CONTROL DATA®
MULTIPLE DISK DRIVE

BM1A5

THEORY OF OPERATION
DIAGRAMS
MAINTENANCE AIDS
WIRE LISTS

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CUSTOMER ENGINEERING MANUAL

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REVISION RECORD

REVISION	DESCRIPTION
01	Preliminary Edition.
(9-27-69)	
A	Manual released.
(12-1-69)	
B	Engineering Change Order PE21312 incorporating the following:
(6-15-70)	ECO PE11081A affecting page 5-21.
	FCO PE11100/ECO PE11099 affecting pages 5-25, 9-5 thru 9-93.
	FCO PE11119A/ECO PE11118A affecting pages 9-5 thru 9-93.
	ECO PE11148B affecting pages 5-24, 5-25, 9-5 thru 9-93.
	FCO PE11204/ECO PE11090 affecting page 4-23.
	FCO PE11386/ECO PE11290 affecting pages 5-15, 5-16, 5-20, 5-22, 5-23, 5-25.1, 5-25.2, 5-25.3.
	FCO PE11386A/ECO PE11290A affecting page 5-15.
	ECO PE11417 affecting pages 9-5 thru 9-93.
	FCO PE11429/ECO PE21036 affecting pages 5-22, 5-35.
	ECO PE11451 affecting pages 9-5 thru 9-93.
	ECO PE11451A affecting pages 9-5 thru 9-93.
	FCO PE21058/ECO PE21058 affecting pages 5-21, 5-22, 5-39, 7-30, 7-31, 7-42, 7-42.1, 7-43,
	FCO PE21103/ECO PE21103 affecting pages 5-18, 5-19, 5-22, 5-34, 9-5 thru 9-93.
	ECO PE21122 affecting page 5-27.
	FCO PE21143/ECO PE21143 affecting pages 9-5 thru 9-93.
	ECO PE5523 affecting pages 5-25.4, 5-25.5.
	ECO PE21269 affecting pages 9-5 thru 9-93.
	Technical Changes affecting page 4-21.
	Editorial Changes affecting pages v, vi, vii, viii, 4-30, 5-19.
C	Engineering Change Order PE21831 incorporating the following:
(11-13-70)	ECO PE21143 affecting pages 9-5, 9-20.
	ECO PE21253 affecting pages 9-5, 9-21, 9-22, 9-48 thru 9-48.11.
	ECO PE21296 affecting pages vii, 9-48 thru 9-48.11.
	ECO PE21362 affecting pages 9-63, 9-64.
	ECO PE21504 affecting pages 5-18, 5-20, 5-22.
	ECO PE21514 affecting pages v, 5-24 thru 5-24.2.
	ECO PE21537 affecting pages 9-79 thru 9-92.
	ECO PE21566 affecting pages 5-16, 5-17, 5-18, 5-19, 5-20, 5-21.
	ECO PE21572 affecting page 5-39.
	ECO PE21594 affecting pages 9-48 thru 9-48.11.
	ECO PE21665 affecting pages 9-79 thru 9-92.
	ECO PE21667 affecting pages 9-79 thru 9-92.
Publication No. 70602500	Editorial Changes affecting pages 5-24 thru 5-26, 9-48.12.

Address comments concerning this manual to:
Control Data Corporation
Technical Publications Department
4201 North Lexington Avenue
Arden Hills, Minnesota 55112

or use Comment Sheet in the back of this manual.

REVISION RECORD (CONT'D)

REVISION	DESCRIPTION
D	Engineering Change Order PE24038 incorporating the following:
(2-11-71)	FCO PE21706/ECO PE21787 affecting page 5-24.3.
	FCO PE21717/ECO PE21717 affecting pages 9-79 thru 9-92.
	ECO PE21886 affecting pages 9-63, 9-64.
	Technical Changes affecting pages v, 5-24, 5-24.1, 5-24.2, 5-24.3, 5-37.
	Editorial Changes affecting pages 5-24.4, 5-24.5.
E	Engineering Change Order PE24146 incorporating the following: Engineering Change Orders
(5-4-71)	PE21514, PE21933B, PE21997, PE24073, PE24155 affecting pages 5-22, 5-24.1 thru 5-24.10,
	9-5, 9-10, 9-24 thru 9-24.23, 9-93 thru 9-121. Editorial Changes affecting pages v, vii, 5-24.11/
	5-24.12, 9-122.

Publication No.
70602500

PREFACE

All available customer engineering installation, operation, and maintenance information for the CONTROL DATA® BM1A5 Multiple Disk Drive is in three manuals.

Publication No. 70602400	General Description, Operation, Installation and Checkout, Maintenance
Publication No. 70602500	Theory of Operation, Diagrams, Maintenance Aids, Wire List
Publication No. 70601900	Illustrated Parts List

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BM1A5 Multiple Disk Drive
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GENERAL DESCRIPTION

SECTION 2

OPERATION

SECTION 3

INSTALLATION AND CHECKOUT

SECTION 4

THEORY OF OPERATION

THEORY OF OPERATION

Theory of operation for the MDD is divided into three parts. The first part considers the MDD in terms of the functions it performs and the signals exchanged with the controller. The second part relates the major assemblies of the MDD to the previously discussed functions. The last part deals with the disk pack which is physically not a part of the MDD, but figures functionally in all MDD operations.

FUNCTIONS

Overall capabilities of the MDD are best described by examining the functional blocks of activity performed by a deck of the MDD. The functions are as follows:

First Seek

Direct (Forward or Reverse) Seek

Return to Zero Seek (RTZS)

Read/Write/Erase

Each of these functions is further described by flow charts and timing diagrams in Section 5 of this manual.

The above functions are performed by each deck of the MDD. Normal operation is such that a controller will generally be directing the functional activities of more than one deck. Figure 4-1 shows the method of selecting and gating input/output data to a particular deck. Figure 4-2 details the sequence of events that establishes the link and gating. The signals that are then exchanged are described in Table 4-1 and are shown relative to a point of origin on Figure 4-3.

FIRST SEEK

This function involves the activities that a deck must perform before it can effectively respond to a read, a write, or a seek command from the controller. This function consists mainly of power supply relay sequencing and status checking by the deck logic.

As a result, no actual selection of the deck is required and very little MDD/controller signal exchange occurs. Successful progression of the function assumes that power supply circuit breakers for the deck are on, power supply DC/OFF switch for the deck is set to DC, power supply fuses are operational, related filter box panel UNIT POWER circuit breaker is on, START indicators for deck are lighted, disk pack is installed on spindle of deck, and the sector sensor is engaging the disk pack sector disk.

Initiation of the function occurs when the controller makes sequence power available to the power supply for the deck. Sequence power causes the power supply relay K01 (K101 for lower deck) to energize and the power supply performs a Power-On sequence (refer to Power Supply under Assemblies in this section for a detailed description).

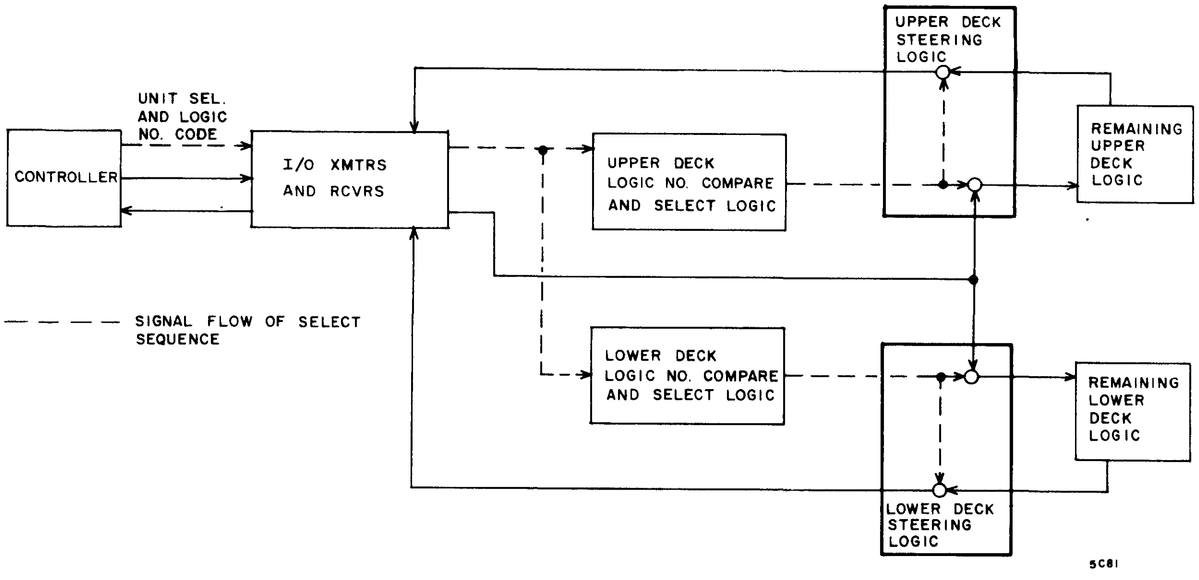


Figure 4-1. Input/Output Signal Gating - 2X Cabinet

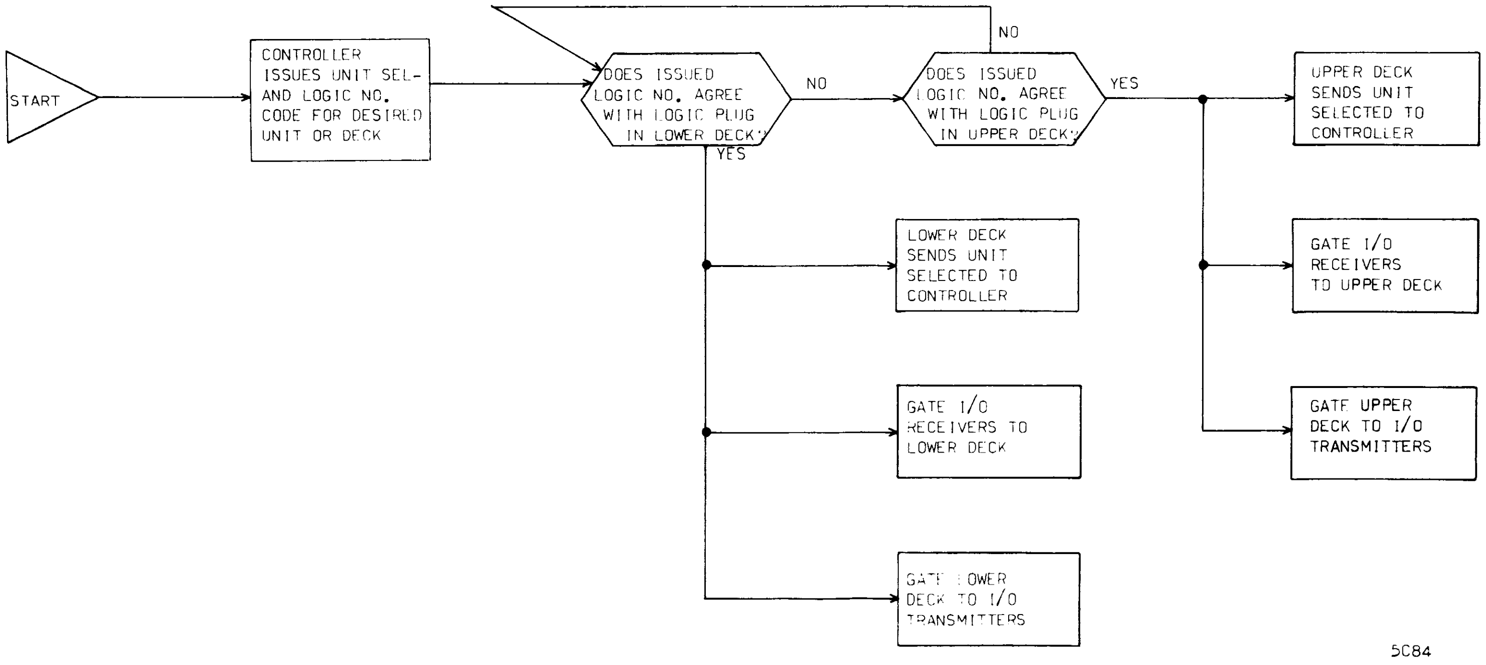


Figure 4-2. Select and Reserve Sequence

TABLE 4-1. INPUT/OUTPUT LINES

SIGNAL	FUNCTION
<u>Bidirectional Lines</u> Address and Control	Information carried by the bidirectional lines is coupled by five select (tag) signals. The influencing tag signal must be known before information on a bidirectional line can be interpreted. The five tag signals are defined below under Input Lines. The information coupled by each tag signal is as follows:

Address/ Control bus	Read Cylinder Select, Difference Select, or Cylinder Select	Head Select	Control Select
Bit 0	1	1	Write Gate - A "1" input on this line enables the write drivers.
Bit 1	2	2	Read Gate - A "1" input on this line enables the digital read data line.
Bit 2	4	4	Seek Forward - A "1" input on this line initiates forward carriage movement.
Bit 3	8	8	Not Used
Bit 4	16	16	Erase Gate - A "1" input on this line initiates reverse carriage movement.
Bit 5	32	Not Used	Seek Reverse - A "1" input on this line initiates reverse carriage movement.
Bit 6	64	Not Used	Return to Zero - A "1" input on this line initiates carriage movement to cylinder 00.
Bit 7	128	Not Used	Not Used

TABLE 4-1. INPUT/OUTPUT LINES (Cont'd)

SIGNAL	FUNCTION
Input Lines	
Read Cylinder Select	A "1" input on this line enables the address and control lines transmitter of the selected deck. Information transmitted to the control unit through these lines is the current cylinder address.
Difference Select	A "1" input on this line indicates that the address and control lines contain the difference address from the control unit. This address is the difference between the control unit's current cylinder request and the selected deck's present cylinder location.
Cylinder Select	A "1" input on this line indicates that the address and control lines contain the control unit's current cylinder request.
Head Select	A "1" input on this line indicates that the address and control lines contain the head select information.
Control Select	A "1" input on this line indicates that the address and control lines contain control information.
*Unit Select	This signal is preceded by a Logic Number transmission. A "1" input on this line initiates the select sequence (assuming the unit is ready) in the unit whose logic number corresponds to the number currently on the four Logic Number lines. If the unit is ready, it returns a Unit Ready and a Unit Selected signal. If not ready, the unit returns a "0" on the Unit Ready line.

TABLE 4-1. INPUT/OUTPUT LINES (Cont'd)

SIGNAL	FUNCTION
*Logic Number lines (4)	A transmission on these lines is accompanied by a Unit Select signal. The unit with the logic number corresponding to the digital number transmitted on these four lines initiates a select sequence (assuming the unit is ready and available) when a Unit Select signal is transmitted. If the unit is ready and available, it returns a Unit Ready and a Unit Selected signal. If not ready and/or available, the unit returns a "0" on the Unit Ready line.
*Clear	This line enables an unrestricted reset of the unit select condition.
Release	A "1" input on this line clears the Reserve and Compare Enable flip-flops in the selected unit.
Write Data	Carries information to be written from the control unit to the selected deck.
<u>Output Lines</u>	
Read Data	Carries digital information read from a disk to the control unit.
On Cylinder	Indicates that the positioning mechanism of the selected deck has stopped and the read/write heads have reached the addressed cylinder.
Seek Error	A "1" output indicates that the selected deck was unable to complete a seek operation to the point of an On Cylinder signal to the control unit. A Return to Zero command sent to the unit indicating a seek error clears the Seek Error condition, returns the heads to cylinder 00, and enables an On Cylinder signal to be sent to the control unit.

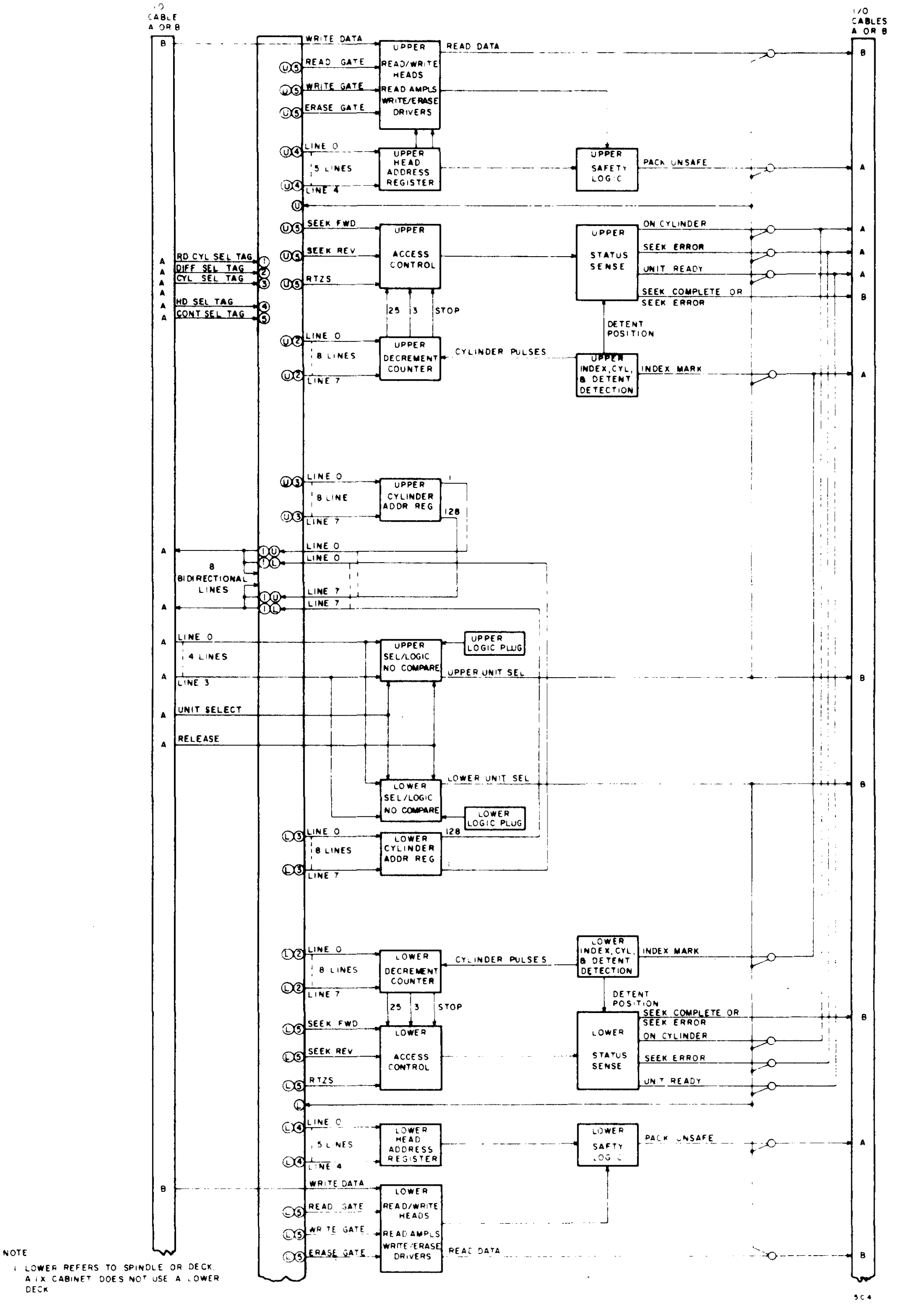
TABLE 4-1. INPUT/OUTPUT LINES (Cont'd)

SIGNAL	FUNCTION
Unit Selected	This signal is a response to the receipt of a Unit Select and a Logic Number signal combination. A "1" output indicates that the unit is available. A "0" signal indicates that the unit is not ready (see Unit Ready signal). The control unit checks that a Unit Selected signal is not received from more than one unit at a time.
Index	Provides a track reference mark from the selected deck to the control unit. This mark occurs once for each revolution of the disk pack.
Pack Unsafe	A "1" output indicates that the selected deck has one or more fault conditions. Write and erase currents are inhibited by the presence of any of the conditions. The conditions include: 1. More than one head selected. 2. Read and write gates up at the same time. 3. Read and erase gates up at the same time. 4. Erase and no write driver on. 5. Erase and both write drivers on. 6. One or both write drivers on and no erase driver on. 7. Read, write, or erase gate on and not On Cylinder. 8. Low voltage situation that could cause a loss in control of write and erase currents.

TABLE 4-1. INPUT/OUTPUT LINES (Cont'd)

SIGNAL	FUNCTION
*Unit Ready	This signal is a response to the receipt of a Unit Select and a Logic Number signal combination. A "1" output is present if both of the following conditions are satisfied: 1. Disk pack installed, spindle motor up to speed, and heads loaded. 2. Related Logic Chassis Maintenance panel ON LINE/OFF LINE switch set to ON LINE.
*Seek Complete or Seek Error	Indicates that the unit has completed (Seek Complete) or is unable to complete (Seek Error) the previously addressed seek. This is an interrupt line transmitted with or without the unit being selected. The signal is a 1 μsec "1" pulse which is initiated by an On Cylinder condition (Seek Complete) or or if the unit is unable to complete a seek (Seek Error).

*This signal is not gated by the Unit Selected signal.



NOTE
1 LOWER REFERS TO SPINDLE OR DECK. A 1X CABINET DOES NOT USE A LOWER DECK

Figure 4-3. Block Diagram - 2X Cabinet

Power is applied to the brush and spindle drive motors during the Power-On sequence. Application of power to the brush motor starts a 60-second (approximately) disk cleaning cycle. When the disk pack speed reaches 2000 rpm, the power supply relay K05 (K105 for lower deck) energizes to provide sequence power to the next deck. Actuator solenoid power also becomes available, causing the detent pawl to disengage and the actuator to access forward at 2 ips to the hydraulic home position.

Transfer of the brush switch contacts at the end of the brush cycle sets the Forward Latch (FF). This causes the actuator to perform a forward fast access that mechanically loads and latches the read/write heads. The transferring contacts of the heads loaded switch sets the RTZS FF which clears the Forward Latch. The actuator responds by performing a reverse fast access to the hydraulic home position. A 300-ms delay (started when the RTZS FF was set) circuit clears the RTZS FF which in turn sets the Forward Latch, Intermediate, and Slow FF's. This causes the actuator to access forward at 2 ips until the logic senses the leading edge of the first track (track 00) pulse. The track pulse sets the Detent FF and releases the detent pawl. The output of the detent transducer is now observed and 5 ms after the pawl engages the detent gear, the deck sends an On Cylinder signal to the controller. (A seek Error signal would have been sent instead if a 600-ms delay, starting when the heads loaded switch transferred, had timed out.) The deck is now ready to perform a Read, a Write, or a seek (Direct or RTZS) operation. Such an operation must be preceded by the selecting sequence covered previously (Figures 4-1 and 4-2).

DIRECT (FORWARD/REVERSE) SEEK

The Direct Seek function involves those operations that must be performed to move the read/write heads from their current track or cylinder location to the one specified by the controller. This function must be preceded by the selecting sequence (Figure 4-1 and 4-2) unless the deck is already selected. Assume that the desired deck just completed a First Seek and is awaiting further instruction at track 00. Assume further that the controller wishes to do a Read or a Write operation at track 88. When the controller determines that the deck is selected and ready, it issues a Cylinder Select signal. This signal gates the content of the deck Cylinder Address register (00) to the controller via the bidirectional lines (content of the register always preset to 00 during a First Seek or RTZS). The controller then calculates the difference between the decks current and desired location and sends a Difference select that gates the seek length (88 tracks) into the decrement counter of the deck (again via the bidirectional lines). The controller now uses a Cylinder Select and the bidirectional lines to gate the address of the desired cylinder (88) into the deck Cylinder Address register. This is followed by a Sector Select that enters the sector address into the deck Sector Address register. Next the controller sends a Head Select signal that gates the number corresponding to the desired read/write head into the Head register. The last address and control exchange involves the Control Select signal that gates a "1" to the deck on bit 2 (Seek Forward) of the bidirectional lines.

The Seek Forward pulse causes an Any Seek pulse. (A Seek Reverse pulse would also cause the Any Seek, but in addition would have cleared the Forward Latch.) Any Seek transfers the content of rank I of the decrement counter (88) to rank II and clears the Detent FF. The hydraulic actuator responds by applying pressure to the detent pawl. As soon as the detent pawl clears the detent gear, forward motion begins. As each track is crossed, the cylinder transducer generates a track pulse. The trailing edge of each of these pulses decreases the content of the decrement counter by one. Motion velocity is controlled according to the content of the decrement counter, and since this content is in excess of 26, the actuator performs a forward fast access. Fast access (26 ips) continues until the decrement counter content equals 25 tracks remaining. At this time the counter output decoding logic sets the Intermediate FF, and the hydraulic actuator continues the access in the forward intermediate mode (7 ips). When the decrement counter content indicates three tracks to go, the Slow FF sets. This causes the actuator to reduce speed to 2 ips and continue the access at a forward slow rate. When the tracks remaining have been reduced to one, the output of the cylinder transducer detection logic is gated such that the leading edge of the next track pulse sets the Detent FF. This causes the hydraulic actuator to release the spring-loaded pawl. (If this were a Reverse Seek, the Forward Latch would set as a result of the Detent FF setting. Setting the Forward Latch would cause carriage motion to change direction and allow the detent pawl to engage the gear in the same manner as for a Forward Seek.)

Five ms after the detent transducer indicates that the detent pawl has engaged the detent gear, the deck sends an On Cylinder signal to the controller. (If the period during which the pawl was disengaged from the detent gear had exceeded 600 ms, a

Seek Error signal would have replaced the On Cylinder signal.) The deck is now ready to perform a Read, a Write, or a Seek (Direct or RTZS) operation.

RETURN TO ZERO SEEK (RTZS)

The RTZS functions allow a controller to return the read/write heads to track 00 when a Seek Error signal occurs. This function must be preceded by the selecting sequence (Figures 4-1 and 4-2) unless the deck is already selected. The controller responds to a Seek Error signal from a deck by sending a Control Select tag that gates a "1" on bit 6 (RTZS pulse) of the bidirectional lines to the afflicted deck.

The RTZS pulse sets the RTZS FF and causes an Any Seek pulse. The Any Seek pulse clears the Detent FF causing the hydraulic actuator to apply hydraulic pressure to the detent actuator. The pressure overrides the force of the pawl spring and the carriage is free to be moved. The set output of the RTZS FF causes the following events:

Clears decrement counter

Clears Cylinder Address register

Clears Forward Latch

Initiates a 300-ms delay circuit

Establishes a tracks-to-go greater than 26 signal (T>26)

With the Forward Latch cleared and a T>26 situation, the actuator enters into a fast reverse access toward the rear stop (cushioned hydraulically). When the 300-ms delay times out, the RTZS FF clears and the T>26 signal drops. The clear output of the RTZS FF sets the Forward Latch, Intermediate, and Slow FF's. The hydraulic actuator responds to this activity with a slow forward (2 ips) access. As soon as the leading edge of the first track pulse occurs, the Detent FF sets and the actuator removes pressure to the spring-loaded detent pawl. Five ms after the detent transducer indicates that the detent pawl has engaged the detent gear, the deck sends an On Cylinder signal to the controller. (If the period during which the pawl was disengaged from the detent gear had exceeded 600 ms, a Seek Error signal would have replaced the On Cylinder signal.) The deck is now ready to perform a Read, a Write, or a Seek (Direct or RTZS) operation.

READ/WRITE/ERASE

An On Cylinder signal indicates to the controller that the selected MDD deck has completed a seek operation and is awaiting further instruction. If, however, the controller initiated a seek operation in one deck and then in the interim selected another deck, the first deck would make its status known via the On Sector interrupt signal. In the latter case, the controller would be required to precede a Read or a Write operation with the selecting sequence (Figures 4-1 and 4-2). The following paragraphs cover the sequence of events involved in a Read or a Write operation.

A Write operation actually begins before the hydraulic actuator positions the heads to the desired track: the Head Select tag gates the identifying number of the head to be used into the Head Address register. When the seek is completed or a seek error is discovered, the deck sends a Seek Complete or Seek Error interrupt signal. If the controller has selected another deck in the mean time, this deck will standby until it is reselected by the controller. In any case the controller will examine the Seek Error and On Cylinder lines. If a Seek Error exists, a RTZS pulse will clear it. If an On Cylinder exists, the controller responds with a Control Select tag that gates the Read Gate signal (bit 1 of the bidirectional lines) to the deck. Read Gate enables the read circuit logic to function with the previously selected head. As each record of data on the disk pack is reached, the address is read from the Read Data line and compared by the controller with the address of the desired record. (Refer to Section 5 of this manual for detailed information relative to the read/write format.) When the controller is satisfied that the desired record is being read, it drops the Read Gate and gates in the Write Gate and Erase Gate (bits 0 and 4 of the bidirectional lines) with the Control Select tag. This disables the read circuit and enables the write circuit, and data from the controller is written via the Write Data line onto the disk pack record. The Erase Gate signal enables erase current to the erase coil during the Write operation to ensure a clear writing surface.

A Read operation is performed in much the same manner as the Write operation. The difference is that the Write Gate and Erase Gate signals are never enabled (Read Gate stays on throughout the entire record).

ASSEMBLIES

POWER SUPPLY

Each MDD cabinet has a self-contained power supply accessible via the rear door and located behind the swingout logic chassis. The power supply provides a fixed output voltage of +40Y volts for use by the solenoids on the deck assemblies. It also provides adjustable output voltages of +40 vdc (to read/write logic), ±20 vdc (to logic), and +6 vdc (to logic). Each voltage is duplicated within the power supply, so that the voltage can be distributed separately to the upper deck and the lower deck or to row A and row B of the logic chassis.

Basic on/off power control and monitoring is provided at the front panel of the assembly. The front panel is hinged so that access can be gained to adjust or perform maintenance. The assembly is cooled by fans located on the top surface of the chassis.

AD/DC Distribution (Figure 4-4)

Input power is applied through the closed contacts of the MAIN POWER circuit breaker (on filter box panel) to the primary of transformer T01. The presence of the primary input power at the power supply is indicated by the power supply MAIN BREAKER indicator.

The input power is applied directly to the cooling fans in the power supply and the logic chassis. Input power will also be applied to the blower in the lower part of the cabinet, but only when the power supply BLOWER circuit breaker is set to ON. All other distribution of ac power is delayed until during the power-on sequence (described in a later paragraph).

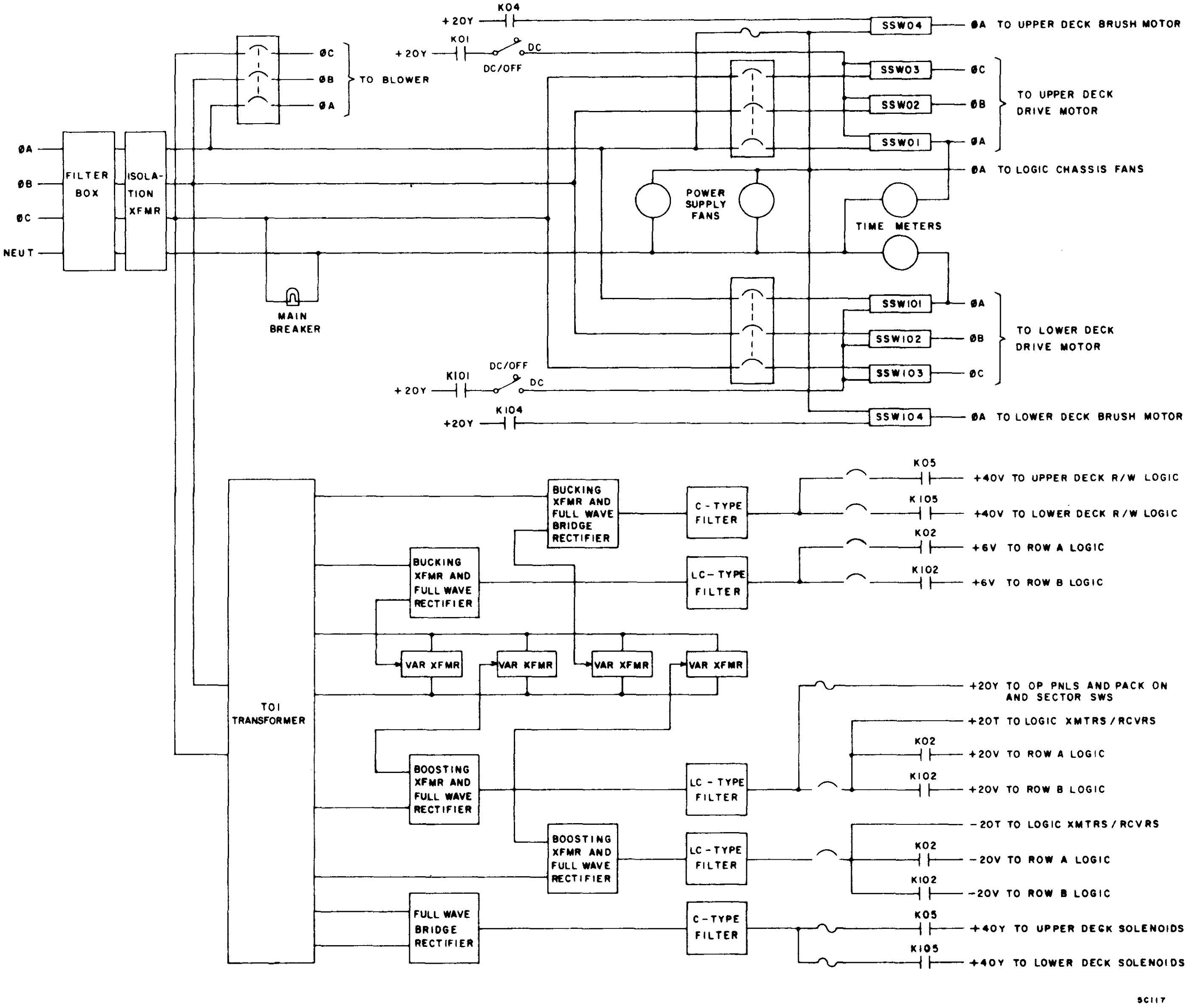


Figure 4-4. Power Supply - AC/DC Distribution

The dc power distribution begins with the application of main input power to the primary of T01. Voltages developed across the secondary windings are applied to five rectifier/ filter circuits. Each of these circuits develops a separate dc voltage. Through the use of variable transformers, four of the five voltages are adjustable (+40Y solenoid power is not adjustable). The +20Y voltage is immediately available when T01 is energized. This voltage is distributed to the operator panels and the pack on and sector in-place switches. The voltage is required to determine the status of these elements during a power on sequence. Distribution of the other dc voltages is controlled by circuit breakers and/or relay contacts.

Power-On Sequence

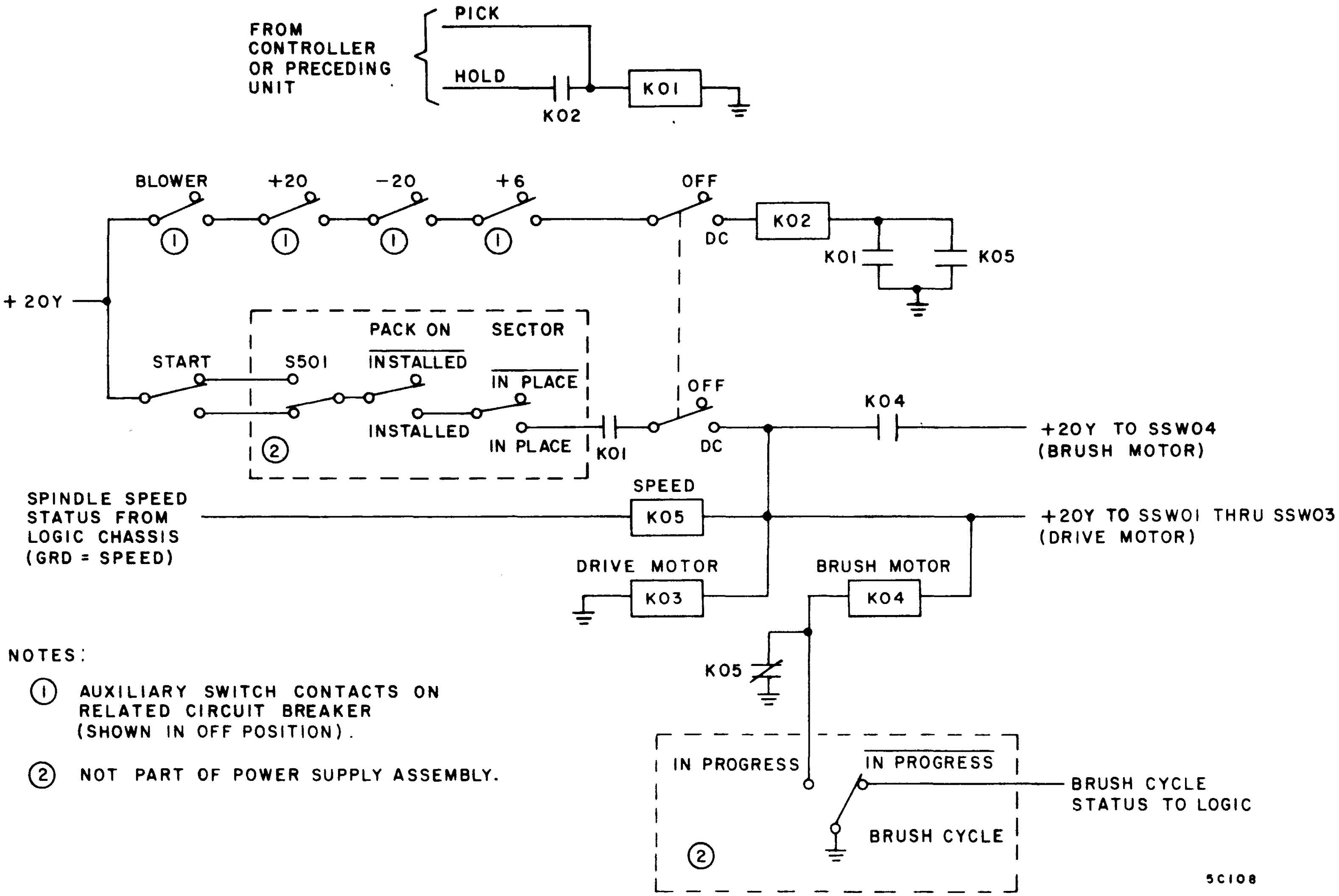
Power application to a deck is sequenced up by relays in the power supply (Figure 4-5). Sequencing is required to prevent damage to read/write heads and/or disk packs.

A normal on line, power-on sequence begins when switch S501 on the operator panel is pressed (actuating power supply panel START switch will also start the sequence). The progression of the sequence assumes that all power supply circuit breakers are on, that all power supply fuses are operational, that the power supply DC/OFF switch is set to DC, that a disk pack is installed, that the deck drawer is closed, and that sequence voltage to relay K01 is available.

NOTE

> Although steps 1 through 3 occur prior to actuating S501, they should be considered a part of the power on sequence.

1. When filter box MAIN POWER circuit breaker was set to ON, +20Y voltage became available (Figure 4-4).
2. When controller issued sequence voltage, K01 energized via pick line (Figure 4-5). The +20Y voltage was applied to solid-state switches SSW01, SSW02, and SSW03 (Figure 4-4). This enabled the solid-state switches to conduct their respective phase of ac power. The upper deck drive motor and time meter started.



NOTES:

① AUXILIARY SWITCH CONTACTS ON RELATED CIRCUIT BREAKER (SHOWN IN OFF POSITION).

② NOT PART OF POWER SUPPLY ASSEMBLY.

Figure 4-5. Power Supply - Sequencing (Upper Deck Only)

3. With circuit breakers on and DC/OFF switch set to DC, the closing contacts of K02 caused the following:
    a. Distributed +6, +20, and -20 vdc to the A row of the logic chassis.
    b. Applied holding current to armature of relay K01.
4. Press operator panel switch S501 (or actuate power supply START switch).
5. The +20Y voltage energizes K03 (K05 does not energize because spindle speed is zero).
6. The +20Y voltage also energizes relay K04. Closing contacts of K04 cause +20Y voltage to be applied to SSW04. The solid-state switch conducts ac power and the brush motor starts. Brush cycle switch transfers to the in-progress position.
7. When the logic chassis detection circuit determines that the spindle speed is adequate, K05 energizes. The contacts of K05 cause the following:
    a. The +40 voltage is distributed to the read/write logic on the upper deck (Figure 4-4).
    b. The +40Y voltage is distributed to the solenoids on the upper deck (Figure 4-4).
    c. One of the grounds to K04 is removed, but K04 does not de-energize since the brush cycle is still in progress.
8. As the disk pack cleaning brushes return from sweeping the disk surfaces, the brush cycle switch is mechanically transferred and de-energizes K04. This removes the enabling +20Y voltage to SSW04, and ac power to the brush motor is dropped.
9. Completion of the brush cycle allows the start of the First Seek (load heads) function. Upon completion of the First Seek operation the deck is ready to respond to commands from the controller.

Power-Off Sequence

A power-off sequence begins when the operator panel switch S501 is pressed (Figure 4-5). The sequence is as follows:

1. Press S501 (actuating power supply panel START switch will also initiate the sequence).

2. Relays K03, K04, and K05 de-energize. Contacts cause the following:

   a. K05 contacts disable +40 volts to read/write logic.

   b. K05 contacts disable +40Y voltage to hydraulic actuator solenoids and head latch solenoid. Read/write heads unload and the reverse biased (hydraulically) carriage moves in reverse to retracted stop at 2 ips (see Hydraulic Operations, Section 4 of this manual).

   c. K05 contacts also provide a path to ground for relay K04 in preparation for next power-on sequence.

   d. The application of the +20, -20, and +6 voltages to logic chassis will continue until the occurrence of one of the following: K01 drops because sequence voltage was removed at controller, or K02 drops because of either the actuation of a power supply switch or breaker (DC/OFF, +20, -20, +6, BLOWER) or removal of cabinet input power.

LOGIC CHASSIS

The logic chassis assembly consists of a logic card section, a maintenance panel, and an input/output connector panel. The assembly is accessible through the rear door and is located at the top of the cabinet. The assembly is mounted on hinges to allow access to the power supply assembly. Three fans are mounted along the lower surface of the assembly. These fans are energized whenever the filter box circuit breaker is on, and they provide cooling air to the logic card section. The back cover of the entire assembly can be removed (four half-turn fasteners) to gain access to components and wiring.

The logic card section contains the bulk of the SPL logic cards used in the cabinet (four cards are located on each deck assembly). The vertically mounted cards are installed in two rows (A top row and B bottom row) at numerically identified locations. Refer to Section 5 of this manual for a description of the logical functions performed by the cards. Section 9 contains a tabulation of the wiring connections in the chassis.

The maintenance panel contains a set of test point jacks, switches, and an indicator for each deck in the cabinet. These components function primarily to isolate the occurrence of a fault on the related deck. Specific information on each control or indicator of this panel is provided in the Operation section for this equipment (see Preface of this manual for publication number).

Connectors located on the input/output connector panel are involved only with signals exchanged between a deck and the controller. Refer to Table 4-1 for a description of these signals. The Installation and Checkout section for this equipment covers cabling and I/O connector pin assignments (see Preface of this manual for publication number).

DECK ASSEMBLY

The deck assemblies (Figure 4-6) are responsible for the dynamic operations of an MDD: driving the disk packs, and loading and positioning the read/write heads. The deck assembly consists of a deck plate on which are mounted a drive motor assembly, a spindle assembly, a hydraulic pump, a carriage and carriage mount, three transducers, a disk cleaner assembly, and a hydraulic actuator.

The deck assembly mounts in the MDD cabinet on a drawer mechanism. The drawer may be extended out the front of the cabinet to load a disk pack, or extended out the rear of the cabinet for maintenance purposes.

Drive Motor Assembly

The drive motor drives the spindle assembly and the hydraulic pump. The motor is an induction type, 3/4-hp unit. The motor is secured to a mounting plate which bolts to the underside of the deck plate. Power is transferred via a flat, smooth-surfaced belt that threads over the pulleys of the spindle, hydraulic pump, and drive motor. A spring-loaded idler pulley maintains a constant tension on the belt.

The temperature of the motor is monitored by a thermal protection switch. To restore operation after an over-temperature condition, the red, 1/4-inch button on the top end of the motor must be manually reset (pressed).

Spindle Assembly

The spindle assembly is the physical interface between and MDD deck and a disk pack. The conical surface of the spindle cone (Figure 4-7) mates directly with the cone-shaped opening in the center of the disk pack.

Starting in the spindle cone and running through the center of the spindle assembly is the vertically free-floating lockshaft. The upper end of the lockshaft contains internal threads that engage the external threads of a stud projecting from the disk pack. When the disk pack cannister cover handle is rotated clockwise, the spring-loaded lockshaft is pulled upward and the disk pack is pulled down. As a result, the conical surfaces of the disk pack and the spindle cone are engaged by a force of approximately 200 pounds. A clutch mechanism protects the lockshaft from damage that could occur from over tightening the disk pack. When the disk pack is fully engaged, a released mechanism in the canister handle frees the canister from the disk pack.

A notched lock wheel secures to the bottom surface of the drive pulley. The notches of the wheel are engaged by the tip of the spindle lock pawl (Figure 4-6) when the deck drawer is open. This locks the spindle, making it easier to install or remove a disk pack. Opening the drawer of an operating deck will cause a loud ratcheting noise (such action, while not recommended, will not cause damage). The spindle lock mechanism can be overridden if deck operation is required with the drawer open

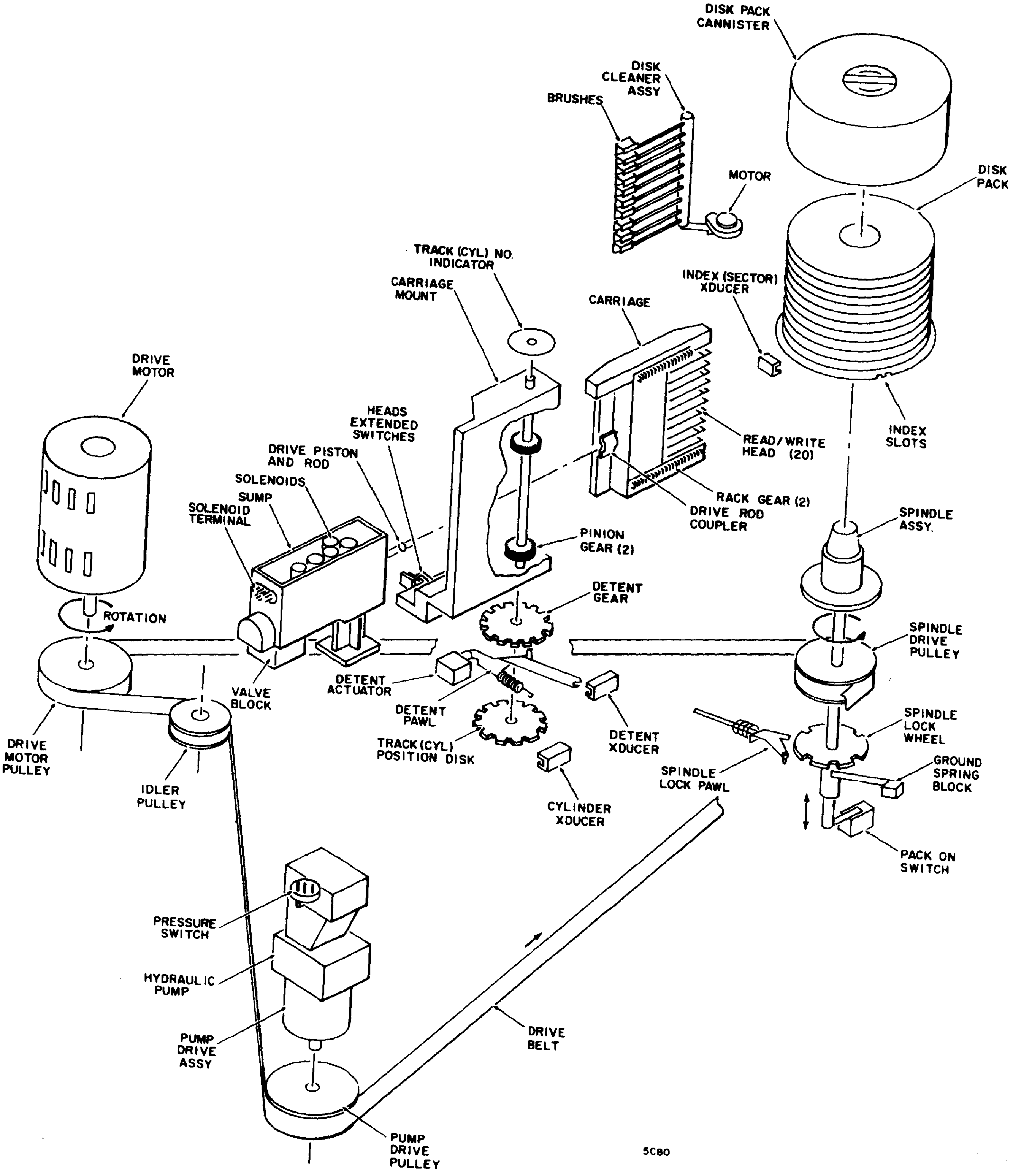


Figure 4-6. Deck Assembly

(refer to Figure 2-2). Closing the drawer will cancel the override. The spindle drive pulley is driven by a flat belt linking it to the drive motor pulley.

The Pack-On switch and ground spring are mounted at the lower end of the spindle assembly. The ground spring block is mounted so that it is always in contact with the ground sleeve. The Pack-On switch contacts transfer in response to the vertical movement of the lockshaft. When the shaft is up (disk pack mounted), the contacts are closed. When a pack is not installed, the shaft moves downward to deflect the switch actuator and transfer the contacts.

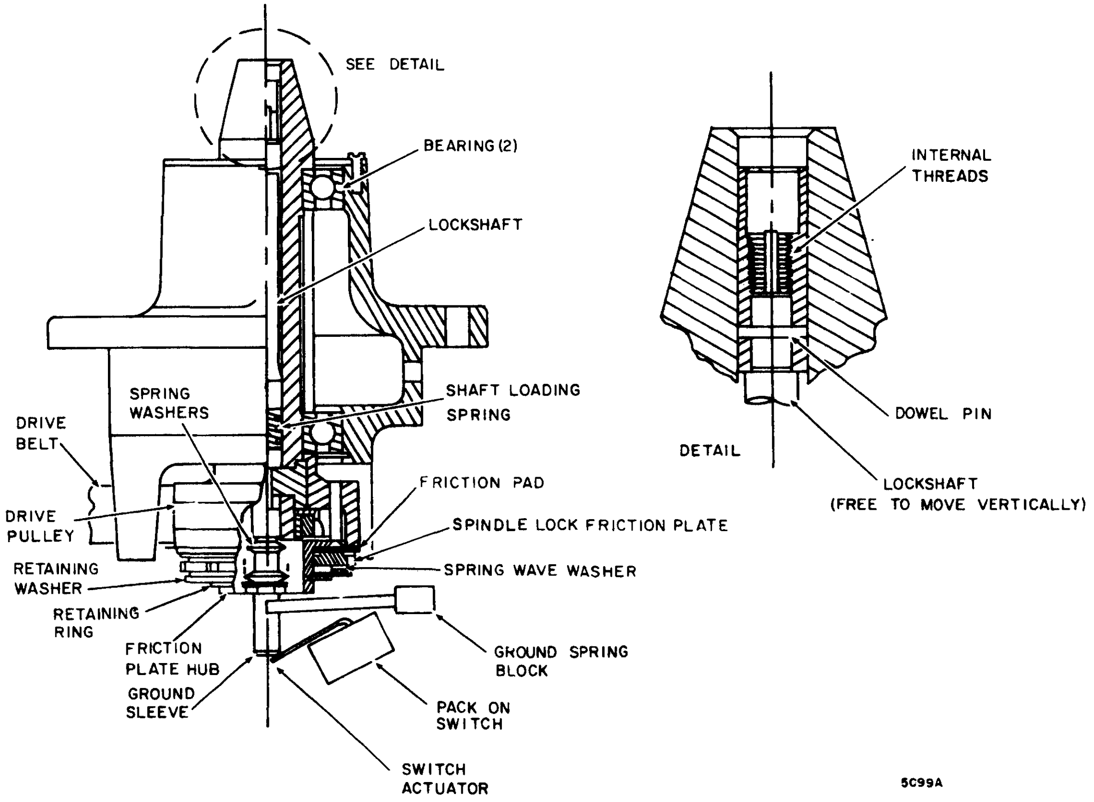


Figure 4-7. Spindle Assembly

Hydraulic Pump

The hydraulic pump is a positive-displacement type device capable of delivering 0.67 gpm at a nominal pressure of 200 psi.

