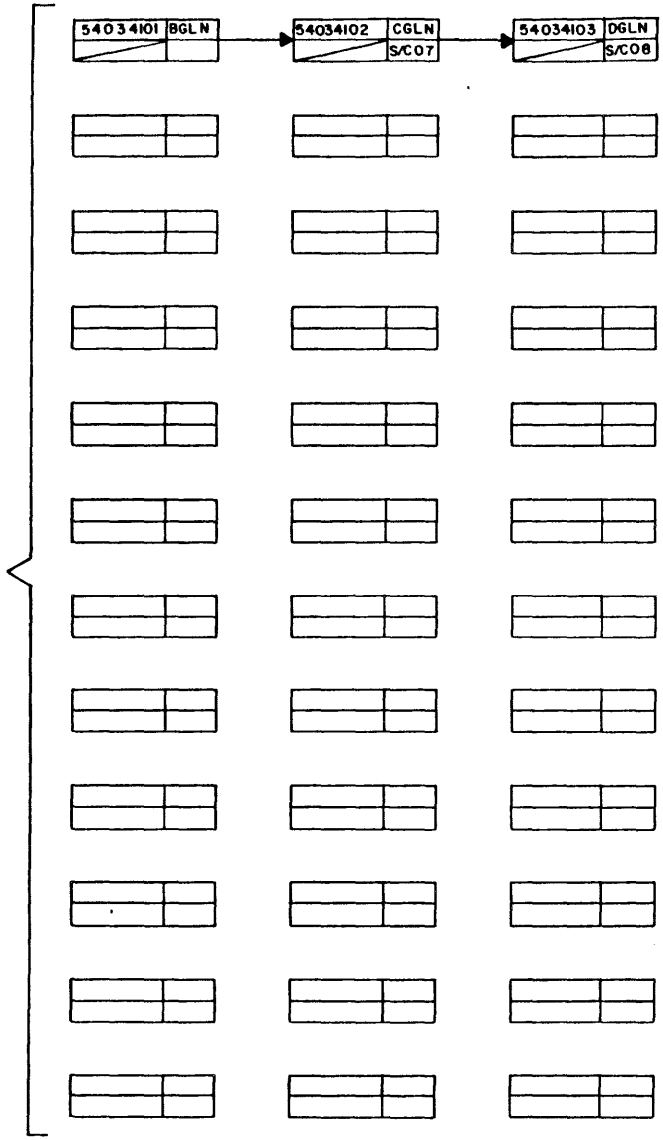
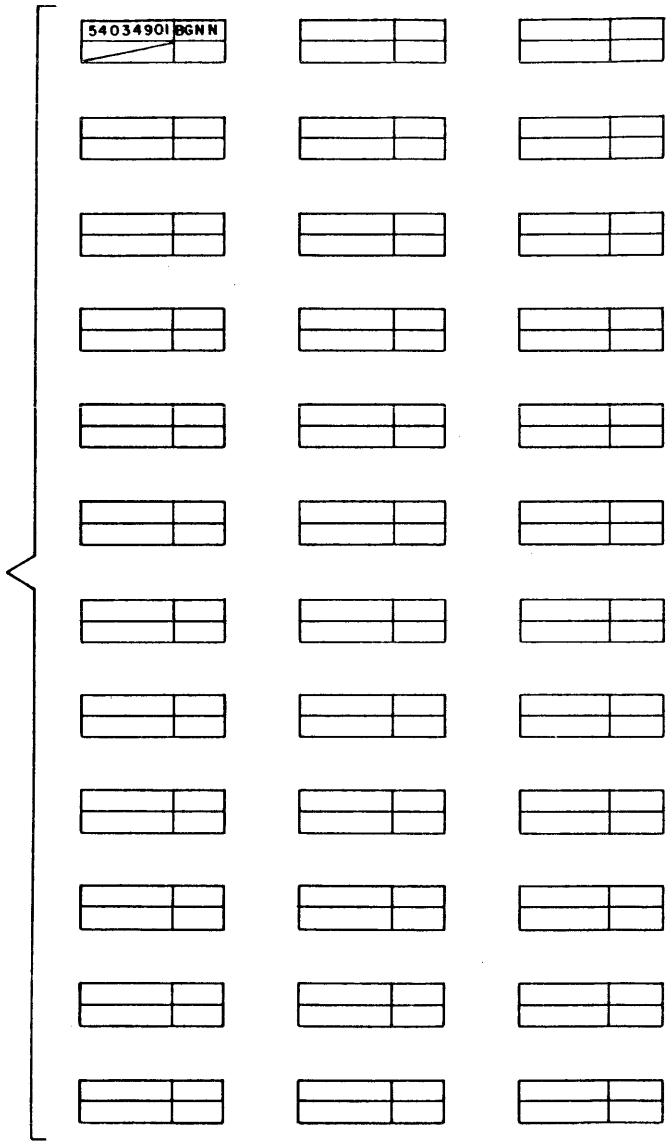
		FSCM NO 19333	CROSS REF NO	SHEET 3	PAGE 4-29