The pump is located on the top of and at the rear of the deck assembly. The pump is seated on the pump drive assembly which functions to extend and couple the pump shaft through the deck to the pump drive pulley. A flat belt driven by the drive motor turns the pump.

The input and output hydraulic connections at the pump both originate at the hydraulic actuator. The hydraulic fluid pump and all pressure control valves are located in the hydraulic actuator.

A pressure sensing switch is installed on the pump output line. The switch transfers at a nominal output of 10 psi (approximately 50 rpm) and is used in conjunction with an operator panel indicator (see Section 2).

Carriage and Carriage Mount

The carriage and carriage mount (Figure 4-8) combine to form the vehicle that supports the read/write heads. Movement of the carriage, within the carriage mount, is controlled by the hydraulic actuator.

The carriage consists of an upper rail and a lower rail, separated by the receiver and the coupler plate. The rails contain bearing surfaces that interface with the various bearings and rollers of the carriage mount. Each rail has a rack gear that meshes with a pinion gear on the detent gear shaft (mounted vertically in carriage mount). The detent gear and the track position disk are mounted on the lower end of this same shaft. The ball tip of the hydraulic actuator drive rod is connected to the carriage by the drive rod coupler. When the hydraulic actuator extends or retracts the carriage, the detent gear shaft (and detent gear and track position disk) rotates.

The cylinder transducer senses the passing of the slots and lands of the rotating track position disk. From the center of one slot to the center of an adjacent land is recognized as a movement of one track. The transducer output causes the difference (decrement) counter content to decrease by one each time a track is crossed. When the logic determines that the next track to be crossed is the addressed track, it signals the detent solenoid to release the detent pawl. The spring-loaded pawl is drawn into the teeth of the detent gear and locks the carriage at the desired track. The detent transducer senses the pawl and gear engagement and signals the logic.

A track indicator (top of detent gear shaft) provides a visual indication of the current track location of the read/write heads.

A head loading mechanism mounts between the receiver and the coupler plate. Operation of this mechanism and the heads loaded switches is covered in the following paragraph.

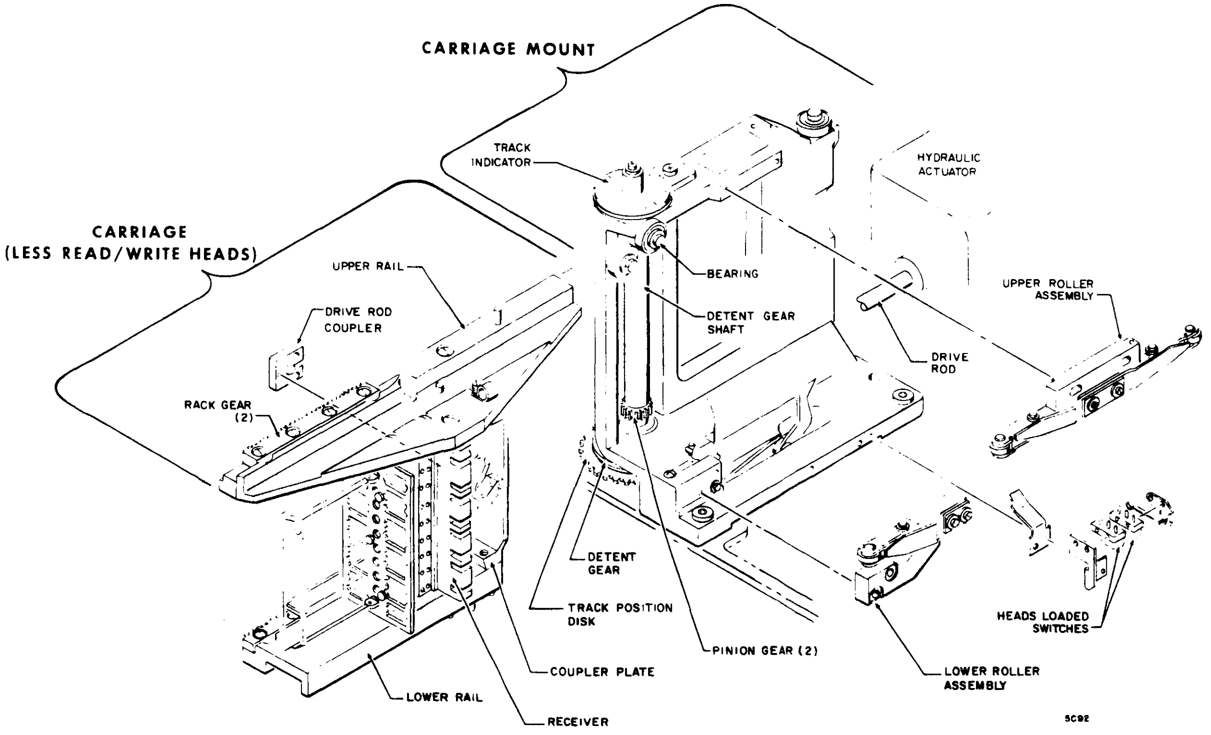


Figure 4-8. Carriage/Carriage Mount

Head Loading

The read/write heads must be loaded to the disk surfaces before exchanging data with the controller. The heads must be released from this position (unloaded) and driven clear of the disk pack when power is removed to the deck or the disk pack velocity falls below a predetermined rpm. The carriage components involved in these operations are identified in Figure 4-9.

Head loading amounts to applying spring pressure to the back of the read/write head so the aerodynamically shaped head face approaches the related disk surface. When the cushion of air that exists on the surface of the spinning disk is encountered, it resists the further approach by the head. Spring pressure is designed to just equal the opposing cushion pressure (function of disk pack rpm) at the required height. As a result, the head flies. However, if the spring pressure exceeds the cushion pressure (as would happen if the disk pack lost enough speed), the head will stop flying and contact the disk surface. This could cause damage to the head as well as the disk surface.

To prevent damage to the heads and/or the disk pack during automatic operation, loading occurs only after the disk pack is up to speed and the heads are over the disk surfaces. For the same reason, the heads unload automatically and are retracted if the disk pack rpm drops out of tolerance. During manual operations, heads should never be loaded on a disk pack that is not rotating, nor should heads be loaded without a disk pack being installed on the spindle. (The Maintenance section for this equipment provides instructions on how to disable the head loading mechanism.) Head loading is a part of the First Seek function. As power to the deck is sequenced up, the drive motor starts. This causes disk pack rotation, hydraulic pump operation, and a brush cycle (approximately 60 seconds). When the disk pack rpm reaches 2000, the extend solenoid (and head latch magnet) energizes and the carriage moves from the retracted position to the hydraulic home position. Upon completion of the brush cycle (brushes clear of disk pack), the hydraulic actuator forward solenoid energizes and the carriage moves forward toward the spindle and the forward mechanical stop. Head loading occurs during this forward motion.

The cam follower (part of carriage) moves along the head loading cam (part of carriage mount). When the follower encounters the up-ramp of the cam, the linkage rod assembly moves upward (Figure 4-9, part C). This causes each of the ten torsion rods to rotate which forces the 20 read/write heads toward the proper disk surface. The spring force of the torsion rod is opposed by the air layer on the disk surface and an equilibrium is attained with the heads flying over the disks.

As the carriage nears the spindle, the head load pawl enters the notch in the linkage and transfers the heads extended switch. The head latch magnet holds the pawl in the latched position until power (to magnet) is removed. Forward carriage motion continues until the cam follower contacts the head load cam latch. This contact frees the

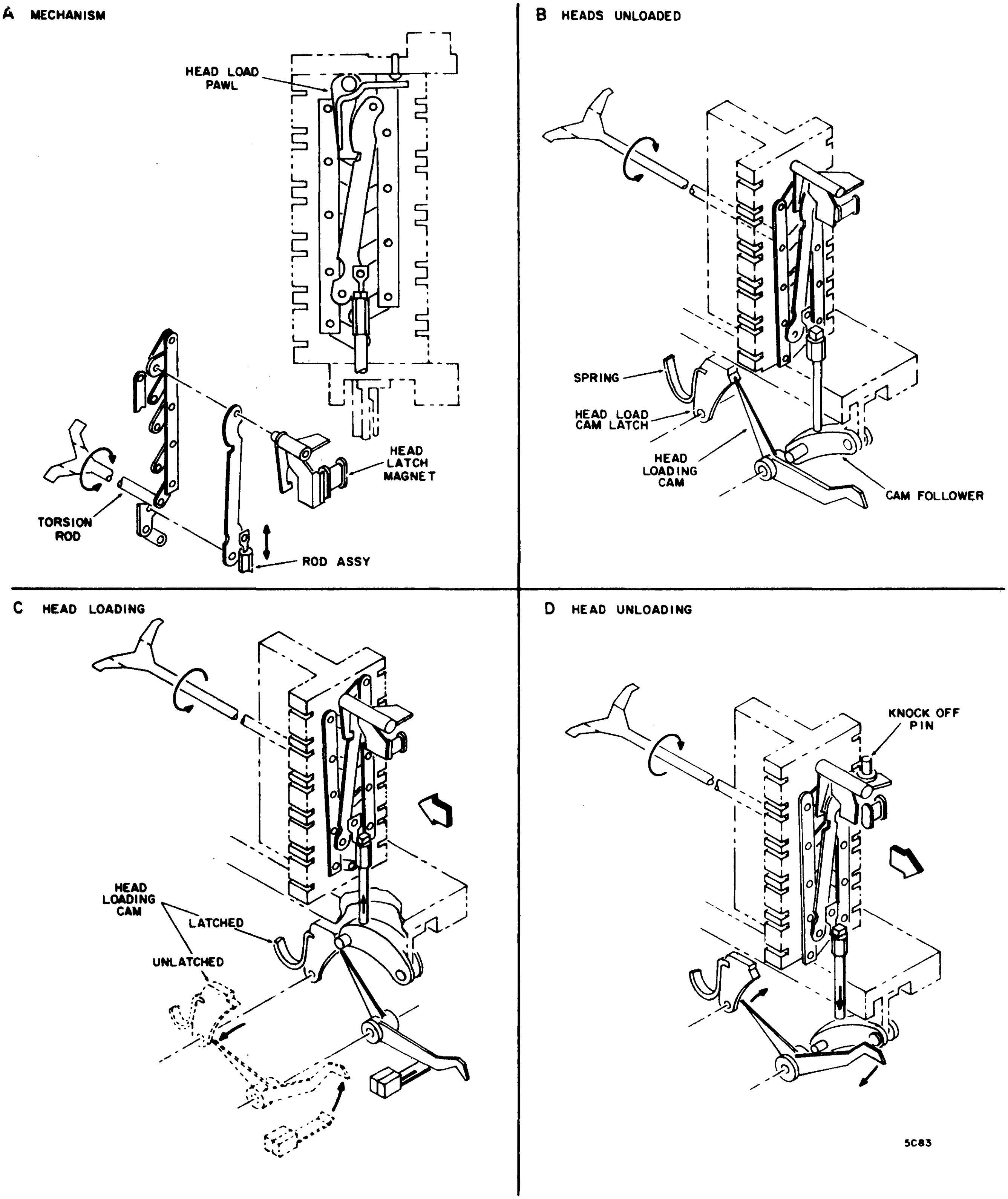


Figure 4-9. Head Loading Mechanism

end of the cam and it rotates downward to transfer the heads loaded switches. This transfer signals the logic that loading is complete and causes the carriage to be retracted and positioned to track 00. The heads remain loaded and latched until power is removed, the index (sector) transducer is displaced from sector disk of disk pack, or disk pack rpm drops below tolerance.

Head unloading (Figure 4-9, part D), occurs when solenoid power is removed to the head latch magnet. The head load pawl pulls out of the linkage notch, the torsion rods rotate to relieve the pressure to the back of the read/write heads, and the heads unload or move away from their respective disk surfaces. With solenoid power absent, the reverse biased (hydraulically) actuator moves the carriage toward the retracted mechanical stop. As the carriage moves in reverse, the linkage rod assembly pressing down on the cam follower pivots the head loading cam so that the tip (of cam) engages the head load cam latch. This relatching occurs as the carriage moves from hydraulic home to the retracted stop.

If the linkage malfunctions and fails to unload the heads, the upper roller assembly (Figure 4-8) contacts the knock off pin (Figure 4-9, part D). This contact forces the knock off pin downward to forcibly rotate the head load pawl clear of the head latch magnet pole face, the thereby unload the heads. The knock off pin is contacted by the roller somewhere between tracks -7 and -12.

Head/Arm Assemblies

Twenty head/arm assemblies are mounted on the carriage of each deck. A head/arm assembly consists of a read/write and erase coil package (head assembly) mounted at the end of a supporting arm structure.

The head assembly (Figure 4-10), which includes a cable and plug, is mounted on a gimbal ring which in turn is mounted on a floating arm. This method of mounting allows the head assembly to move (independent of the arm) tangentially and radially relative to a data track on the disk surface. Such motion is required to compensate for irregularities in the disk surface.

The arm structure consists of a floating arm secured to a heavier fixed arm. The end of the fixed arm opposite the head installs in the carriage receiver. The floating arm is the mounting point for the head and is necessarily flexible so that it can respond to the force applied (on load button) by the torsion rod/spring during head loading. Each tip of the Y-shaped torsion spring loads a head, moving one head up and one head down.

The freedom and mobility of the head are necessary elements to being able to function with interchangeable disk packs. During head loading the 10 torsion rods rotate in unison to flex the 20 heads toward the air cushion of the spinning disk surfaces. The force applied by the torsion spring causes the heads to fly or float on the air cushion. Vertical motion by a disk surface (due to warpage or imperfection) is countered by a move in the opposite direction by the gimballed head and/or the floating arm. As a result, flight height remains nearly constant.

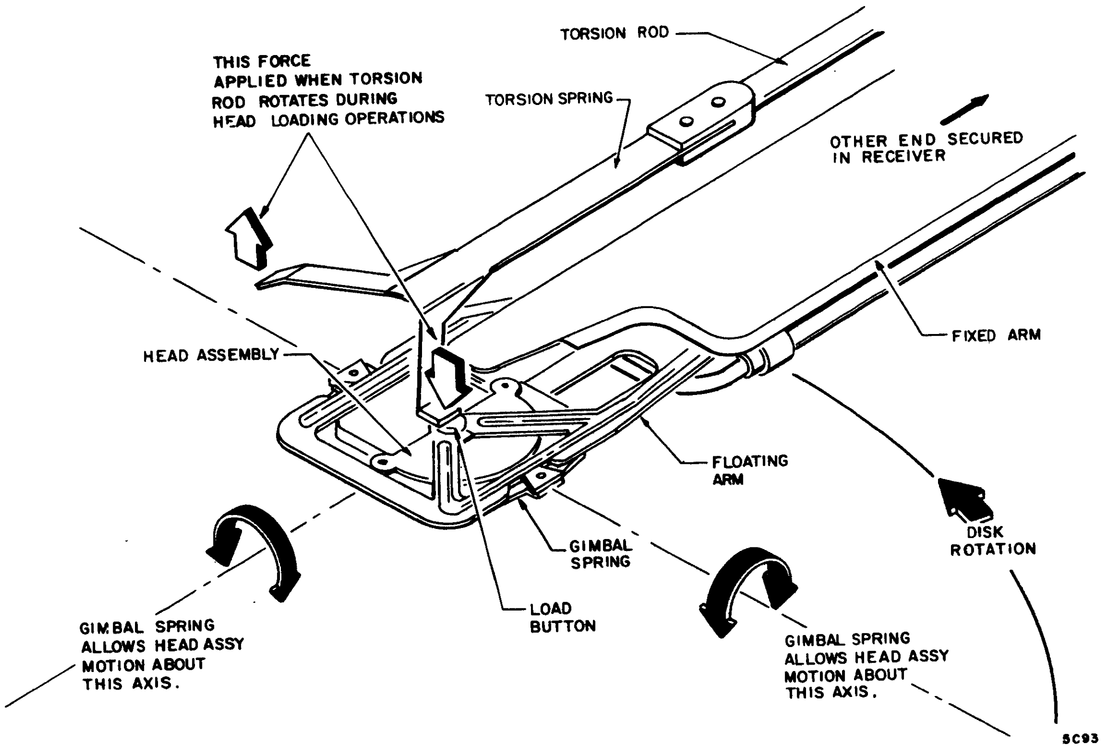


Figure 4-10. Head/Arm Assembly Motion

Transducers

Three transducers are used on each MDD deck: detent transducer, cylinder transducer, and index (sector) transducer. A transducer is a potted assembly consisting of a primary coil and two secondary coils (Figure 4-11). The secondary and primary coils are separated by a notched and movable metal plate. The primary of the transducer is excited by a 187-kHz oscillator. When a notch (air gap) is between the secondary and primary windings, the output of the transducer secondary is maximum. The secondary output is minimum when the metal plate is between the windings. The secondary outputs drive a preamplifier card.

The related preamplifier card plugs into the transducer. The preamplifier output is processed in the logic chassis. The only adjustment required of this assembly amounts to repositioning the transducer relative to the slotted metal plate.

Detent Transducer

The detent transducer senses the location of the slot in the detent flag. When the detent pawl engages the gear, the slot is nearer to the bottom secondary coil (Figure 4-12). This causes the amplifier output to go negative. The preamplifier card filtering removes part of the 187-kHz signal. The detection circuit converts the negative signal to a "0".

If the detent pawl is disengaged from the gear, the flag slot moves nearer to the upper coil. This causes a positive amplifier output which is detected as a "1".

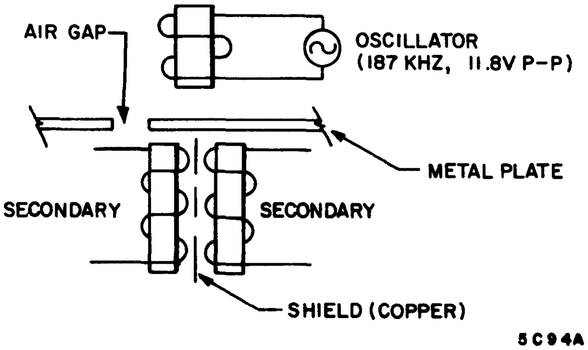


Figure 4-11. Transducer

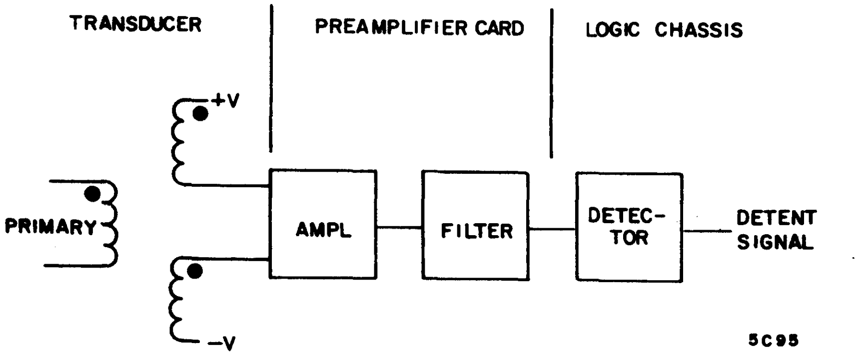


Figure 4-12. Detent Detection

Cylinder Transducer

The cylinder transducer senses slots in the edge of the rotating track position disk. The cylinder detection circuit (Figure 4-13) converts the analog output of the transducer to "1's" and "0's".

The slotted edge of the track position disk separates the primary of the transducer from the secondaries. As the disk rotates, the notches allow varying levels of coupling between the primary and the secondaries. Figure 4-14 shows rotational positions of the track position disk and the resulting cylinder detection. As the notch passes over secondary A, maximum coupling of the primary is possible and the output of secondary A is maximum. Since secondary B is covered by a land, coupling to the primary is minimum as is the output.

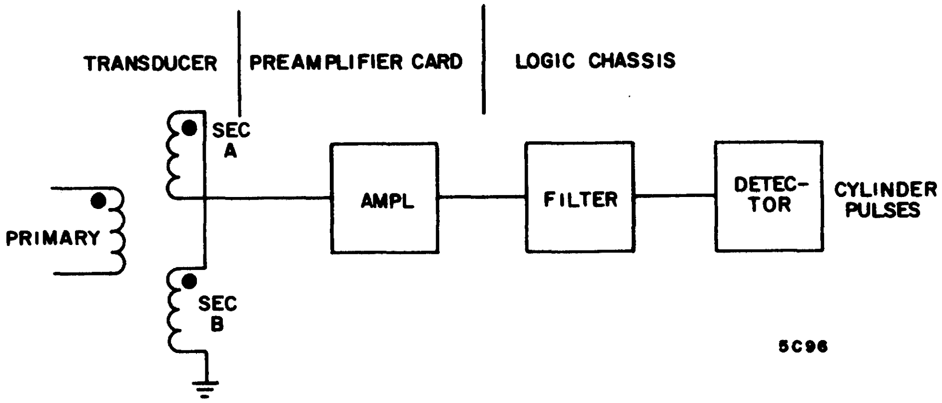


Figure 4-13. Cylinder Detection

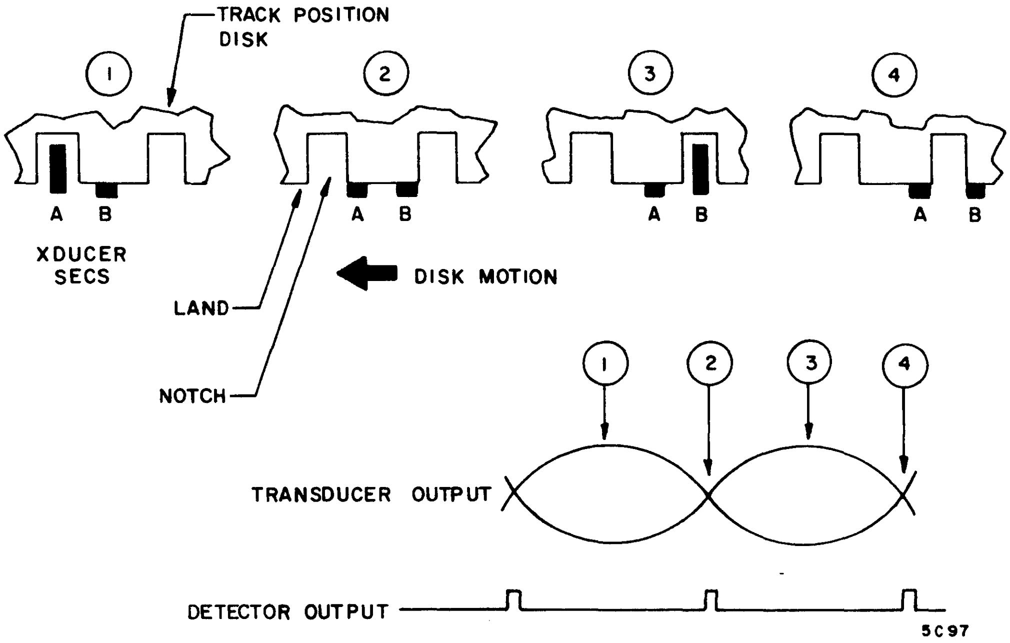


Figure 4-14. Cylinder Position Detection

As the disk rotates, both secondaries become covered by a land. Since the outputs are equal, the transducer output is a null.

Further rotation of the disk uncovers secondary B allowing maximum coupling and raising output B to the maximum. Since secondary A is now covered by a land, output A is a minimum.

Disk rotation continues until both secondaries are centered on a notch, but covered by a land. The outputs are again equal, so a null occurs in the output.

Each notch and each land nulls the transducer output. The detection circuit generates a pulse for each null in the transducer output.

Index (Sector) Transducer

This transducer senses notches in the edge of the sector disk (large disk at bottom of each disk pack).

Each notch on the sector disk causes a differential input to the preamplifier card amplifier (Figure 4-15). The detector generates a 55-μsec "1" pulse in response to each notch. These pulses are further processed by the MDD logic to determine if the disk pack speed is sufficient for continued operation.

All disk packs have two closely spaced notches called index. These notches indicate the beginning of a revolution of the disk pack. Some disk packs have, in addition to index, other notches equally spaced about the circumference of the sector disk. These notches are related to data organization on the disk pack.

Disk Cleaner Assembly

The disk cleaner assembly sweeps the disk pack recording surfaces free of any foreign materials. The sweep cycle occurs just before the read/write heads are loaded during the First Seek sequence.

The assembly consists of a motor, 10-comb-mounted brushes, a reset switch, motor to comb linkage, and a mounting base. The base mounts on the deck assembly and the brushes are pivot mounted on the base. Pivoting of the brushes is controlled by the motor, the linkage, and the switch. The motor is energized during the power on sequence and starts a 60-second (approximately) cycle. As the cycle proceeds, the brushes sweep toward the spindle until the linkage causes a reversal in direction. As the brushes return to the original position (clear of disk pack) the reset switch is encountered and transfers. This de-energized the Brush Motor relay and disables the motor.

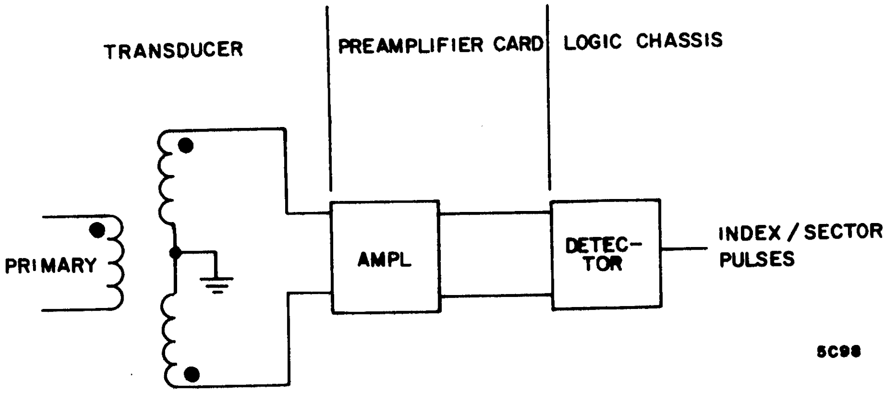


Figure 4-15. Index/Sector Detection

The brushes are mounted using a ball-slot detent mechanism. If power is dropped or lost during the brush cycle, the operator can override the detent and rotate the brushes clear of the disk pack so that the disk pack can be removed from the spindle. The brush cycle during the next Power-on sequence will be an incomplete cycle as the brushes automatically reset themselves. Subsequent cycles will be normal.

Hydraulic Actuator

The hydraulic actuator drives and locks the carriage mounted read/write heads to any one of 203 discrete positions or cylinders of data. Activity of the hydraulic actuator is regulated by five solenoid-controlled valves that direct the routing of hydraulic fluid. The solenoids are controlled from the MDD logic chassis. Hydraulic fluid at a pressure of approximately 200 psi is provided by the hydraulic pump.

The hydraulic actuator (Figure 4-16) consists of a piston and sump block in or on which are mounted a valve block, two hydraulic fluid filters, an extend piston, a drive piston, and five solenoid and valve combinations.

Valve Block

The valve block contains all valves and most of the related fluid passages of the unit. The block mounts directly under the sump chamber of the piston and sump block.

Filters

The two fluid filters are located in the sump portion of the piston and sump block. The primary filter is a large-particle screen in the pump suction outlet. The secondary filter removes smaller particles from a bypass flow originating when the slow solenoid is energized.

A third filter removes smaller particles and is located in the pump output pipe between the pump and the hydraulic actuator.

Extend Piston

The extend piston is located in the rear cylinder of two concentrically bored cylinders of the piston and sump block. This piston is hydraulically positioned to either the extend or the retracted position by the status of the extend solenoid. Whenever power is applied to the deck, the extend solenoid is energized and the related valve is closed. Hydraulic pressure on the larger rear face of the piston drives it forward to a positive stop. This is the extended position, and the piston remains in this position until power to the deck is dropped. In the extended position the forward face of the extend piston functions as a hydraulically cushioned stop for the drive piston and also establishes the hydraulic home position for the carriage. When deck power is removed, the extend solenoid de-energizes, the spring-loaded valve opens, and the piston moves to the retracted position. As a result, the effective operating chamber for the drive piston is extended to the rear of the carriage and the carriage is retracted to a position where the heads are clear of the disk pack surfaces.

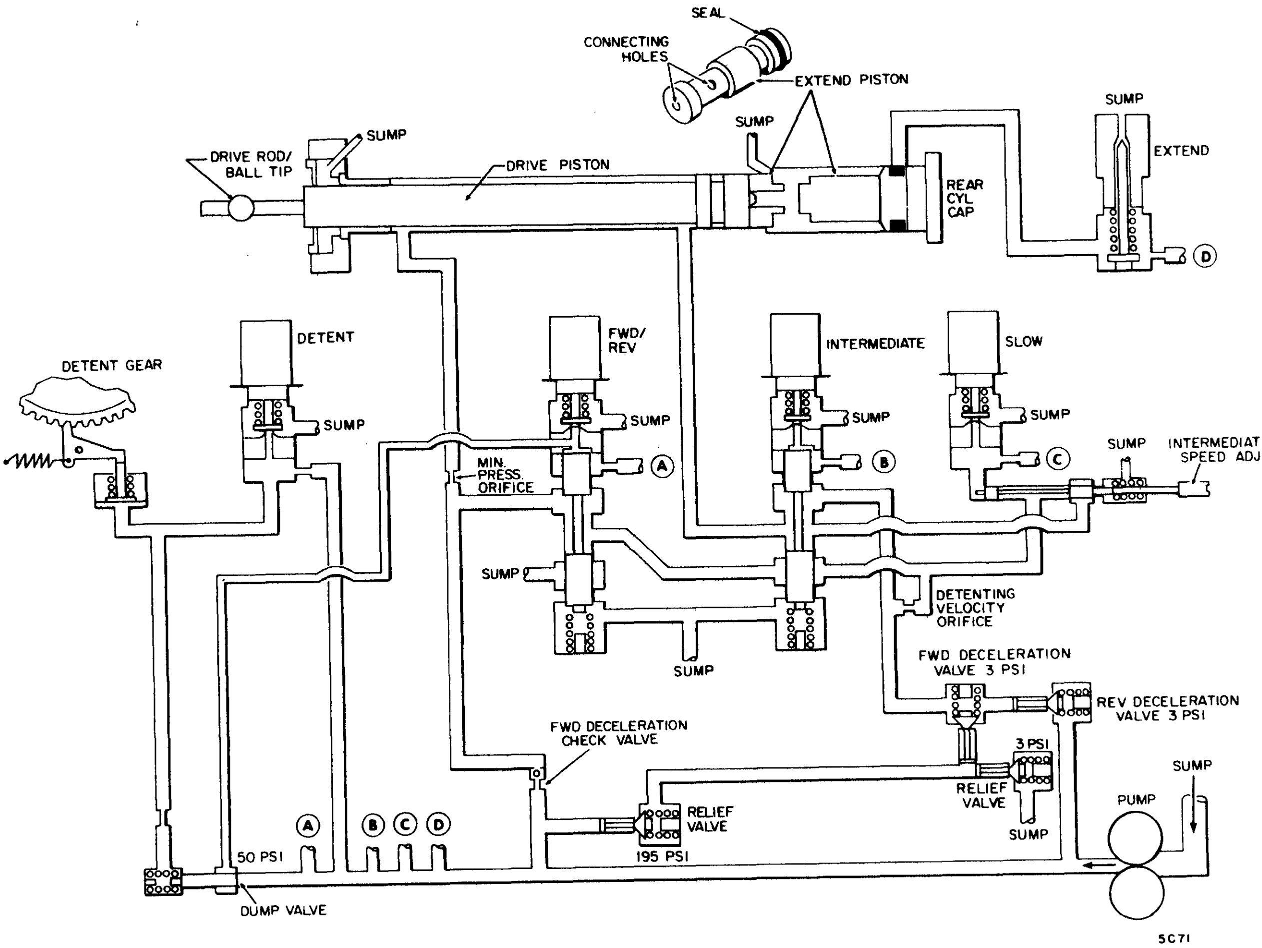


Figure 4-16. Hydraulic Actuator - Power Off

Drive Piston

The drive piston operates in the smaller forward cylinder of the piston and sump block. This piston connects, via the ball tip, to the movable carriage (mounting point of the read/write heads). The drive piston is constantly biased in the reverse direction by hydraulic pressure applied via the forward deceleration check valve and the minimum pressure orifice. Piston direction and rate of motion are controlled by three solenoids and valves.

Solenoids and Valves

The hydraulic actuator uses five solenoid and valve combinations. The function of the extend solenoid and valve was discussed previously.

The detent solenoid and valve controls the routing of hydraulic pressure to the detent actuator (not physically a part of the hydraulic actuator). When hydraulic pressure is available and the detent solenoid is de-energized, the pressure is applied to the detent actuator to pivot the detent pawl out of the detent gear. When the detent solenoid is energized, the related valve opens to vent pressure to the sump, and the detent pawl spring pulls the pawl into the gear.

Three solenoids and valves direct the routing of hydraulic fluid to the drive piston. All solenoid activity is controlled by signals originating in the logic chassis. The solenoids are located in the sump chamber of the hydraulic actuator and the control valves are located in the valve block. Electrical connections are via a solenoid terminal at the rear of the actuator. Each solenoid operates with at least one related valve. This valve is open when the solenoid is energized, and closed (spring-loaded) when the solenoid is de-energized. The forward/reverse, intermediate, and slow solenoids each control an additional spring-loaded spool. When the related solenoid is de-energized, system pressure from the hydraulic pump overrides the spring force and repositions the spool toward the spring.

Hydraulic Operations

The following paragraphs describe the configuration of the hydraulic actuator during the various operational phases.

Power Off (Figure 4-16)

No power, electrical or hydraulic, is available to the deck during this phase. As a result, all spring-loaded valves or devices are positioned according to spring loading. The extend and drive pistons are in the retracted position. This positioning occurs during removal of power to the extend solenoid during the preceding power shut down. When the extend solenoid de-energizes, pressure to the rear of the extend solenoid is vented to the sump. Pressure still exists in actuator, even though the pump rpm is decreasing. The reverse biased drive piston under the influence of this pressure moves in reverse, pushing the extend piston ahead of it, to the retracted position.

Hydraulic Home (Figure 4-17)

Hydraulic home is the physical location established when the extend piston moves to the extend position. The actuator moves to hydraulic home at the beginning of each First Seek operation. It is the starting point for the forward motion required to load and latch the read/write heads. The sequence of events for this phase is as follows:

1. Hydraulic pump delivers pressure increasing toward 200 psi.
2. Increasing pressure and de-energized solenoids cause forward/reverse and intermediate spools to move downward and slow spool to move to right.
3. De-energized extend solenoid vents pressure to sump. Extend piston stays in retracted position (Figure 4-16).
4. When pump pressure reaches approximately 200 psi, detent actuator pivots pawl out of detent gear and relief valves begin controlling pressure.
5. When disk pack exceeds required speed, power is applied to extend solenoid. Vent to sump is blocked, pressure moves extend piston (and drive piston) to left, and heads move into disk pack to hydraulic home position.

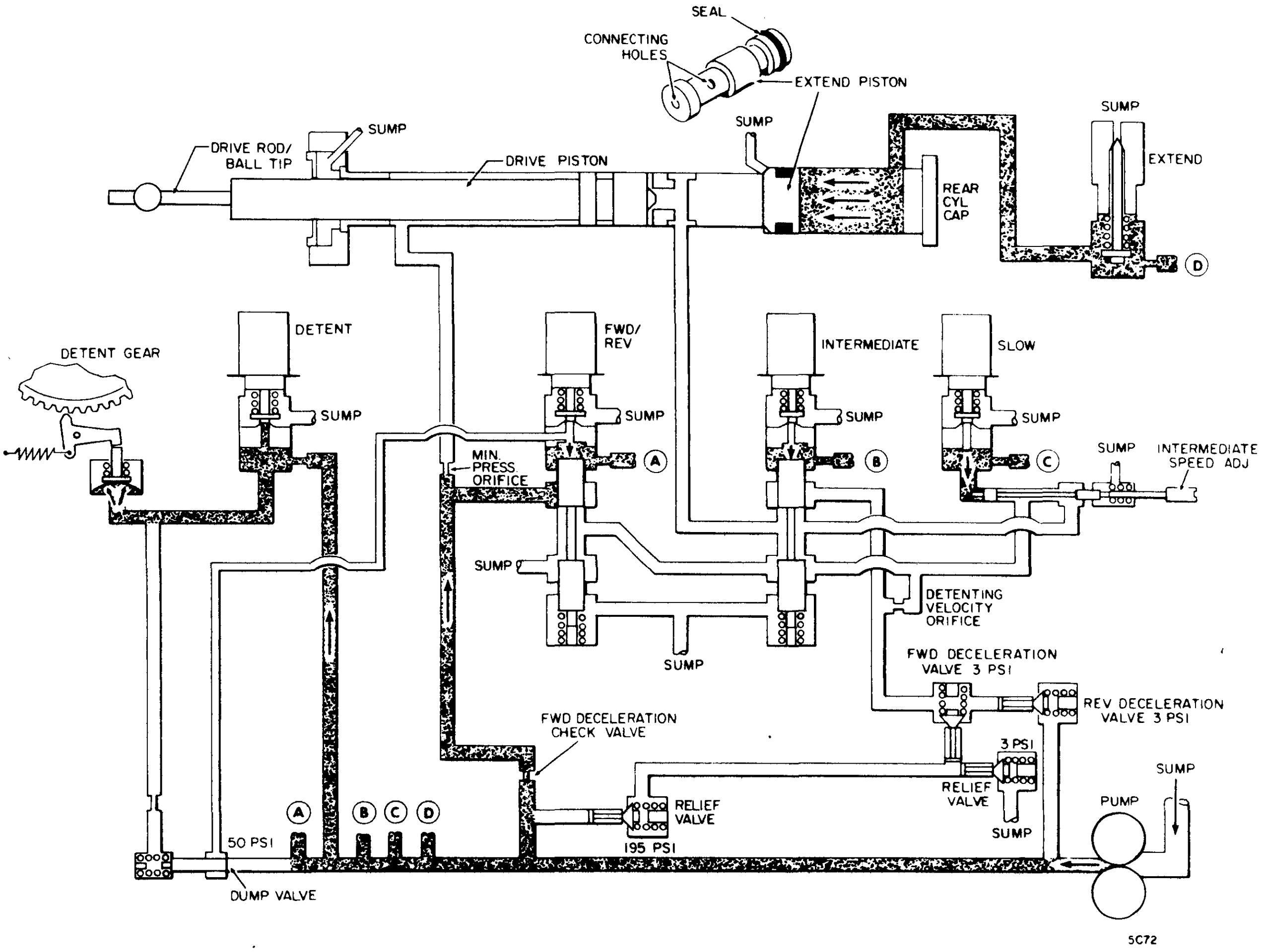


Figure 4-17. Hydraulic Actuator - Hydraulic Home

Detent (Figure 4-18)

The detent phase occurs at the end of each seek operation. The operation consists of removing pressure to the detent actuator so that the detent pawl spring pivots the pawl to engage the detent gear and lock the carriage to a track. The sequence of events for this phase is as follows:

1. During a First Seek or a RTZS operation, the detent solenoid energizes when the leading edge of the first track pulse is sensed as the carriage moves forward from hydraulic home (after the heads have loaded during First Seek). During a forward Direct Seek operation, the detent solenoid energizes when the leading edge of the first track pulse is sensed after the decrement counter indicates less than 2 tracks to go to the desired track. The forward/reverse solenoid remains energized.

   During a reverse Direct Seek operation, the detent solenoid energizes when the leading edge of the first track pulse is sensed after the decrement counter indicates less than 2 tracks to go to the desired track. This causes the forward/reverse solenoid to energize. Changing the direction of carriage motion at this point allows the detent pawl to engage the gear in the same manner as for a forward seek.
2. Energized detent solenoid vents pressure to sump. Loss of pressure in detent actuator causes spring to pivot detent pawl into detent gear.
3. The 50 psi dump valve opens to vent system pressure to sump (via forward/reverse solenoid valve). This causes system pressure to drop to 50 psi and thereby prevents excessive heating of hydraulic fluid.
4. Slow solenoid remains energized.

Forward Operations

The length of the seek determines the forward operations to be used. If the seek is in excess of 26 tracks when the forward/reverse solenoid is energized, the read/write heads move toward the center of the disk pack in the forward fast mode (26 ips). This rate of access continues until the logic determines that there are less than 26 tracks to go to reach the desired track. When this determination is made, the logic energizes the intermediate solenoid which causes the access to continue in the forward intermediate mode (7 ips). When the heads are less than four tracks from the desired track, the logic energizes the slow solenoid. This reduces the access rate to 2 ips (forward slow mode), which continues until the detent pawl engages the detent gear and stops the heads at the desired track. If the desired track is less than 26 tracks but more than 3 tracks from the current location, the intermediate solenoid is energized immediately. In this case the seek would consist of a forward intermediate mode, followed by a forward slow mode, and detent.

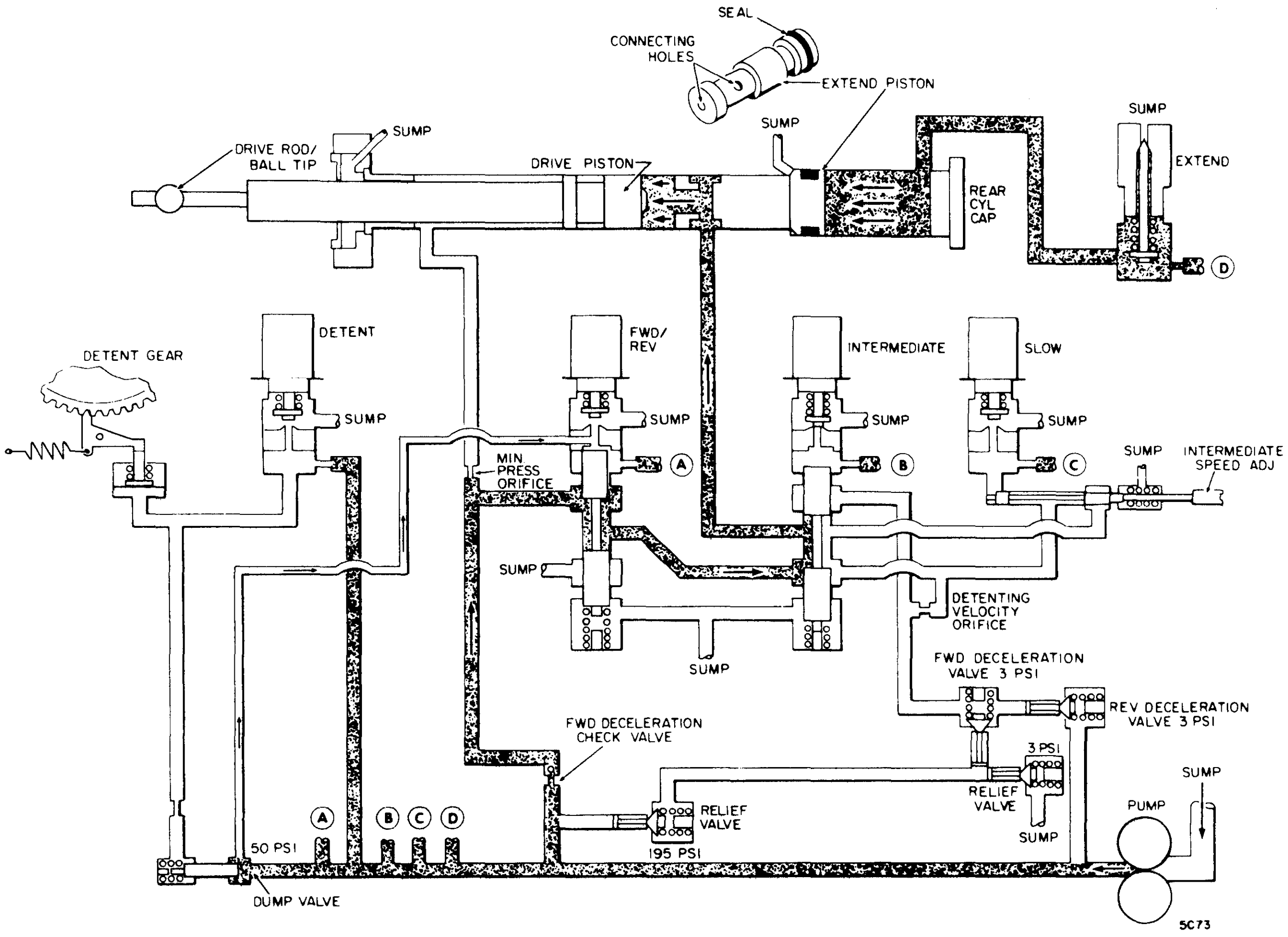


Figure 4-18. Hydraulic Actuator - Detent

For a seek of three tracks or less, both the slow and intermediate solenoids would energize immediately. The seek would consist of a forward slow mode followed by detent.

Forward motion is stopped by detenting, but there is a back-up method in the form of a mechanical stop.

Forward Fast Mode (Figure 4-19): The sequence of events for this mode is as follows:

1. With extend solenoid energized and detent solenoid de-energized, the forward/reverse solenoid energizes.
2. Open forward/reverse valve vents pressure to sump. Resulting pressure drop causes upward movement of spring-loaded forward/reverse spool.

NOTE

Pressures at left and right faces of drive piston are equal. Drive piston moves to left because area of face is greater

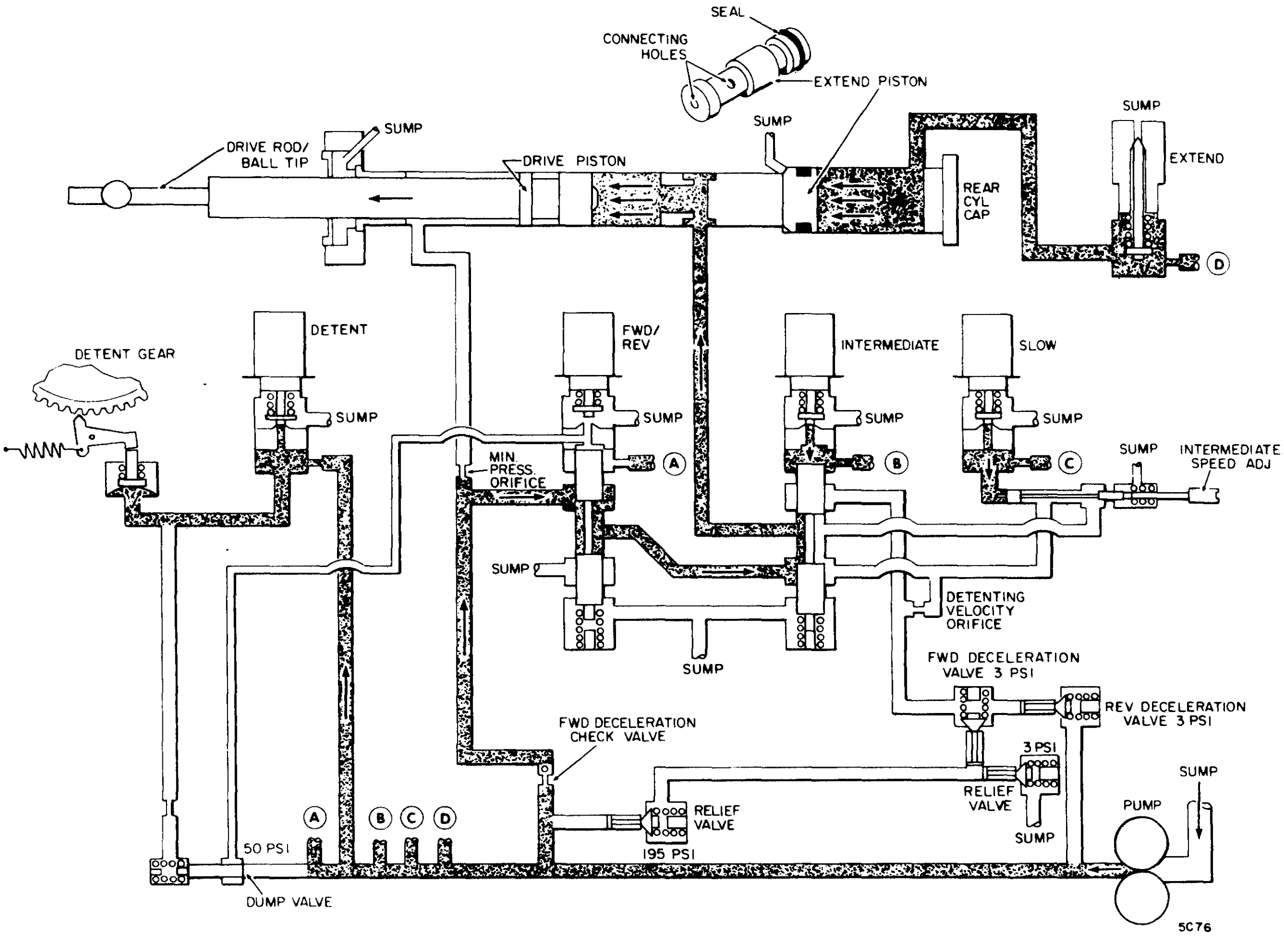


Figure 4-19. Hydraulic Actuator - Forward Fast

3. Hydraulic fluid flows through hole in extend piston causing drive piston to move left (forward) at 26 ips.

Forward Intermediate Mode (Figure 4-20): The sequence of events for this mode is as follows:

1. With extend solenoid energized and detent solenoid de-energized, forward/reverse and intermediate solenoids energize.
2. Open forward/reverse and intermediate valves vent pressure to sump. Resulting pressure drop causes upward movement of spring-loaded forward/reverse and intermediate spools.
3. Hydraulic fluid flows past forward/reverse spool and around intermediate spool. It then branches into parallel paths through detenting velocity orifice and slow spool, rejoining at and passing the intermediate spool. From here it passes through hole in extend piston causing the drive piston to move left at 7 ips.

Forward Slow Mode (Figure 4-21): The sequence of events for this mode is as follows:

1. With extend solenoid energized and detent solenoid de-energized, forward/reverse, intermediate, and slow solenoids energize.
2. Open forward/reverse, intermediate, and slow valves vent pressure to sump. Resulting pressure drop causes upward movement of spring-loaded forward/reverse and intermediate spools and slow spool moves to left.
3. Hydraulic fluid flows past forward/reverse spool and around intermediate spool. It then flows through detenting velocity orifice, past intermediate spool and out forward face of extend piston to rear of drive piston.
4. Drive piston moves left at 2 ips.

Reverse Operations

As with forward operations, the length of the seek determines the mode(s) required to complete the seek.

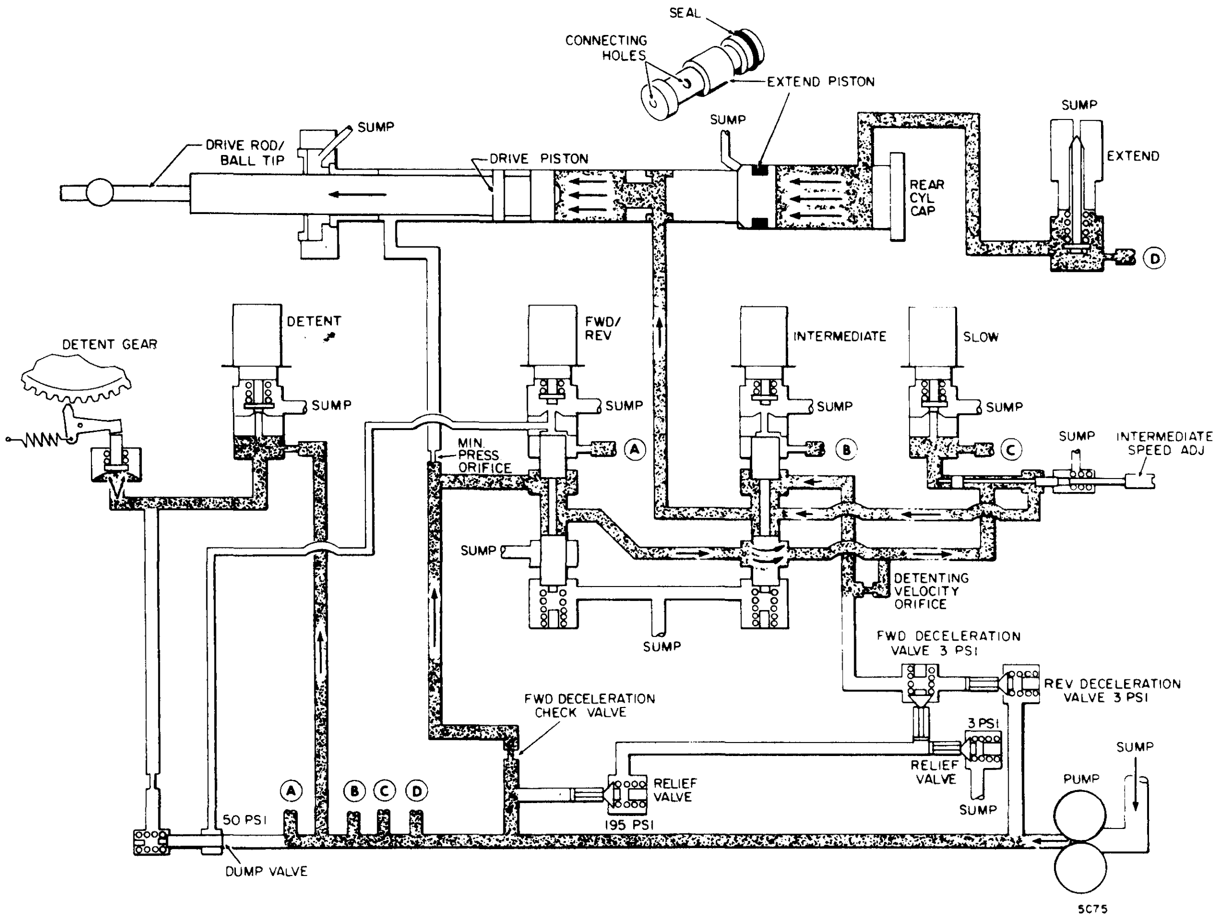


Figure 4-20. Hydraulic Actuator - Forward Intermediate

Reverse motion is stopped by switching to forward motion and then detenting or by the drive piston encountering the hydraulic cushion on the front face of the extend piston.

Reverse Fast Mode (Figure 4-22): The sequence of events for this mode is as follows:

1. With extend solenoid energized and detent solenoid de-energized, forward/reverse solenoid de-energizes.
2. Closed forward/reverse and intermediate valves cause line pressure to move related spools downward.

3. Hydraulic fluid at rear face (right end) of drive piston flows past intermediate spool and returns to sump at lower end of forward/reverse spool.

4. Hydraulic fluid flows through minimum pressure orifice to left face of drive piston and piston moves right at 26 ips.

Reverse Intermediate Mode (Figure 4-23): The sequence of events for this mode is as follows:

1. With extend solenoid energized and detent solenoid de-energized, forward/reverse solenoid de-energizes and intermediate solenoid energizes.

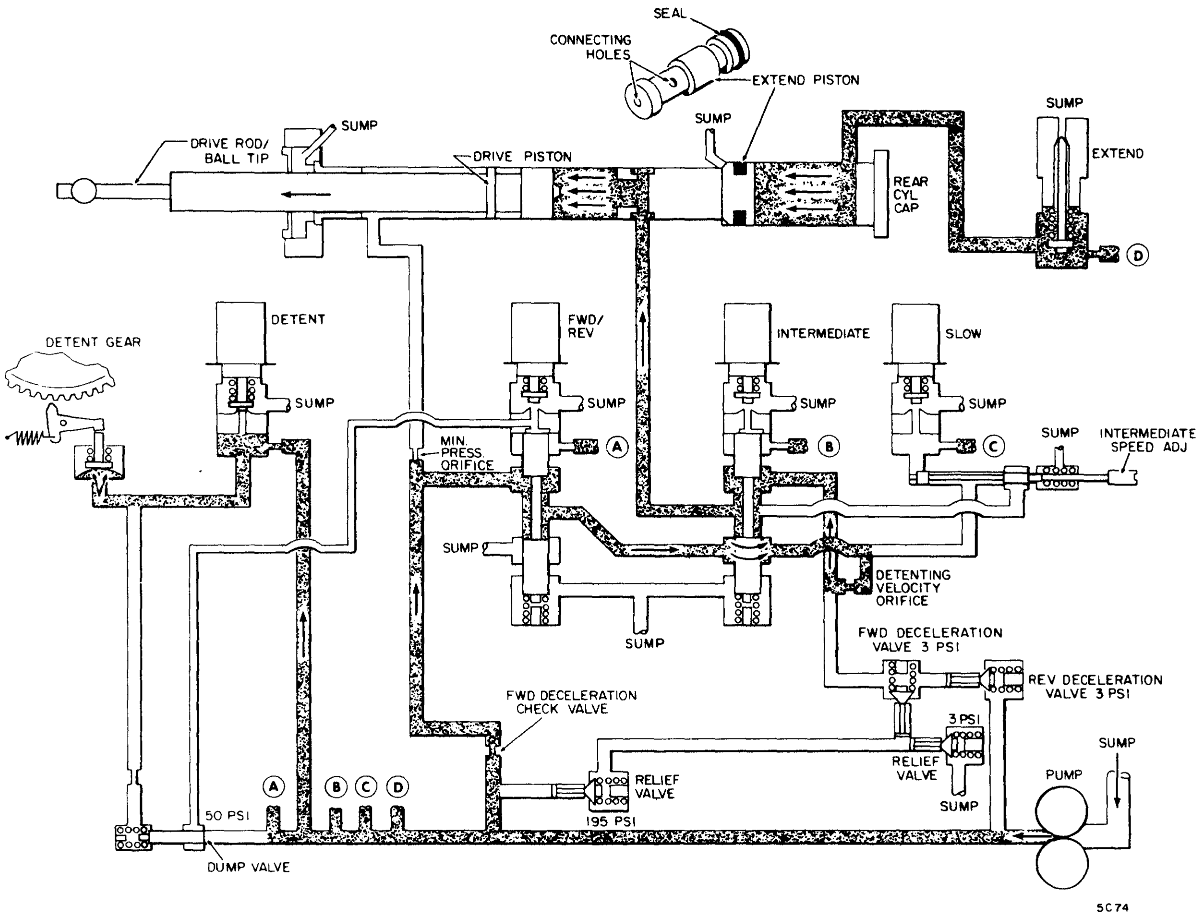


Figure 4-21. Hydraulic Actuator - Forward Slow

2. Closed forward/reverse valve causes line pressure to move related spool downward. Intermediate spool rises.

3. Hydraulic fluid at rear face of drive piston flows past intermediate spool and branches into two parallel paths past slow spool and through detenting velocity orifice. The paths rejoin to pass around the intermediate spool and vent to sump at forward/reverse spool.

4. Hydraulic fluid flows through minimum pressure orifice to left face of drive piston and piston moves right at 7 ips.

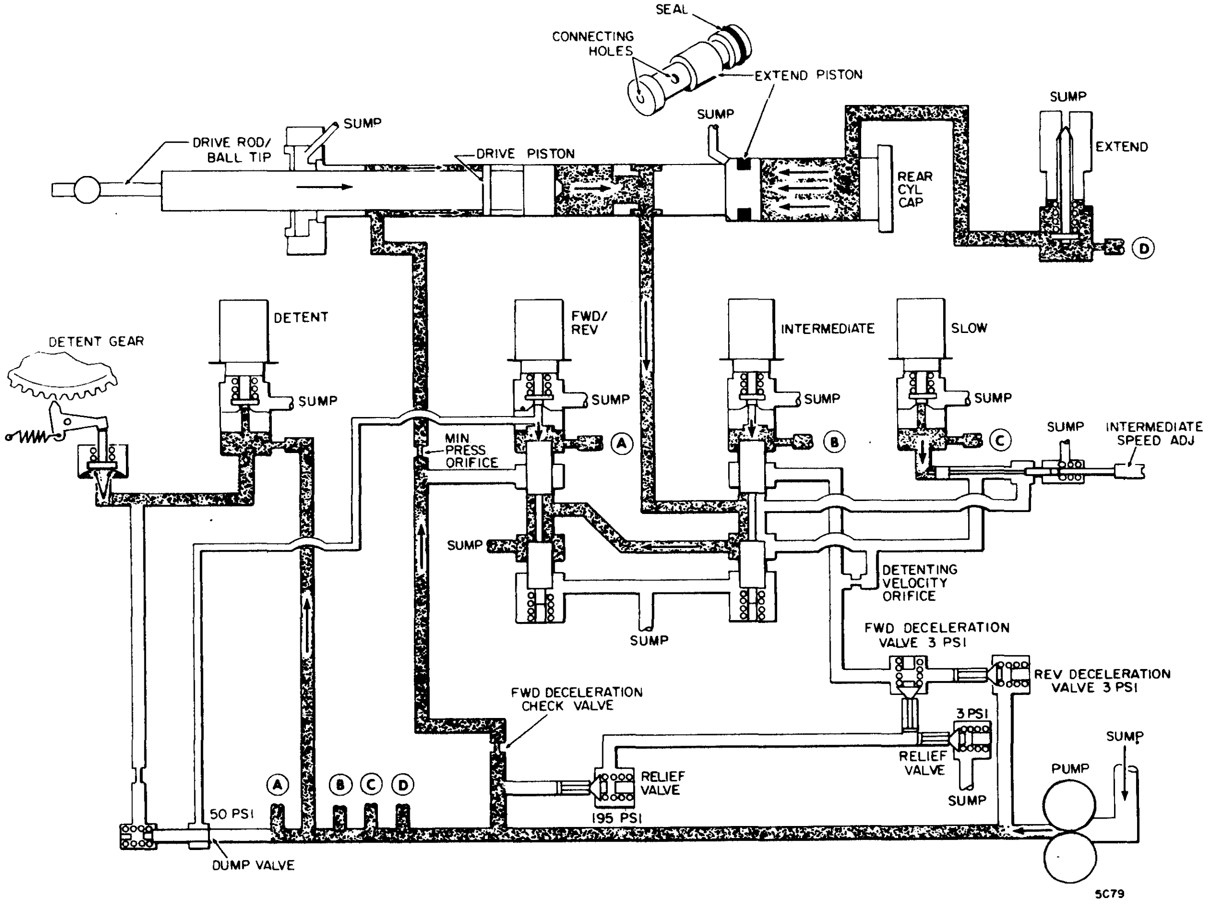


Figure 4-22. Hydraulic Actuator - Reverse Fast

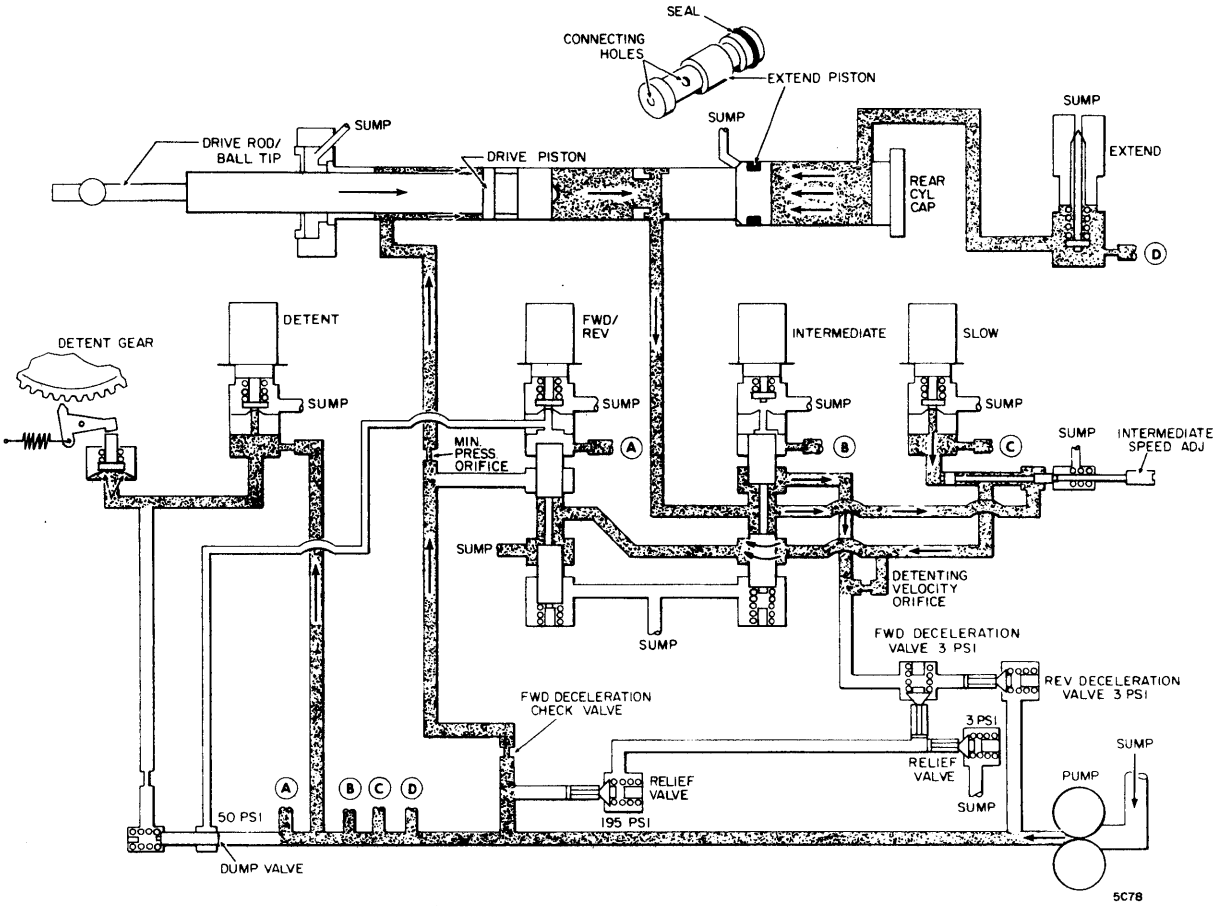


Figure 4-23. Hydraulic Actuator - Reverse Intermediate

Reverse Slow Mode (Figure 4-24): The sequence of events for this mode is as follows:

1. With extend solenoid energized and detent solenoid de-energized, forward/reverse solenoid de-energizes and slow and intermediate solenoids energize.
2. Closed forward/reverse valve causes line pressure to move related spool downward. Open intermediate valve causes related spool to rise. Open slow valve causes slow spool to move to left.

3. Hydraulic fluid at rear face of drive piston flows past intermediate spool, through detenting velocity orifice, over intermediate spool, and vents to sump past forward/reverse spool.

4. Hydraulic fluid flows through minimum pressure orifice to left face of drive piston and piston moves right at 2 ips.

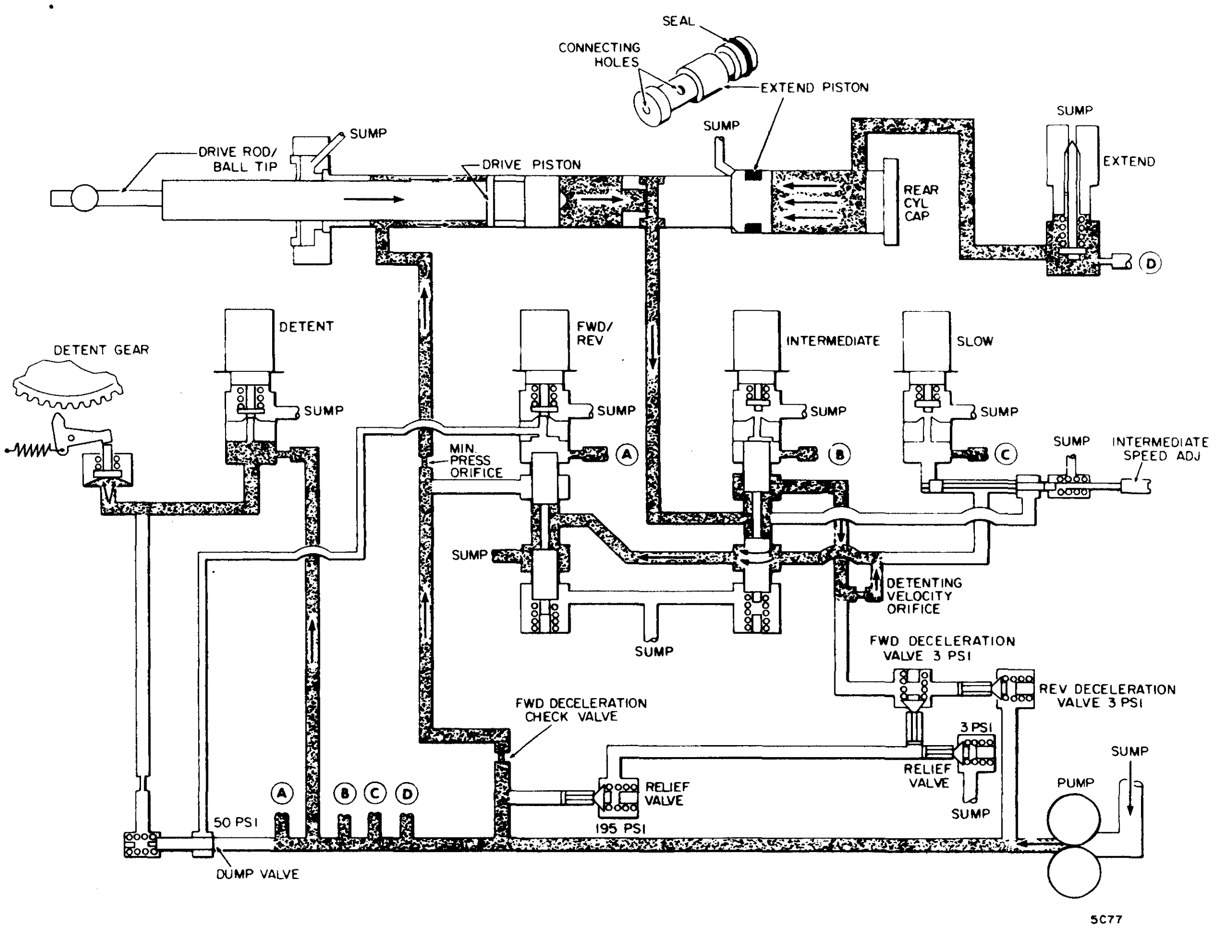


Figure 4-24. Hydraulic Actuator - Reverse Slow

FRAME

The frame assembly consists generally of the structural members, drawer mechanisms, and panels of the cabinet. Two additional subassemblies are, by virtue of their location, considered a part of the frame: blower system and filter box.

Blower System

The blower system (Figure 4-25) provides positive pressure at the center of a disk pack mounted on the spindle of a deck assembly. The presence of this elevated pressure at the center of the disk surfaces results in an outward dispersion of air over each disk surface. This air flow greatly reduces possible contamination and damage of the disks and the read/write heads.

The system consists of a motor driven impeller that forces air through an absolute filter (glass and asbestos) and related ducts upward to the spindles present in the cabinet. Much of the ducting is extendable to allow the deck drawers to be extended out the front and rear of the cabinet. Power to the blower drive motor is controlled by the power supply BLOWER circuit breaker.

Filter Box

The filter box controls power to the cabinet in which it is located. The box is located in the bottom of the cabinet and is accessible by opening the cabinet rear door. It contains a circuit breaker (UNIT POWER) that controls application of main input power to the cabinet power supply. The power supply MAIN POWER indicator monitors the status of the circuit breaker. Frequency filters for the input power lines are mounted inside the box.

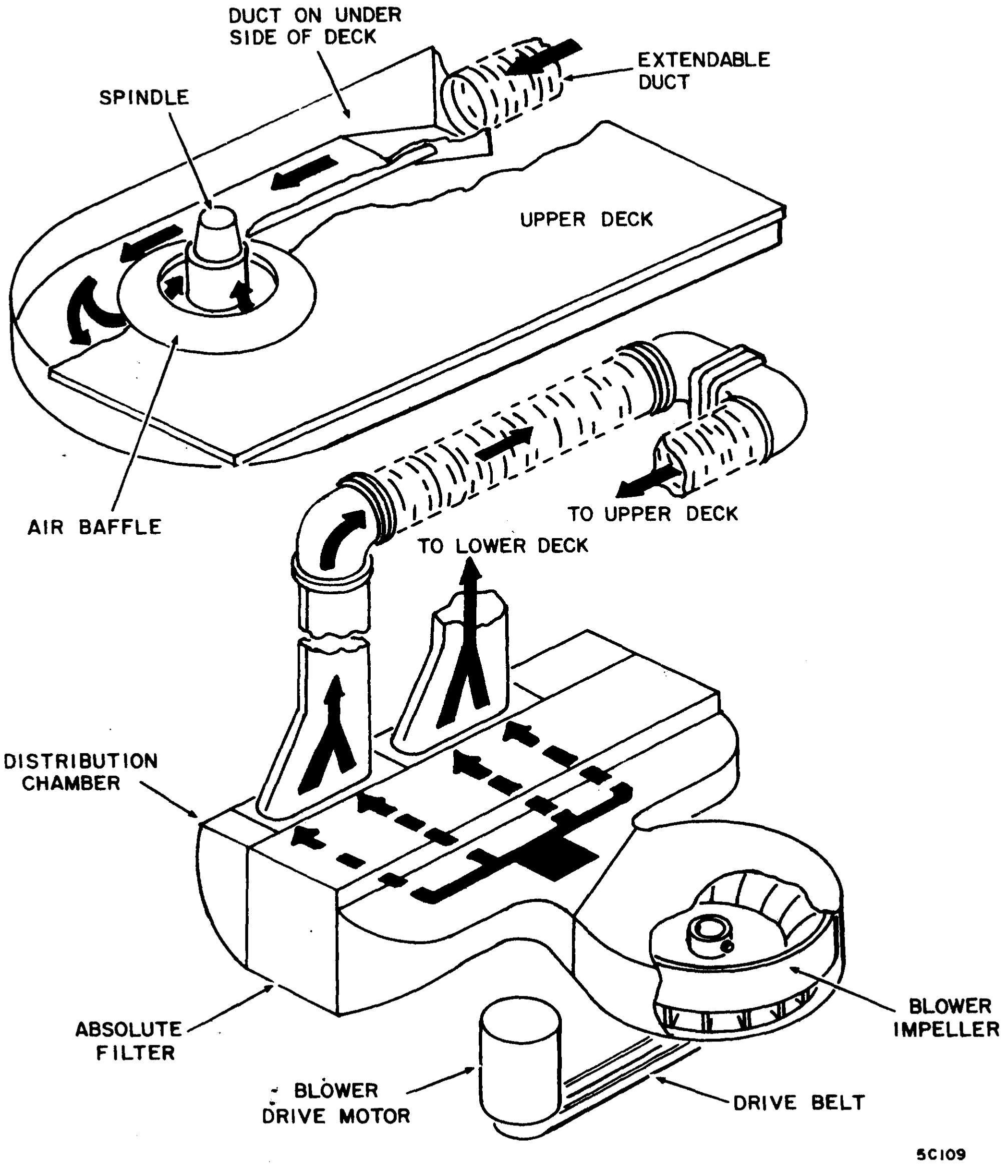


Figure 4-25. Blower System

DISK PACK

The disk pack is the recording medium for the MDD. The disk pack consists of eleven 14-inch, magnetic oxide coated disks center-mounted on a hub. The recording surface of each disk is coated with a layer (0.0002 inch) of magnetic iron oxide and related binders and adhesives.

The 203 recording tracks are located in a 2-inch band near the outer edge of the disk. Track 202 has a diameter of approximately 9 inches, while the diameter of track 00 is about 13 inches. The tracks are spaced 0.010 inch apart.

The top and bottom disk surfaces are covered by protective non-recording disks. The bottom protective disk is called the sector disk. This disk contains notches that are sensed by the index transducer. The pulse outputs of the transducer are used to determine disk pack rpm and to detect organizational segments of the disk pack.

The lower hub of the disk pack contains a replaceable filter. This filter removes particles from the air supplied by the blower. Keeping positive air pressure at the center of the disks reduces the possibility of dust caused damage.

The disk pack has a two-piece container assembly. The bottom cover can be removed simply by grasping and rotating the center hub. The top cover is designed so that it can be removed only by installing the disk pack on the deck spindle assembly. The disk pack can be removed from the spindle only by using the top cover (see Section 2). This design protects the disk pack from physical damage and greatly reduces the possibility of contamination of the disk pack recording surfaces.

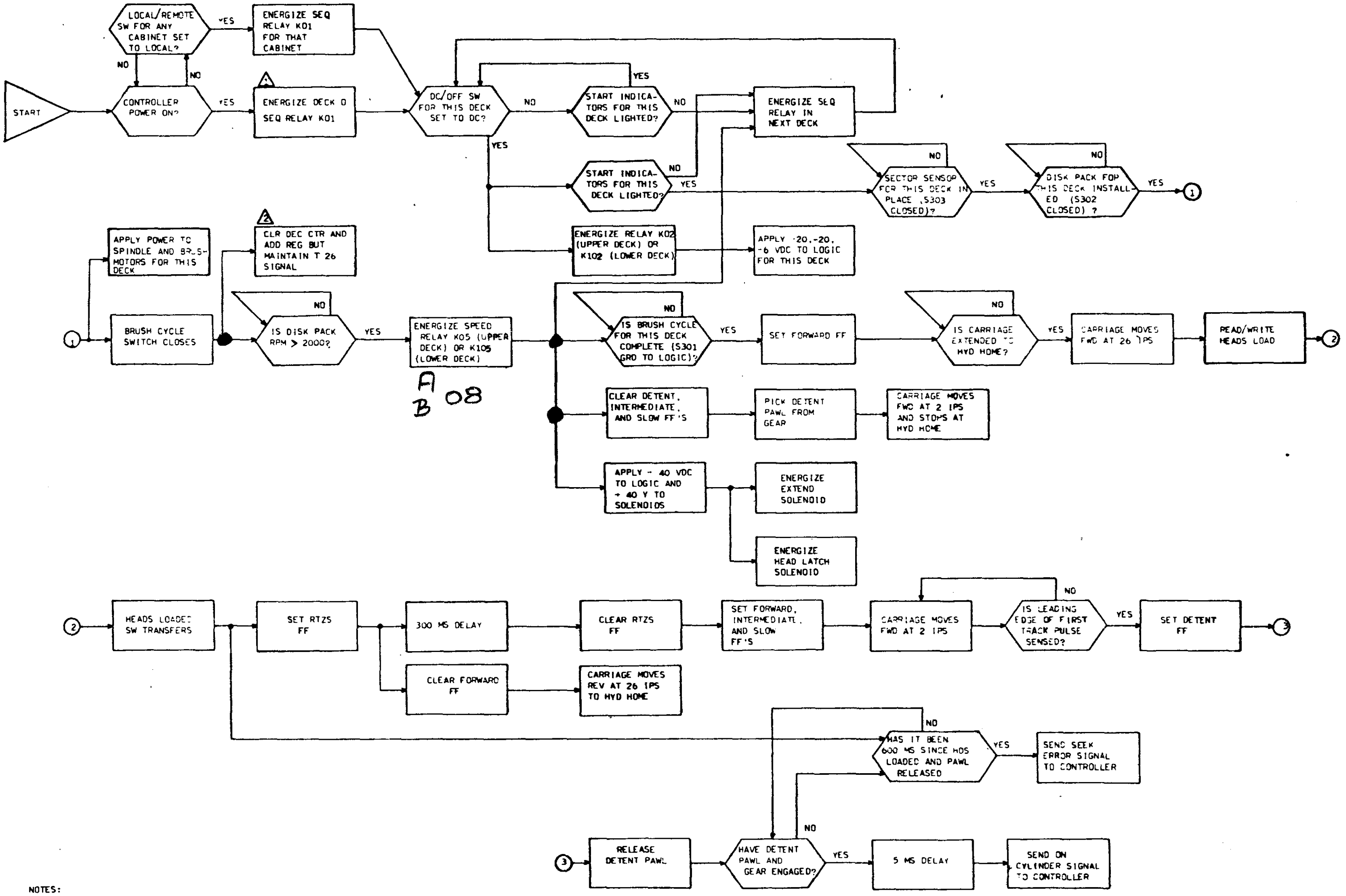
SECTION 5

DIAGRAMS

DIAGRAMS

INTRODUCTION

This section contains diagrams that logically describe the MDD in terms of the functions which the unit performs. Figures 5-1 through 5-10 are flow charts, simplified circuits, and timing diagrams that describe the First Seek function, the Power Off sequence, the Direct Seek (forward and reverse) function, the Return to Zero function, and the Read/Write operations. Figure 5-11 shows the ground scheme for a cabinet. The logic diagrams for the unit are provided on pages 5-13 through 5-22. The MDD signal distribution drawing is located on page 5-23, and the unit power supply schematic is found on pages 5-24 through 5-25.3. Schematic diagrams for the transducer preamplifier cards and the SPL cards are found at the end of the section.



NOTES:

1. DECK 0 DENOTES FIRST DECK CONNECTED TO CONTROLLER VIA POWER SEQUENCE LINES.
2. THIS CONDITION MAINTAINED BY MTR OFF OR HDS UNLD OR SPEED OR RTZS SIGNALS.

5C578

Figure 5-1. Power On/First Seek Sequence

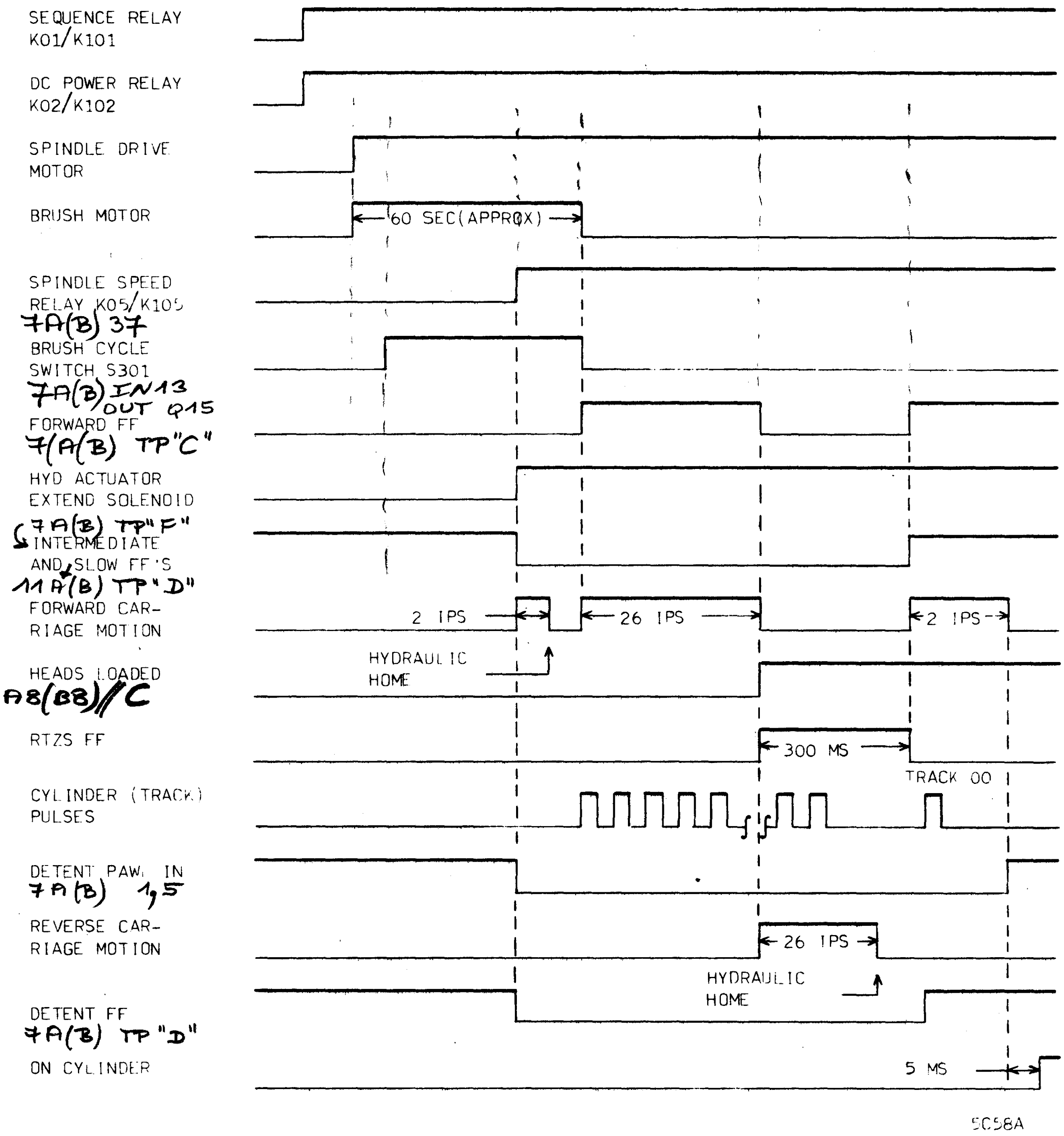
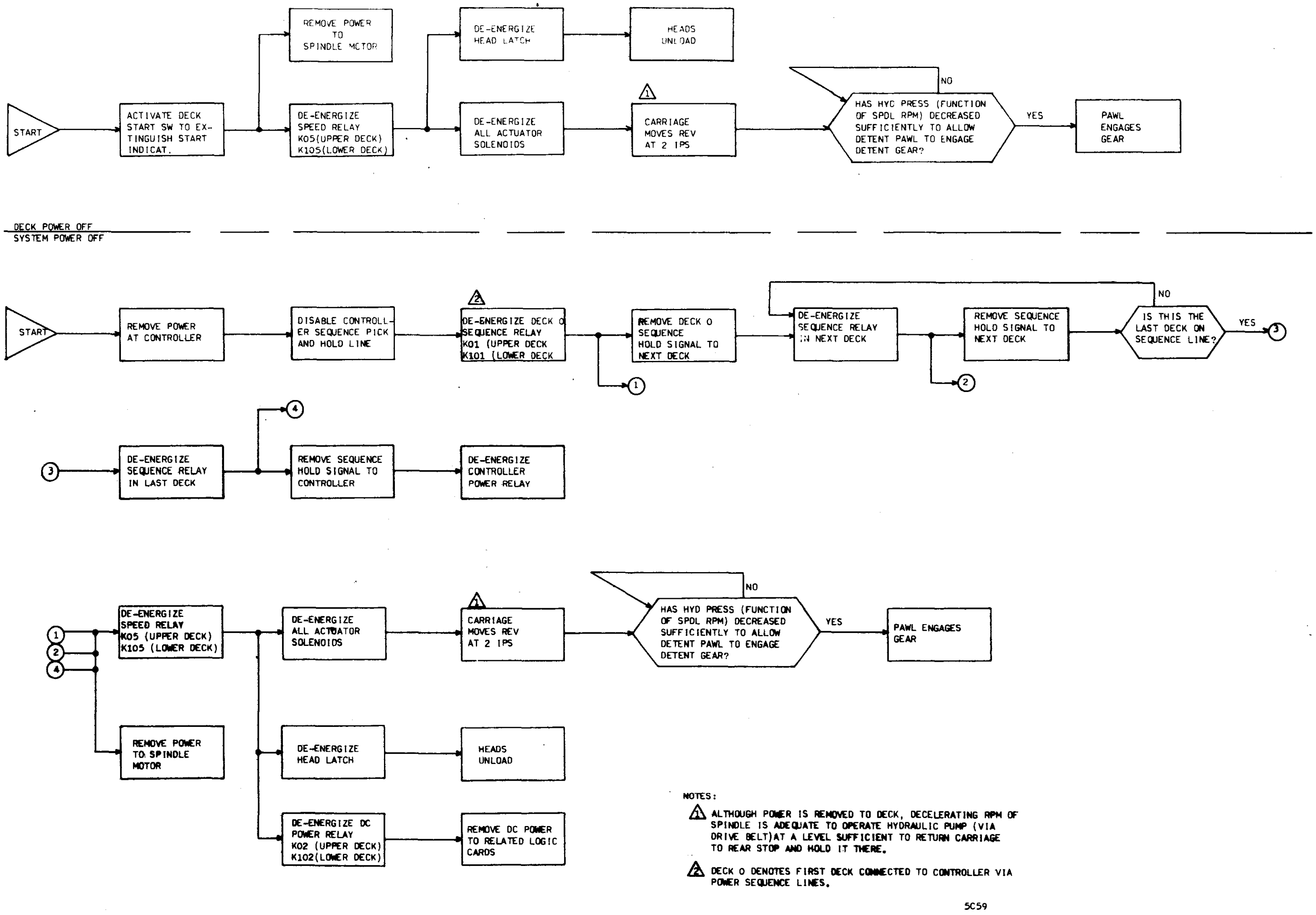


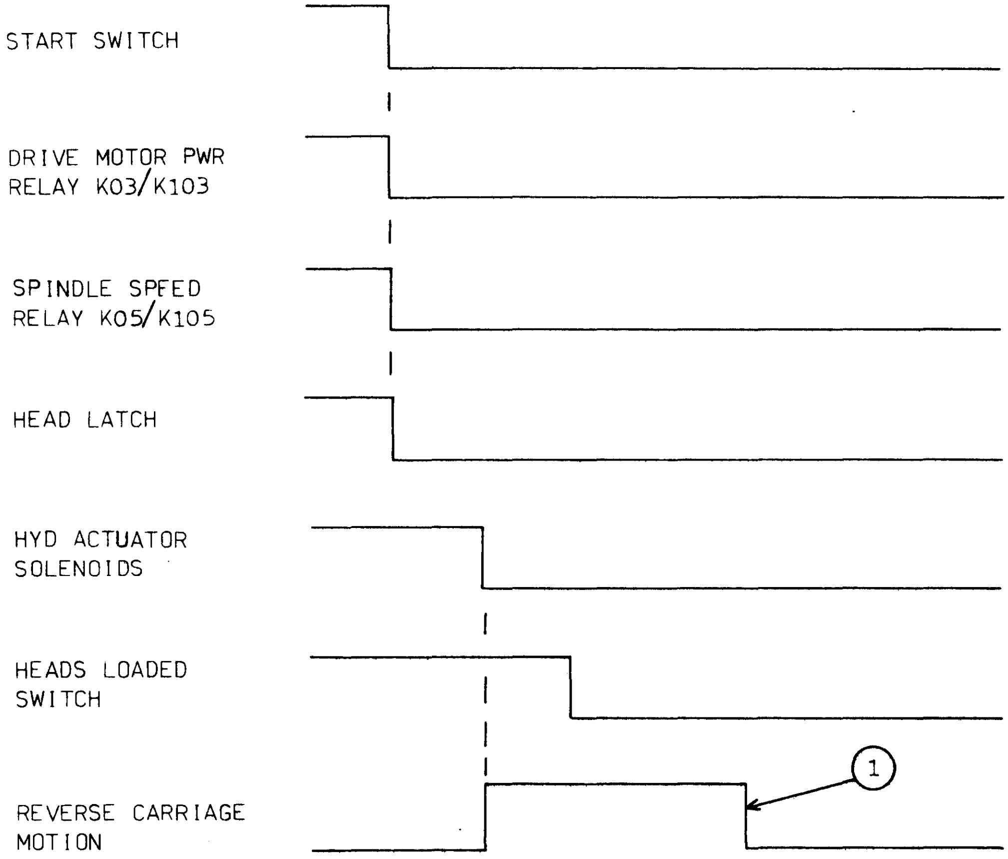
Figure 5-2. Power On/First Seek Timing



NOTES:

1. ALTHOUGH POWER IS REMOVED TO DECK, DECELERATING RPM OF SPINDLE IS ADEQUATE TO OPERATE HYDRAULIC PUMP (VIA DRIVE BELT)AT A LEVEL SUFFICIENT TO RETURN CARRIAGE TO REAR STOP AND HOLD IT THERE.
2. DECK 0 DENOTES FIRST DECK CONNECTED TO CONTROLLER VIA POWER SEQUENCE LINES.

Figure 5-3. Deck or System Power Off Sequence

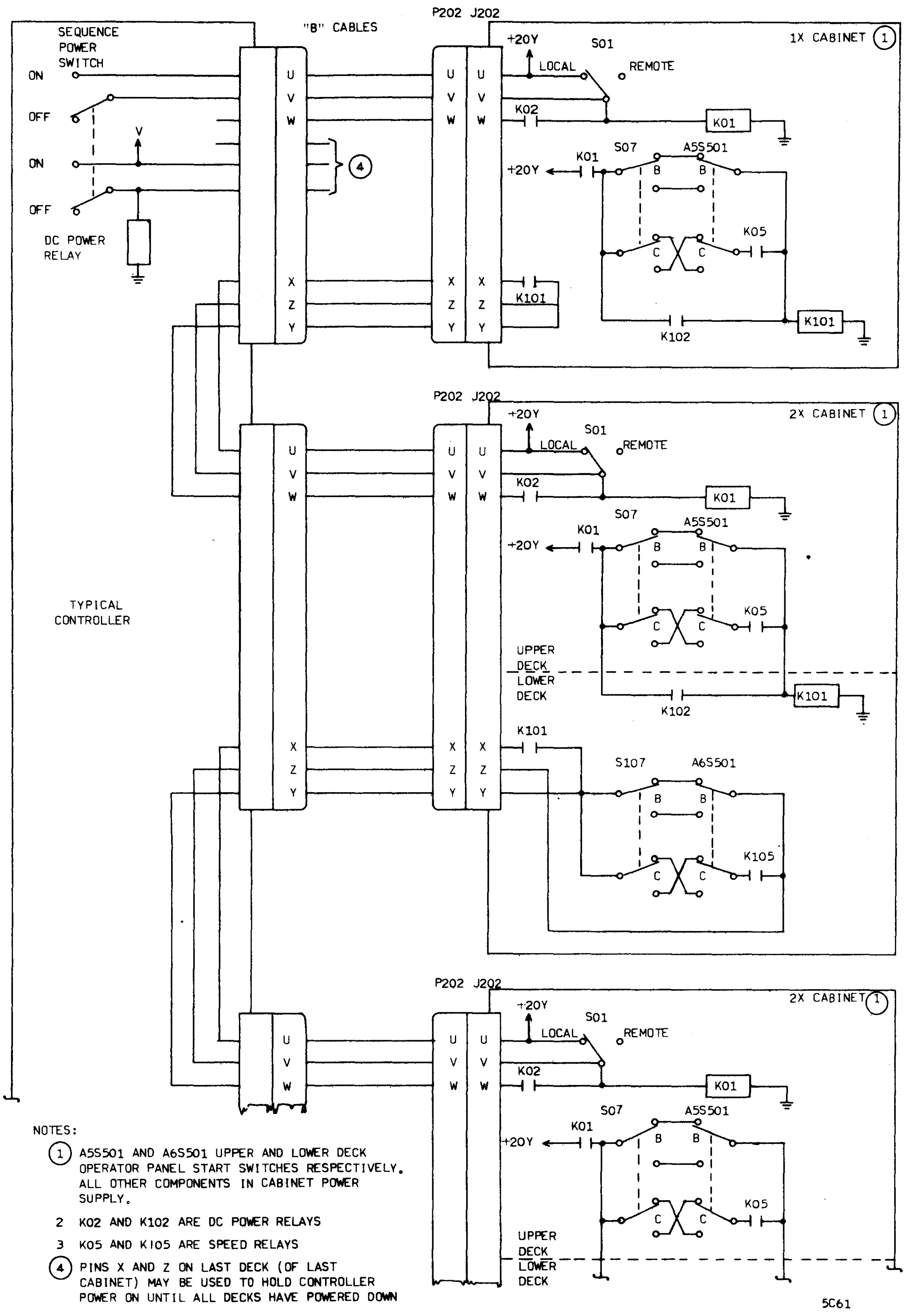


NOTE:

① CARRIAGE ENCOUNTERS REVERSE POSITIVE STOP. RESIDUAL HYDRAULIC PRESSURE HOLDS CARRIAGE IN THIS POSITION. DETENT PAWL SPRING OVERRIDES FADING PRESSURE TO PULL PAWL INTO DETENT GEAR.

5C60

Figure 5-4. Power Off Timing



NOTES:

1. A5S501 AND A6S501 UPPER AND LOWER DECK OPERATOR PANEL START SWITCHES RESPECTIVELY. ALL OTHER COMPONENTS IN CABINET POWER SUPPLY.
2. K02 AND K102 ARE DC POWER RELAYS
3. K05 AND K105 ARE SPEED RELAYS
4. PINS X AND Z ON LAST DECK (OF LAST CABINET) MAY BE USED TO HOLD CONTROLLER POWER ON UNTIL ALL DECKS HAVE POWERED DOWN

Figure 5-5. System Power Sequence Lines

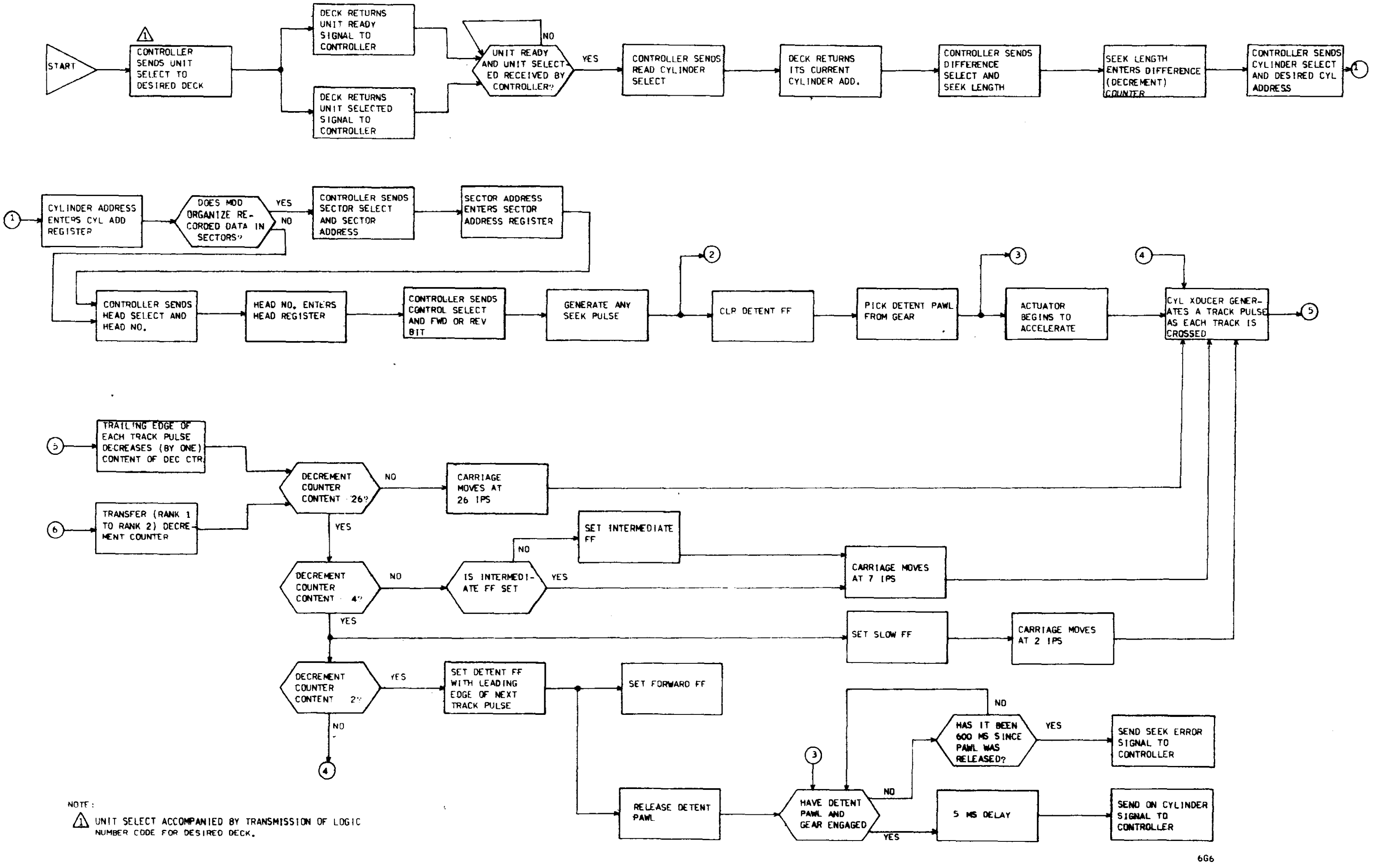


Figure 5-6. Direct Seek Sequence

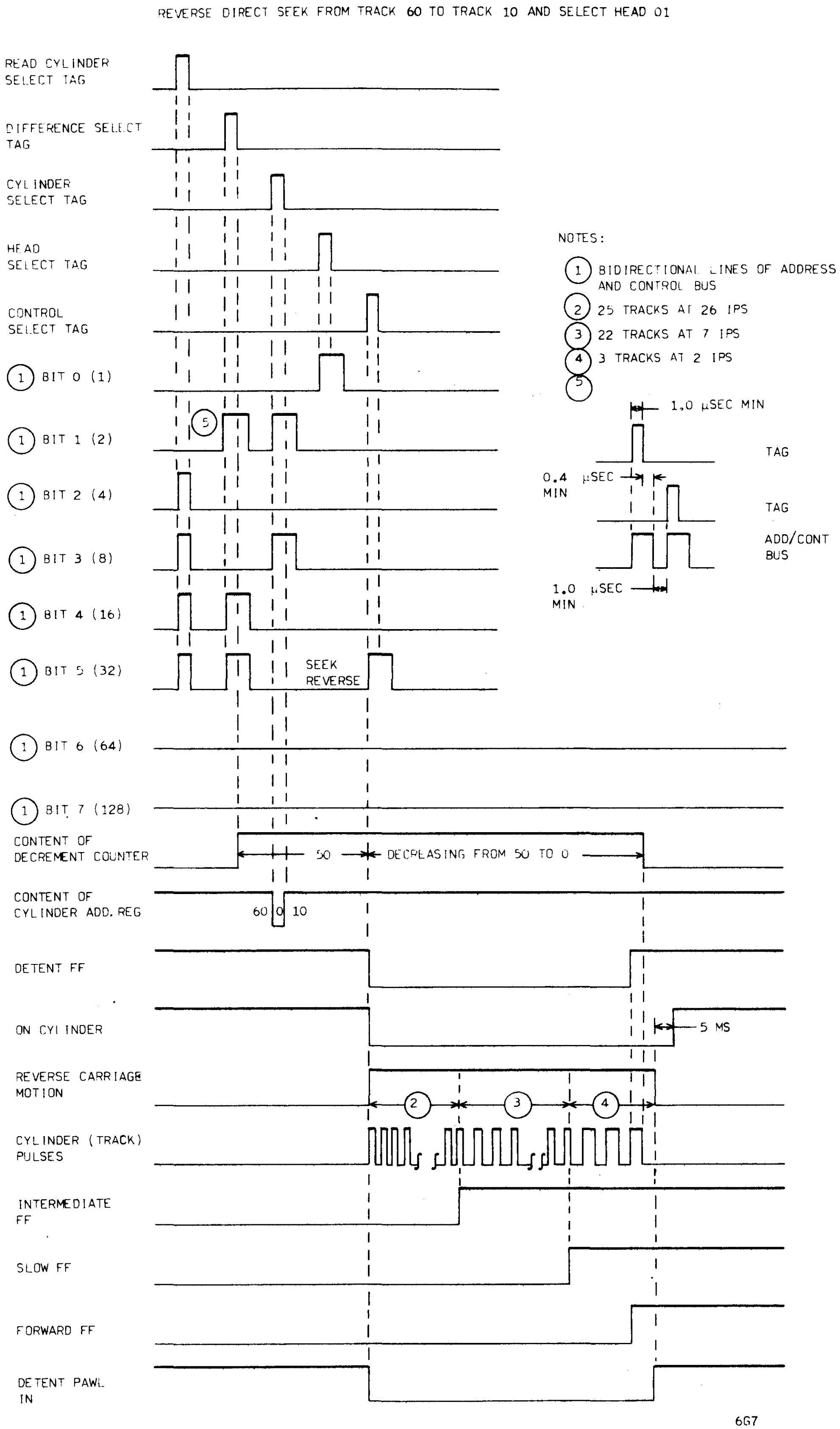
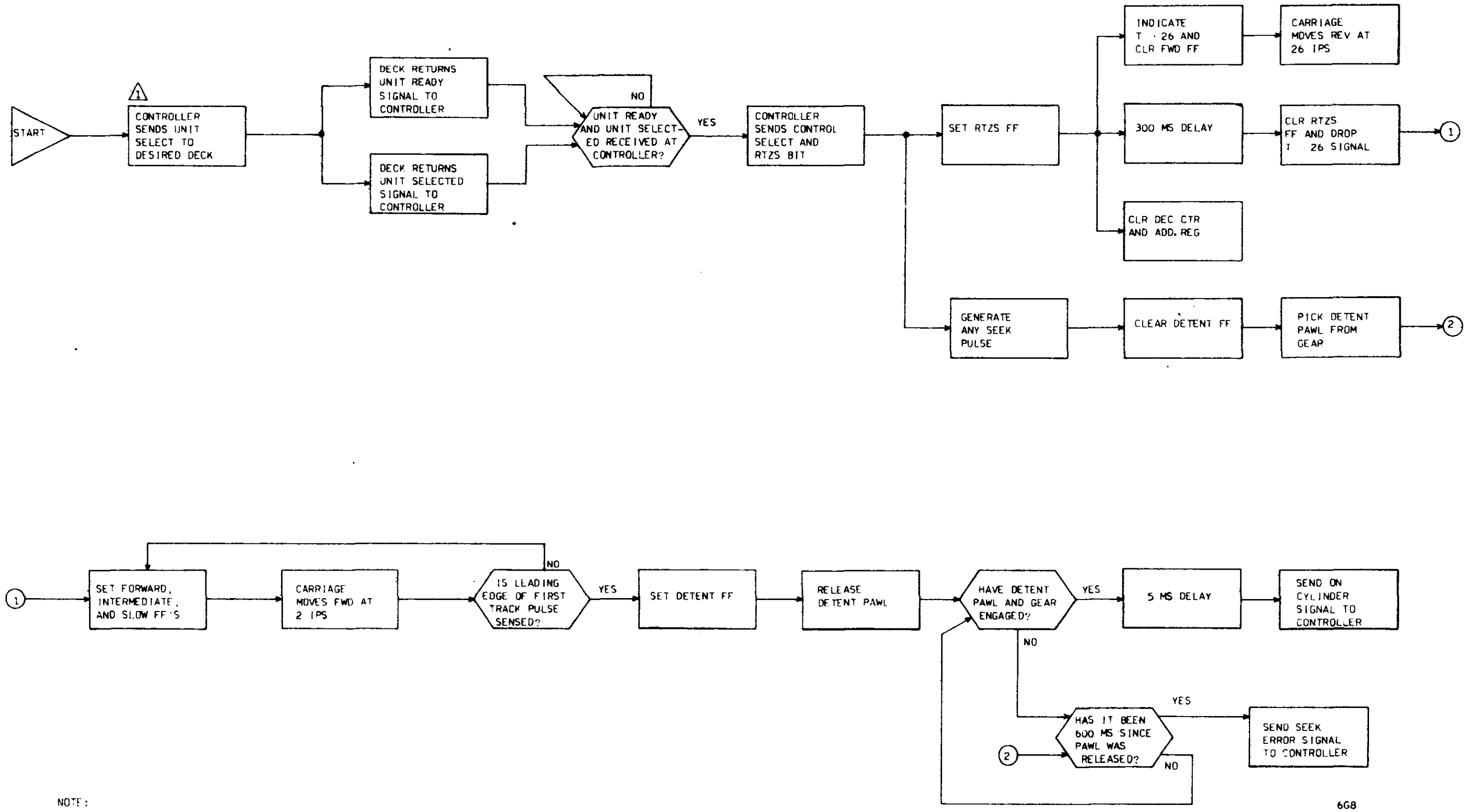


Figure 5-7. Direct Seek Timing



NOTE:

⚠ UNIT SELECT ACCOMPANIED BY TRANSMISSION OF LOGIC NUMBER CODE FOR DESIRED DECK.