TITLE	USAGE
ISI I/O	ISI I/O PL TAB 02

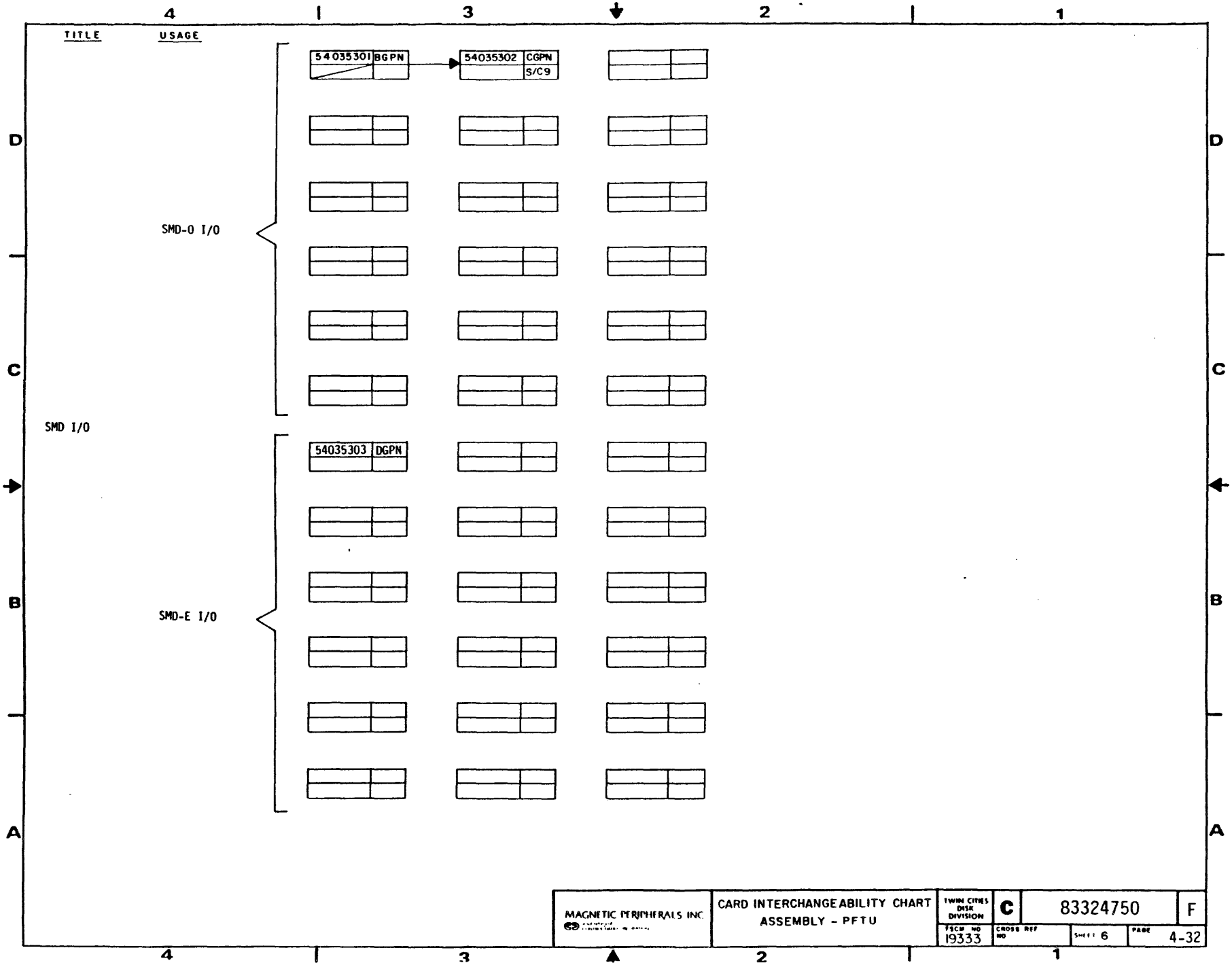


MAGNETIC PERIPHERALS INC	CARD INTERCHANGEABILITY CHART ASSEMBLY - PFTU	TWIN CITIES DISK DIVISION	C	83324750 F
		FSCM NO 19333	CROSS REF NO	SHEET 4 PAGE 4-30

TITLE	USAGE
	54034901 BGNN
LDI I/O	LDI I/O PL TAB 03



MAGNETIC PERIPHERALS INC	CARD INTERCHANGEABILITY CHART ASSEMBLY - PFTU	TWIN CITIES DISK DIVISION	C	83324750	F
		FSCM NO 19333	CROSS REF NO	SHEET 5	PAGE 4-31



MAGNETIC PERIPHERALS INC.	CARD INTERCHANGEABILITY CHART ASSEMBLY - PFTU	TWIN CITIES DISK DIVISION	C	83324750 F
		FSCM NO 19333	CROSS REF NO	SHEET 6 PAGE 4-32

COMMENT SHEET

MANUAL TITLE:

PUBLICATION NO.: REVISION:

NAME:_____

COMPANY:_____

STREET ADDRESS:_____

CITY:_____ STATE:_____ ZIP CODE:_____

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