Figure 5-8. Return to Zero Seek Sequence

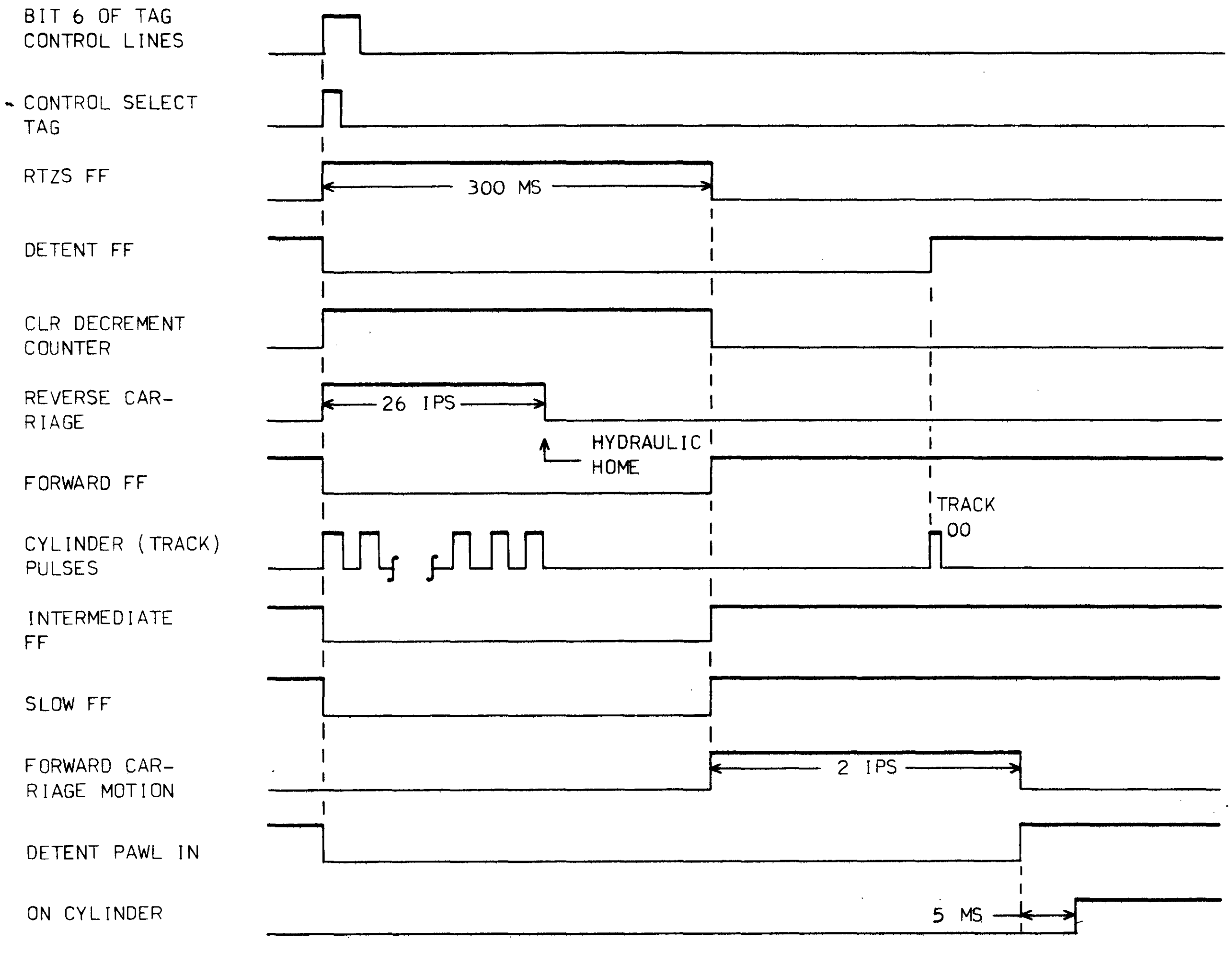
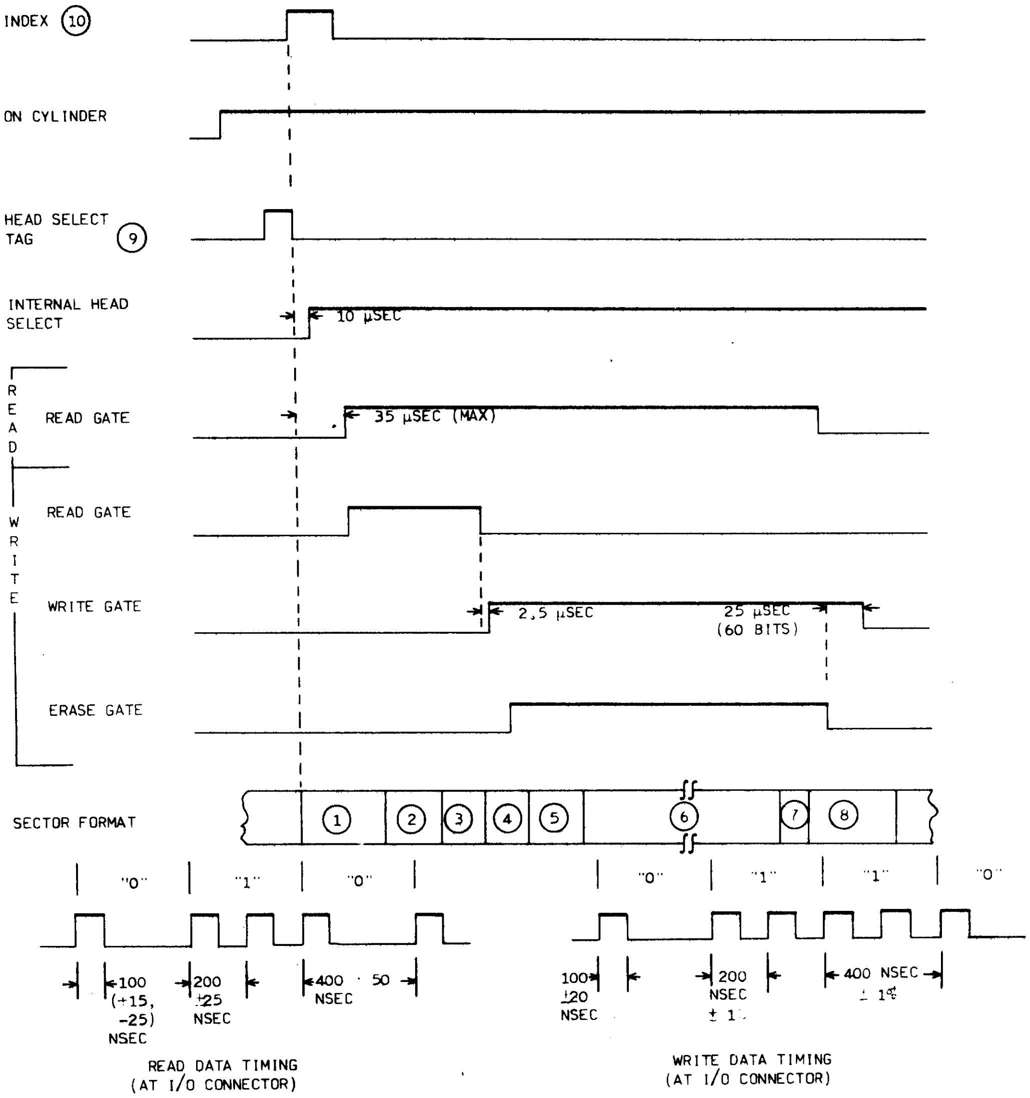


Figure 5-9. Return to Zero Seek Timing



NOTES:

① TOLERANCE GAP 1 - 120 BITS - ACCOMODATES PHYSICAL READ/WRITE TO ERASE GAP DISTANCE AND ALLOWS HEAD SWITCHING AND READ AMPLIFIER STABILIZATION TIME.

② SYNC PATTERN 1 - 112 BITS - INDICATES BEGINNING OF ADDRESS AREA. CONTROLLER MUST INITIATE SYNC BYTE (OR BIT) SEARCH MIDWAY THROUGH THIS PATTERN (REQUIRED TO INSURE THAT HEAD IS READING A KNOWN PATTERN EVEN UNDER WORST-CASE CONDITIONS OF HEAD SKEW, RPM, AND INDEX TOLERANCES DUE TO DISK PACK INTERCHANGE).

③ ADDRESS - 36 BITS (TYPICAL) - TWELVE-BIT UPPER ADDRESS, 12-BIT LOWER ADDRESS, AND 12-BIT CHECKWORD.

④ HEAD GAP - 120-BITS-ACCOMODATES PHYSICAL READ/WRITE TO ERASE GAP DISTANCE.

⑤ SYNC PATTERN 2 - 112 BITS (MINIMUM) - INDICATES BEGINNING OF DATA FIELD.

⑥ DATA FIELD - LENGTH DEPENDS UPON DATA RECORD FORMAT.

⑦ POST AMBLE - 1 BIT - A PAD TO ENSURE THAT LAST BIT OF DATA IS NOT DESTROYED OR DISTORTED.

⑧ TOLERANCE GAP 2 - LENGTH DEPENDS UPON FORMAT (SHOULD EQUAL APPROXIMATELY 2.5: OF SECTOR BIT CAPACITY). COMPENSATES FOR WORST-CASE CONDITIONS OF SPINDLE SPEED AND OSCILLATOR TOLERANCES.

⑨ HEAD SELECT TAG LINE SHOWN OCCURRING AT LATEST ACCEPTABLE TIME RELATIVE TO INDEX: NOT TO BE CONSIDERED A TYPICAL RELATIONSHIP.

⑩ INDEX PULSE AVAILABLE TO CONTROLLER TO INDICATE BEGINNING OF TRACK OR CYLINDER.

5C69

Figure 5-10. Typical Sector Format Read/Write Timing

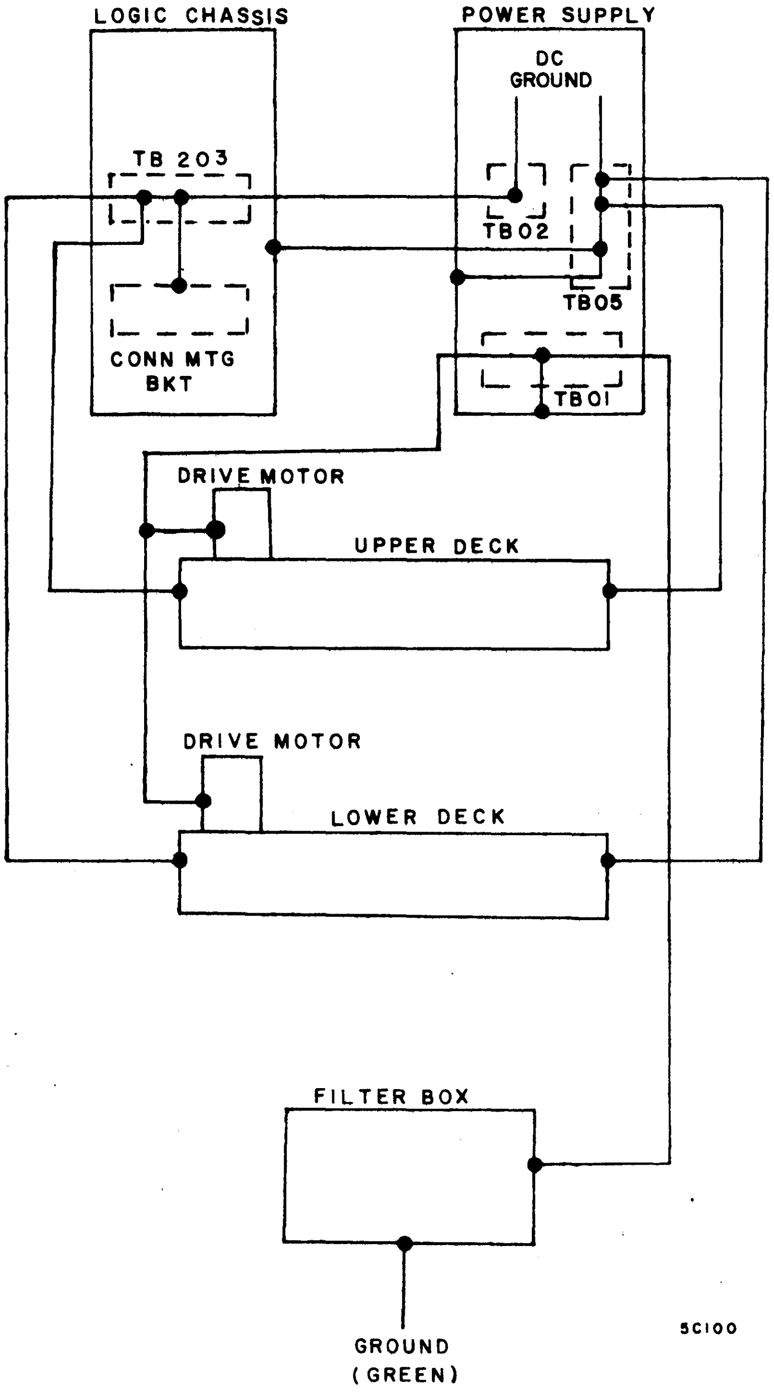
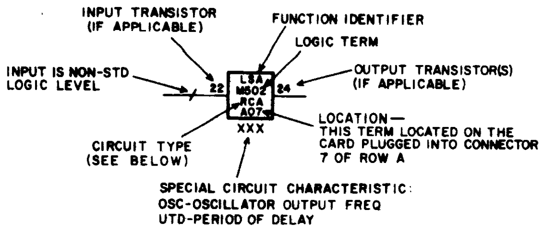


Figure 5-11. Ground Scheme

DISCRETE COMPONENT

DISCRETE COMPONENT CIRCUIT INFORMATION EXAMPLE



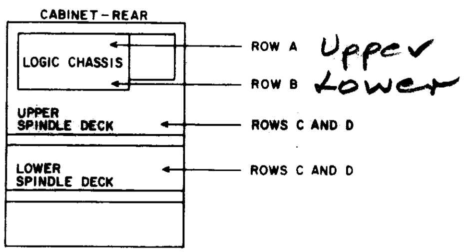
DISCRETE COMPONENT CIRCUIT TYPES:

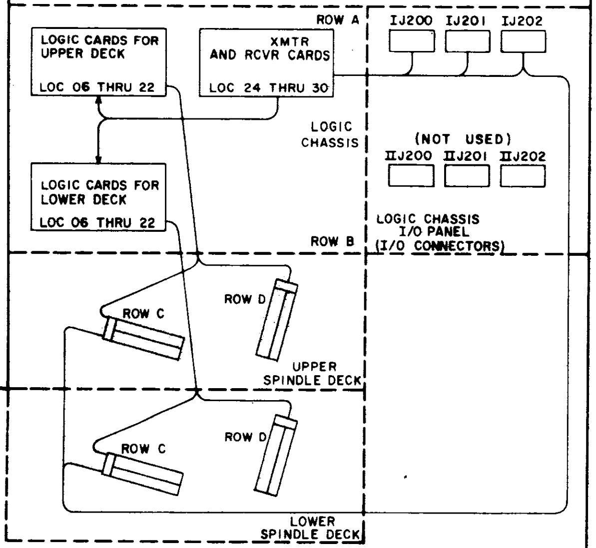
FAB	LO LEVEL AMPL
GJA	ANALOG GATE
HA-	HI LEVEL AMPL
HJA	ANALOG LINE DRIVER
IAA IBA ICA	LAMP DRIVER
IDA	SOLENOID DRIVER
JAB	WRITE DRIVER
JBB	ERASE DRIVER
LAA	LINE XMTR
MAA	OSCILLATOR
MBA	WAVEFORM GENERATOR
QAA QBA QCA QF-	QUANTIZING DETECTOR
QDA	SPEED DETECTOR
QEA	VOLTAGE "OR"
RAA RBA	LINE RCVR
RCA RDA	SWITCH RCVR
RFA	TERMINATED RCVR
U--	DELAY
VAA VAC	"AND"
VAB VJ-	SPECIAL AND/OR
WB-	FLIP-FLOP
XA-	PULSE SHAPER

GENERAL

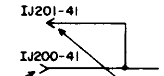
EXCEPT FOR SHEET 2, THESE SHEETS SHOW THE LOGIC REQUIRED TO SUPPORT A SINGLE SPINDLE (DRAWN FOR AN UPPER SPINDLE). SHEET 2 SHOWS I/O LOGIC FOR BOTH SPINDLES.

LOGIC CARD LOCATIONS/RELATIONS



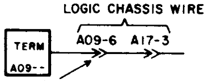


CONNECTORS AND JUNCTIONS



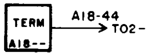
✱✱INPUT ON PIN 41 OF CHANNEL I CONNECTOR J200

✱✱OUTPUT ON PIN 41 OF CHANNEL I CONNECTOR J201

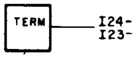


✱✱OUTPUT OF TERM EXITS CARD 9 OF ROW A ON PIN 6. SIGNAL ENTERS CARD 17 OF ROW A ON PIN 3

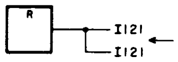
✱✱ARROWHEADS SHOW SIGNAL FLOW AT A CONNECTOR, NO MECHANICAL SIGNIFICANCE (PIN OR SOCKET) IS IMPLIED.



OUTPUT OF TERM EXITS CARD 18 OF ROW A ON PIN 44. SEE LISTED TERM FOR NEXT PIN CONNECTION.

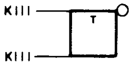


OUTPUT OF TERM HAS TWO DESTINATIONS, SEE THOSE TERMS FOR PIN CONNECTIONS.

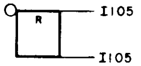


OUTPUT OF RECEIVER GOING TO TWO WIRED "AND" AT INPUT OF I121.

LOGICAL 0 = 0V
LOGICAL 1 = +3V } AT DESIGNATED TEST POINTS



INPUT TO TRANSMITTER COMING FROM KIII IN ROW A, AND FROM KIII IN ROW B.



OUTPUT FROM RECEIVER GOING TO I105 IN ROW A, AND TO I105 IN ROW B

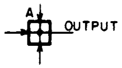
GENERAL SYMBOLOGY

TEST POINT

SCREWDRIVER ADJUSTMENT

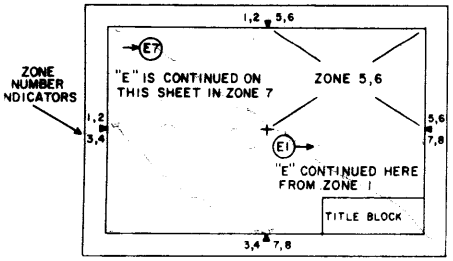
INDICATES ANALOG SIGNAL

INDICATES NON-STANDARD LOGIC LEVEL



WIRED "AND" FORMED BY CONNECTING OUTPUTS OF TWO OR MORE CIRCUITS TO THE INPUT OF ANOTHER CIRCUIT

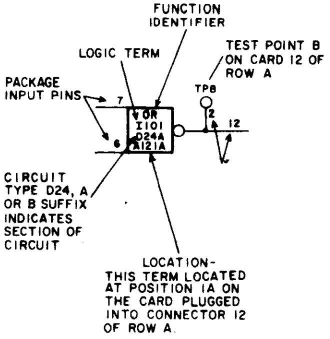
REMOTE ON-SHEET CONNECTIONS



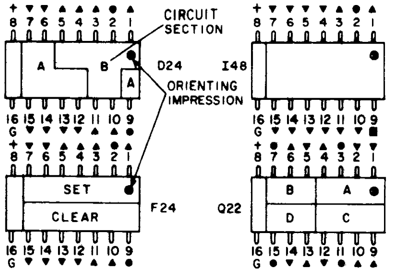
ODD NUMBERS USED TO DESIGNATE ZONES DURING FIRST PASS THRU ALPHABET. EVEN NUMBERS USED ONLY IF CONNECTIONS EXCEED 24 (I AND O NOT USED).

INTEBRID

INTEBRID CIRCUIT INFORMATION EXAMPLE



INTEBRID CIRCUIT PACKAGE IDENTIFICATION
(TOP VIEW)

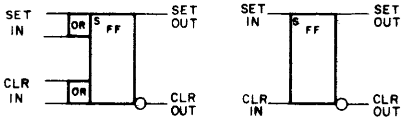


KEY:

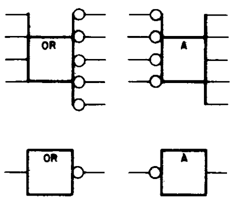
▼ INPUT PIN (7)	● COLLECTOR (TEST POINT)
▲ OUTPUT PIN (15)	+ +6V APPLICATION PIN
■ UNUSED	G GROUND

INTEBRID SYMBOLS

FLIP-FLOP (TYPE F24)



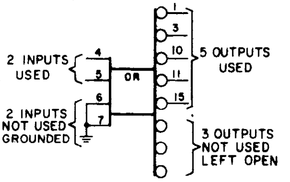
INVERTER (TYPE D24, I48, OR Q22)



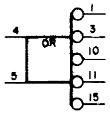
UNUSED INTEBRID CIRCUIT INPUTS AND OUTPUTS ARE NOT SHOWN ON THE LOGIC DIAGRAMS. IF A GATE HAS ONLY ONE INPUT, THE GATE HAS NO LOGICAL SIGNIFICANCE AND IS NOT SHOWN.

EXAMPLES

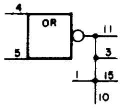
ACTUAL
(TYPE I48 SHOWN)



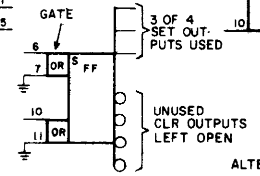
SHOWN ON DIAGRAMS



ALTERNATE

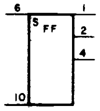


ACTUAL

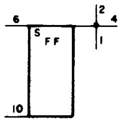


UNUSED INPUTS GROUNDED

SHOWN ON DIAGRAMS

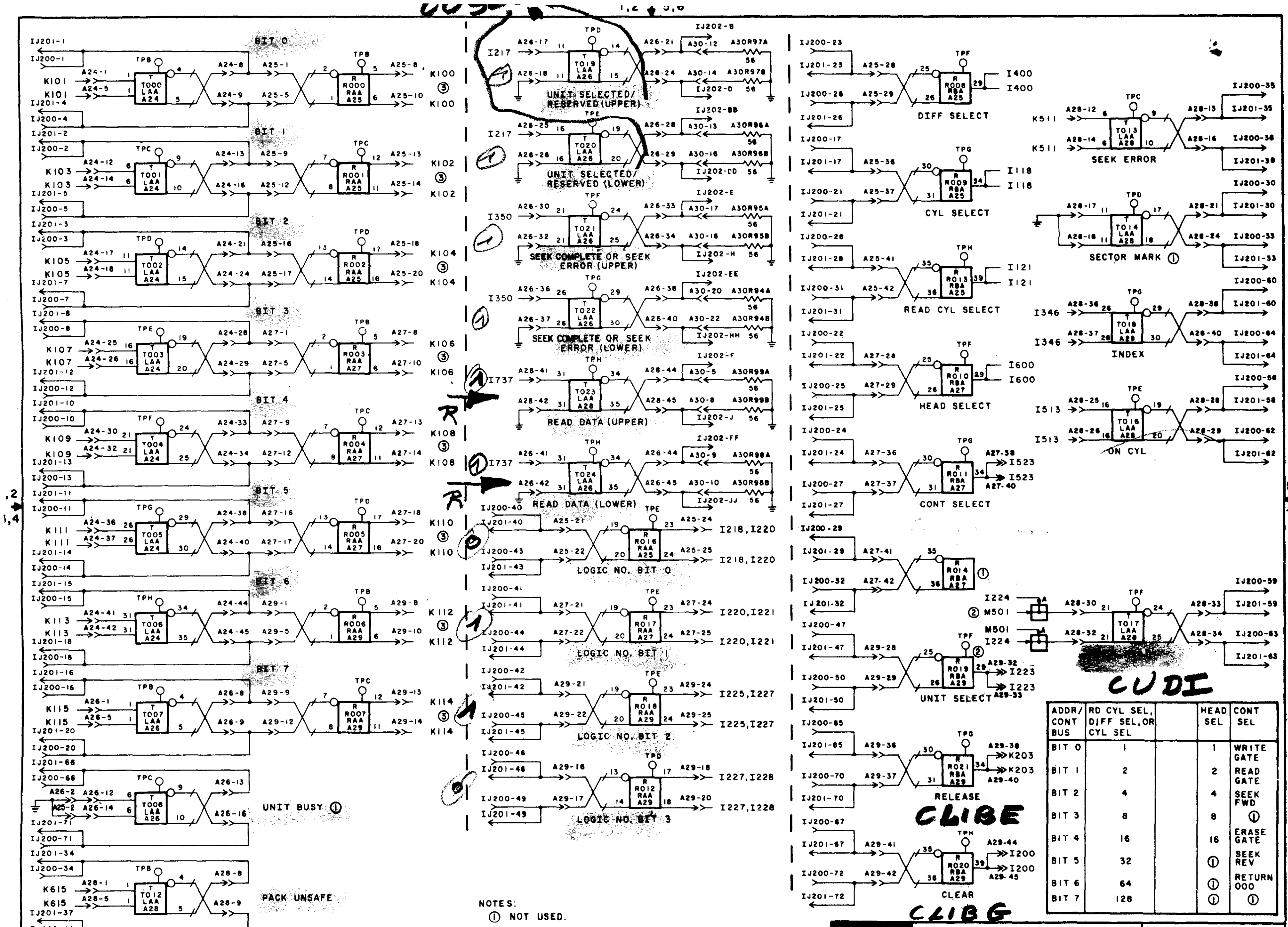


ALTERNATE



00

CONTROL DATA DEVELOPMENT DIVISION	TITLE KEY TO LOGIC SYMBOLS	EQUIPMENT BM1A5	
		SIZE C, DRAWING NO 70954900	REV. A
		SHEET 1	PAGE



ADDR/ CONT BUS	RD CYL SEL, DIFF SEL, OR CYL SEL		HEAD SEL	CONT SEL
BIT 0	1		1	WRITE GATE
BIT 1	2		2	READ GATE
BIT 2	4		4	SEEK FWD
BIT 3	8		8	①
BIT 4	16		16	ERASE GATE
BIT 5	32		①	SEEK REV
BIT 6	64		①	RETURN 000
BIT 7	128		①	①

NOTES:

① NOT USED.

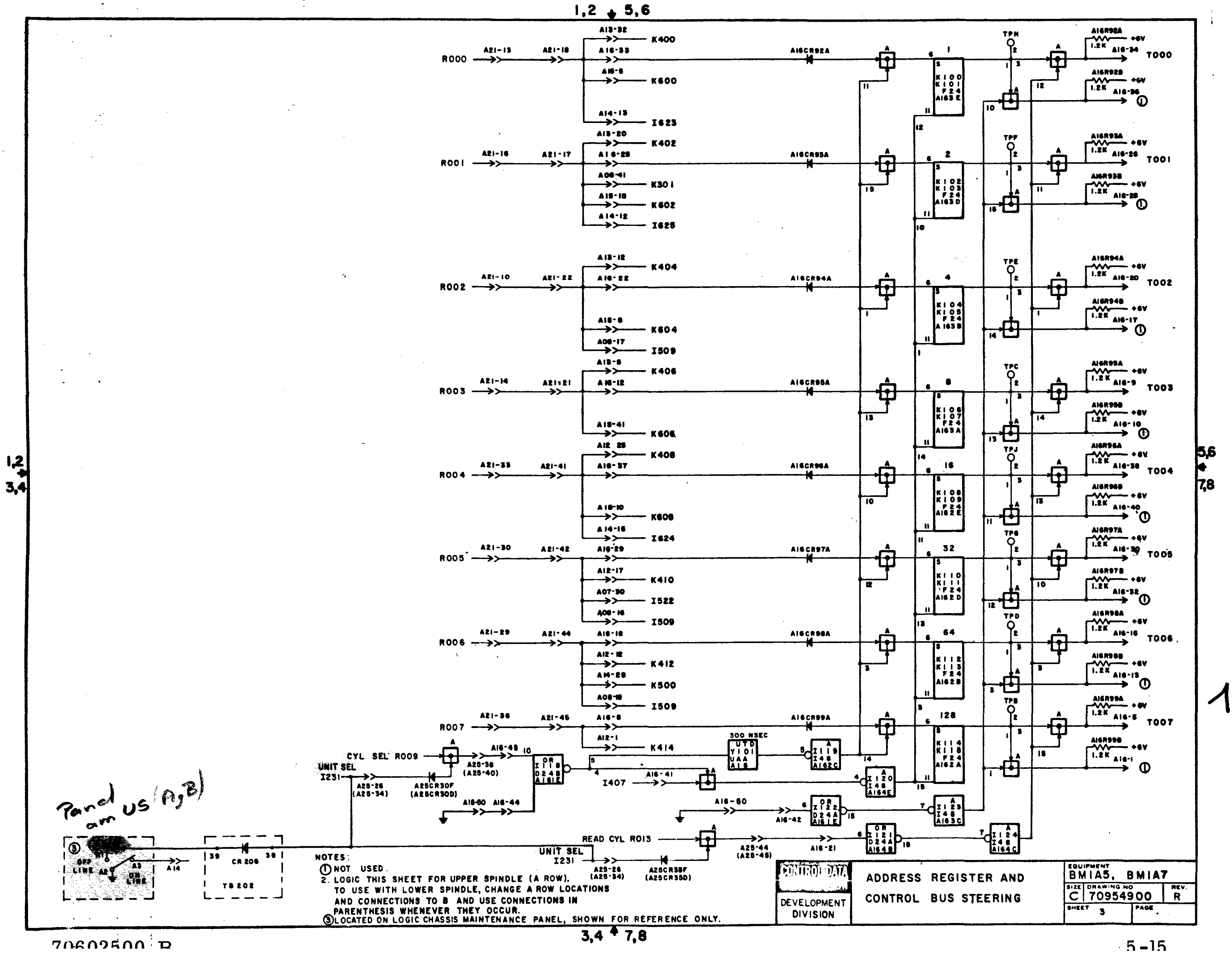
② PARTIAL INPUT SIGNAL SHOWN. SEE SHEET 7 FOR COMPLETE GATING INFORMATION.

ITIONAL OUTPUTS SHOWN ON SHEET 3.

CONTROL DATA
DEVELOPMENT DIVISIO

INPUT/OUTPUT TRANSMITTERS AND RECEIVERS

EQUIPMENT BM1A5
SIZE C DRAWING NO 70954900 REV. A
SHEET 2 PAGE



Panel am US (A,B)

1C

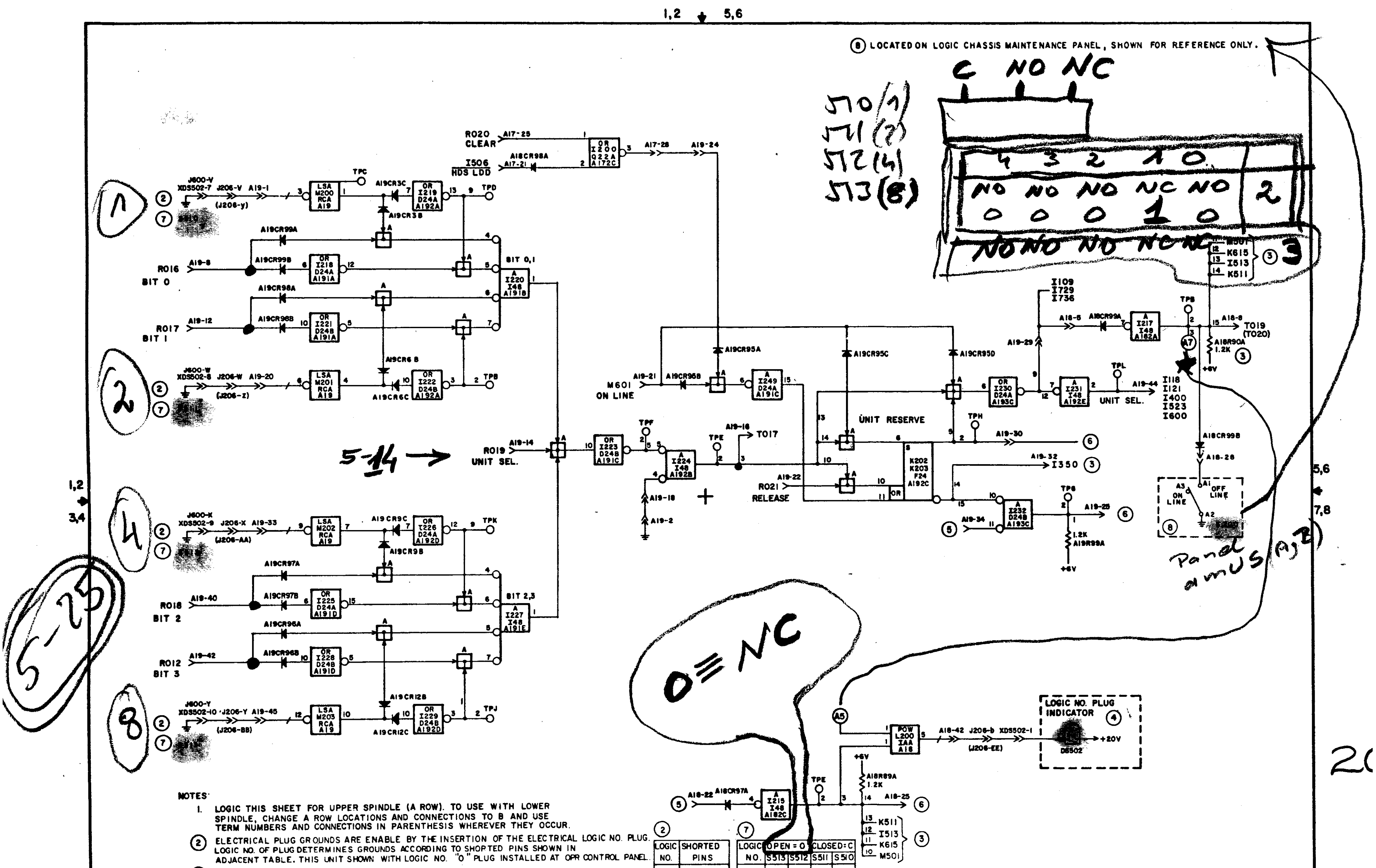
NOTES:

① NOT USED.

2. LOGIC THIS SHEET FOR UPPER SPINDLE (A ROW). TO USE WITH LOWER SPINDLE, CHANGE A ROW LOCATIONS AND CONNECTIONS TO B AND USE CONNECTIONS IN PARENTHESIS WHENEVER THEY OCCUR.

③ LOCATED ON LOGIC CHASSIS MAINTENANCE PANEL, SHOWN FOR REFERENCE ONLY.

CONTROL DATA DEVELOPMENT DIVISION	ADDRESS REGISTER AND CONTROL BUS STEERING	EQUIPMENT BM1A5, BM1A7 SIZE C DRAWING NO 70954900 REV. R SHEET 3 PAGE



NOTES:

1. LOGIC THIS SHEET FOR UPPER SPINDLE (A ROW). TO USE WITH LOWER SPINDLE, CHANGE A ROW LOCATIONS AND CONNECTIONS TO B AND USE TERM NUMBERS AND CONNECTIONS IN PARENTHESIS WHEREVER THEY OCCUR.

② ELECTRICAL PLUG GROUNDS ARE ENABLE BY THE INSERTION OF THE ELECTRICAL LOGIC NO. PLUG. LOGIC NO. OF PLUG DETERMINES GROUNDS ACCORDING TO SHORTED PINS SHOWN IN ADJACENT TABLE. THIS UNIT SHOWN WITH LOGIC NO. "0" PLUG INSTALLED AT OPR CONTROL PANEL.

③ THIS SIGNAL FORMS WIRED AND GATE WITH THE OUTPUT OF LISTED TERM(S). GATE(S) IS SHOWN ON SAME SHEET AS LISTED TERM.

④ LOCATED ON OPERATOR PANEL. SHOWN FOR REFERENCE ONLY.

⑤ CIRCUIT OPEN

⑥ NOT USED

⑦ MECHANICAL PLUG GROUNDS ARE ENABLE BY THE INSERTION OF THE MECHANICAL LOGIC PLUG. THE NO. OF THE LOGIC PLUG DETERMINES GROUNDS ACCORDING TO CLOSED SWITCHES SHOWN IN ADJACENT TABLE, THIS UNIT SHOWN WITH LOGIC NO. 0 PLUG INSTALLED AT OPR CONTROL PANEL.

②

LOGIC NO.	SHORTED PINS
0	7,8,9,10
1	8,9,10
2	7, 9,10
3	9,10
4	7,8, 10
5	8, 10
6	7, 10
7	10
8	7,8,9

⑦

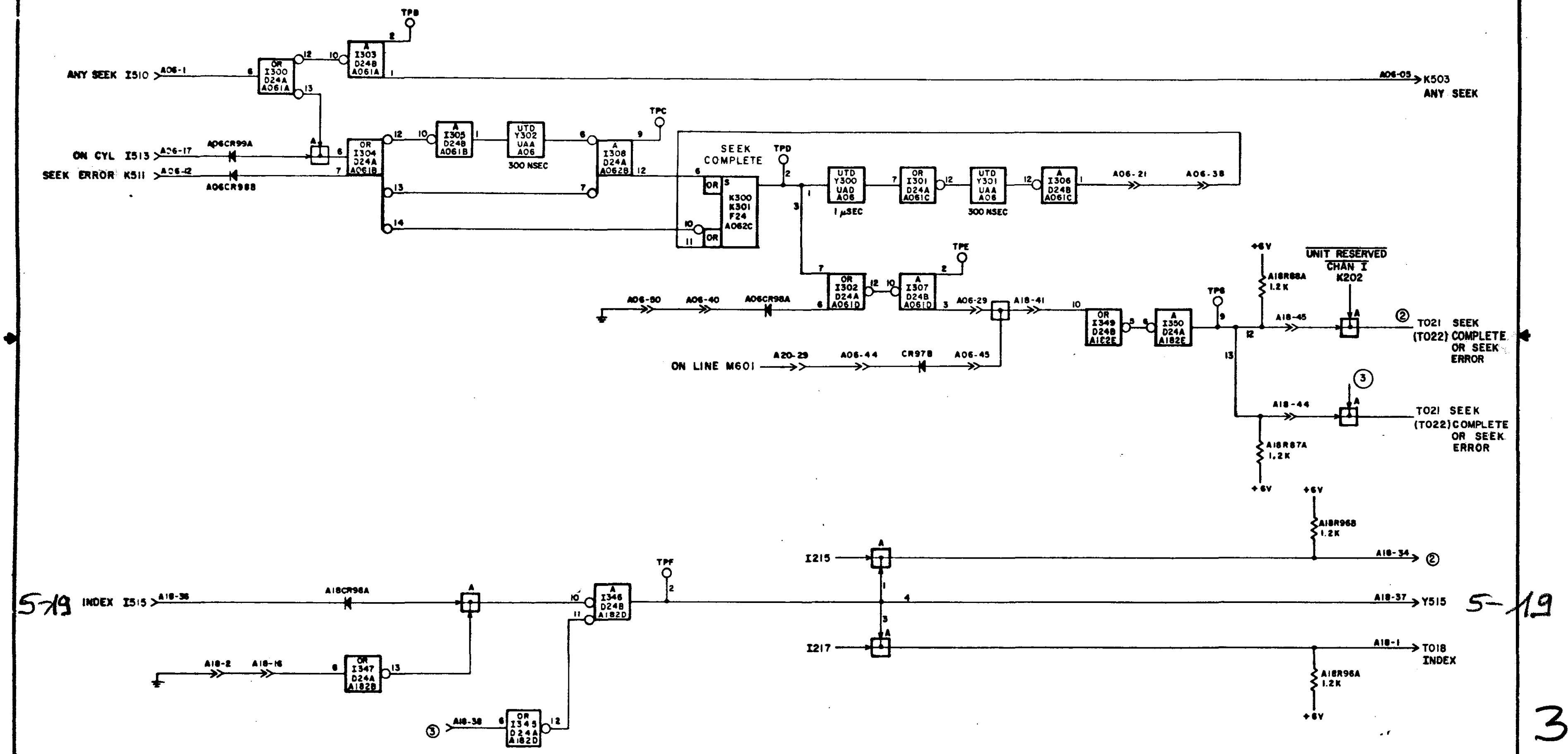
LOGIC	OPEN = 0	CLOSED: C		
NO.	S513	S512	S511	S510
0	C	C	C	C
1	C	C	C	O
2	C	C	O	C
3	C	C	O	O
4	C	O	C	C
5	C	O	C	O
6	C	O	O	C
7	C	O	O	O
8	O	C	C	C

CONTROL DATA
DEVELOPMENT DIVISION

SELECT AND RESERVE

EQUIPMENT BM1A5, BM1A7
SIZE C
DRAWING NO 70954900
REV U
SHEET 4
PAGE

3,4 7,8



3C

NOTES

1. LOGIC ON THIS SHEET FOR UPPER SPINDLE (A ROW). TO USE WITH LOWER SPINDLE, CHANGE A ROW LOCATIONS AND CONNECTIONS TO B AND USE TERMS IN PARENTHESIS WHERE THEY OCCUR

② NOT USED.

③ OPEN.

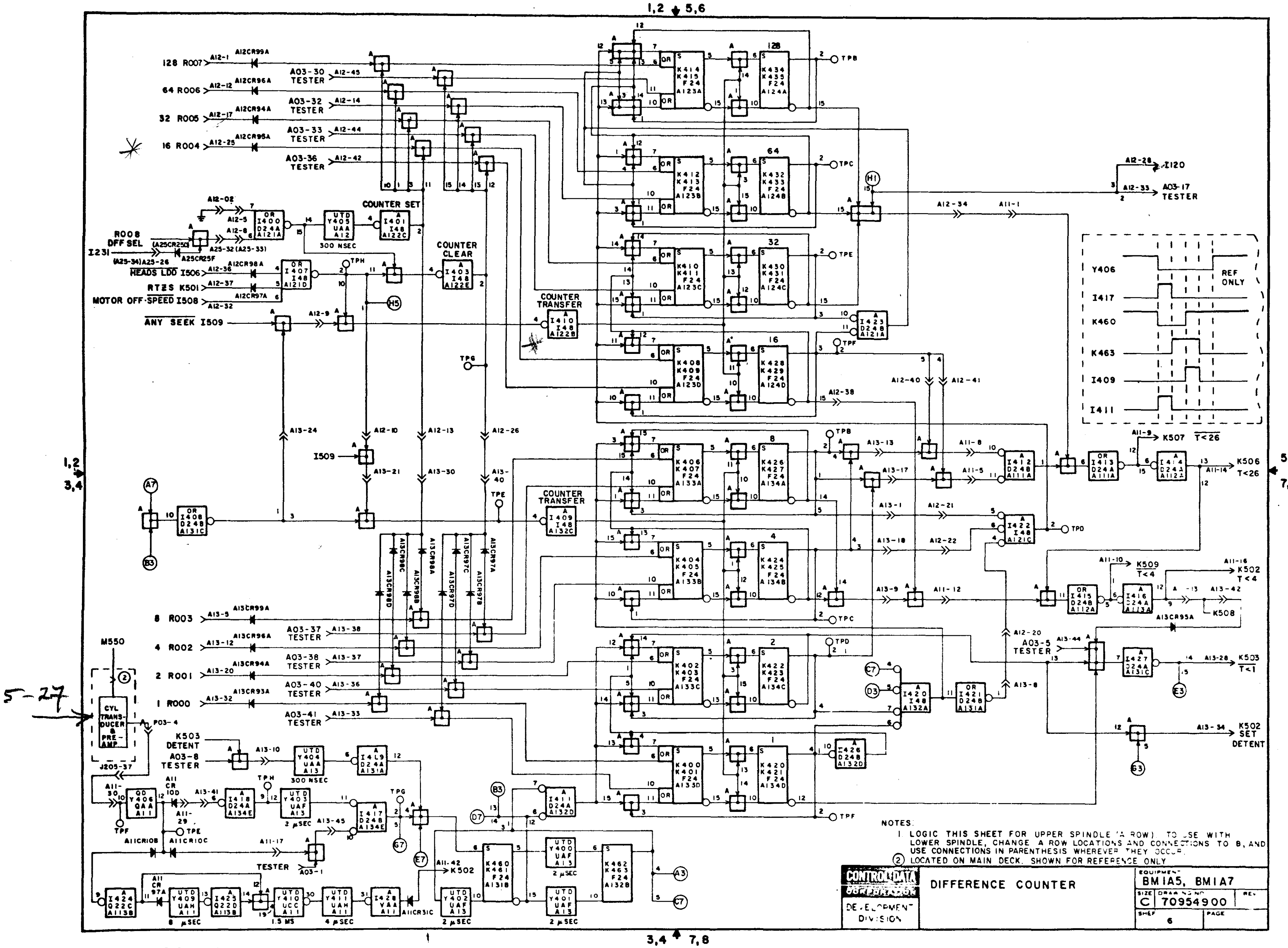
DEVELOPMENT DIVISION

SEEK COMPLETE
AND INDEX

EQUIPMENT BM1A5, BM1A7

SIZE C | DRAW NG NO 70954900 | REV.

SHEET 5 | PAGE



NOTES:

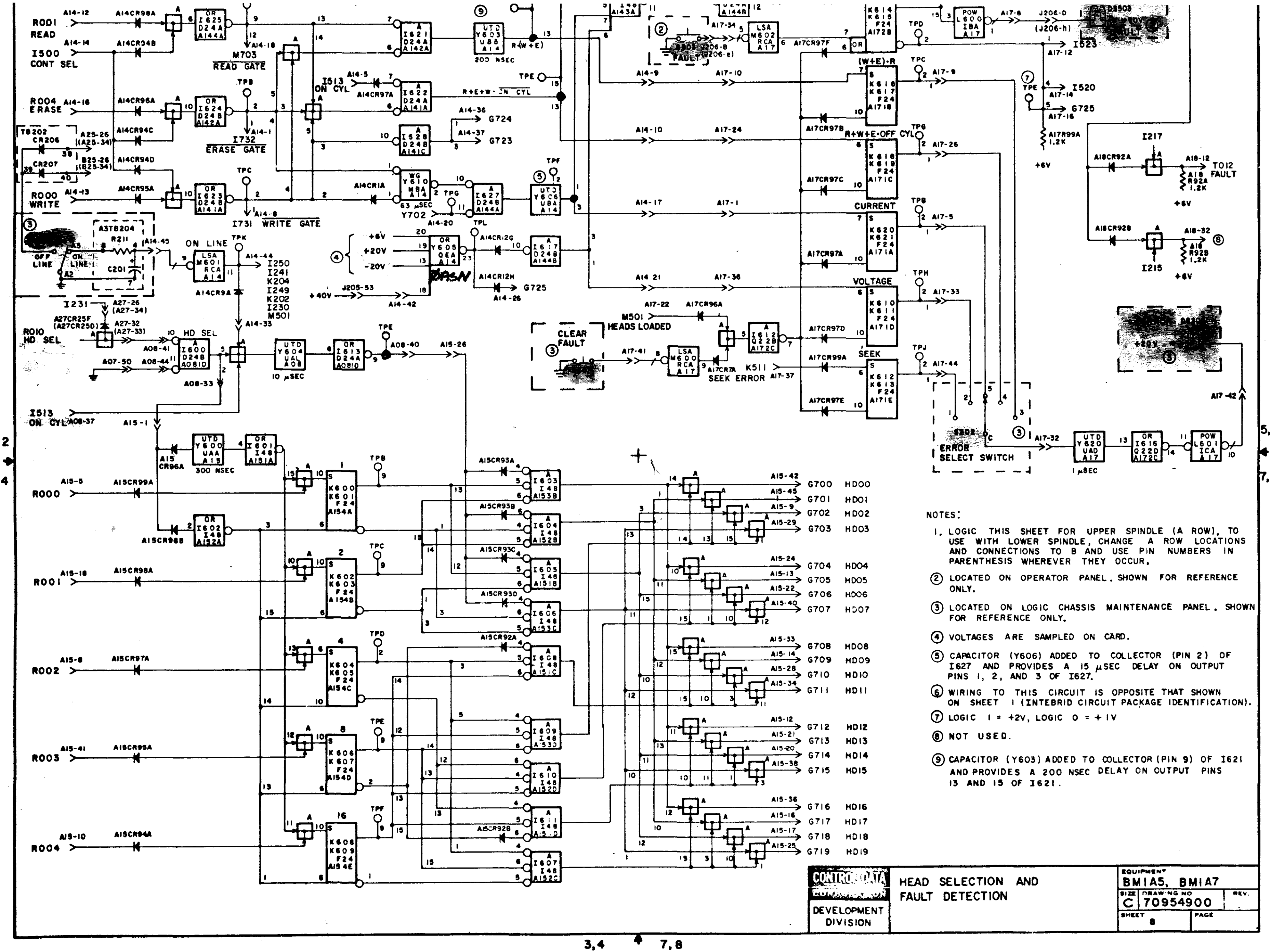
1. LOGIC THIS SHEET FOR UPPER SPINDLE (A ROW). TO USE WITH LOWER SPINDLE, CHANGE A ROW LOCATIONS AND CONNECTIONS TO B, AND USE CONNECTIONS IN PARENTHESIS WHEREVER THEY OCCUR.

② LOCATED ON MAIN DECK. SHOWN FOR REFERENCE ONLY

CONTROL DATA CORPORATION
DEVELOPMENT DIVISION

DIFFERENCE COUNTER

EQUIPMENT BMIA5, BMIA7		
SIZE C	DRAWING NO 70954900	REV
SHEET 6	PAGE	



NOTES:

1. LOGIC THIS SHEET FOR UPPER SPINDLE (A ROW). TO USE WITH LOWER SPINDLE, CHANGE A ROW LOCATIONS AND CONNECTIONS TO B AND USE PIN NUMBERS IN PARENTHESIS WHEREVER THEY OCCUR.

② LOCATED ON OPERATOR PANEL. SHOWN FOR REFERENCE ONLY.

③ LOCATED ON LOGIC CHASSIS MAINTENANCE PANEL. SHOWN FOR REFERENCE ONLY.

④ VOLTAGES ARE SAMPLED ON CARD.

⑤ CAPACITOR (Y606) ADDED TO COLLECTOR (PIN 2) OF I627 AND PROVIDES A 15 µSEC DELAY ON OUTPUT PINS 1, 2, AND 3 OF I627.

⑥ WIRING TO THIS CIRCUIT IS OPPOSITE THAT SHOWN ON SHEET 1 (INTEBRID CIRCUIT PACKAGE IDENTIFICATION).

⑦ LOGIC 1 = +2V, LOGIC 0 = +1V

⑧ NOT USED.

⑨ CAPACITOR (Y603) ADDED TO COLLECTOR (PIN 9) OF I621 AND PROVIDES A 200 NSEC DELAY ON OUTPUT PINS 13 AND 15 OF I621.

6C

CONTROL DATA

DEVELOPMENT DIVISION

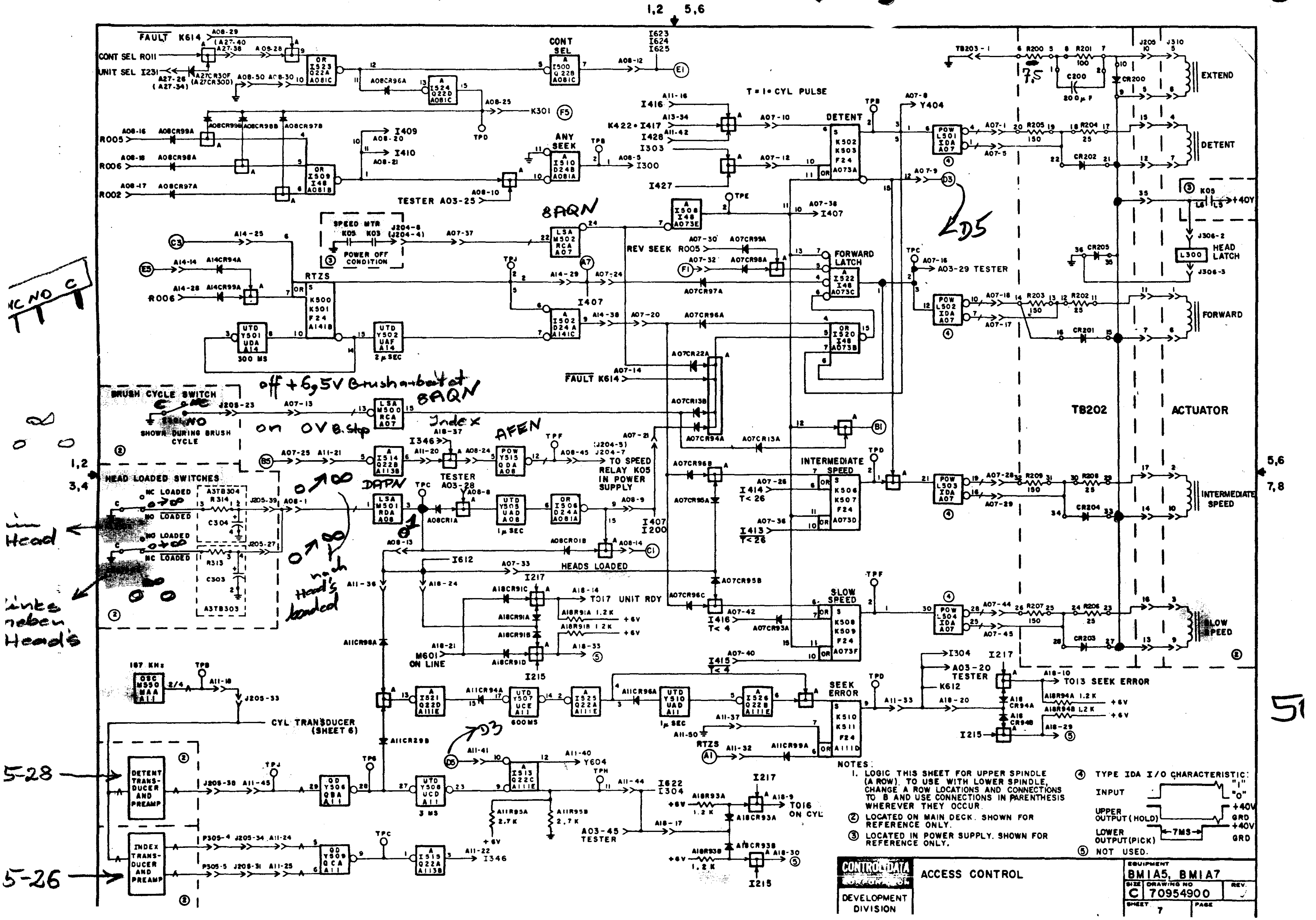
HEAD SELECTION AND FAULT DETECTION

EQUIPMENT BM1A5, BM1A7

SIZE C DRAWING NO 70954900 REV.

SHEET 8 PAGE

3,4 7,8



NOTES:

1. LOGIC THIS SHEET FOR UPPER SPINDLE (A ROW). TO USE WITH LOWER SPINDLE, CHANGE A ROW LOCATIONS AND CONNECTIONS TO B AND USE CONNECTIONS IN PARENTHESIS WHEREVER THEY OCCUR.

② LOCATED ON MAIN DECK. SHOWN FOR REFERENCE ONLY.

③ LOCATED IN POWER SUPPLY. SHOWN FOR REFERENCE ONLY.

④ TYPE IDA I/O CHARACTERISTIC:

INPUT "1" "0"

UPPER OUTPUT (HOLD) +40V GRD

LOWER OUTPUT (PICK) +40V GRD

7MS

⑤ NOT USED.

CONTROL DATA CORPORATION

DEVELOPMENT DIVISION

ACCESS CONTROL

EQUIPMENT BM1A5, BM1A7

SIZE C DRAWING NO 70954900 REV.

SHEET 7 PAGE

7430

1615 1211

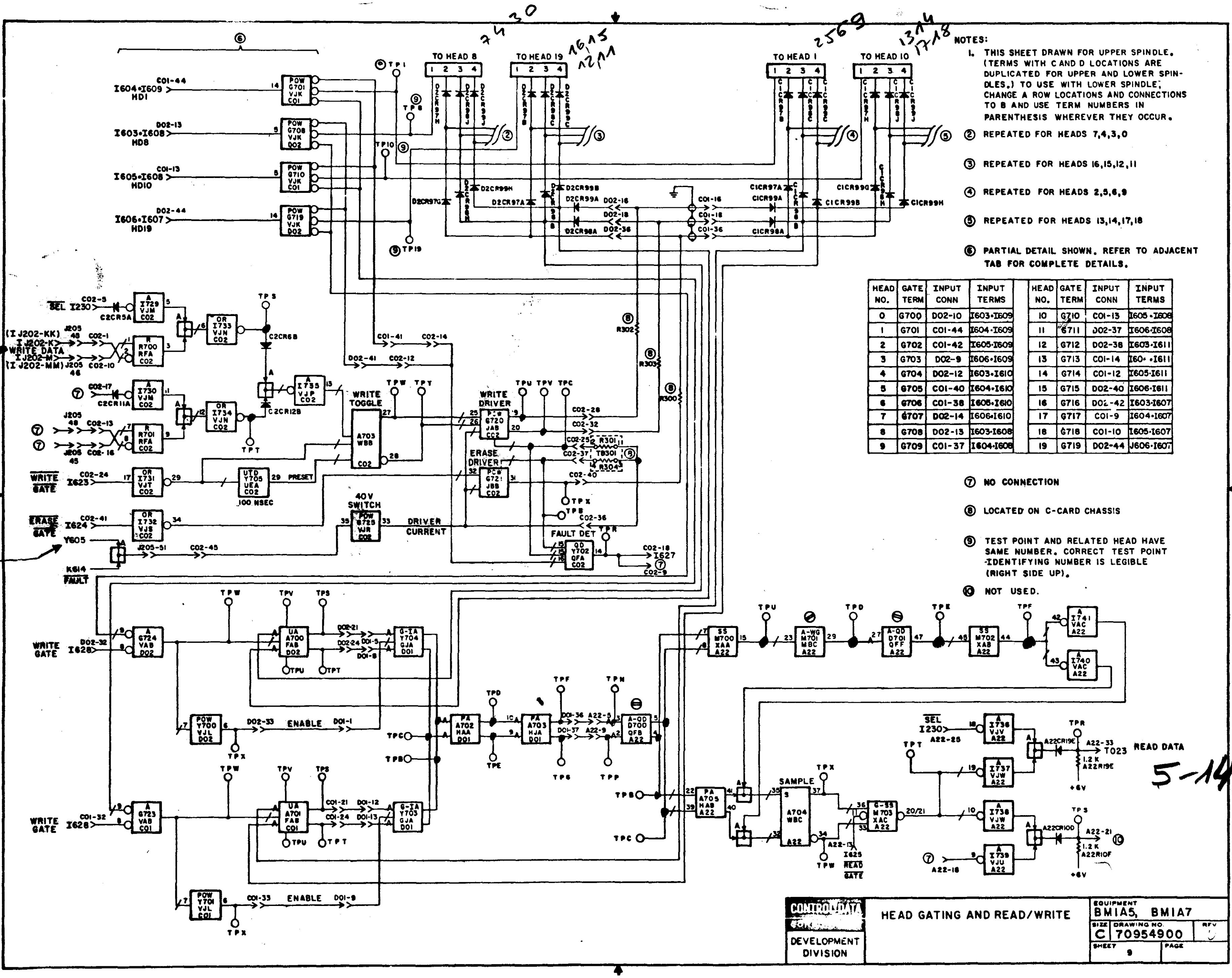
2569

1314 1718

W

Data

presence tension



NOTES:

1. THIS SHEET DRAWN FOR UPPER SPINDLE. (TERMS WITH C AND D LOCATIONS ARE DUPLICATED FOR UPPER AND LOWER SPINDLES.) TO USE WITH LOWER SPINDLE, CHANGE A ROW LOCATIONS AND CONNECTIONS TO B AND USE TERM NUMBERS IN PARENTHESIS WHEREVER THEY OCCUR.

② REPEATED FOR HEADS 7,4,3,0

③ REPEATED FOR HEADS 16,15,12,11

④ REPEATED FOR HEADS 2,5,6,9

⑤ REPEATED FOR HEADS 13,14,17,18

⑥ PARTIAL DETAIL SHOWN. REFER TO ADJACENT TAB FOR COMPLETE DETAILS.

HEAD NO.	GATE TERM	INPUT CONN	INPUT TERMS	HEAD NO.	GATE TERM	INPUT CONN	INPUT TERMS
0	G700	D02-10	I603•I609	10	G710	C01-13	I605•I608
1	G701	C01-44	I604•I609	11	G711	D02-37	I606•I608
2	G702	C01-42	I605•I609	12	G712	D02-38	I603•I611
3	G703	D02-9	I606•I609	13	G713	C01-14	I60• •I611
4	G704	D02-12	I603•I610	14	G714	C01-12	I605•I611
5	G705	C01-40	I604•I610	15	G715	D02-40	I606•I611
6	G706	C01-38	I605•I610	16	G716	D02-42	I603•I607
7	G707	D02-14	I606•I610	17	G717	C01-9	I604•I607
8	G708	D02-13	I603•I608	18	G718	C01-10	I605•I607
9	G709	C01-37	I604•I608	19	G719	D02-44	J606•I607

⑦ NO CONNECTION

⑧ LOCATED ON C-CARD CHASSIS

⑨ TEST POINT AND RELATED HEAD HAVE SAME NUMBER. CORRECT TEST POINT IDENTIFYING NUMBER IS LEGIBLE (RIGHT SIDE UP).

⑩ NOT USED.

7C

5-14

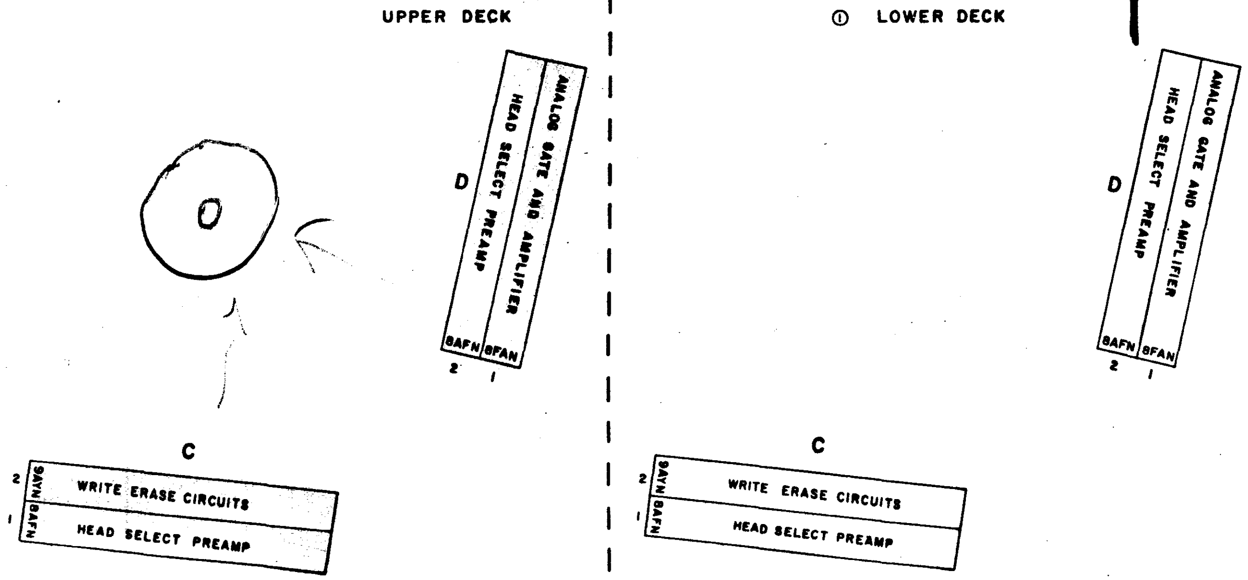
CONTROL DATA CORPORATION
DEVELOPMENT DIVISION

HEAD GATING AND READ/WRITE

EQUIPMENT BMIA5, BMIA7
SIZE C
DRAWING NO. 70954900
SHEET 9

LOGIC CHASSIS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Upper A			TESTER ④ 8FFN			SINGLE SECTOR AFJN	SOLENOID CONTROL ⑤ 8AQN	SPEED DETECTOR AND MISC AFEN			② DAPN	UPPER DIFFERENCE COUNTER 8AJN	LOWER DIFFERENCE COUNTER 8AWN	RTZS AND FAULT DETECTION 0ASN	HEAD SELECTION 8AHN	ADDRESS REGISTER 8AKN	FAULT STATUS BFGN	③ CANN	CHAN I SELECT AND RESERVE 8FBN		⑥ ADLN	READ RECOVERY BAUN		XMTR 8ATN	RCVR 8ARN	XMTR 8ATN	RCVR 8ARN	XMTR 8ATN	RCVR 8ARN	TERMINATOR 8AZN
Lower B			TESTER ①④ 8FFN			SINGLE SECTOR AFJN	SOLENOID CONTROL ①⑤ 8AQN	SPEED DETECTOR AND MISC ① AFEN			②① DAPN	UPPER DIFFERENCE COUNTER ① 8AJN	LOWER DIFFERENCE COUNTER ① 8AWN	RTZS AND FAULT DETECTION ① 0ASN	HEAD SELECTION ① 8AHN	ADDRESS REGISTER ① 8AKN	FAULT STATUS ① BFGN	③① CANN	CHAN I SELECT AND RESERVE ① 8FBN		⑥ ADLN	READ RECOVERY ① BAU			⑥ IDLN		⑥ IDLN			



NOTES:

① NOT PRESENT IN IX CABINET

② ANY SEEK, SEEK ERROR, ON CYL, AND SPEED DETECTION

③ STEERING UNIT LOGIC

④ OPTIONAL CARD SHOWN FOR REFERENCE ONLY. WHEN TESTER (CDC P/N 40072100) IS USED DURING MAINTENANCE SITUATION, INSTALL IT AT A03 FOR UPPER SPINDLE OR B03 FOR LOWER SPINDLE. LOGIC SHEETS SHOW INTERFACE WITH TESTER. TESTER CARD SCHEMATIC SHOWN WITH CARD SCHEMATICS.

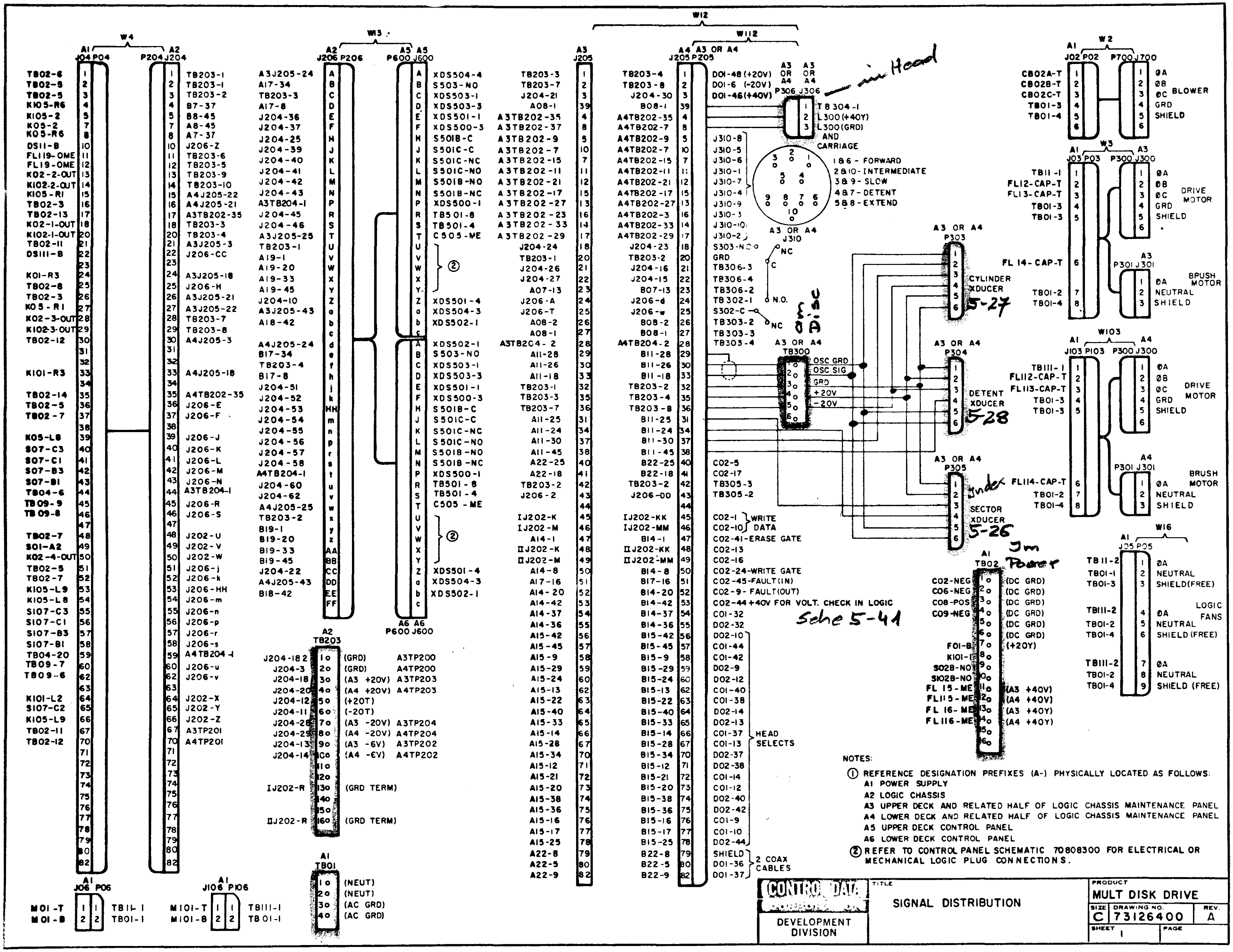
⑤ 0AQN INSTALLED IN UNIT SERIAL NUMBERS 575 AND ABOVE OR UNITS WITH FCO PE11428 OR PE11429 INSTALLED.

⑥ APPLICABLE TO UNITS S/N 2250 AND ABOVE.

CONTROL DATA CORPORATION
DEVELOPMENT DIVISION

CHASSIS MAP

EQUIPMENT BM1A5, BM1A7
SIZE C
DRAWING NO 70954900
REV V
SHEET 10
PAGE



NOTES:

① REFERENCE DESIGNATION PREFIXES (A-) PHYSICALLY LOCATED AS FOLLOWS:
- A1 POWER SUPPLY
- A2 LOGIC CHASSIS
- A3 UPPER DECK AND RELATED HALF OF LOGIC CHASSIS MAINTENANCE PANEL
- A4 LOWER DECK AND RELATED HALF OF LOGIC CHASSIS MAINTENANCE PANEL
- A5 UPPER DECK CONTROL PANEL
- A6 LOWER DECK CONTROL PANEL

② REFER TO CONTROL PANEL SCHEMATIC 70808300 FOR ELECTRICAL OR MECHANICAL LOGIC PLUG CONNECTIONS.

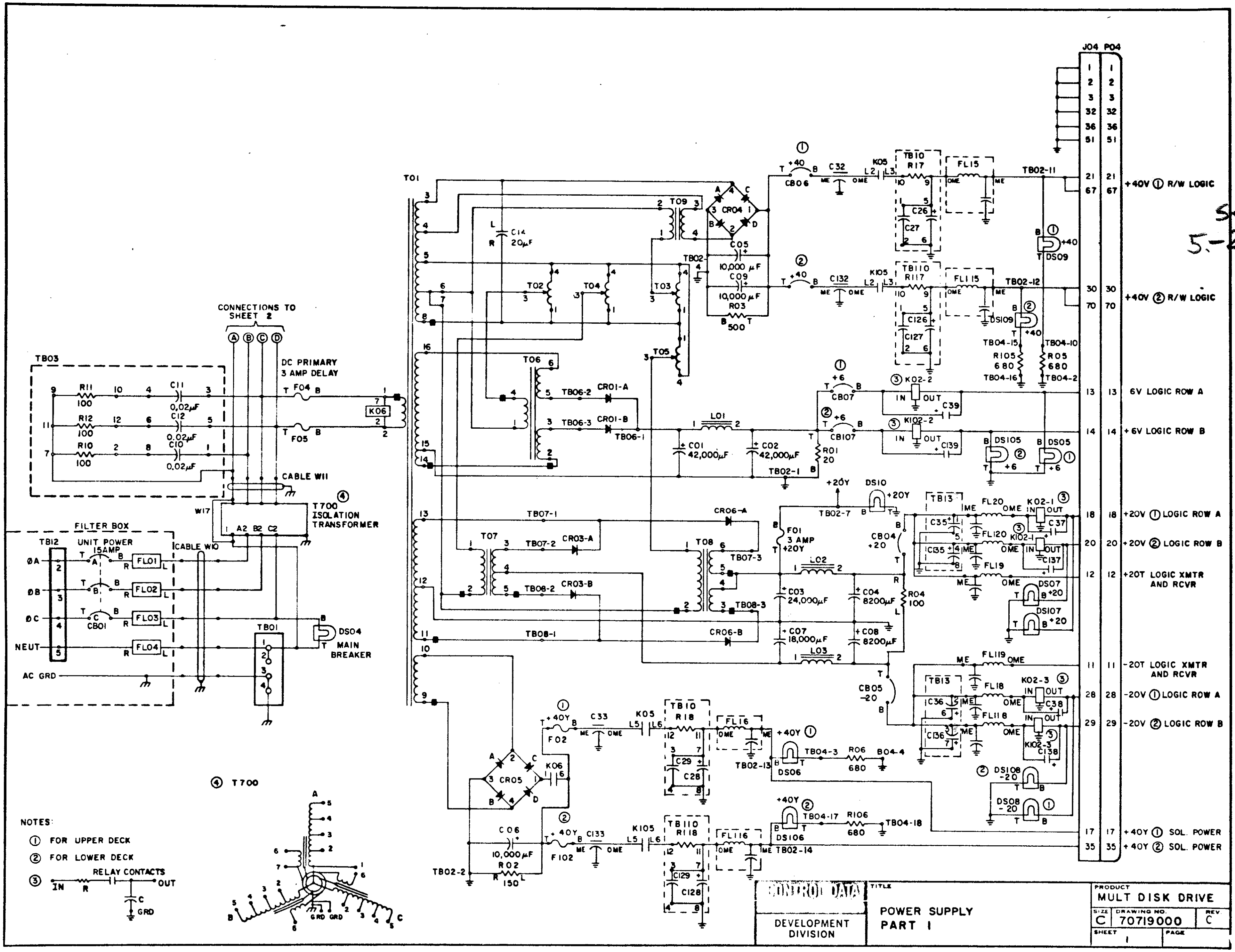
CONTROL DATA
DEVELOPMENT DIVISION

TITLE: SIGNAL DISTRIBUTION

PRODUCT: MULT DISK DRIVE

SIZE	DRAWING NO.	REV.
C	73126400	A

SHEET 1 PAGE



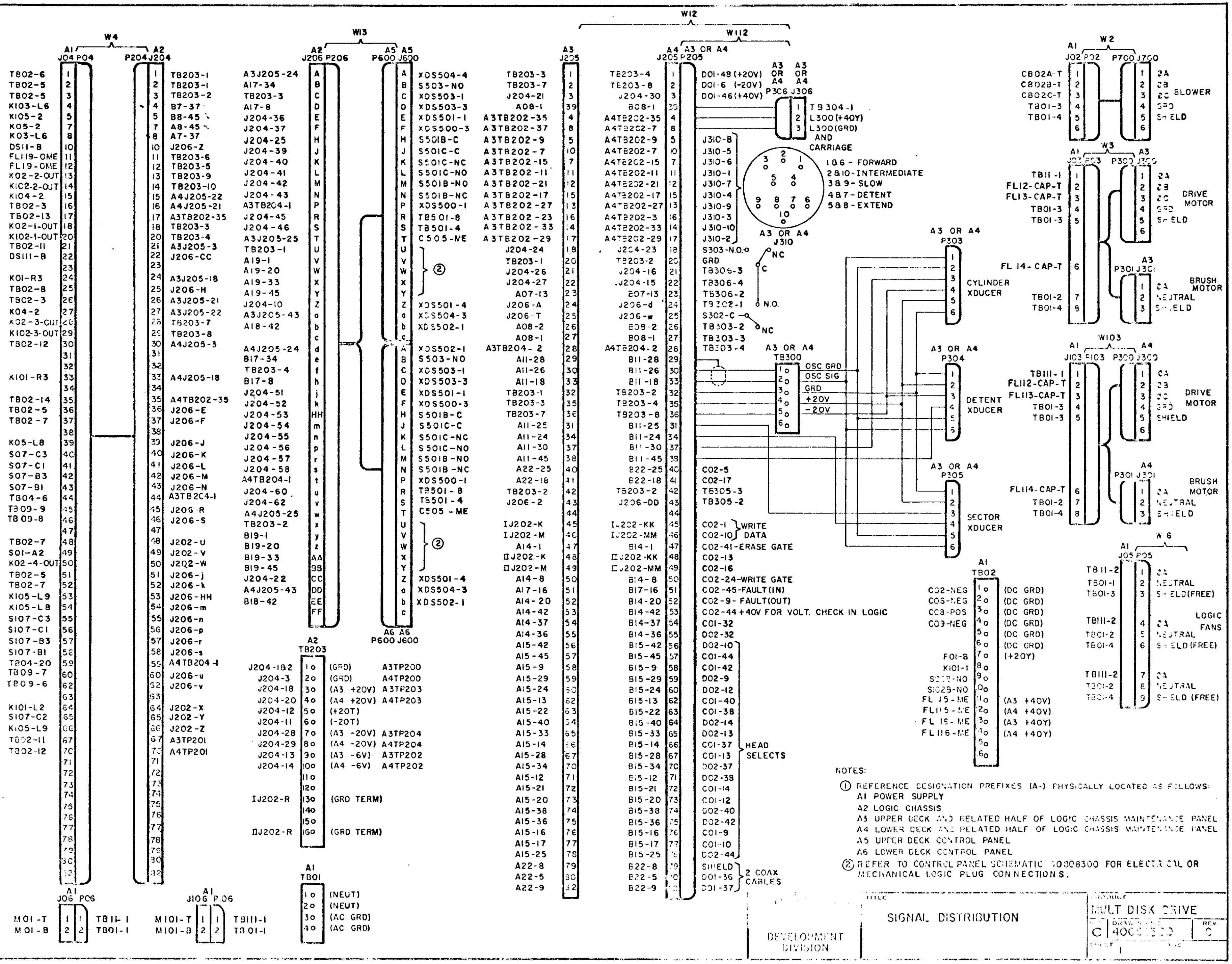
CONTROL DATA
DEVELOPMENT DIVISION

TITLE
POWER SUPPLY
PART I

PRODUCT
MULT DISK DRIVE

SIZE C
DRAWING NO. 70719000
REV C
SHEET 1
PAGE

sehe 5-24.1

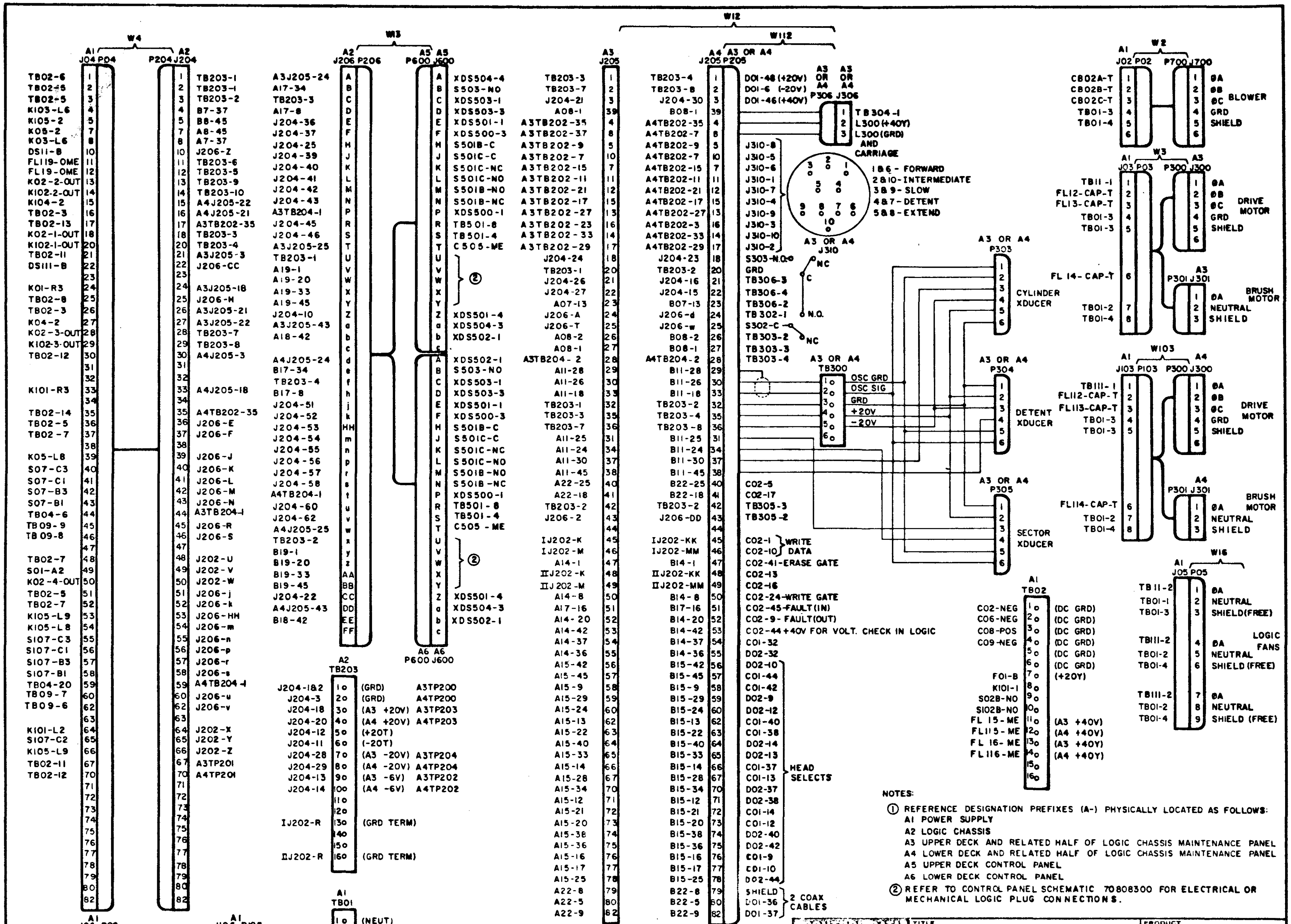


NOTES:

① REFERENCE DESIGNATION PREFIXES (A-) PHYSICALLY LOCATED AS FOLLOWS:
A1 POWER SUPPLY
A2 LOGIC CHASSIS
A3 UPPER DECK AND RELATED HALF OF LOGIC CHASSIS MAINTENANCE PANEL
A4 LOWER DECK AND RELATED HALF OF LOGIC CHASSIS MAINTENANCE PANEL
A5 UPPER DECK CONTROL PANEL
A6 LOWER DECK CONTROL PANEL

② REFER TO CONTROL PANEL SCHEMATIC 10308300 FOR ELECTRICAL OR MECHANICAL LOGIC PLUG CONNECTIONS.

DEVELOPMENT DIVISION	TITLE SIGNAL DISTRIBUTION	PRODUCT MULT DISK DRIVE	
		C	DRAWING NO. 400[illegible]	REV. C
		SHEET 1	



NOTES:

① REFERENCE DESIGNATION PREFIXES (A-) PHYSICALLY LOCATED AS FOLLOWS:
A1 POWER SUPPLY
A2 LOGIC CHASSIS
A3 UPPER DECK AND RELATED HALF OF LOGIC CHASSIS MAINTENANCE PANEL
A4 LOWER DECK AND RELATED HALF OF LOGIC CHASSIS MAINTENANCE PANEL
A5 UPPER DECK CONTROL PANEL
A6 LOWER DECK CONTROL PANEL

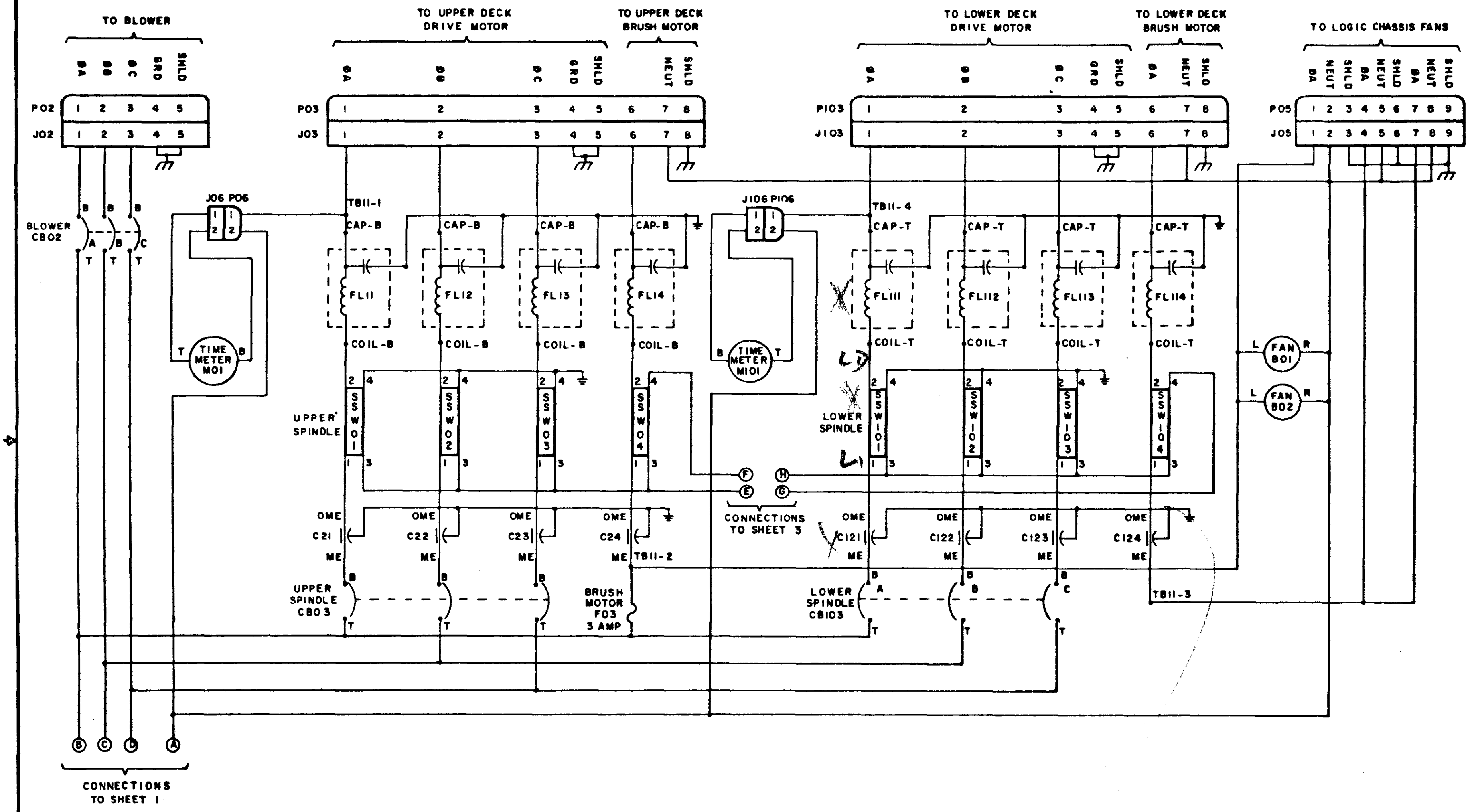
② REFER TO CONTROL PANEL SCHEMATIC 70808300 FOR ELECTRICAL OR MECHANICAL LOGIC PLUG CONNECTIONS.

CONTROL DATA
DEVELOPMENT DIVISION

TITLE
SIGNAL DISTRIBUTION

PRODUCT
MULT DISK DRIVE

SIZE C
DRAWING NO 72901100
REV. A
SHEET 1
PAGE



CONTROL DATA

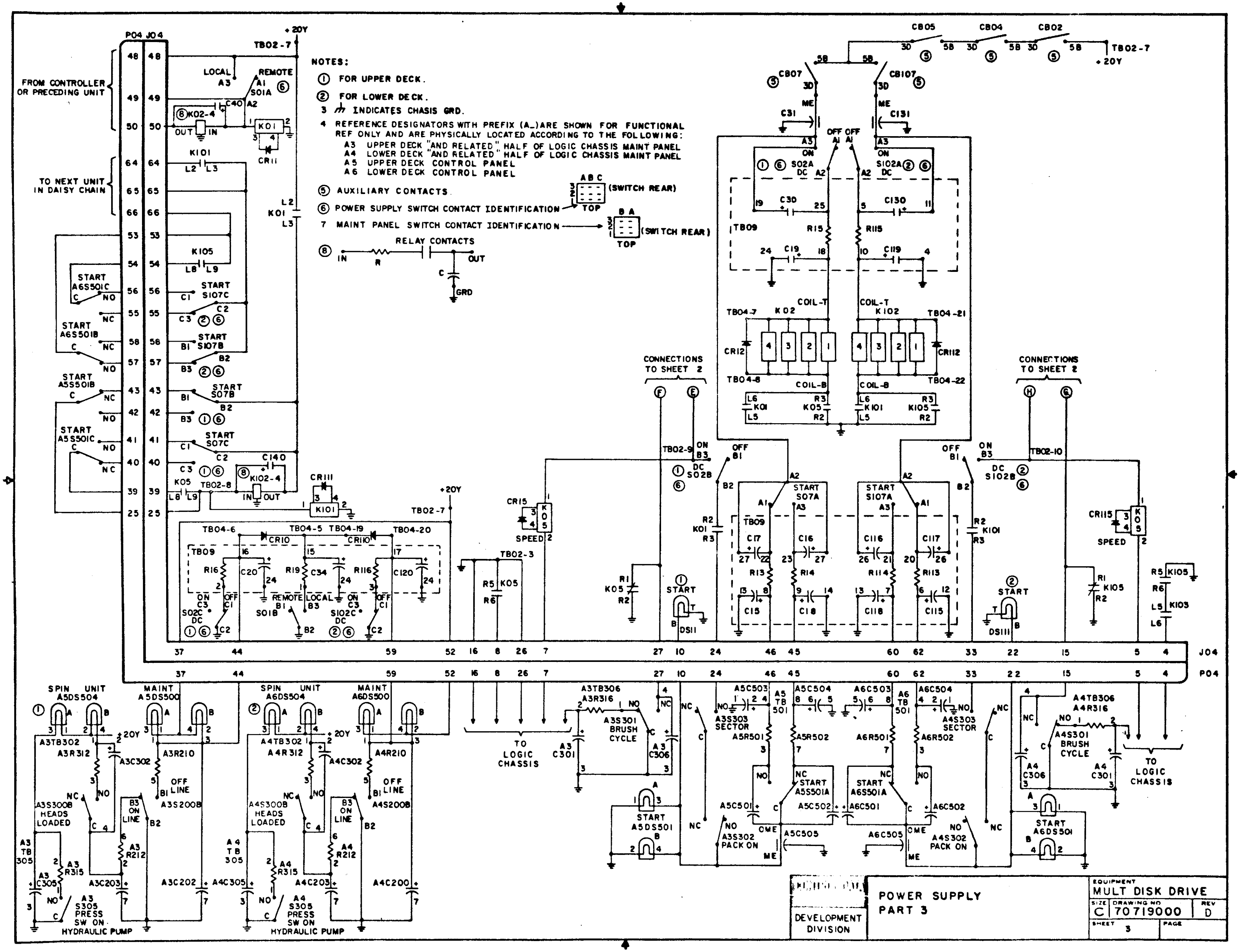
DEVELOPMENT DIVISION

POWER SUPPLY
PART 2

EQUIPMENT
MULT DISK DRIVE

SIZE C
DRAWING NO 70719000
REV. D

SHEET 2
PAGE



NOTES:

① FOR UPPER DECK.

② FOR LOWER DECK.

3 ⏚ INDICATES CHASIS GRD.

4 REFERENCE DESIGNATORS WITH PREFIX (A_)ARE SHOWN FOR FUNCTIONAL REF ONLY AND ARE PHYSICALLY LOCATED ACCORDING TO THE FOLLOWING:
A3 UPPER DECK "AND RELATED" HALF OF LOGIC CHASSIS MAINT PANEL
A4 LOWER DECK "AND RELATED" HALF OF LOGIC CHASSIS MAINT PANEL
A5 UPPER DECK CONTROL PANEL
A6 LOWER DECK CONTROL PANEL

⑤ AUXILIARY CONTACTS.

⑥ POWER SUPPLY SWITCH CONTACT IDENTIFICATION → A B C (SWITCH REAR) TOP

7 MAINT PANEL SWITCH CONTACT IDENTIFICATION → B A (SWITCH REAR) TOP

⑧ RELAY CONTACTS IN R C OUT GRD

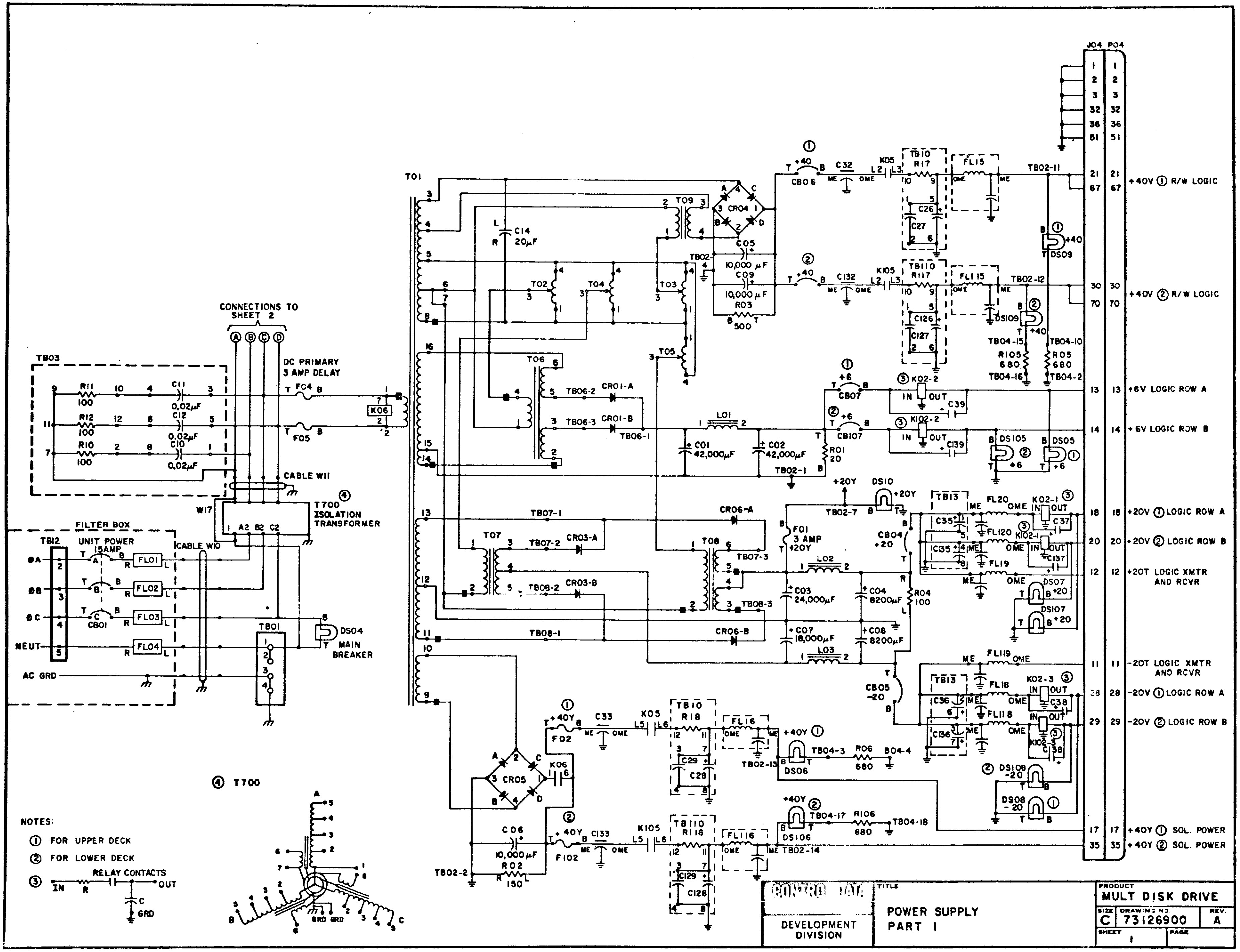
DEVELOPMENT DIVISION

POWER SUPPLY
PART 3

EQUIPMENT
MULT DISK DRIVE

SIZE	DRAWING NO	REV
C	70719000	D

SHEET 3 PAGE



NOTES:

① FOR UPPER DECK

② FOR LOWER DECK

③ IN R RELAY CONTACTS OUT C GRD

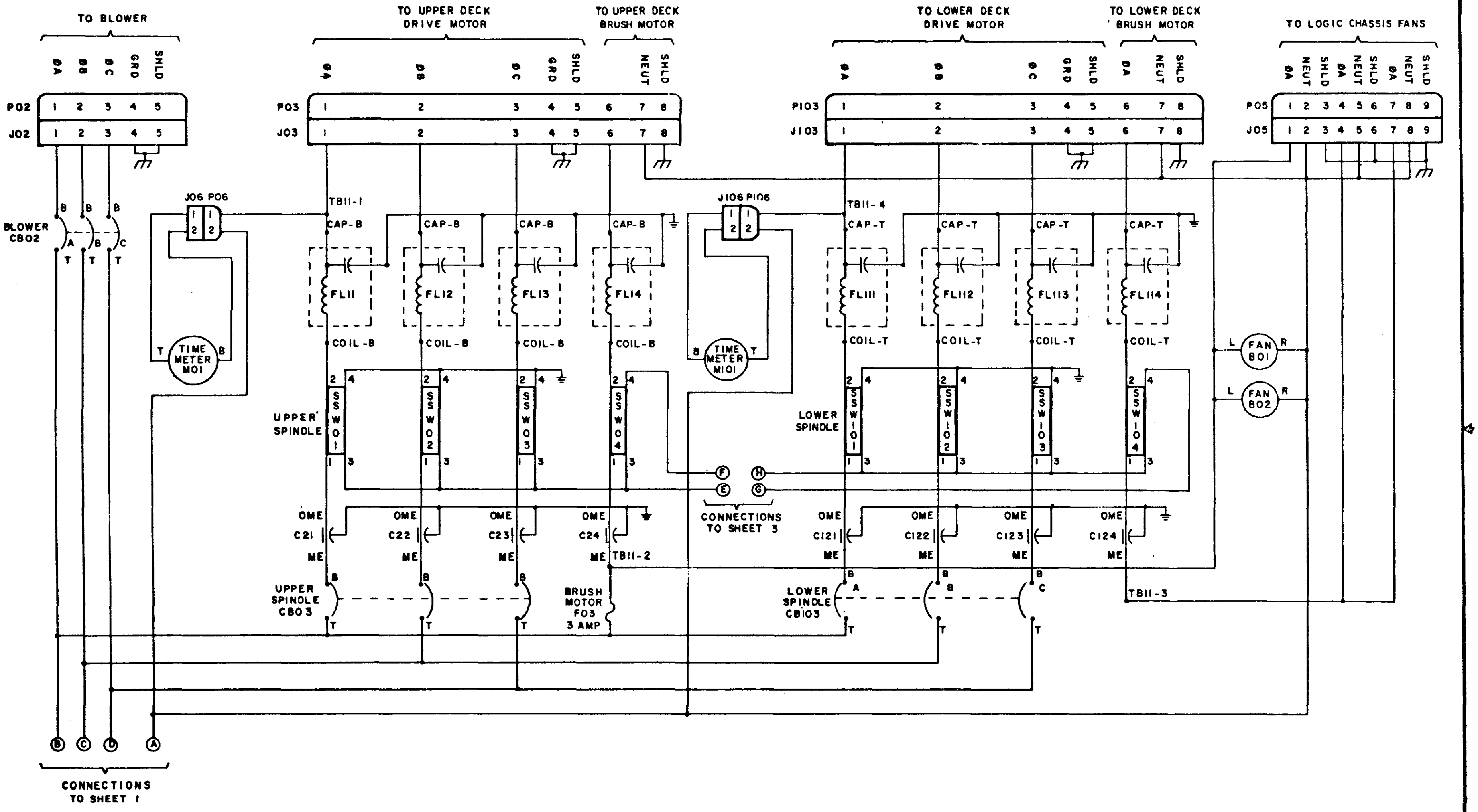
CONTROL DATA
DEVELOPMENT DIVISION

TITLE
POWER SUPPLY
PART I

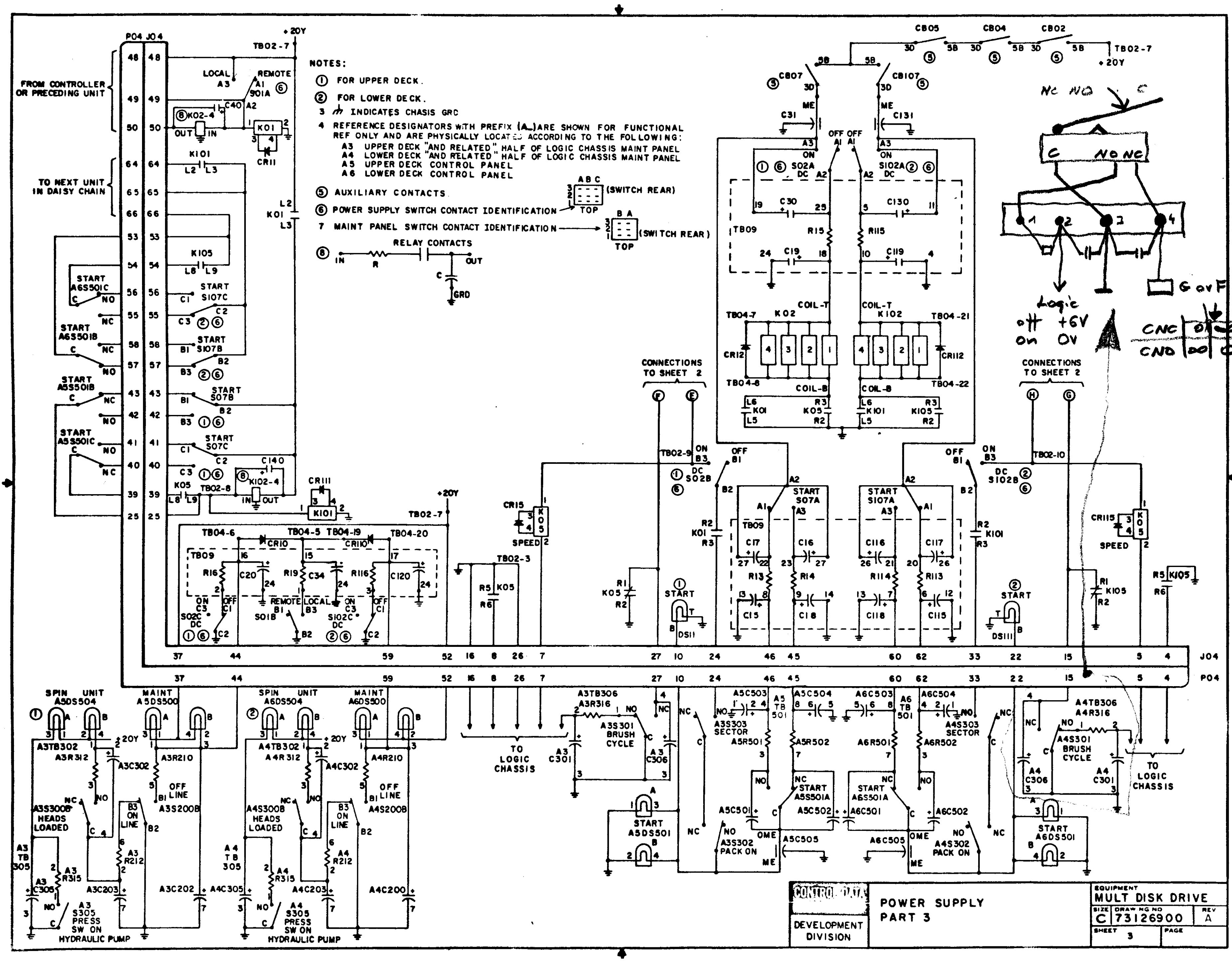
PRODUCT
MULT DISK DRIVE

SIZE	DRAWING NO.	REV.
C	73126900	A

SHEET 1 PAGE



DEVELOPMENT DIVISION	POWER SUPPLY PART 2	EQUIPMENT MULT DISK DRIVE SIZE C DRAWING NO. 73126900 REV. A SHEET 2 PAGE



NOTES:

① FOR UPPER DECK.

② FOR LOWER DECK.

3 ⏚ INDICATES CHASIS GRC

4 REFERENCE DESIGNATORS WITH PREFIX (A_) ARE SHOWN FOR FUNCTIONAL REF ONLY AND ARE PHYSICALLY LOCATED ACCORDING TO THE FOLLOWING:

A3	UPPER DECK "AND RELATED" HALF OF LOGIC CHASSIS MAINT PANEL
A4	LOWER DECK "AND RELATED" HALF OF LOGIC CHASSIS MAINT PANEL
A5	UPPER DECK CONTROL PANEL
A6	LOWER DECK CONTROL PANEL

⑤ AUXILIARY CONTACTS.

⑥ POWER SUPPLY SWITCH CONTACT IDENTIFICATION → A B C 3 2 1 (SWITCH REAR) TOP

7 MAINT PANEL SWITCH CONTACT IDENTIFICATION → B A 3 2 1 (SWITCH REAR) TOP

⑧ IN R RELAY CONTACTS OUT C GRD

CONTROL DATA

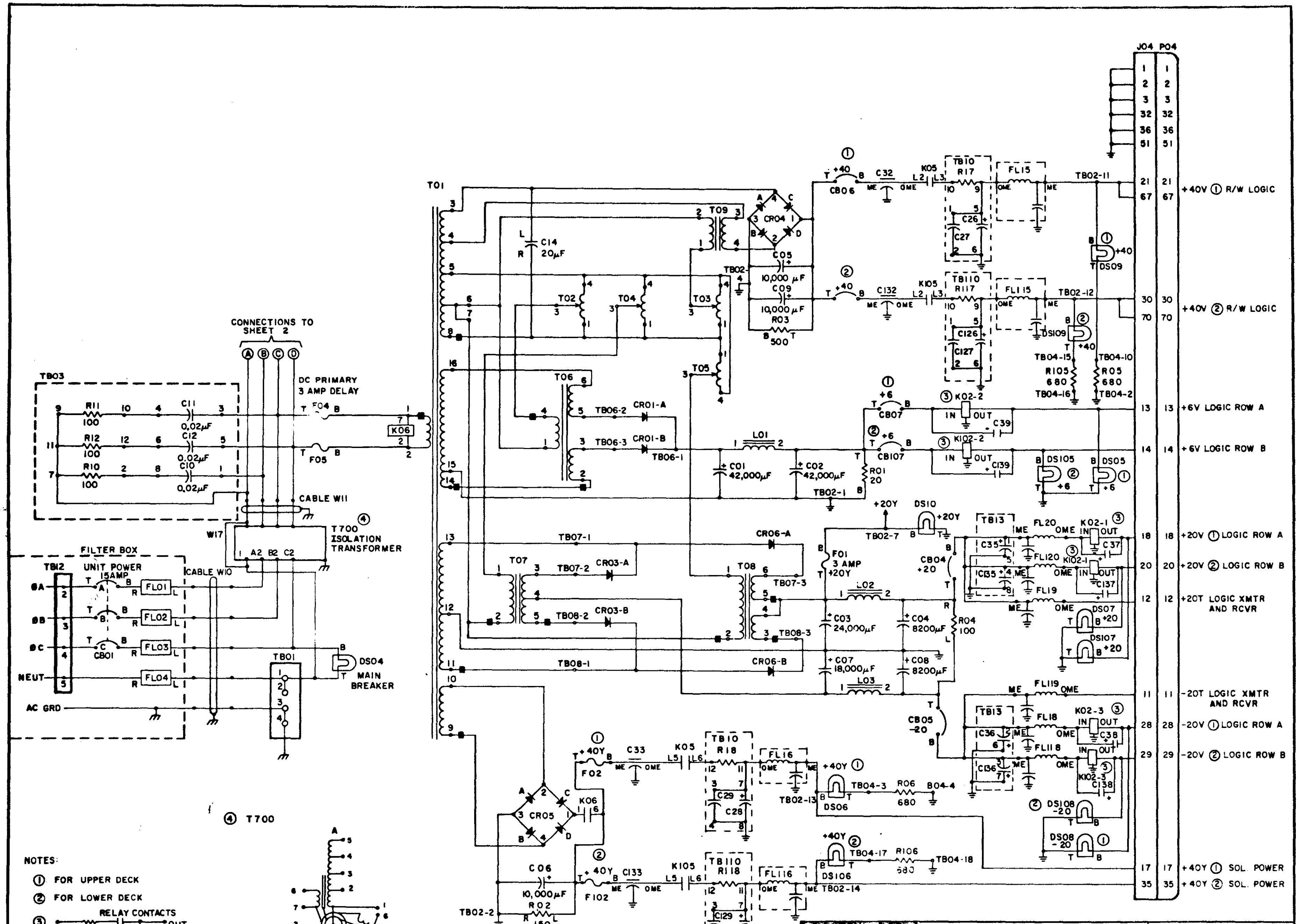
DEVELOPMENT DIVISION

POWER SUPPLY
PART 3

EQUIPMENT MULT DISK DRIVE

SIZE	DRAWING NO	REV
C	73126900	A

SHEET 3 PAGE



NOTES:

① FOR UPPER DECK

② FOR LOWER DECK

③ IN R RELAY CONTACTS OUT C GRD

CONTROL DATA

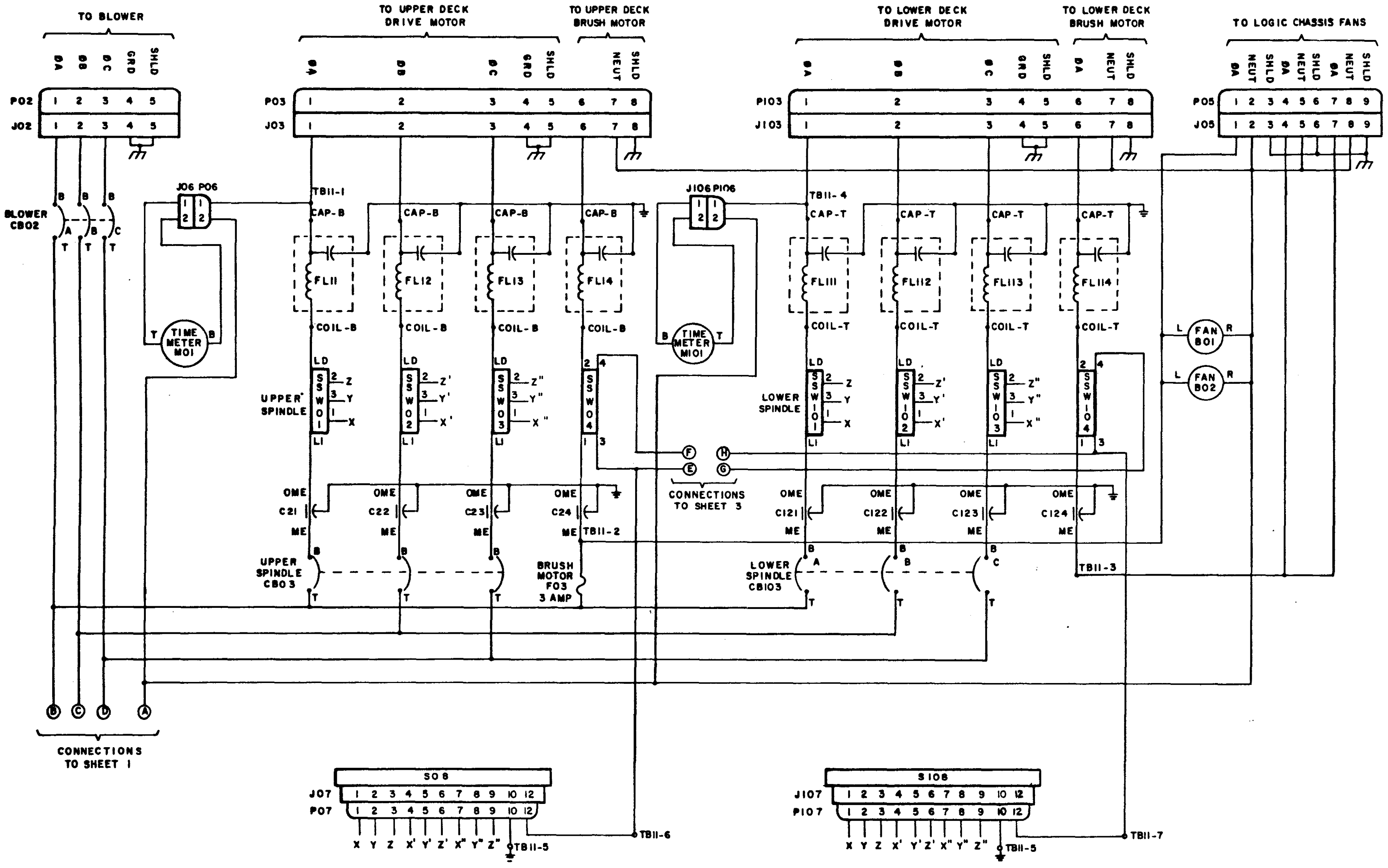
DEVELOPMENT DIVISION

TITLE POWER SUPPLY PART 1

PRODUCT MULT DISK DRIVE

SIZE C DRAW NO 46475400 REV. A

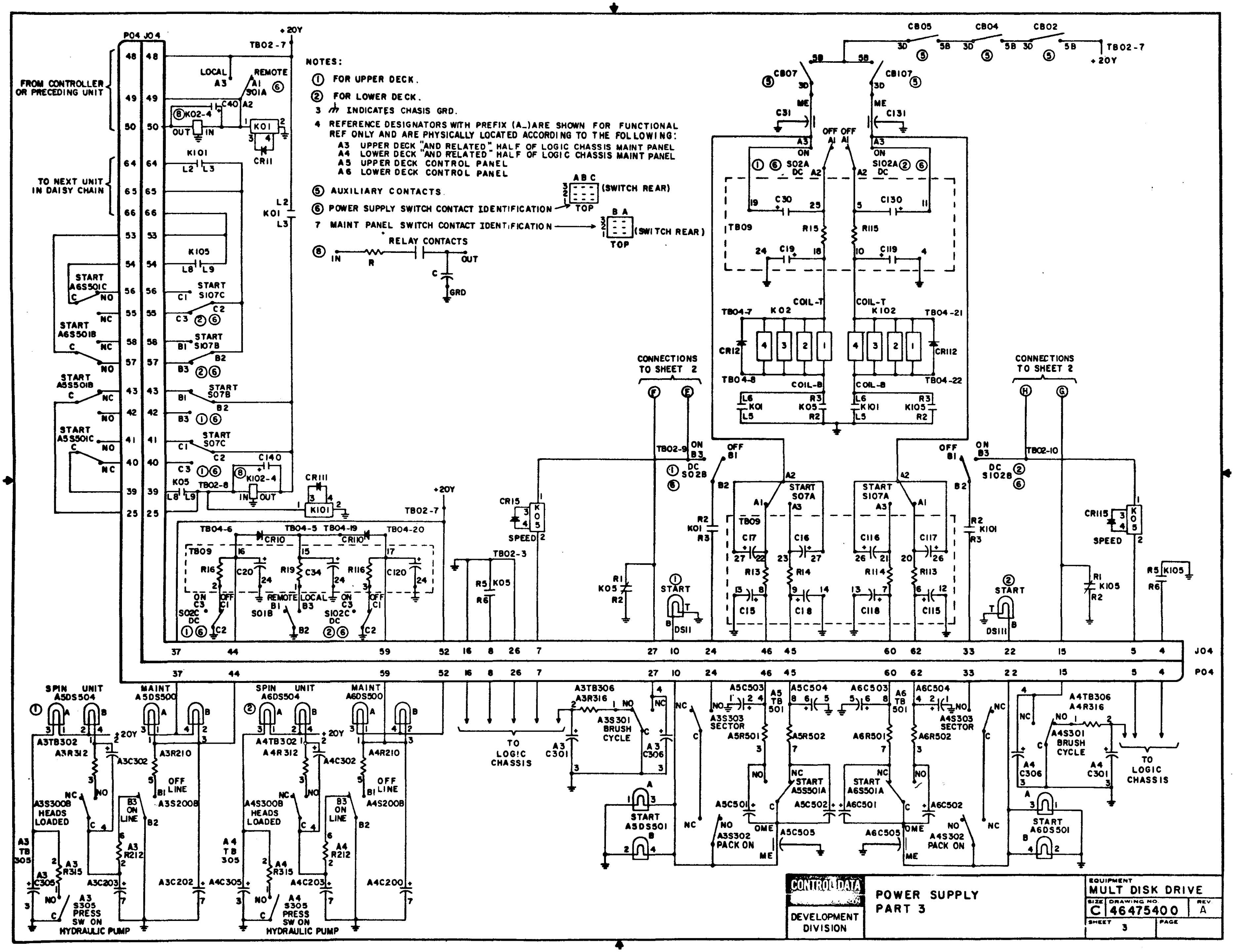
SHEET 1 PAGE



CONTROL DATA
DEVELOPMENT DIVISION

POWER SUPPLY
PART 2

EQUIPMENT MULT DISK DRIVE
SIZE C DRAWING NO 46475400 REV. A
SHEET 2 PAGE



NOTES:

① FOR UPPER DECK.

② FOR LOWER DECK.

3 ⏚ INDICATES CHASIS GRD.

4 REFERENCE DESIGNATORS WITH PREFIX (A_)ARE SHOWN FOR FUNCTIONAL REF ONLY AND ARE PHYSICALLY LOCATED ACCORDING TO THE FOLLOWING:

A3	UPPER DECK "AND RELATED" HALF OF LOGIC CHASSIS MAINT PANEL
A4	LOWER DECK "AND RELATED" HALF OF LOGIC CHASSIS MAINT PANEL
A5	UPPER DECK CONTROL PANEL
A6	LOWER DECK CONTROL PANEL

⑤ AUXILIARY CONTACTS.

⑥ POWER SUPPLY SWITCH CONTACT IDENTIFICATION → TOP (SWITCH REAR)

7 MAINT PANEL SWITCH CONTACT IDENTIFICATION → TOP (SWITCH REAR)

⑧ RELAY CONTACTS

CONTROL DATA

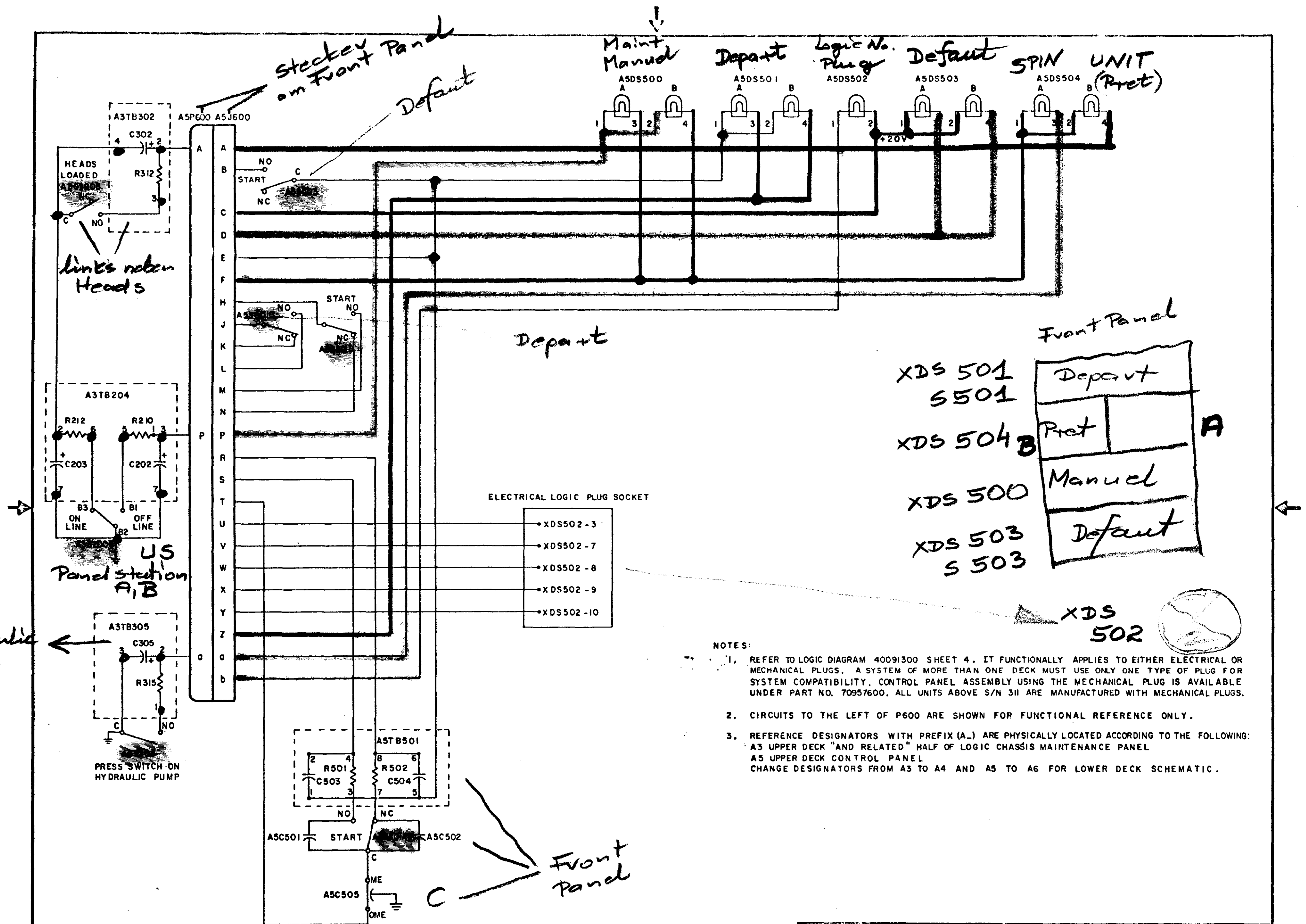
DEVELOPMENT DIVISION

POWER SUPPLY
PART 3

EQUIPMENT MULT DISK DRIVE

SIZE C DRAWING NO. 46475400 REV A

SHEET 3 PAGE



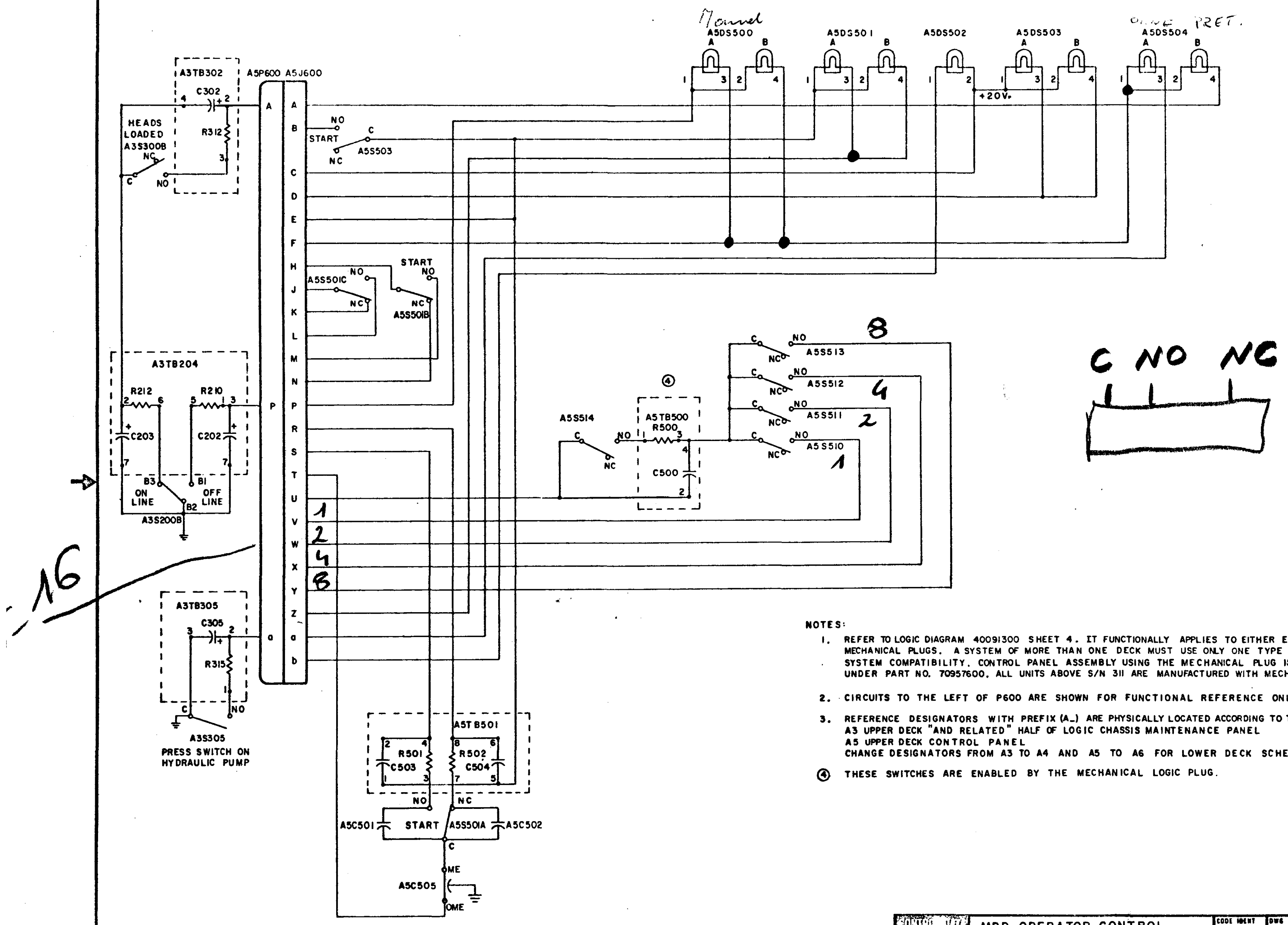
NOTES:

1. REFER TO LOGIC DIAGRAM 40091300 SHEET 4. IT FUNCTIONALLY APPLIES TO EITHER ELECTRICAL OR MECHANICAL PLUGS. A SYSTEM OF MORE THAN ONE DECK MUST USE ONLY ONE TYPE OF PLUG FOR SYSTEM COMPATIBILITY. CONTROL PANEL ASSEMBLY USING THE MECHANICAL PLUG IS AVAILABLE UNDER PART NO. 70957600. ALL UNITS ABOVE S/N 311 ARE MANUFACTURED WITH MECHANICAL PLUGS.

2. CIRCUITS TO THE LEFT OF P600 ARE SHOWN FOR FUNCTIONAL REFERENCE ONLY.

3. REFERENCE DESIGNATORS WITH PREFIX (A_) ARE PHYSICALLY LOCATED ACCORDING TO THE FOLLOWING:
A3 UPPER DECK "AND RELATED" HALF OF LOGIC CHASSIS MAINTENANCE PANEL
A5 UPPER DECK CONTROL PANEL
CHANGE DESIGNATORS FROM A3 TO A4 AND A5 TO A6 FOR LOWER DECK SCHEMATIC.

DEVELOPMENT DIVISION	MDD OPERATOR CONTROL PANEL	CODE IDENT C	DWG NO 70808300 SHEET 1	REV B PAGE



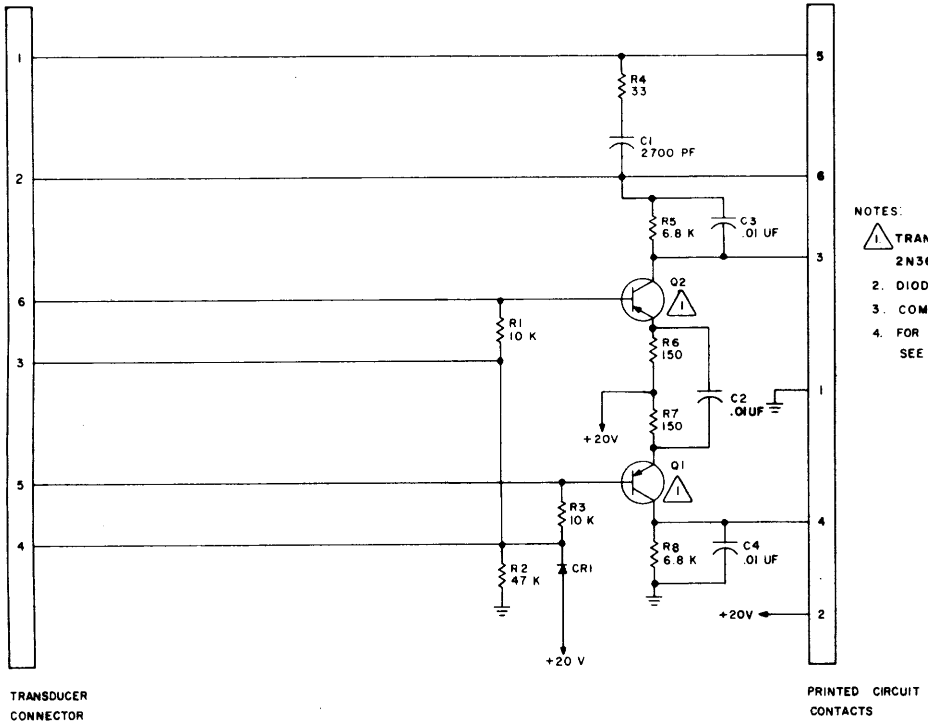
NOTES:

1. REFER TO LOGIC DIAGRAM 40091300 SHEET 4. IT FUNCTIONALLY APPLIES TO EITHER ELECTRICAL OR MECHANICAL PLUGS. A SYSTEM OF MORE THAN ONE DECK MUST USE ONLY ONE TYPE OF PLUG FOR SYSTEM COMPATIBILITY. CONTROL PANEL ASSEMBLY USING THE MECHANICAL PLUG IS AVAILABLE UNDER PART NO. 70957600. ALL UNITS ABOVE S/N 311 ARE MANUFACTURED WITH MECHANICAL PLUGS.
2. CIRCUITS TO THE LEFT OF P600 ARE SHOWN FOR FUNCTIONAL REFERENCE ONLY.
3. REFERENCE DESIGNATORS WITH PREFIX (A_) ARE PHYSICALLY LOCATED ACCORDING TO THE FOLLOWING:
   A3 UPPER DECK "AND RELATED" HALF OF LOGIC CHASSIS MAINTENANCE PANEL
   A5 UPPER DECK CONTROL PANEL
   CHANGE DESIGNATORS FROM A3 TO A4 AND A5 TO A6 FOR LOWER DECK SCHEMATIC.

④ THESE SWITCHES ARE ENABLED BY THE MECHANICAL LOGIC PLUG.

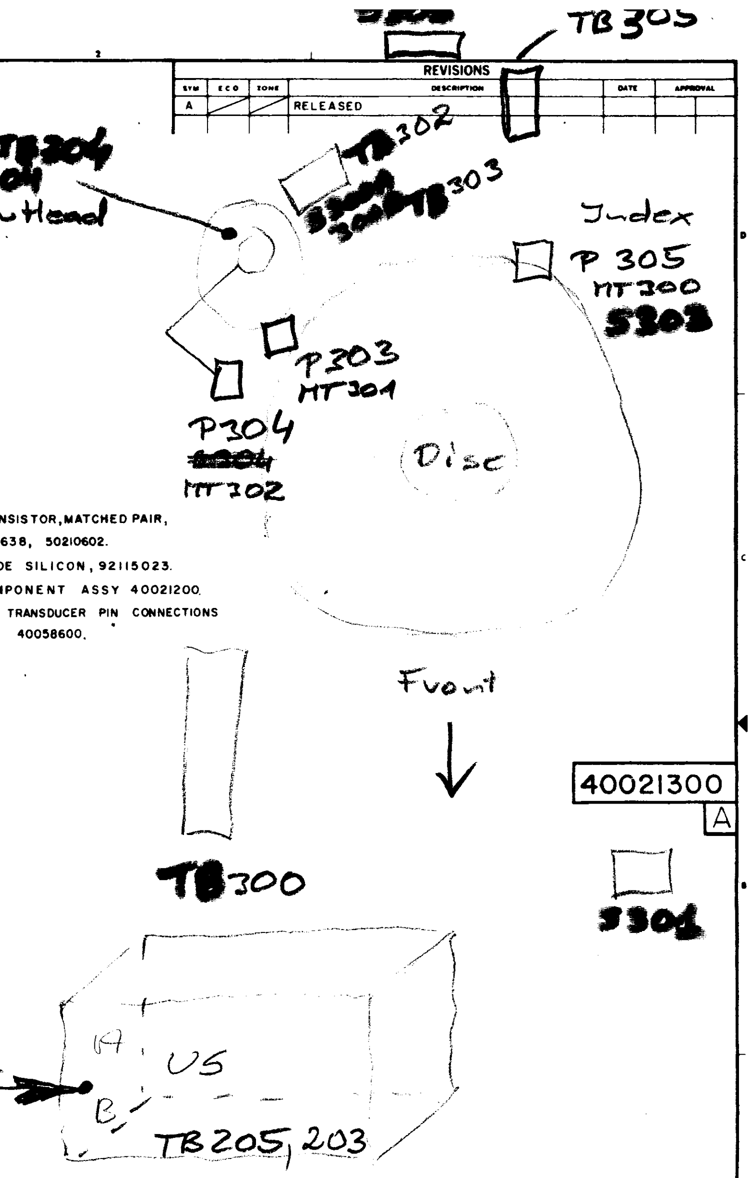
DEVELOPMENT DIVISION	MDD OPERATOR CONTROL PANEL	CODE IDENT C	DWG NO 70808300 SHEET 2	REV B PAGE

REVISIONS					
SYM	ECO	ZONE	DESCRIPTION	DATE	APPROVAL
A			RELEASED		



NOTES:

1. TRANSISTOR, MATCHED PAIR, 2N3638, 50210602.
2. DIODE SILICON, 92115023.
3. COMPONENT ASSY 40021200.
4. FOR TRANSDUCER PIN CONNECTIONS SEE 40058600.



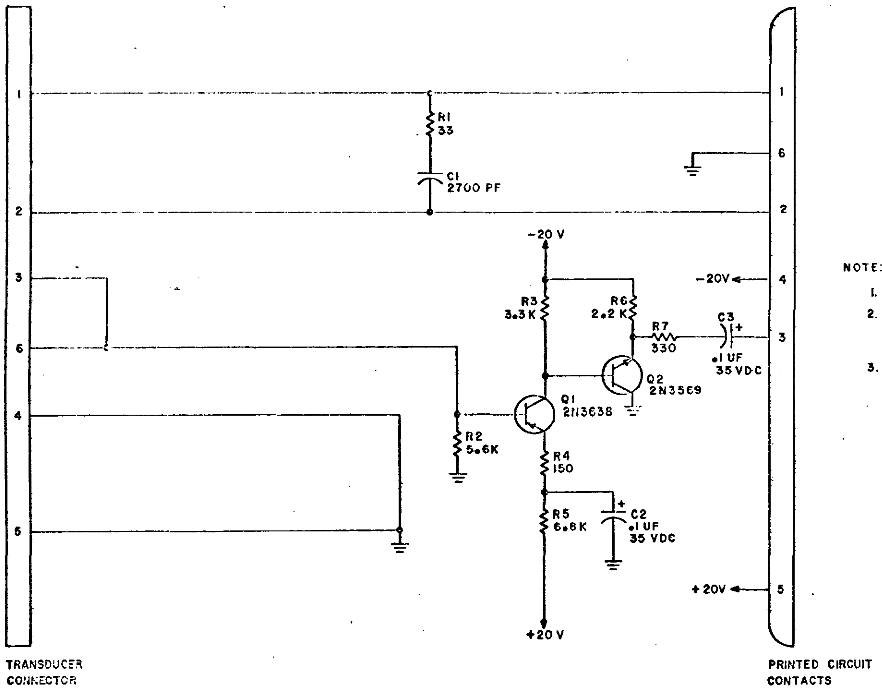
40021300
A

DS, S 500 TB 500	Front Panel
S 300 TB 300	neben Disc
DS, S 200 TB 200	in US (A, B)

LIST OF MATERIAL								APPLICATION	QTY. REQD.
UNLESS OTHERWISE SPECIFIED					BY	DATE	TITLE SCHEMATIC DIAGRAM PREAMP SECTOR DETECTION	CONTROL DATA CORPORATION PERIPHERAL EQUIPMENT DIVISION 7801 COMPUTER AVENUE MINNEAPOLIS 24 MINNESOTA	
COMPONENTS	Tolerance	Value	Size	DRAWN	Ja. Jamoral	2-29-68			
RESISTORS	±5%	OHMS	1/4 W	CHECKED	W. Evans	3-22-68			
CAPACITORS	±10%			ENGR	[illegible]	12-5-68			
				PROD ENGR	[illegible]	12-16-68			
				QC	[illegible]	[illegible]			
DIODES				PROJECT			REFERENCE DRAWINGS	DWG SIZE C	DWG. NO. 40021300
							PRINTED CIRCUIT 40021101		SHEET 1 OF 1
							COMPONENT LAYOUT 40021200		

Index
P 305

A		RELEASED



NOTE:

1. ALL TSTR, SILICON
2. FOR TRANSDUCER PIN CONNECTIONS SEE 40058700
3. COMPONENT ASS'Y 40021501.

B40021601

REFERENCE DRAWINGS

NORMANDALE DIVISION

DWN	D. MESKE	3-24-70
CHK		4-1-70
ENGR		4-1-70
MFG		
APPR		

COMPONENTS, EXCEPT AS NOTED

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

TITLE

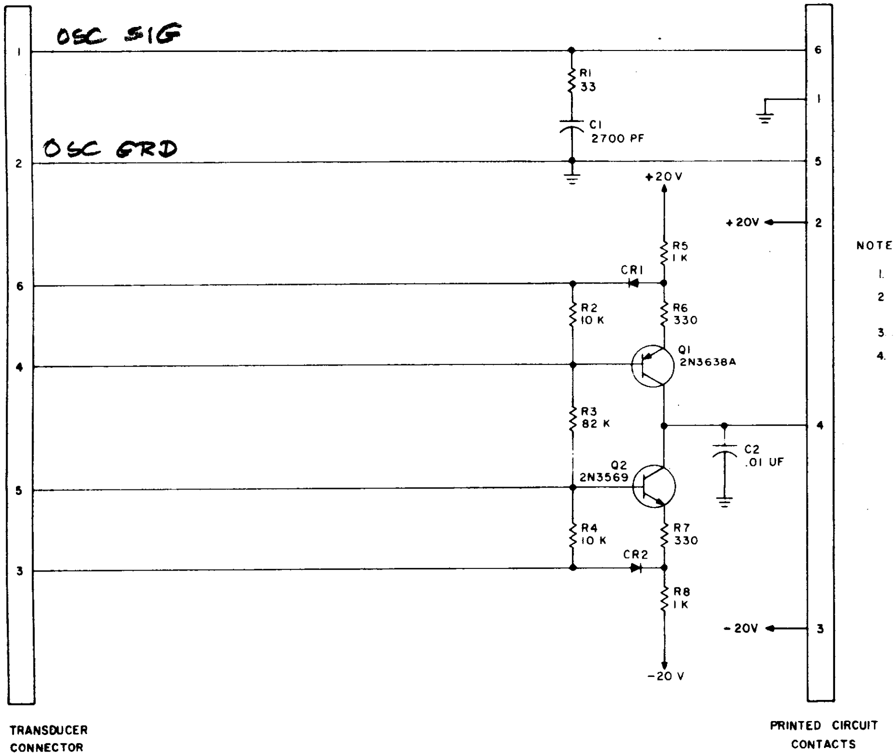
SCHEMATIC DIAGRAM
PREAMP CYLINDER
DETECTOR

CODE IDENT 19333 C

DRAWING NUMBER 40021601

SHEET 1 OF 1

REVISIONS					
SYM	E C O	ZONE	DESCRIPTION	DATE	APPROVAL
A			RELEASED		



NOTES

1. ALL TRANSISTORS ARE SILICON.
2. ALL DIODES ARE SILICON 92115023.
3. COMPONENT ASSY 40021800.
4. FOR TRANSDUCER PIN CONNECTIONS SEE 40058701.

40021900
A

LIST OF MATERIAL				APPLICATION	QTY. REQD.
UNLESS OTHERWISE SPECIFIED					
COMPONENTS	Tolerance	Value	Size		
RESISTORS	±5%	OHMS	1/4 W		
CAPACITORS	±10%				
DIODES					

	BY	DATE
DRAWN	Ja.JAMORAL	2-29-68
CHECKED		
ENGR		
PROD ENGR		
QC		
PROJECT		

TITLE SCHEMATIC DIAGRAM
PREAMP DETENT
SENSING

CONTROL DATA
CORPORATION
PERIPHERAL EQUIPMENT DIVISION
7801 COMPUTER AVENUE
MINNEAPOLIS 24 MINNESOTA

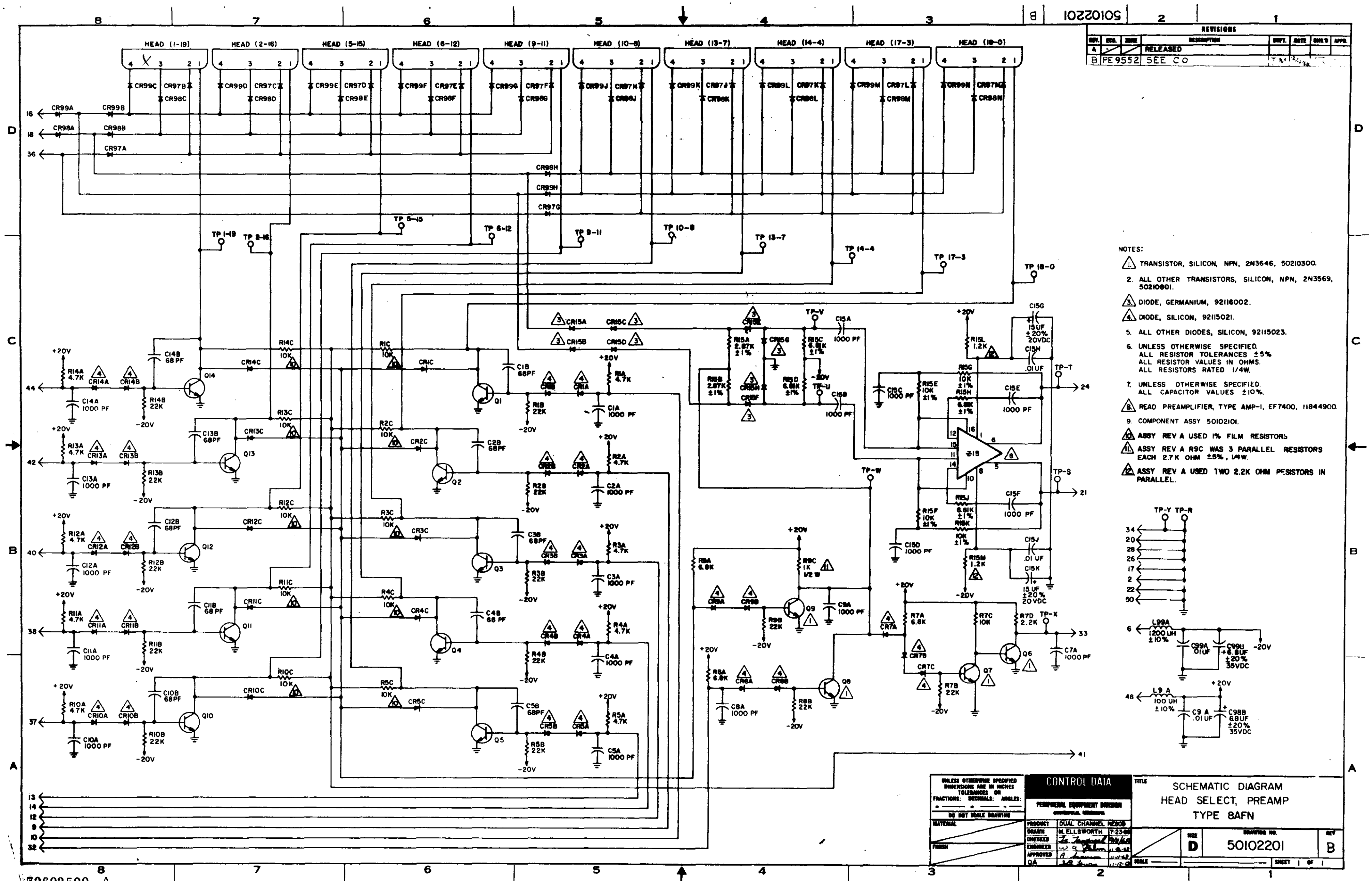
REFERENCE DRAWINGS	
PRINTED CIRCUIT	40021700
COMPONENT LAYOUT	40021800

DWG SIZE C

DWG. NO. 40021900

SHEET 1 OF 1

P304



NOTES:

1. TRANSISTOR, SILICON, NPN, 2N3646, 50210300.
2. ALL OTHER TRANSISTORS, SILICON, NPN, 2N3569, 50210801.
3. DIODE, GERMANIUM, 92116002.
4. DIODE, SILICON, 92115021.
5. ALL OTHER DIODES, SILICON, 92115023.
6. UNLESS OTHERWISE SPECIFIED.
   ALL RESISTOR TOLERANCES ±5%
   ALL RESISTOR VALUES IN OHMS.
   ALL RESISTORS RATED 1/4W.
7. UNLESS OTHERWISE SPECIFIED.
   ALL CAPACITOR VALUES ±10%.
8. READ PREAMPLIFIER, TYPE AMP-1, EF7400, 11844900.
9. COMPONENT ASSY 50102101.
10. ASSY REV A USED 1% FILM RESISTORS
11. ASSY REV A R9C WAS 3 PARALLEL RESISTORS EACH 2.7K OHM ±5%, 1/4W.
12. ASSY REV A USED TWO 2.2K OHM RESISTORS IN PARALLEL.

REVISIONS

REV.	ECO.	ZONE	DESCRIPTION	DRFT.	DATE	CHK'D	APPD.
A	-		RELEASED				
B	PE9552		SEE CO	TM	12/		

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS: DECIMALS: ANGLES:
± ± ±
DO NOT SCALE DRAWING
MATERIAL
FINISH

CONTROL DATA
PERIPHERAL EQUIPMENT DIVISION

PRODUCT	DUAL CHANNEL RESCO	
DRAWN	M. ELLSWORTH	7-23-68
CHECKED		
ENGINEER	W. G.	11-8-68
APPROVED	A.	11-11-68
QA		11-12-68

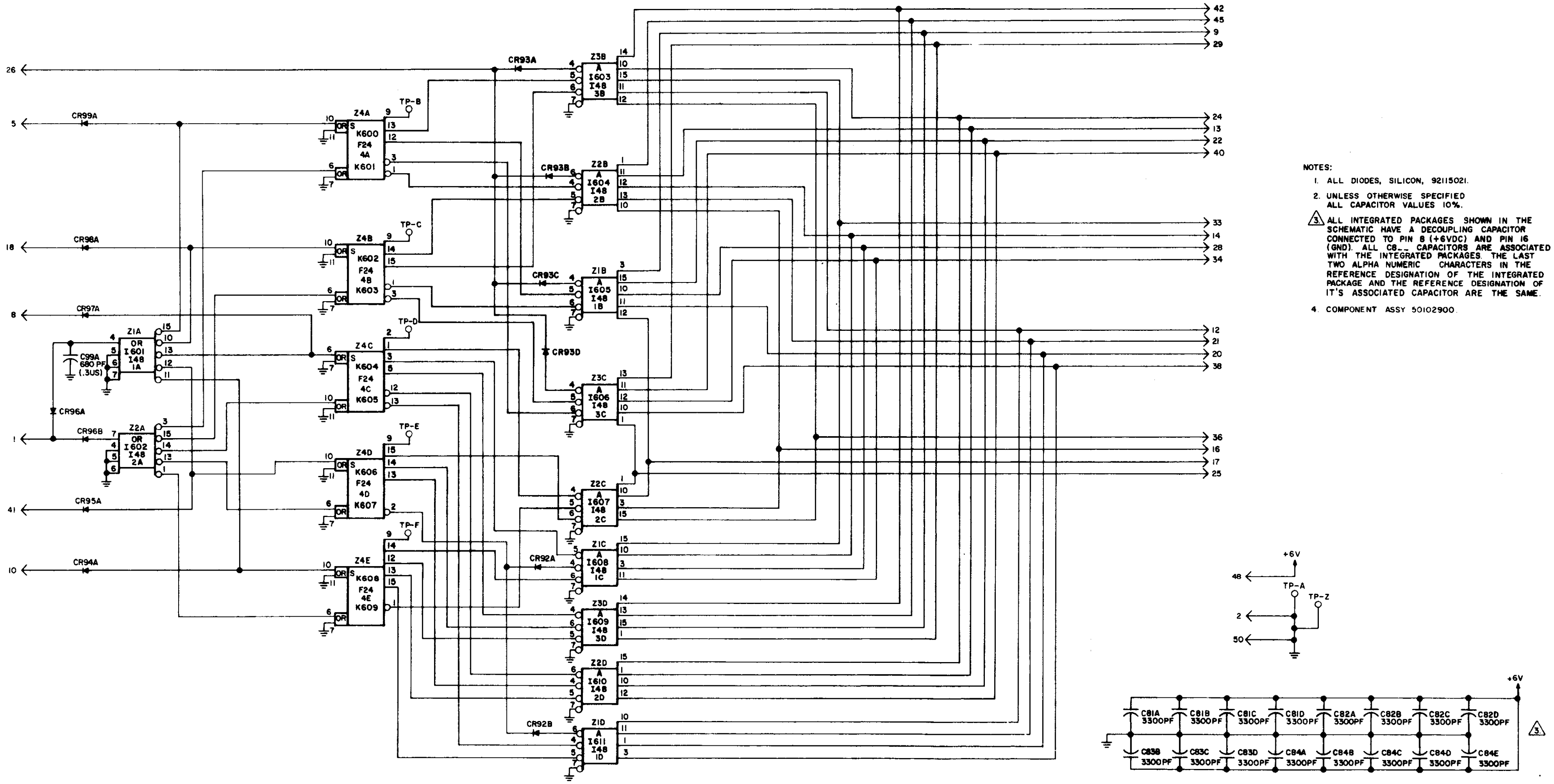
TITLE
SCHEMATIC DIAGRAM
HEAD SELECT, PREAMP
TYPE 8AFN

SIZE D
DRAWING NO. 50102201
REV B
SCALE
SHEET 1 OF 1

70602500 A

50103000 A

REVISIONS							
REV.	ECO.	ZONE	DESCRIPTION	DRFT.	DATE	CHK'D	APPD.
A			RELEASED				-



NOTES:

1. ALL DIODES, SILICON, 92115021.
2. UNLESS OTHERWISE SPECIFIED ALL CAPACITOR VALUES 10%.
3. ALL INTEGRATED PACKAGES SHOWN IN THE SCHEMATIC HAVE A DECOUPLING CAPACITOR CONNECTED TO PIN 8 (+6VDC) AND PIN 16 (GND). ALL C8__ CAPACITORS ARE ASSOCIATED WITH THE INTEGRATED PACKAGES. THE LAST TWO ALPHA NUMERIC CHARACTERS IN THE REFERENCE DESIGNATION OF THE INTEGRATED PACKAGE AND THE REFERENCE DESIGNATION OF IT'S ASSOCIATED CAPACITOR ARE THE SAME.
4. COMPONENT ASSY 50102900.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS: DECIMALS: ANGLES:
± ± ±
DO NOT SCALE DRAWING
MATERIAL
FINISH

CONTROL DATA
PERIPHERAL EQUIPMENT DIVISION
MINNEAPOLIS, MINNESOTA

PRODUCT	DUAL CHANNEL RESOS	
DRAWN	M. ELLSWORTH	9-4-68
CHECKED		9-9-68
ENGINEER		10-3-68
APPROVED		10-24-68
QA		

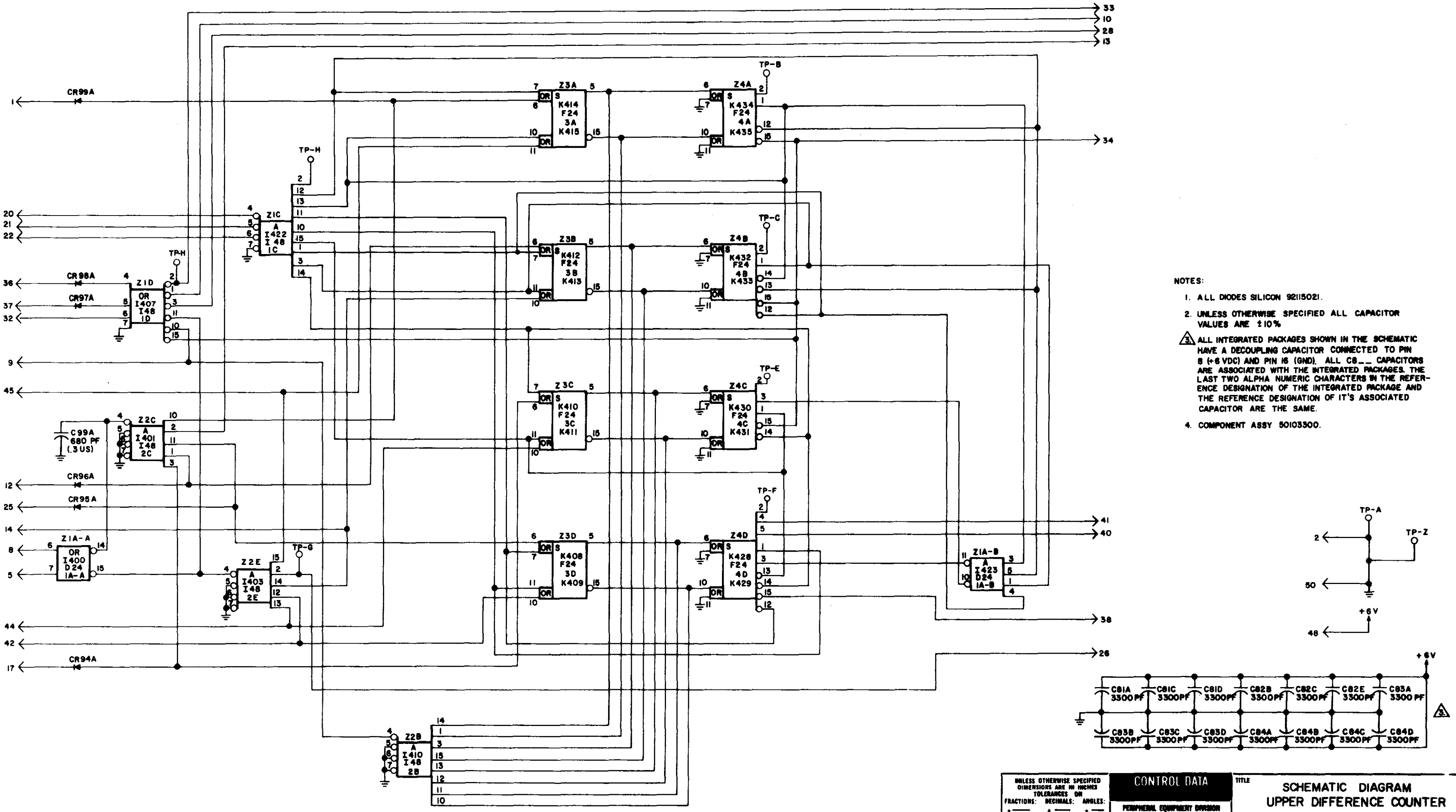
TITLE
SCHEMATIC DIAGRAM
HEAD SELECTION
TYPE 8AHN

SIZE D
DRAWING NO. 50103000
REV A
SCALE
SHEET 1 OF 1

70602500 A

50103400 | A

			REVISIONS				
REV.	ECO.	ZONE	DESCRIPTION	DRFT.	DATE	CHK'D	APPD.
A			RELEASED				



NOTES:

1. ALL DIODES SILICON 92115021.
2. UNLESS OTHERWISE SPECIFIED ALL CAPACITOR VALUES ARE ± 10%

△3. ALL INTEGRATED PACKAGES SHOWN IN THE SCHEMATIC HAVE A DECOUPLING CAPACITOR CONNECTED TO PIN 8 (+6 VDC) AND PIN 16 (GND). ALL C8__ CAPACITORS ARE ASSOCIATED WITH THE INTEGRATED PACKAGES. THE LAST TWO ALPHA NUMERIC CHARACTERS IN THE REFERENCE DESIGNATION OF THE INTEGRATED PACKAGE AND THE REFERENCE DESIGNATION OF IT'S ASSOCIATED CAPACITOR ARE THE SAME.

4. COMPONENT ASSY 50103300.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS: DECIMALS: ANGLES:
± ± ±
DO NOT SCALE DRAWING
MATERIAL
FINISH

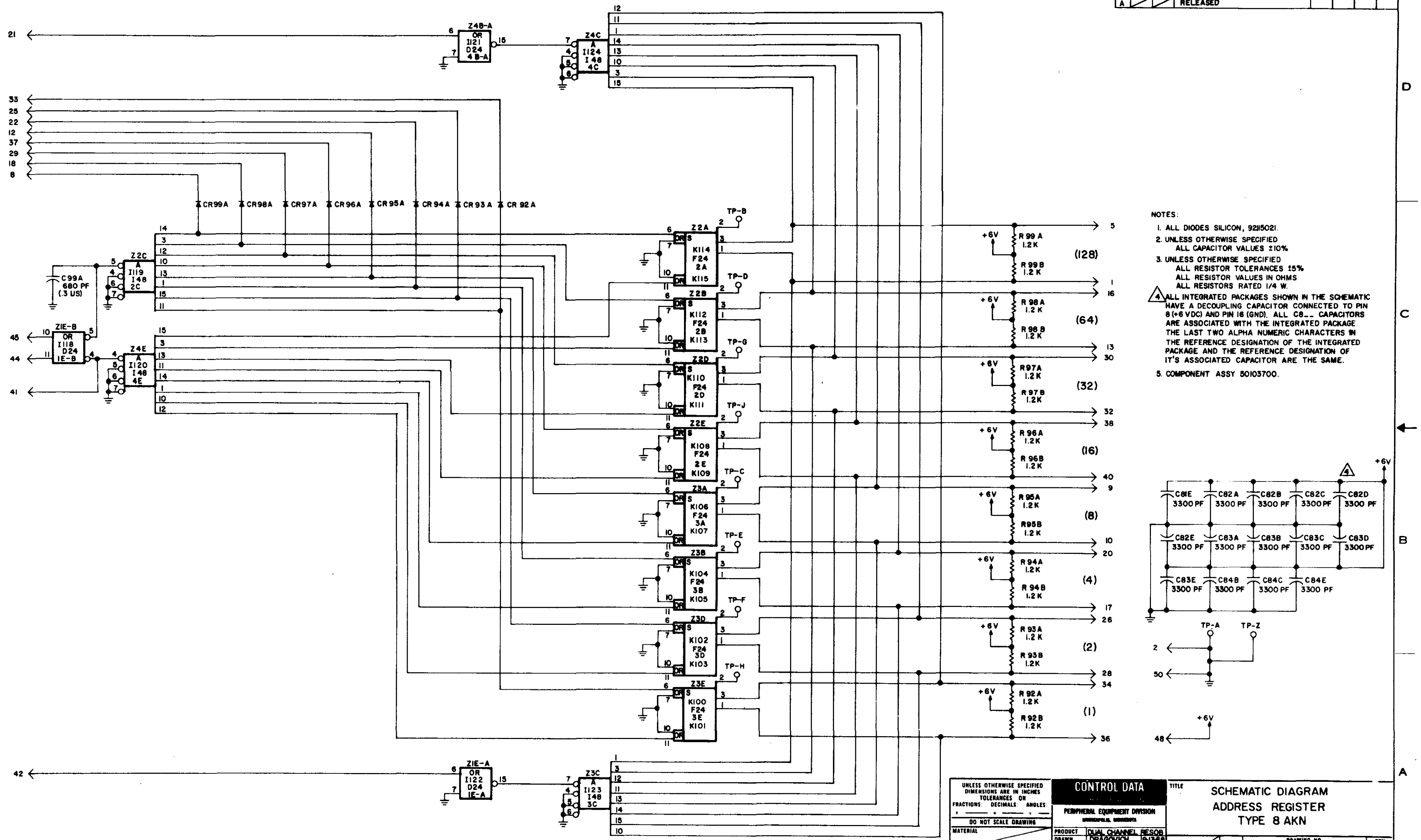
CONTROL DATA
PERIPHERAL EQUIPMENT DIVISION
MINNEAPOLIS, MINNESOTA

PRODUCT DUAL CHANNEL RESOR
DRAWN DRAGOVICH 9-6-68
CHECKED Ja. Tassml 9/11/68
ENGINEER 10-3-68
APPROVED 10-21-68

TITLE
SCHEMATIC DIAGRAM
UPPER DIFFERENCE COUNTER
TYPE 8 AJN

SIZE D
DRAWING NO. 50103400
REV A
SCALE
SHEET 1 OF 1

REV.	ECO.	ZONE	DESCRIPTION	DRFT.	DATE	CHK'D	APPD.
A			RELEASED				



NOTES:

1. ALL DIODES SILICON, 92115021.
2. UNLESS OTHERWISE SPECIFIED
   ALL CAPACITOR VALUES ±10%
3. UNLESS OTHERWISE SPECIFIED
   ALL RESISTOR TOLERANCES ±5%
   ALL RESISTOR VALUES IN OHMS
   ALL RESISTORS RATED 1/4 W.

△4 ALL INTEGRATED PACKAGES SHOWN IN THE SCHEMATIC HAVE A DECOUPLING CAPACITOR CONNECTED TO PIN 8 (+6 VDC) AND PIN 16 (GND). ALL C8__ CAPACITORS ARE ASSOCIATED WITH THE INTEGRATED PACKAGE. THE LAST TWO ALPHA NUMERIC CHARACTERS IN THE REFERENCE DESIGNATION OF THE INTEGRATED PACKAGE AND THE REFERENCE DESIGNATION OF IT'S ASSOCIATED CAPACITOR ARE THE SAME.

5. COMPONENT ASSY 50103700.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS: ± DECIMALS: ± ANGLES: ±
DO NOT SCALE DRAWING
MATERIAL
FINISH

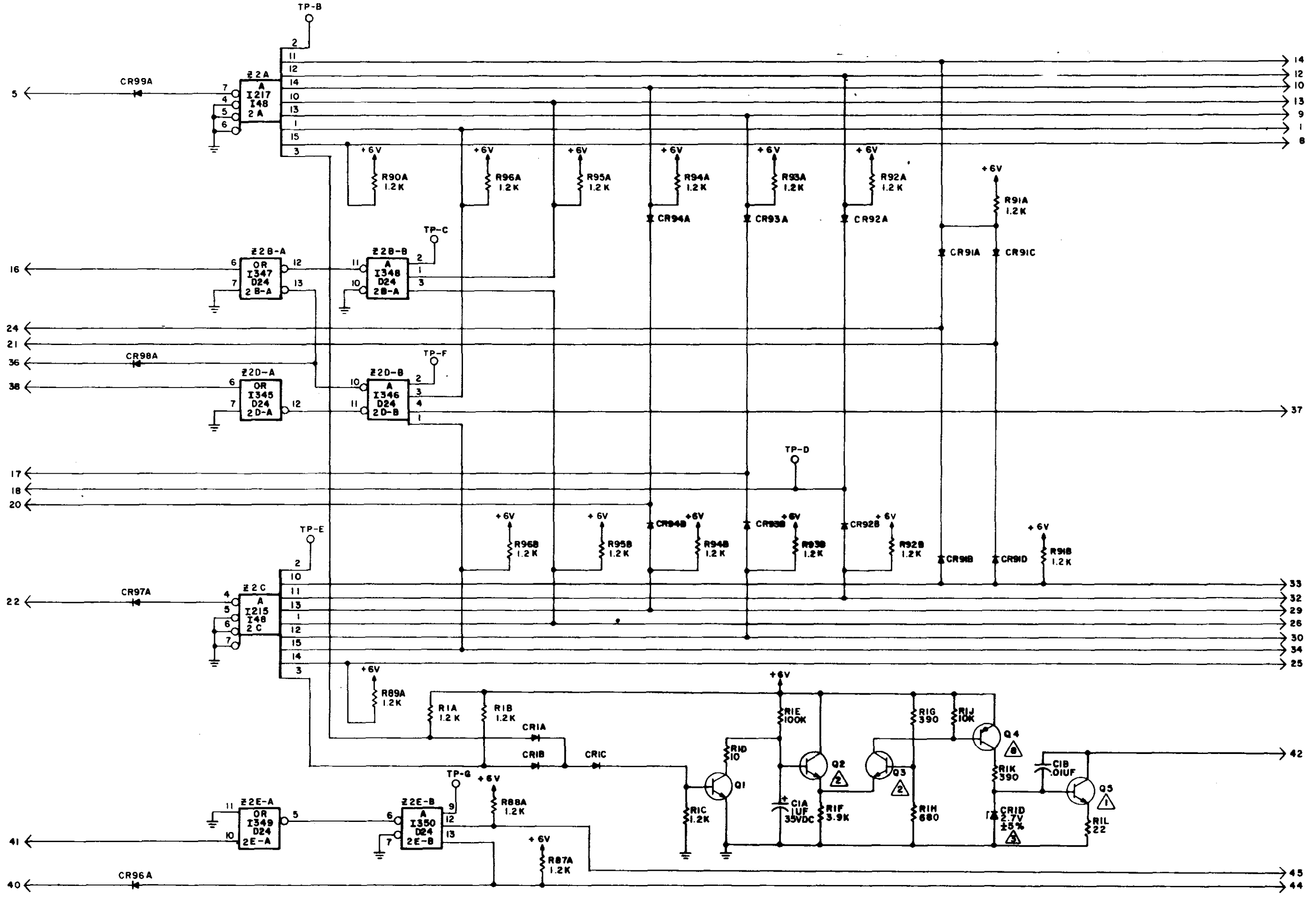
CONTROL DATA
PERIPHERAL EQUIPMENT DIVISION
MINNEAPOLIS, MINNESOTA

PRODUCT	DUAL CHANNEL RESOB	
DRAWN	DRAGOVICH	9-13-68
CHECKED	Ta. Jaeforal	9/13/68
ENGINEER	[illegible]	10-3-68
APPROVED	[illegible]	[illegible]
QA		

TITLE
SCHEMATIC DIAGRAM
ADDRESS REGISTER
TYPE 8 AKN

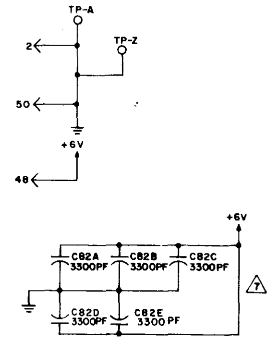
SIZE D
DRAWING NO. 50103800
REV A
SCALE
SHEET 1 OF 1

REV.	ECO.	ZONE	DESCRIPTION	DRFT.	DATE	CHK'D	APPD.
A			RELEASED				



NOTES:

1. TRANSISTOR, SILICON, NPN, 2N3569, 50210801.
2. TRANSISTOR, SILICON, NPN, 2N3565, 50210700.
3. DIODE, SILICON, ZENER, 50240146.
4. ALL OTHER DIODES, SILICON, 92115021.
5. UNLESS OTHERWISE SPECIFIED ALL CAPACITOR VALUES ±10%.
6. UNLESS OTHERWISE SPECIFIED:
   ALL RESISTOR TOLERANCE ±5%
   ALL RESISTOR VALUES IN OHMS,
   ALL RESISTORS RATED 1/4 W.
7. ALL INTEGRATED PACKAGES SHOWN IN THE SCHEMATIC HAVE A DECOUPLING CAPACITOR CONNECTED TO PIN 8(+6VDC) AND PIN 16(GND). ALL C8__ CAPACITORS ARE ASSOCIATED WITH INTEGRATED PACKAGES. THE LAST TWO ALPHA NUMERIC CHARACTERS IN THE REFERENCE DESIGNATION OF THE INTEGRATED PACKAGE AND THE REFERENCE DESIGNATION OF IT'S ASSOCIATED CAPACITOR ARE THE SAME.
8. TRANSISTOR, SILICON, PNP, 2N3640, 50210400.
9. ALL OTHER TRANSISTORS, SILICON, NPN, 2N3646, 50210300.
10. COMPONENT ASSY 50104902.



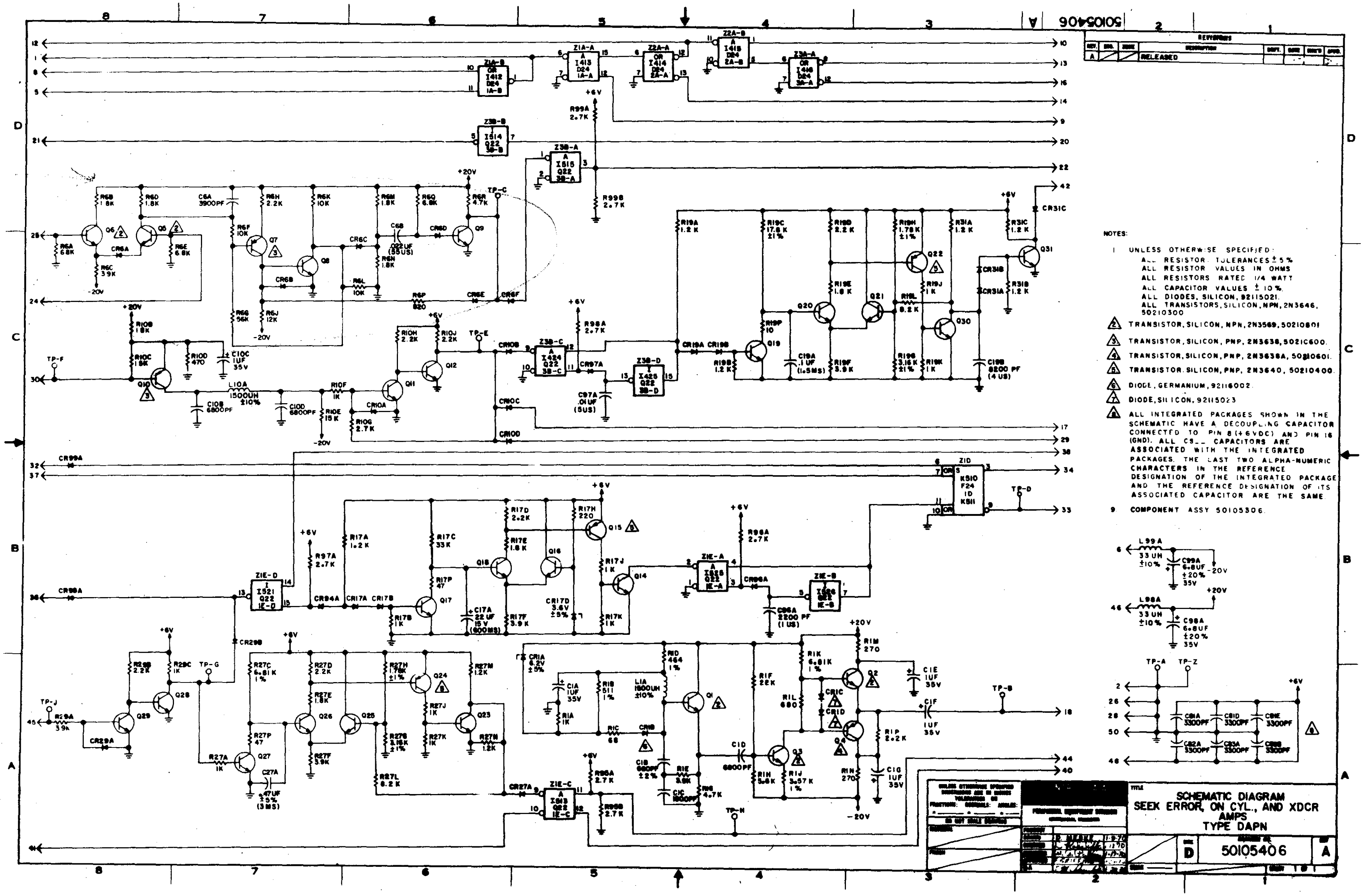
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS: DECIMALS: ANGLES:
± ± ±
DO NOT SCALE DRAWING
MATERIAL
FINISH

CONTROL DATA
PERIPHERAL EQUIPMENT DIVISION
MINNEAPOLIS, MINNESOTA

PRODUCT	MDD	
DRAWN	D. TUTTLE	5-6-69
CHECKED	[illegible]	5-8-69
ENGINEER	W. O. [illegible]	6-25-69
APPROVED	[illegible]	6-[illegible]-69
QA	[illegible]	7-[illegible]

TITLE
SCHEMATIC DIAGRAM
STEERING UNIT LOGIC
TYPE BANN

SIZE D
DRAWING NO. 50105002
REV A
SCALE
SHEET 1 OF 1



NOTES:

1 UNLESS OTHERWISE SPECIFIED:
ALL RESISTOR TOLERANCES ± 5 %
ALL RESISTOR VALUES IN OHMS
ALL RESISTORS RATED 1/4 WATT
ALL CAPACITOR VALUES ± 10 %.
ALL DIODES, SILICON, 92115021.
ALL TRANSISTORS, SILICON, NPN, 2N3646, 50210300

2. TRANSISTOR, SILICON, NPN, 2N3569, 50210801

3. TRANSISTOR, SILICON, PNP, 2N3638, 50210600.

4. TRANSISTOR, SILICON, PNP, 2N3638A, 50210601.

5. TRANSISTOR, SILICON, PNP, 2N3640, 50210400.

6. DIODE, GERMANIUM, 92116002.

7. DIODE, SILICON, 92115023

8. ALL INTEGRATED PACKAGES SHOWN IN THE SCHEMATIC HAVE A DECOUPLING CAPACITOR CONNECTED TO PIN 8 (+6 VDC) AND PIN 16 (GND). ALL C8__ CAPACITORS ARE ASSOCIATED WITH THE INTEGRATED PACKAGES. THE LAST TWO ALPHA-NUMERIC CHARACTERS IN THE REFERENCE DESIGNATION OF THE INTEGRATED PACKAGE AND THE REFERENCE DESIGNATION OF ITS ASSOCIATED CAPACITOR ARE THE SAME

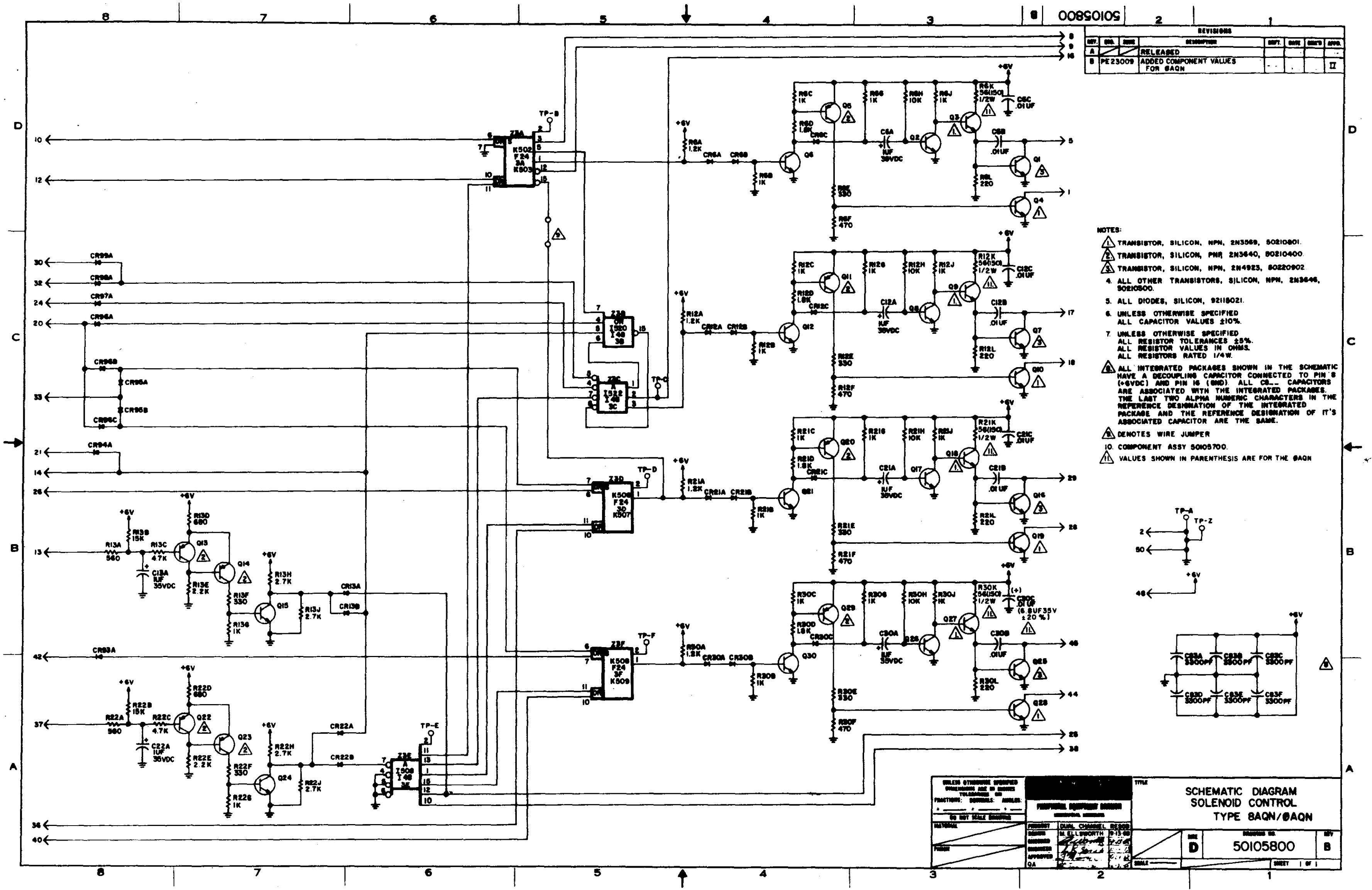
9. COMPONENT ASSY 50105306.

TITLE

SCHEMATIC DIAGRAM
SEEK ERROR, ON CYL., AND XDCR
AMPS
TYPE DAPN

D 50105406 A

SHEET 1 OF 1



NOTES:

1. TRANSISTOR, SILICON, NPN, 2N3569, 50210801.
2. TRANSISTOR, SILICON, PNP 2N3640, 50210400.
3. TRANSISTOR, SILICON, NPN, 2N4923, 50220902
4. ALL OTHER TRANSISTORS, SILICON, NPN, 2N3646, 50210500.
5. ALL DIODES, SILICON, 92115021.
6. UNLESS OTHERWISE SPECIFIED ALL CAPACITOR VALUES ±10%.
7. UNLESS OTHERWISE SPECIFIED
   ALL RESISTOR TOLERANCES ±5%.
   ALL RESISTOR VALUES IN OHMS.
   ALL RESISTORS RATED 1/4W.
8. ALL INTEGRATED PACKAGES SHOWN IN THE SCHEMATIC HAVE A DECOUPLING CAPACITOR CONNECTED TO PIN 8 (+6VDC) AND PIN 16 (GND). ALL C9__ CAPACITORS ARE ASSOCIATED WITH THE INTEGRATED PACKAGES. THE LAST TWO ALPHA NUMERIC CHARACTERS IN THE REFERENCE DESIGNATION OF THE INTEGRATED PACKAGE AND THE REFERENCE DESIGNATION OF IT'S ASSOCIATED CAPACITOR ARE THE SAME.
9. DENOTES WIRE JUMPER
10. COMPONENT ASSY 50105700.
11. VALUES SHOWN IN PARENTHESIS ARE FOR THE 9AQN

REVISIONS							
REV.	ECO.	ZONE	DESCRIPTION	DRFT.	DATE	CHK'D	APPD.
A			RELEASED				
B	PE23009		ADDED COMPONENT VALUES FOR 9AQN				II

PRODUCT DUAL CHANNEL RECORD

M. ELLSWORTH 9-13-68

TITLE

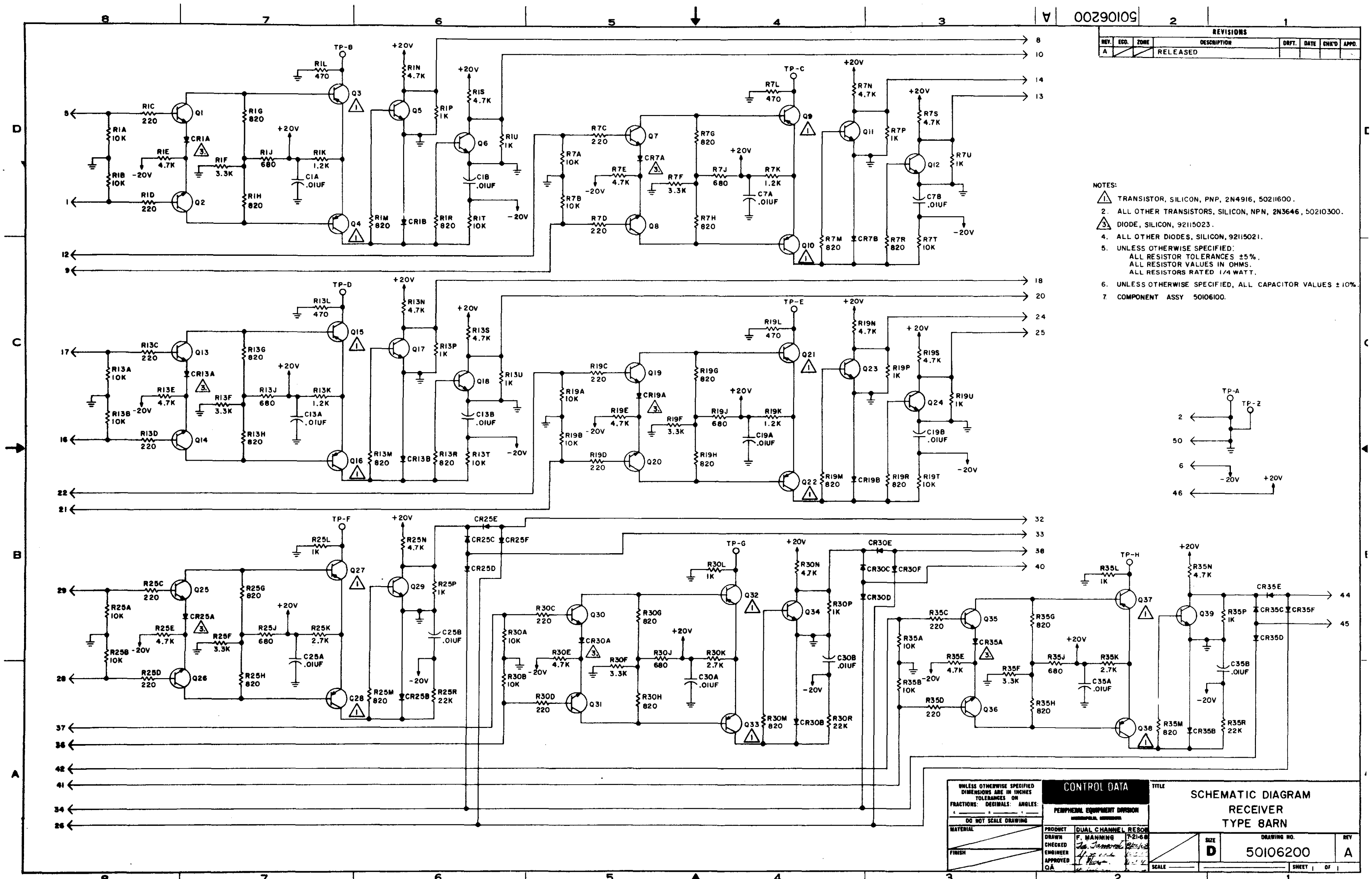
SCHEMATIC DIAGRAM
SOLENOID CONTROL
TYPE 8AQN/9AQN

SIZE D

DRAWING NO. 50105800

REV B

SHEET 1 OF 1



REV.	ECO.	ZONE	DESCRIPTION	DRFT.	DATE	CHK'D	APPD.
A			RELEASED				

NOTES:

1. TRANSISTOR, SILICON, PNP, 2N4916, 50211600.
2. ALL OTHER TRANSISTORS, SILICON, NPN, 2N3646, 50210300.
3. DIODE, SILICON, 92115023.
4. ALL OTHER DIODES, SILICON, 92115021.
5. UNLESS OTHERWISE SPECIFIED:
   ALL RESISTOR TOLERANCES ±5%.
   ALL RESISTOR VALUES IN OHMS.
   ALL RESISTORS RATED 1/4 WATT.
6. UNLESS OTHERWISE SPECIFIED, ALL CAPACITOR VALUES ±10%.
7. COMPONENT ASSY 50106100.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS: DECIMALS: ANGLES:
± ± ±
DO NOT SCALE DRAWING
MATERIAL
FINISH

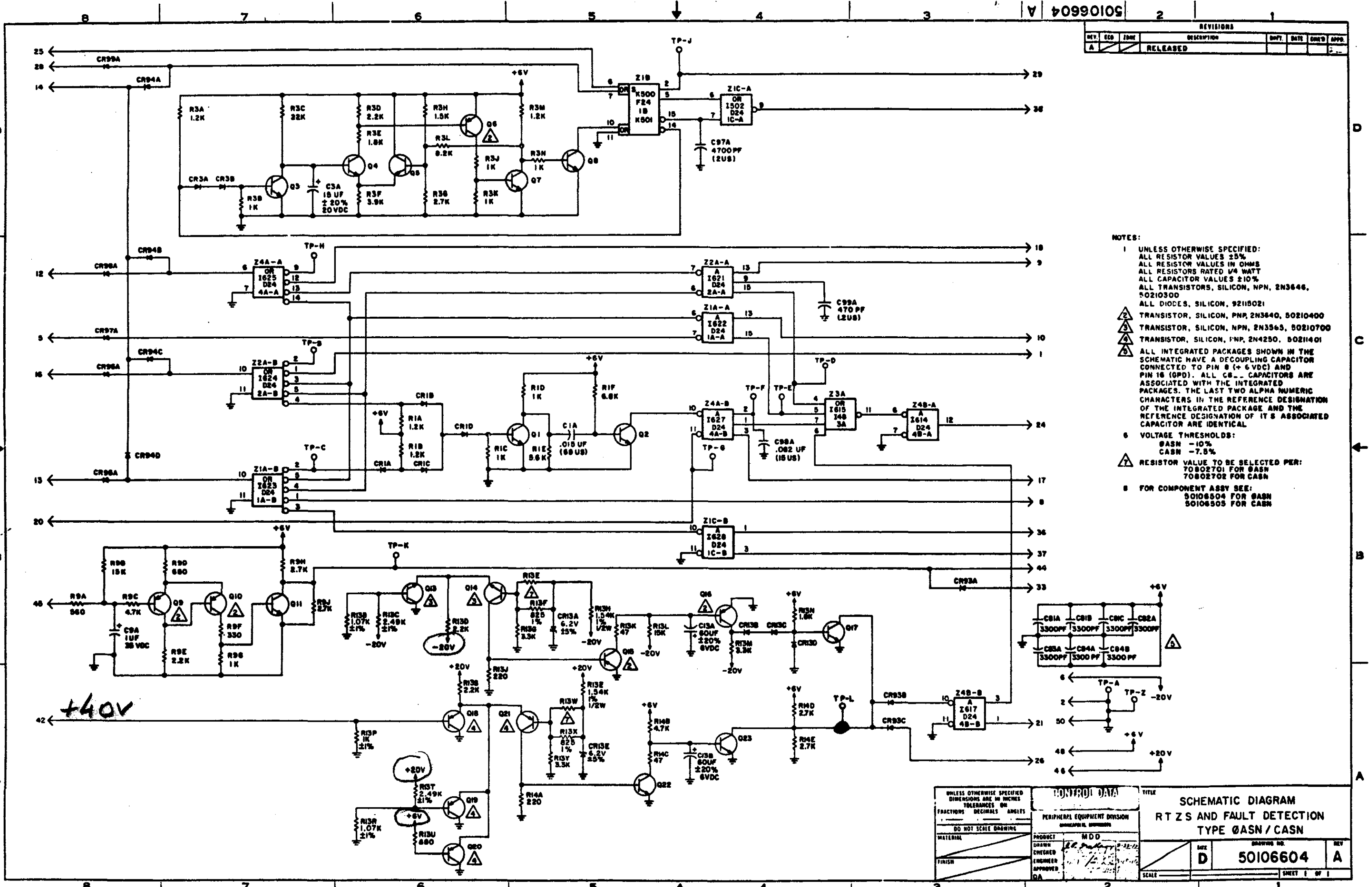
CONTROL DATA
PERIPHERAL EQUIPMENT DIVISION

PRODUCT	DUAL CHANNEL RESOR	
DRAWN	F. MANNING	7-21-68
CHECKED	Ta. Tamarol	
ENGINEER		
APPROVED		
QA		

TITLE
SCHEMATIC DIAGRAM
RECEIVER
TYPE 8ARN

SIZE D
DRAWING NO. 50106200
REV A
SCALE
SHEET 1 OF 1

70602500 A



NOTES:

1 UNLESS OTHERWISE SPECIFIED:
ALL RESISTOR VALUES ±5%
ALL RESISTOR VALUES IN OHMS
ALL RESISTORS RATED 1/4 WATT
ALL CAPACITOR VALUES ±10%
ALL TRANSISTORS, SILICON, NPN, 2N3646, 50210300
ALL DIODES, SILICON, 92115021

2 TRANSISTOR, SILICON, PNP, 2N3640, 50210400

3 TRANSISTOR, SILICON, NPN, 2N3563, 50210700

4 TRANSISTOR, SILICON, PNP, 2N4250, 50211401

5 ALL INTEGRATED PACKAGES SHOWN IN THE SCHEMATIC HAVE A DECOUPLING CAPACITOR CONNECTED TO PIN 8 (+ 6 VDC) AND PIN 16 (GPD). ALL C8__ CAPACITORS ARE ASSOCIATED WITH THE INTEGRATED PACKAGES. THE LAST TWO ALPHA NUMERIC CHARACTERS IN THE REFERENCE DESIGNATION OF THE INTEGRATED PACKAGE AND THE REFERENCE DESIGNATION OF IT S ASSOCIATED CAPACITOR ARE IDENTICAL

6 VOLTAGE THRESHOLDS:
ØASN -10%
CASN -7.5%

7 RESISTOR VALUE TO BE SELECTED PER:
70802701 FOR ØASN
70802702 FOR CASN

8 FOR COMPONENT ASSY SEE:
50106504 FOR ØASN
50106505 FOR CASN

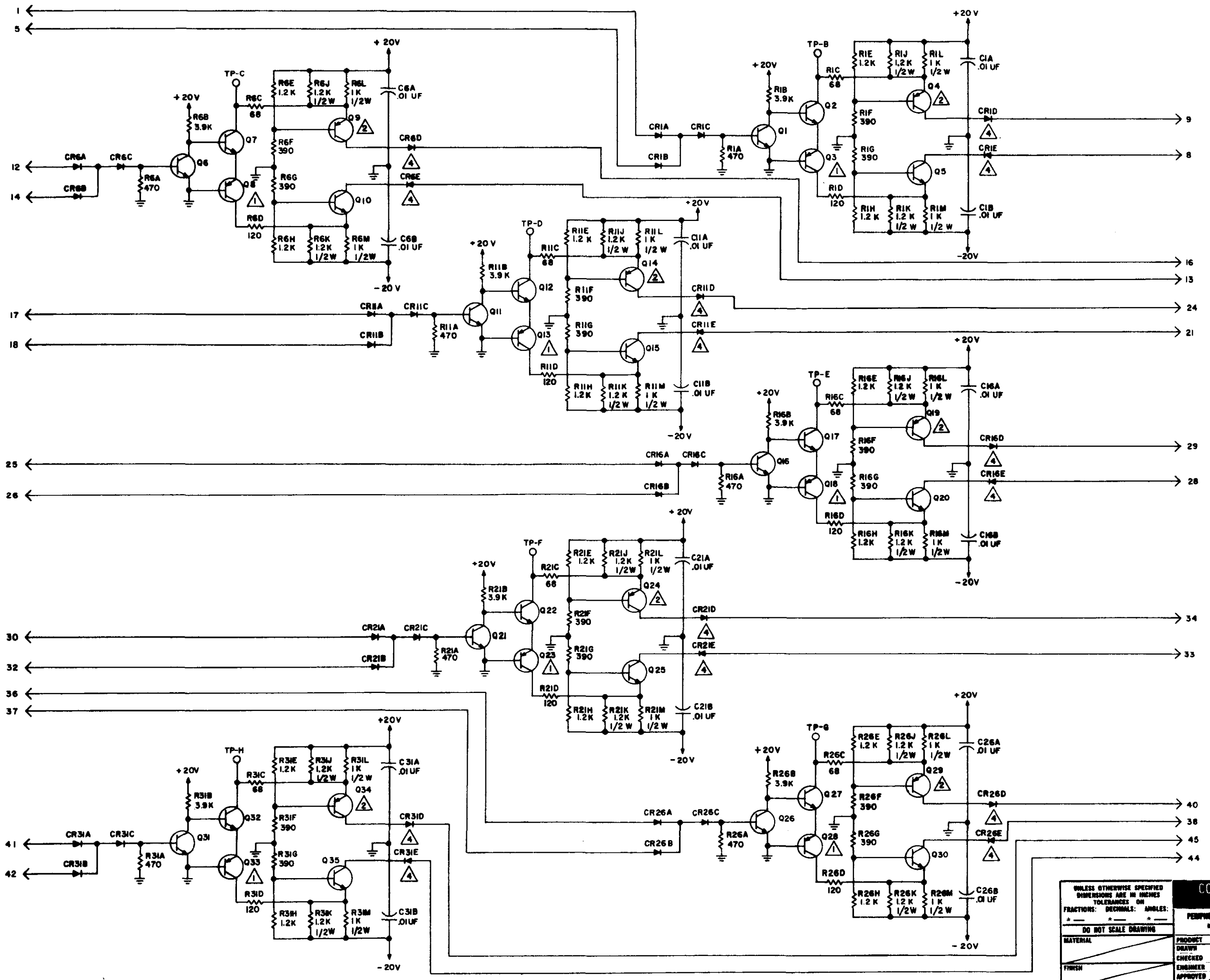
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
DO NOT SCALE DRAWING
MATERIAL
FINISH

CONTROL DATA
PERIPHERAL EQUIPMENT DIVISION
PRODUCT MDD
DRAWN
CHECKED
ENGINEER
APPROVED
QA

TITLE
SCHEMATIC DIAGRAM
RTZS AND FAULT DETECTION
TYPE ØASN / CASN

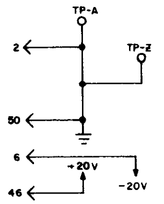
SIZE D
DRAWING NO. 50106604
REV A
SCALE
SHEET 1 OF 1

REVISIONS							
REV.	ECO.	ZONE	DESCRIPTION	DRFT.	DATE	CHK'D	APPD.
A			RELEASED				~



NOTES:

1. TRANSISTOR, SILICON, PNP, 2N4258, 50211500.
2. TRANSISTOR, SILICON, PNP, 2N3640, 50210400.
3. ALL OTHER TRANSISTORS, SILICON, NPN, 2N3646, 50210300.
4. DIODE, GERMANIUM, 92116002.
5. ALL OTHER DIODES, SILICON, 92115021.
6. UNLESS OTHERWISE SPECIFIED
   ALL RESISTOR TOLERANCES ±5%.
   ALL RESISTOR VALUES IN OHMS.
   ALL RESISTORS RATED 1/4 W.
7. UNLESS OTHERWISE SPECIFIED
   ALL CAPACITOR VALUES ± 10%.
8. COMPONENT ASSY 50106900.



UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS: DECIMALS: ANGLES:
± — ± — ± —
DO NOT SCALE DRAWING
MATERIAL
FINISH

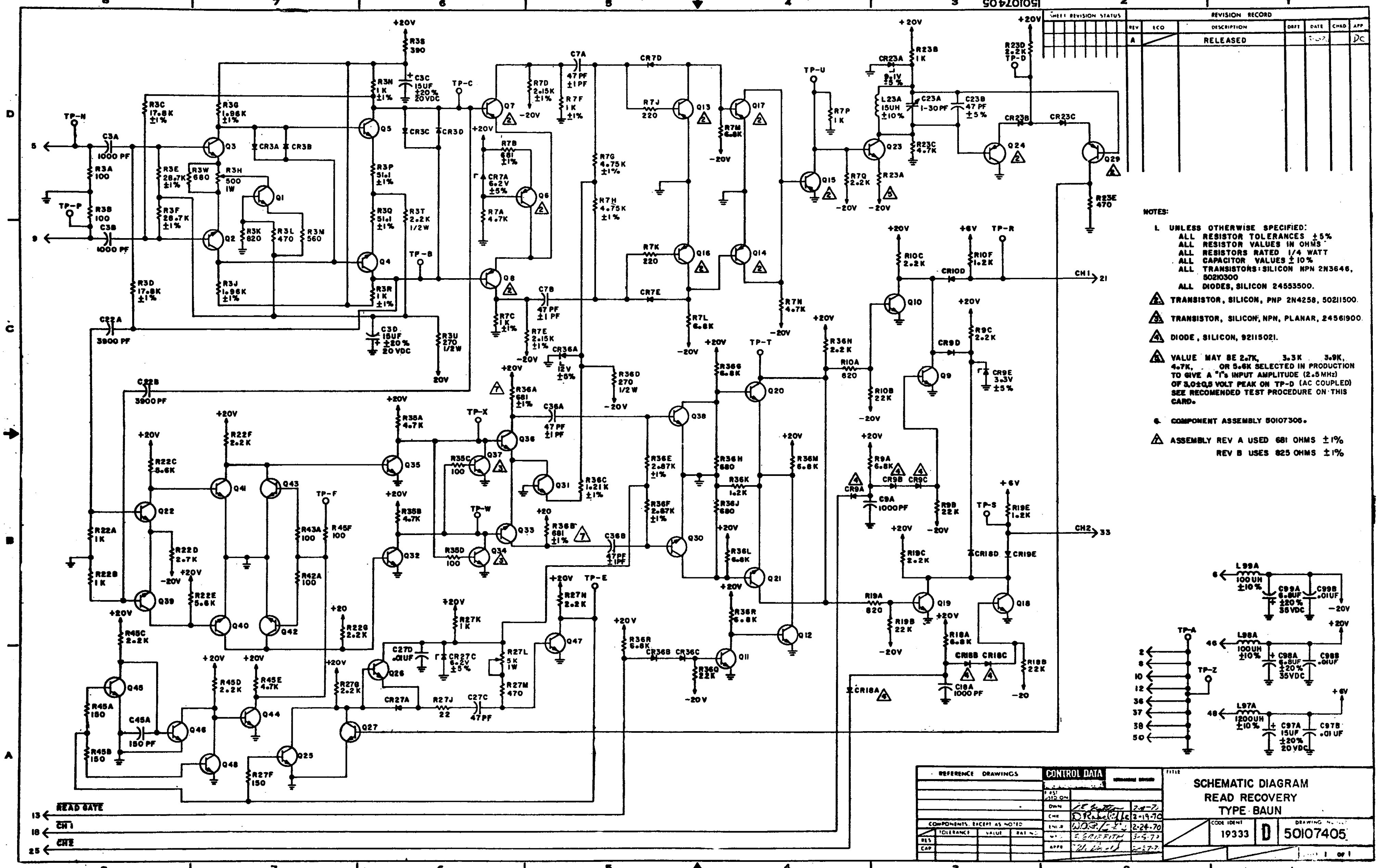
CONTROL DATA
PERIPHERAL EQUIPMENT DIVISION

PRODUCT	DUAL CHANNEL RESOS	
DRAWN	F. MANNING	8-28-68
CHECKED		
ENGINEER		10-3-68
APPROVED		
QA		

TITLE

SCHEMATIC DIAGRAM
LINE TRANSMITTER
TYPE 8ATN

SIZE D
DRAWING NO. 50107000
REV A
SCALE —
SHEET 1 OF 1



REV	ECO	DESCRIPTION	DRFT	DATE	CHKD	APP
A		RELEASED		3-?-7?		DC

SHEET REVISION STATUS

NOTES:

1. UNLESS OTHERWISE SPECIFIED:
   ALL RESISTOR TOLERANCES ±5%
   ALL RESISTOR VALUES IN OHMS
   ALL RESISTORS RATED 1/4 WATT
   ALL CAPACITOR VALUES ± 10%
   ALL TRANSISTORS: SILICON NPN 2N3646, 50210300
   ALL DIODES, SILICON 24553500.
2. TRANSISTOR, SILICON, PNP 2N4258, 50211500.
3. TRANSISTOR, SILICON, NPN, PLANAR, 24561900.
4. DIODE, SILICON, 92115021.
5. VALUE MAY BE 2.7K, 3.3K 3.9K, 4.7K, OR 5.6K SELECTED IN PRODUCTION TO GIVE A "1"s INPUT AMPLITUDE (2.5MHz) OF 3.0±0.5 VOLT PEAK ON TP-D (AC COUPLED) SEE RECOMENDED TEST PROCEDURE ON THIS CARD.
6. COMPONENT ASSEMBLY 50107305.
7. ASSEMBLY REV A USED 681 OHMS ±1%
   REV B USES 825 OHMS ±1%

REFERENCE DRAWINGS

COMPONENTS, EXCEPT AS NOTED

	TOLERANCE	VALUE	RAT NO.
RES			
CAP			

CONTROL DATA

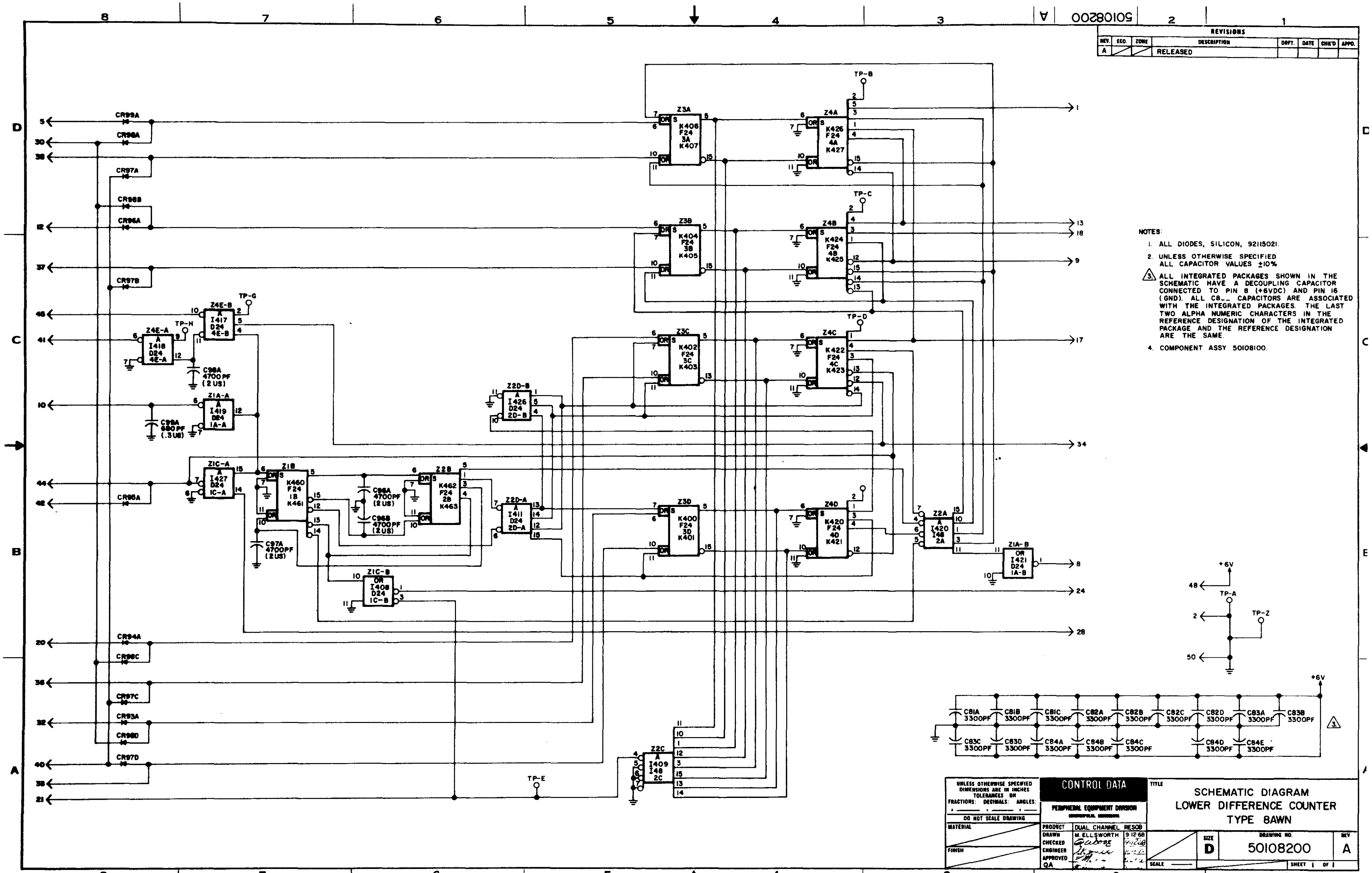
FIRST USED ON

DWN	J.E. [illegible]	2-?-7?
CHK	D Rabel[illegible]	2-19-70
ENGR	W.O.B. [illegible]	2-24-70
MFG	E. GRIFFITH	3-5-7?
APPD	[illegible]	?-?7-7?

TITLE
SCHEMATIC DIAGRAM
READ RECOVERY
TYPE BAUN

CODE IDENT 19333 D DRAWING NO. 50107405

SHEET 1 OF 1



REVISIONS							
REV.	ECO.	ZONE	DESCRIPTION	DRFT.	DATE	CHK'D	APPD.
A			RELEASED				

NOTES:

1. ALL DIODES, SILICON, 92115021.
2. UNLESS OTHERWISE SPECIFIED ALL CAPACITOR VALUES ±10%
3. ALL INTEGRATED PACKAGES SHOWN IN THE SCHEMATIC HAVE A DECOUPLING CAPACITOR CONNECTED TO PIN 8 (+6VDC) AND PIN 16 (GND). ALL C8__ CAPACITORS ARE ASSOCIATED WITH THE INTEGRATED PACKAGES. THE LAST TWO ALPHA NUMERIC CHARACTERS IN THE REFERENCE DESIGNATION OF THE INTEGRATED PACKAGE AND THE REFERENCE DESIGNATION ARE THE SAME.
4. COMPONENT ASSY 50108100.

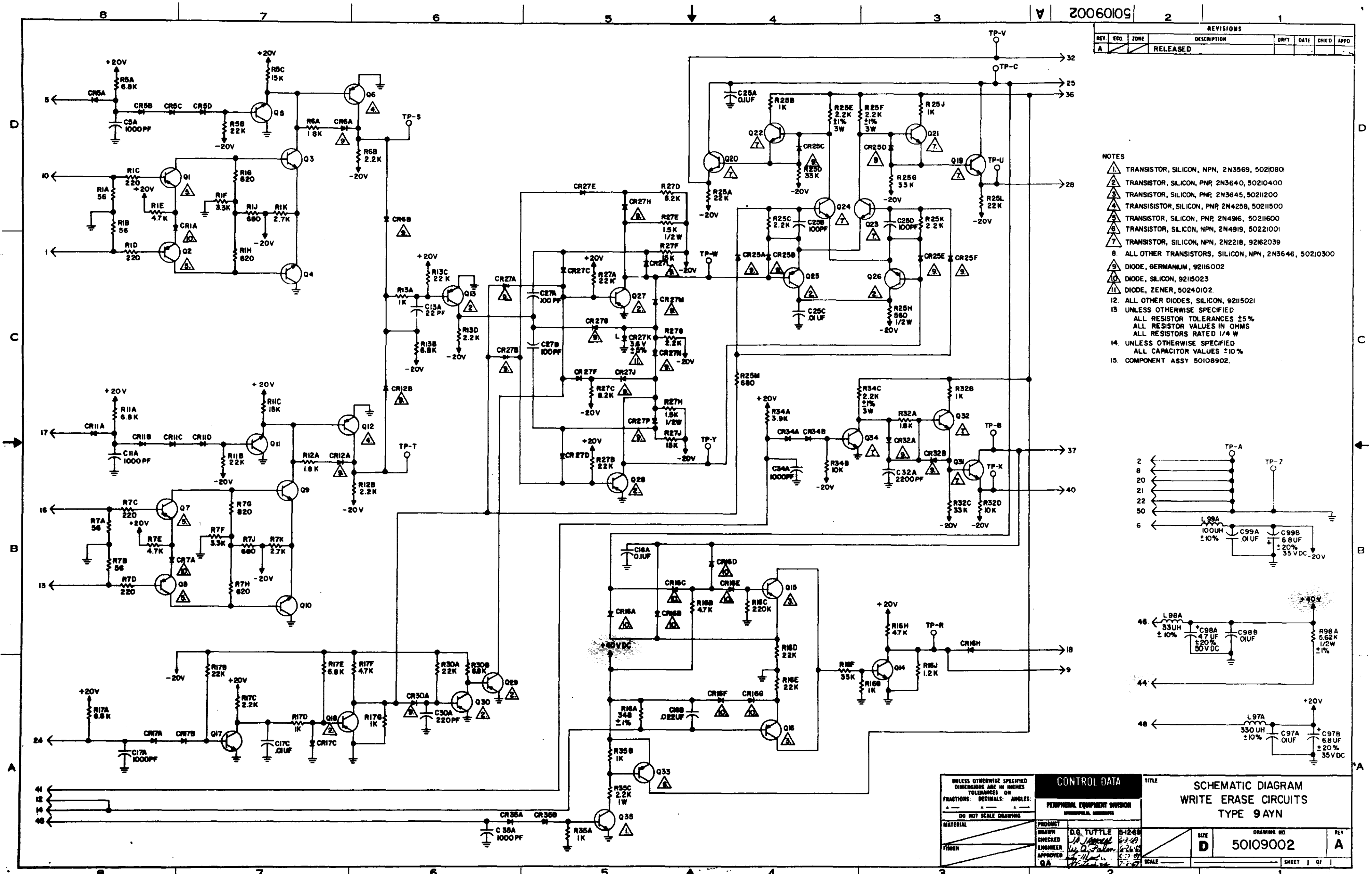
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS: ± DECIMALS: ± ANGLES: ±
DO NOT SCALE DRAWING
MATERIAL
FINISH

CONTROL DATA
PERIPHERAL EQUIPMENT DIVISION

PRODUCT	DUAL CHANNEL RESOB	
DRAWN	M. ELLSWORTH	9·12·68
CHECKED	Quborg	9·12·68
ENGINEER		
APPROVED		
QA		

TITLE
SCHEMATIC DIAGRAM
LOWER DIFFERENCE COUNTER
TYPE 8AWN

SIZE D
DRAWING NO. 50108200
REV A
SCALE —
SHEET 1 OF 1



REV	ECO.	ZONE	DESCRIPTION	DRFT	DATE	CHK'D	APPD
A			RELEASED				

NOTES

1. TRANSISTOR, SILICON, NPN, 2N3569, 50210801
2. TRANSISTOR, SILICON, PNP, 2N3640, 50210400.
3. TRANSISTOR, SILICON, PNP, 2N3645, 50211200
4. TRANSISISTOR, SILICON, PNP, 2N4258, 50211500.
5. TRANSISTOR, SILICON, PNP, 2N4916, 50211600
6. TRANSISTOR, SILICON, NPN, 2N4919, 50221001
7. TRANSISTOR, SILICON, NPN, 2N2218, 92162039
8. ALL OTHER TRANSISTORS, SILICON, NPN, 2N3646, 50210300
9. DIODE, GERMANIUM, 92116002
10. DIODE, SILICON, 92115023
11. DIODE, ZENER, 50240102.
12. ALL OTHER DIODES, SILICON, 92115021
13. UNLESS OTHERWISE SPECIFIED
    ALL RESISTOR TOLERANCES ±5%
    ALL RESISTOR VALUES IN OHMS
    ALL RESISTORS RATED 1/4 W.
14. UNLESS OTHERWISE SPECIFIED
    ALL CAPACITOR VALUES ±10%
15. COMPONENT ASSY 50108902.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS: ± DECIMALS: ± ANGLES: ±
DO NOT SCALE DRAWING
MATERIAL
FINISH

CONTROL DATA
PERIPHERAL EQUIPMENT DIVISION
MINNEAPOLIS, MINNESOTA

PRODUCT		
DRAWN	D.G. TUTTLE	5-12-69
CHECKED	J.A. Jarvis	6-3-69
ENGINEER	W. Q. Paton	6-26-69
APPROVED		6-27-69
QA		7-7-69

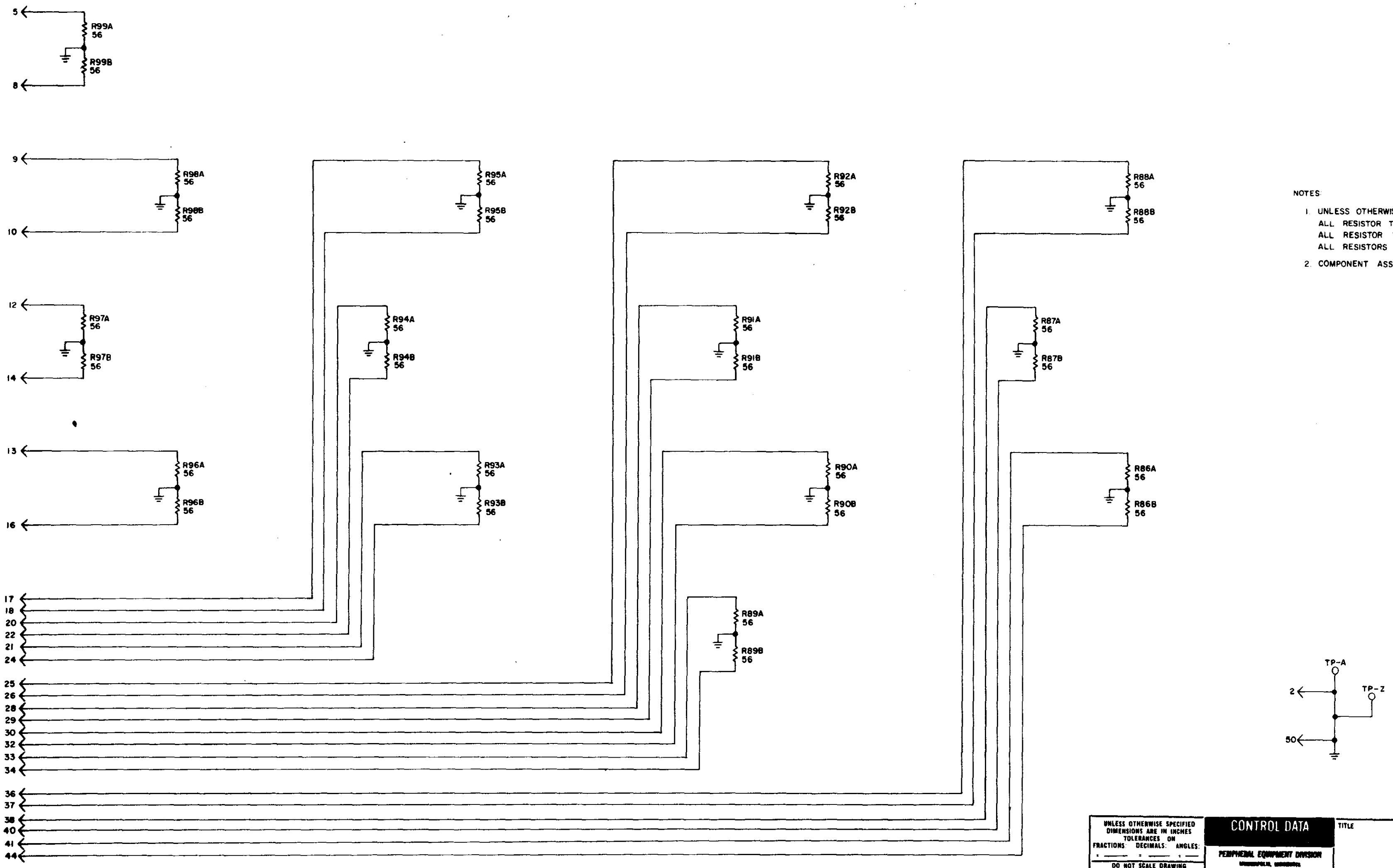
TITLE
SCHEMATIC DIAGRAM
WRITE ERASE CIRCUITS
TYPE 9AYN

SIZE D
DRAWING NO. 50109002
REV A
SCALE
SHEET 1 OF 1

70602500 A

C2

REVISIONS							
REV.	ECO.	ZONE	DESCRIPTION	DRFT.	DATE	CHK'D	APPD.
A			RELEASED				



NOTES:

1. UNLESS OTHERWISE SPECIFIED
   ALL RESISTOR TOLERANCES ±5%
   ALL RESISTOR VALUES IN OHMS
   ALL RESISTORS RATED 1/4W
2. COMPONENT ASSY 50109300

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS: DECIMALS: ANGLES:
DO NOT SCALE DRAWING
MATERIAL
FINISH

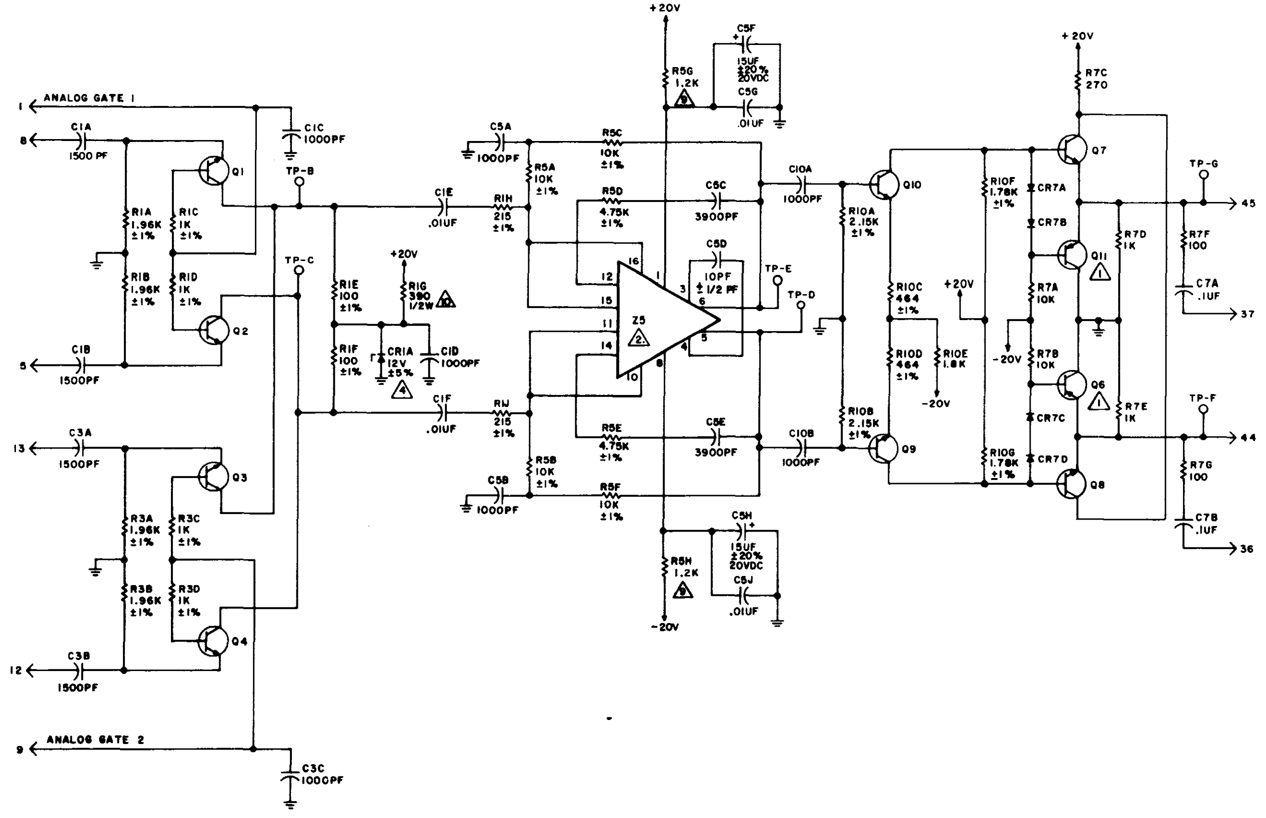
CONTROL DATA
PERIPHERAL EQUIPMENT DIVISION

PRODUCT	DUAL CHANNEL RESOB	
DRAWN	M. ELLSWORTH	8-30-68
CHECKED		9/4/68
ENGINEER		10-2-68
APPROVED		
QA		

TITLE
SCHEMATIC DIAGRAM
TERMINATOR
TYPE 8AZN

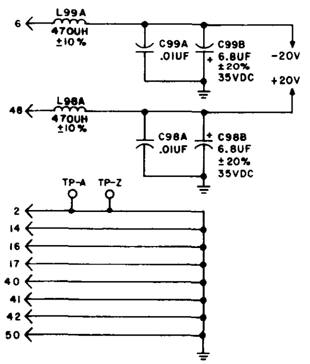
SIZE D
DRAWING NO. 50109400
REV A
SCALE
SHEET 1 OF 1

REVISIONS							
REV.	ECO.	ZONE	DESCRIPTION	DRFT.	DATE	CHK'D	APPD.
A			RELEASED				
B	PE 9552		SEE		12/16/68		



NOTES:

1. TRANSISTOR, SILICON, PNP, 2N4258, 50211500.
2. READ PREAMPLIFIER, TYPE AMP-1, EF 7400, 11844900.
3. ALL OTHER TRANSISTORS, SILICON, NPN, 2N3646, 50210300.
4. DIODE, SILICON ZENER, 50240115.
5. ALL OTHER DIODES, SILICON, 50241100.
6. UNLESS OTHERWISE SPECIFIED
   ALL RESISTOR TOLERANCES ±5%
   ALL RESISTOR VALUES IN OHMS.
   ALL RESISTORS RATED 1/4 W.
7. UNLESS OTHERWISE SPECIFIED
   ALL CAPACITOR VALUES ±10%
8. COMPONENT ASSY 50180100.
9. ASSY REV A USED TWO 2.2K OHM RESISTORS IN PARALLEL.
10. ASSY REV A USED TWO 680 OHM, 1/4W RESISTORS IN PARALLEL.



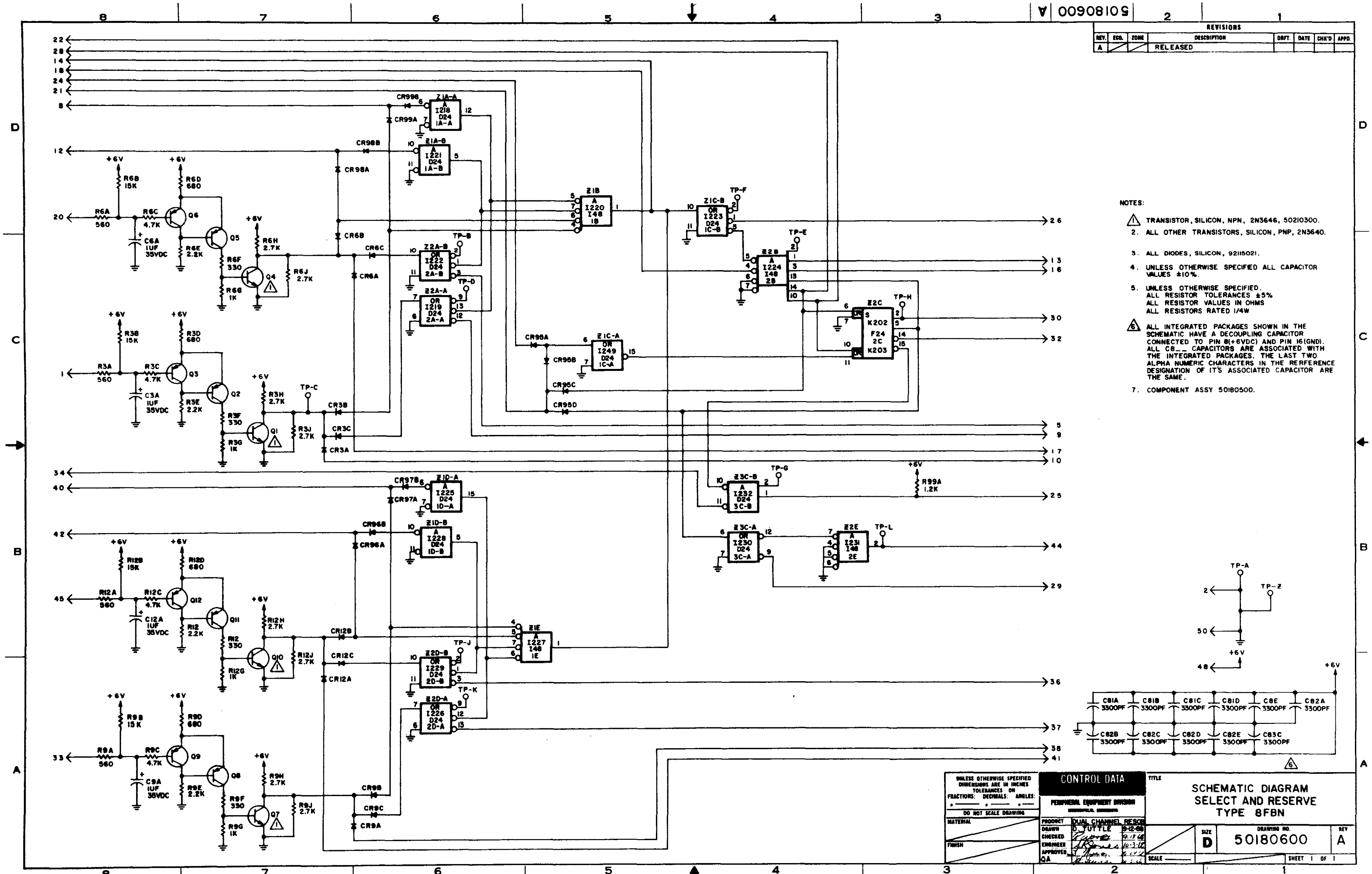
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS: DECIMALS: ANGLES:
DO NOT SCALE DRAWING
MATERIAL
FINISH

CONTROL DATA
PERIPHERAL EQUIPMENT DIVISION

PRODUCT	DUAL CHANNEL RESOB	
DRAWN	F. MANNING	7-21-68
CHECKED	[illegible]	[illegible]
ENGINEER	W. A. Palm	11-8-68
APPROVED	[illegible]	11-11-68
QA	[illegible]	11-11-68

TITLE
SCHEMATIC DIAGRAM
ANALOG GATE AND AMPLIFIER
TYPE 8FAN

SIZE D
DRAWING NO. 50180200
REV B
SCALE
SHEET 1 OF 1



REV.	ECO.	ZONE	DESCRIPTION	DRFT.	DATE	CHK'D	APPD.
A			RELEASED				

NOTES:

1. TRANSISTOR, SILICON, NPN, 2N3646, 50210300.
2. ALL OTHER TRANSISTORS, SILICON, PNP, 2N3640.
3. ALL DIODES, SILICON, 92115021.
4. UNLESS OTHERWISE SPECIFIED ALL CAPACITOR VALUES ±10%.
5. UNLESS OTHERWISE SPECIFIED.
   ALL RESISTOR TOLERANCES ±5%
   ALL RESISTOR VALUES IN OHMS
   ALL RESISTORS RATED 1/4W
6. ALL INTEGRATED PACKAGES SHOWN IN THE SCHEMATIC HAVE A DECOUPLING CAPACITOR CONNECTED TO PIN 8(+6VDC) AND PIN 16(GND). ALL C8__ CAPACITORS ARE ASSOCIATED WITH THE INTEGRATED PACKAGES. THE LAST TWO ALPHA NUMERIC CHARACTERS IN THE RERFERENCE DESIGNATION OF IT'S ASSOCIATED CAPACITOR ARE THE SAME.
7. COMPONENT ASSY 50180500.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS: ± DECIMALS: ± ANGLES: ±
DO NOT SCALE DRAWING
MATERIAL
FINISH

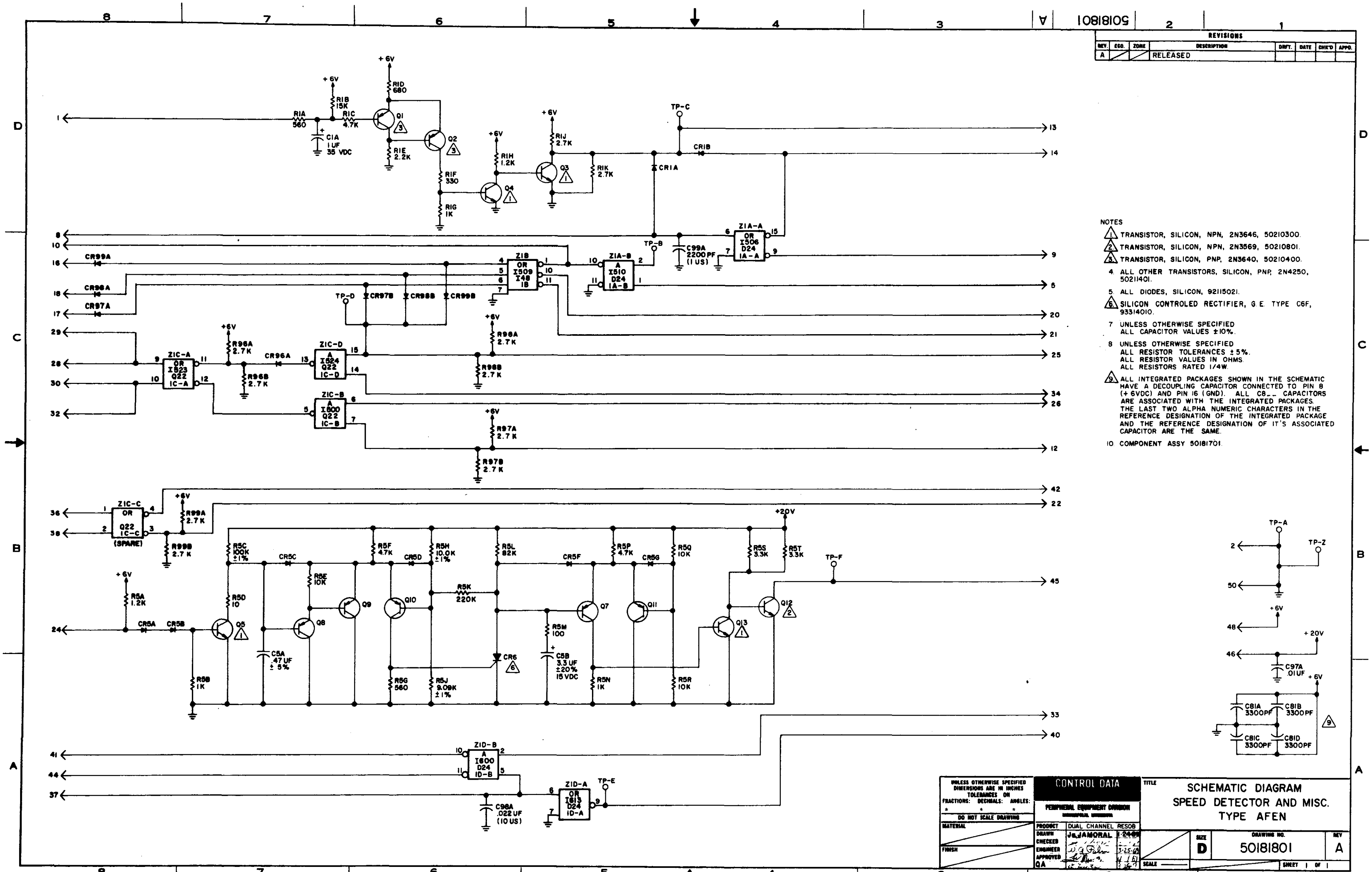
CONTROL DATA
PERIPHERAL EQUIPMENT DIVISION

PRODUCT DUAL CHANNEL RESOR
DRAWN D. TUTTLE 9-12-68
CHECKED 9-13-68
ENGINEER 10-3-68
APPROVED
QA

TITLE
SCHEMATIC DIAGRAM
SELECT AND RESERVE
TYPE 8FBN

SIZE D
DRAWING NO. 50180600
REV A
SCALE
SHEET 1 OF 1

REVISIONS							
REV.	ECO.	ZONE	DESCRIPTION	DRFT.	DATE	CHK'D	APPD.
A			RELEASED				



NOTES

1. TRANSISTOR, SILICON, NPN, 2N3646, 50210300.
2. TRANSISTOR, SILICON, NPN, 2N3569, 50210801.
3. TRANSISTOR, SILICON, PNP, 2N3640, 50210400.
4. ALL OTHER TRANSISTORS, SILICON, PNP, 2N4250, 50211401.
5. ALL DIODES, SILICON, 92115021.
6. SILICON CONTROLED RECTIFIER, G.E. TYPE C6F, 93314010.
7. UNLESS OTHERWISE SPECIFIED
   ALL CAPACITOR VALUES ±10%.
8. UNLESS OTHERWISE SPECIFIED
   ALL RESISTOR TOLERANCES ±5%.
   ALL RESISTOR VALUES IN OHMS.
   ALL RESISTORS RATED 1/4W.
9. ALL INTEGRATED PACKAGES SHOWN IN THE SCHEMATIC HAVE A DECOUPLING CAPACITOR CONNECTED TO PIN 8 (+6VDC) AND PIN 16 (GND). ALL C8__ CAPACITORS ARE ASSOCIATED WITH THE INTEGRATED PACKAGES. THE LAST TWO ALPHA NUMERIC CHARACTERS IN THE REFERENCE DESIGNATION OF THE INTEGRATED PACKAGE AND THE REFERENCE DESIGNATION OF IT'S ASSOCIATED CAPACITOR ARE THE SAME.
10. COMPONENT ASSY 50181701.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS: ± DECIMALS: ± ANGLES: ±
DO NOT SCALE DRAWING
MATERIAL
FINISH

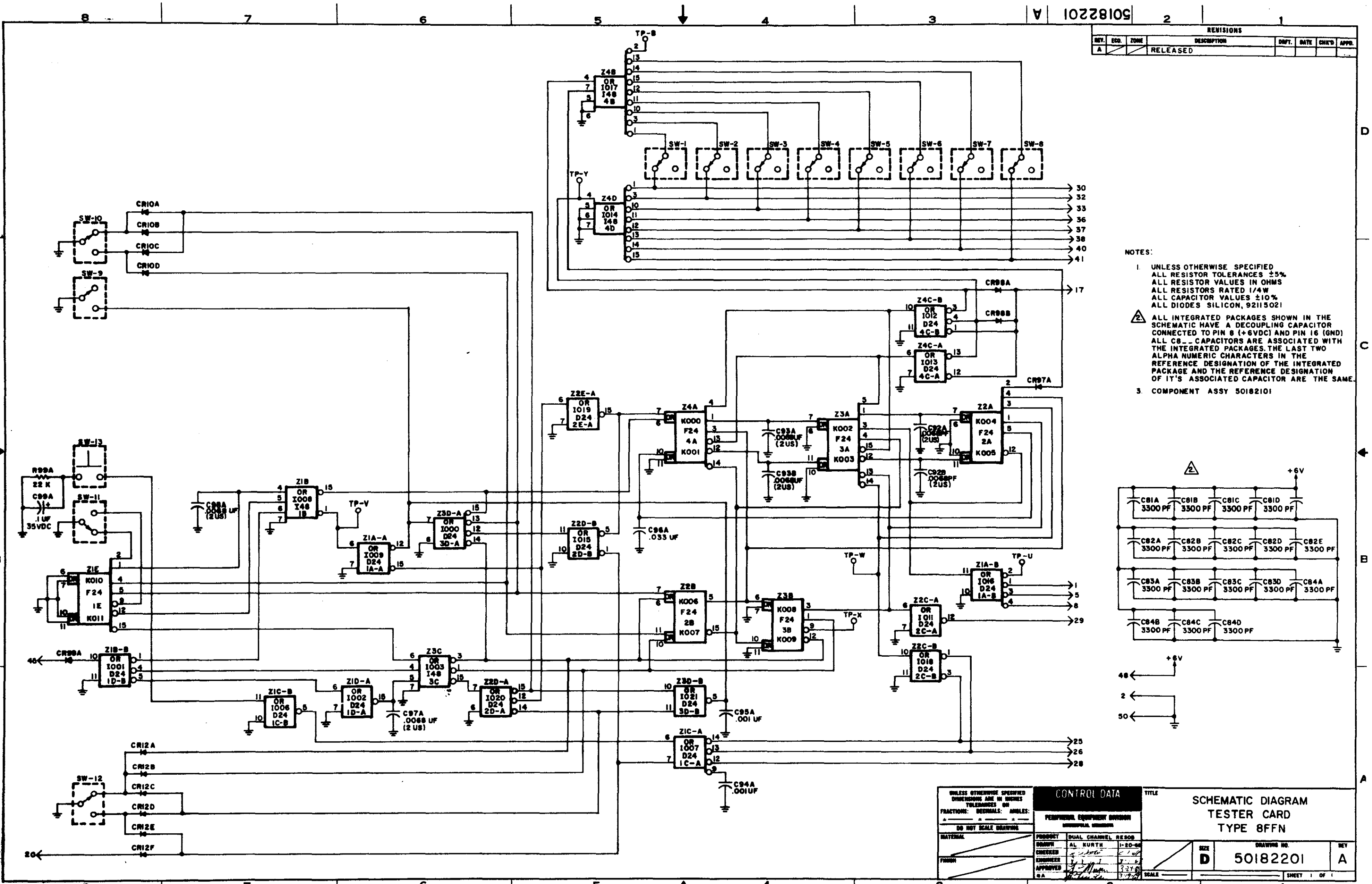
CONTROL DATA
PERIPHERAL EQUIPMENT DIVISION

PRODUCT	DUAL CHANNEL RESOB	
DRAWN	J.JAMORAL	1-24-69
CHECKED		
ENGINEER	W.A. Palm	3-25-69
APPROVED		4-1-69
QA		

TITLE
SCHEMATIC DIAGRAM
SPEED DETECTOR AND MISC.
TYPE AFEN

SIZE D
DRAWING NO. 50181801
REV A
SCALE ——
SHEET 1 OF 1

5 A,B



REVISIONS							
REV.	ECO.	ZONE	DESCRIPTION	DRFT.	DATE	CHK'D	APPD.
A			RELEASED				

NOTES:

1. UNLESS OTHERWISE SPECIFIED
   ALL RESISTOR TOLERANCES ±5%
   ALL RESISTOR VALUES IN OHMS
   ALL RESISTORS RATED 1/4W
   ALL CAPACITOR VALUES ±10%
   ALL DIODES SILICON, 92115021

⚠2. ALL INTEGRATED PACKAGES SHOWN IN THE SCHEMATIC HAVE A DECOUPLING CAPACITOR CONNECTED TO PIN 8 (+6VDC) AND PIN 16 (GND) ALL C8_ _ CAPACITORS ARE ASSOCIATED WITH THE INTEGRATED PACKAGES. THE LAST TWO ALPHA NUMERIC CHARACTERS IN THE REFERENCE DESIGNATION OF THE INTEGRATED PACKAGE AND THE REFERENCE DESIGNATION OF IT'S ASSOCIATED CAPACITOR ARE THE SAME.

3. COMPONENT ASSY 50182101

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS: DECIMALS: ANGLES:
± ± ±
DO NOT SCALE DRAWING

MATERIAL

FINISH

CONTROL DATA

PERIPHERAL EQUIPMENT DIVISION
MINNEAPOLIS, MINNESOTA

PRODUCT	DUAL CHANNEL RESOB	
DRAWN	AL KURTH	1-20-66
CHECKED		
ENGINEER		
APPROVED		3-24-67
QA		3-14-67

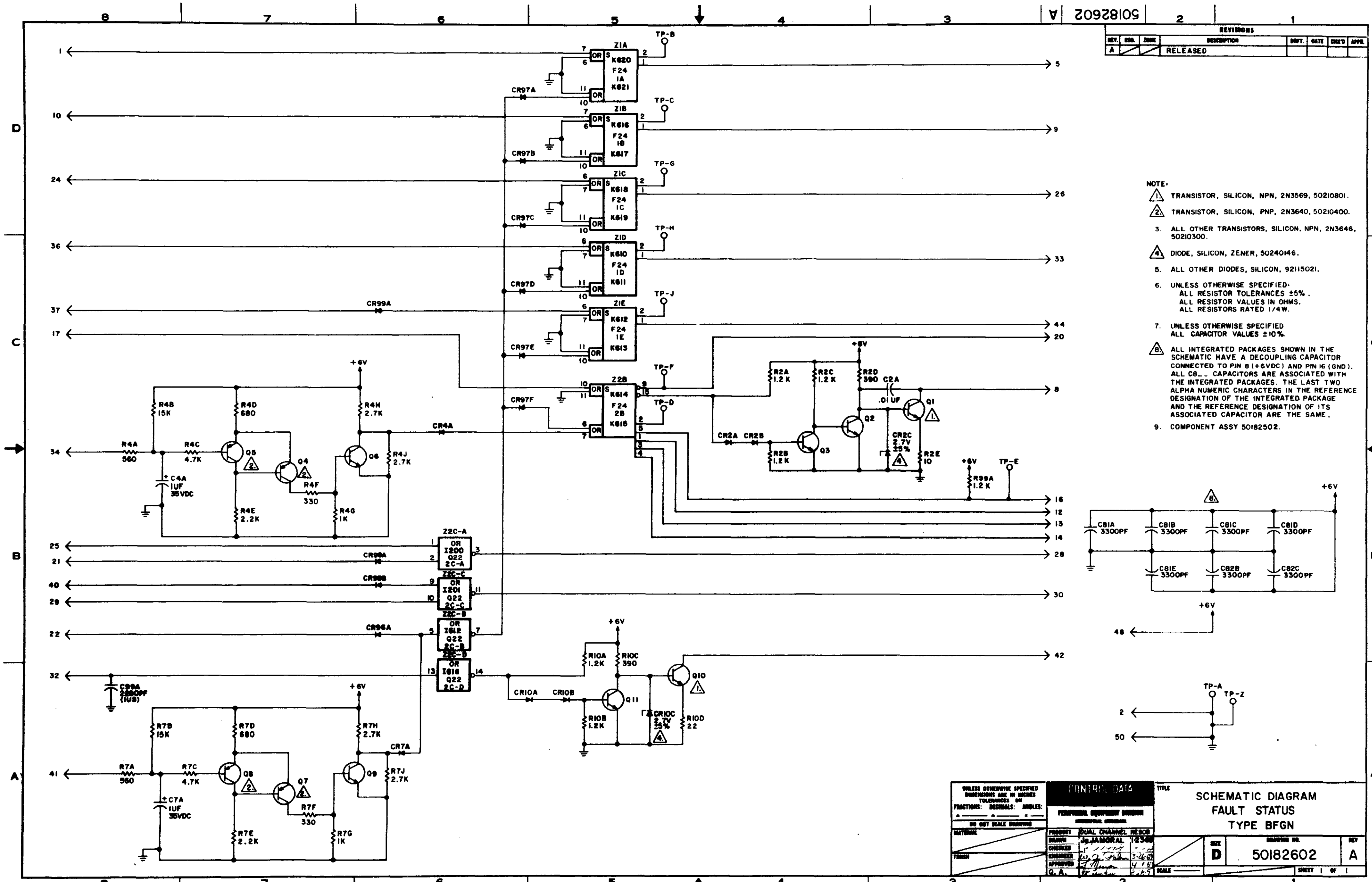
TITLE

SCHEMATIC DIAGRAM
TESTER CARD
TYPE 8FFN

SIZE D | DRAWING NO. 50182201 | REV A

SCALE

SHEET 1 OF 1



REV.	ECO.	ZONE	DESCRIPTION	DRFT.	DATE	CHK'D	APPR.
A			RELEASED				

NOTE:

1. TRANSISTOR, SILICON, NPN, 2N3569, 50210801.
2. TRANSISTOR, SILICON, PNP, 2N3640, 50210400.
3. ALL OTHER TRANSISTORS, SILICON, NPN, 2N3646, 50210300.
4. DIODE, SILICON, ZENER, 50240146.
5. ALL OTHER DIODES, SILICON, 92115021.
6. UNLESS OTHERWISE SPECIFIED:
   ALL RESISTOR TOLERANCES ±5%.
   ALL RESISTOR VALUES IN OHMS.
   ALL RESISTORS RATED 1/4W.
7. UNLESS OTHERWISE SPECIFIED
   ALL CAPACITOR VALUES ±10%.
8. ALL INTEGRATED PACKAGES SHOWN IN THE SCHEMATIC HAVE A DECOUPLING CAPACITOR CONNECTED TO PIN 8 (+6VDC) AND PIN 16 (GND). ALL C8__ CAPACITORS ARE ASSOCIATED WITH THE INTEGRATED PACKAGES. THE LAST TWO ALPHA NUMERIC CHARACTERS IN THE REFERENCE DESIGNATION OF THE INTEGRATED PACKAGE AND THE REFERENCE DESIGNATION OF ITS ASSOCIATED CAPACITOR ARE THE SAME.
9. COMPONENT ASSY 50182502.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS: DECIMALS: ANGLES:
± ± ±
DO NOT SCALE DRAWING
MATERIAL
FINISH

CONTROL DATA
PERIPHERAL EQUIPMENT DIVISION

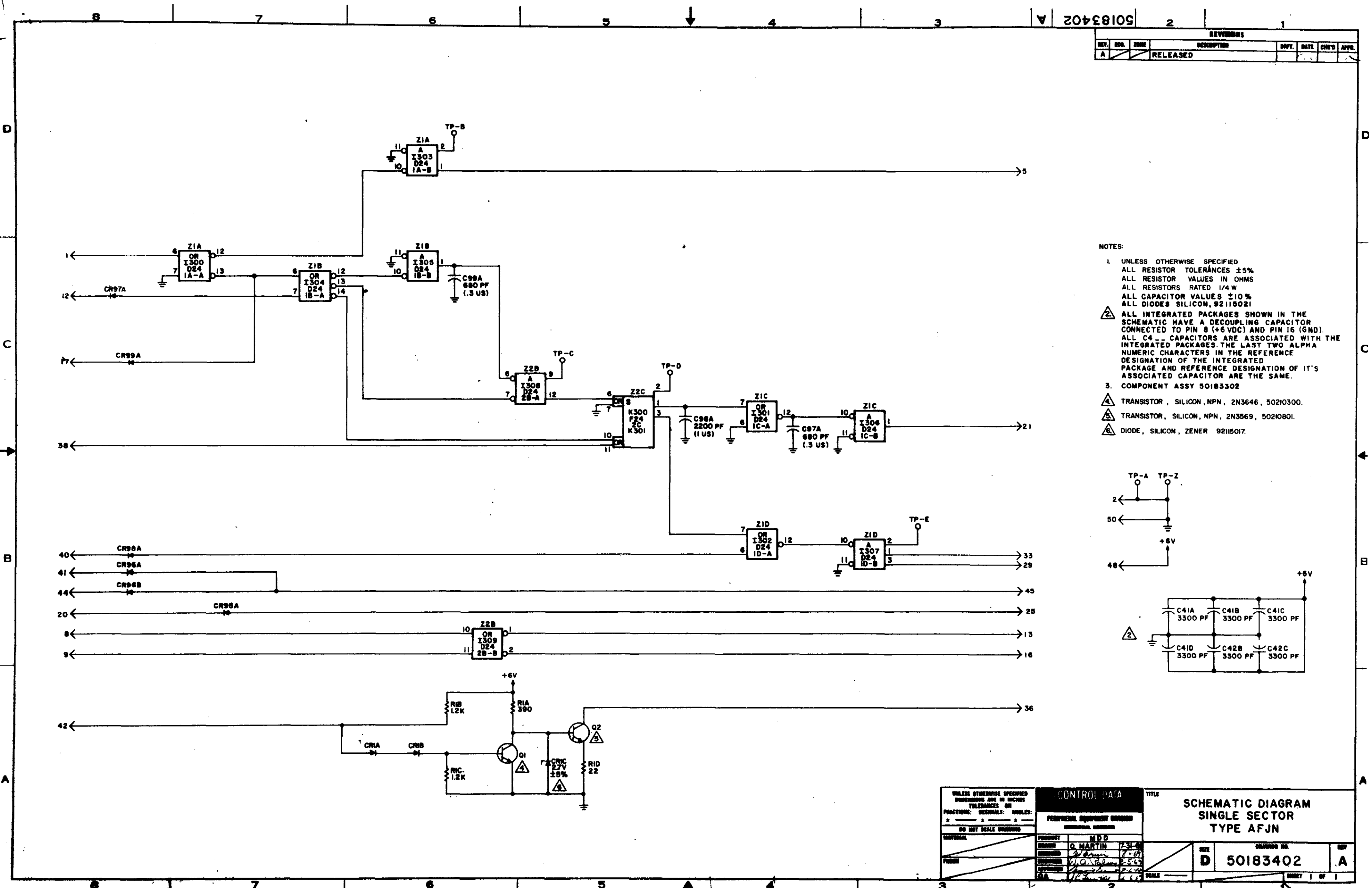
PRODUCT	DUAL CHANNEL RES08	
DRAWN	J.g. JAMORAL	1-23-69
CHECKED		
ENGINEER	W. J. Fallon	3-26-69
APPROVED		4-1-69
Q. A.		

TITLE
SCHEMATIC DIAGRAM
FAULT STATUS
TYPE BFGN

SIZE D
DRAWING NO. 50182602
REV A
SCALE —
SHEET 1 OF 1

50183402 A

REV.	ECO.	ZONE	DESCRIPTION	DRFT.	DATE	CHK'D	APPR.
A			RELEASED				



NOTES:

1. UNLESS OTHERWISE SPECIFIED
   ALL RESISTOR TOLERÁNCES ±5%
   ALL RESISTOR VALUES IN OHMS
   ALL RESISTORS RATED 1/4 W
   ALL CAPACITOR VALUES ±10%
   ALL DIODES SILICON, 92115021
2. ALL INTEGRATED PACKAGES SHOWN IN THE SCHEMATIC HAVE A DECOUPLING CAPACITOR CONNECTED TO PIN 8 (+6 VDC) AND PIN 16 (GND). ALL C4_ _ CAPACITORS ARE ASSOCIATED WITH THE INTEGRATED PACKAGES. THE LAST TWO ALPHA NUMERIC CHARACTERS IN THE REFERENCE DESIGNATION OF THE INTEGRATED PACKAGE AND REFERENCE DESIGNATION OF IT'S ASSOCIATED CAPACITOR ARE THE SAME.
3. COMPONENT ASSY 50183302
4. TRANSISTOR, SILICON, NPN, 2N3646, 50210300.
5. TRANSISTOR, SILICON, NPN, 2N3569, 50210801.
6. DIODE, SILICON, ZENER 92115017.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS: DECIMALS: ANGLES:
± ± ±
DO NOT SCALE DRAWING
MATERIAL
FINISH

CONTROL DATA
PERIPHERAL EQUIPMENT DIVISION

PRODUCT	MDD	
DRAWN	O. MARTIN	7-31-6[illegible]
CHECKED	[illegible]	7-[illegible]-69
ENGINEER	W. G. [illegible]	8-5-69
APPROVED	[illegible]	[illegible]
QA	[illegible]	[illegible]

TITLE
SCHEMATIC DIAGRAM
SINGLE SECTOR
TYPE AFJN

SIZE D
DRAWING NO. 50183402
REV A
SCALE —
SHEET 1 OF 1

SECTION 6

MAINTENANCE

Information for this section is included in BM1A5 Multiple Disk Drive.
Pub. No. 70602400

SECTION 7

MAINTENANCE AIDS

MAINTENANCE AIDS

GENERAL

Section 7 contains information on logic circuits, the criteria used in determining the further usability of read/write heads and disk packs, and the tester card used in the Maintenance section.

SPL LOGIC

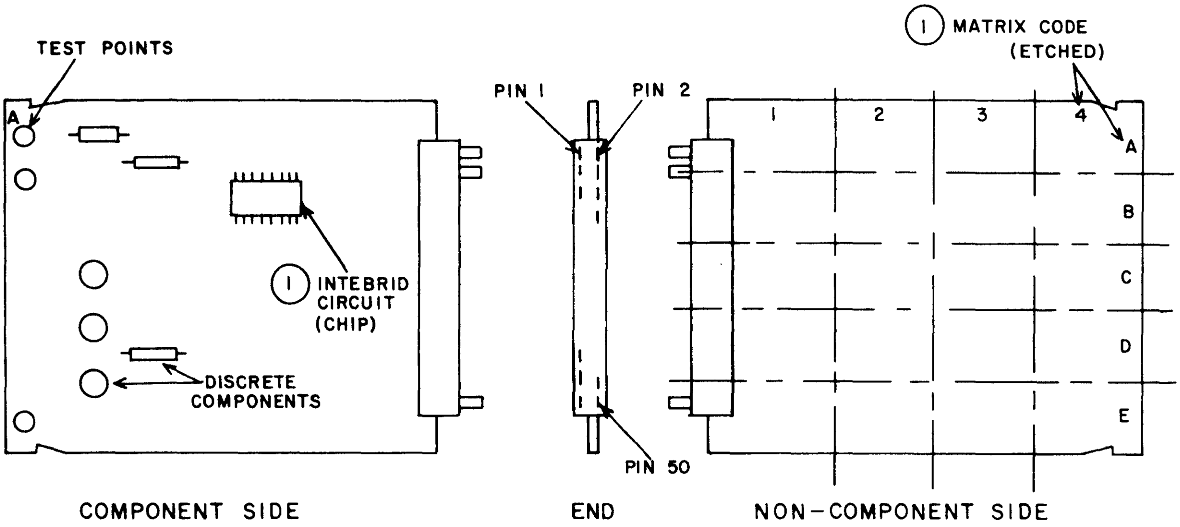
The logic used in this device is generally termed SPL (Silicon Peripheral Logic). It consists of two styles of circuits: discrete component and Intebrid. Discrete component circuits contain individually identifiable resistors, capacitors, transistors, etc. An Intebrid circuit is a chip containing an integrated circuit(s).

PHYSICAL DESCRIPTION

All components of the SPL cards are mounted on one side of a printed circuit board (Figure 7-1) which is 6 inches wide and 4-3/4 inches high.

The cards are pluggable and are restricted in vertical and horizontal movement by card guide spacers when inserted into the panel connectors. A card puller (PN 84146900) which grips the upper and lower edges of the card is used for removing the cards. No special tools are required to insert a card.

Numerical designators (1 through 99) are etched on the non-component side of the board to identify each transistor. A 4-character alphanumeric designator is etched on the non-component side of the board to identify the card type. A matrix code (alphanumeric) also appears on this side. Non-amplifying components such as Intebrid chips, resistors, capacitors, diodes, etc., are not marked.



NOTE:
① INTEBRID CIRCUIT LOCATED AT 2B (VIA MATRIX CODE)

5C115

Figure 7-1. SPL Card

Pin Assignments

The module connector consists of a 37-pin male blade connector mounted along the 4-3/4 inch board dimension on the component side of the board.

Connector pins are numbered from the top starting with pin 1 and continuing through pin 50 on the bottom. Thirteen pin positions are omitted. These are 3, 7, 11, 15, 19, 23, 27, 31, 35, 39, 43, 47, and 49.

Six pins of the 37-pin connector are reserved as follows:

Pin 2	Ground
Pin 4	-6v
Pin 6	-20v
Pin 46	+20v
Pin 48	+6v
Pin 50	Ground

Test Points

Test points are located near the edge of the module opposite the connector and in other strategic places on the component side of the board. Test points are assigned alphabetically starting with A on the top, outer edge. In most cases, test points A and Z are available for ground reference.

USE OF RELATIVE LEVEL INDICATORS

The relative level indicator is a small circle located at the origin or termination of a signal line, and tangent to a logic symbol. The presence or absence of this indicator tells the conditions that are necessary to satisfy the function of the logic symbol. The presence of the circle indicates a 0 logic level on that line is needed to satisfy the function. The absence of the circle represents a logical 1 needed to satisfy the function.

AND FUNCTION

The relative level indicator used with an AND logic function may be interpreted in this way: Only under the stated input conditions will the stated output condition occur. Under all other input conditions, the stated output will not occur. For example, Figure 7-2 indicates that only when A and B are 0 logic level (indicated by the circle on their respective inputs) will the output of C be a logical 0 (indicated by the circle on the output line). Under all other input conditions, output C will be a logical 1.

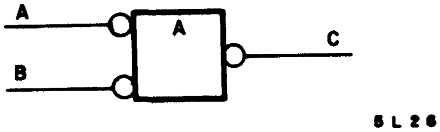


Figure 7-2. AND Function

OR FUNCTION

The relative level indicator used with an OR logic function may be considered as follows: If one or the other, or both of the stated inputs are present, then the stated output will occur. Only when both of the stated inputs are not present will the stated output be changed. For example, Figure 7-3 indicates that if either A is a logical 0 (represented by the circle on its input) or B is a logical 1 (represented by no circle on its input), or both A is a logical 0 and B is a logical 1, then output C will be a logical 0. Only when A is not a logical 0 and B is not a logical 1, will C not be a logical 0.

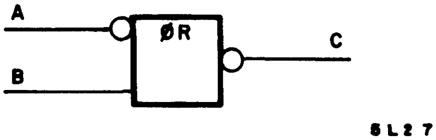


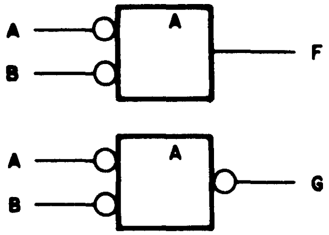
Figure 7-3. OR Function

A complete truth table for use with relative level indicators is given in Figure 7-4.

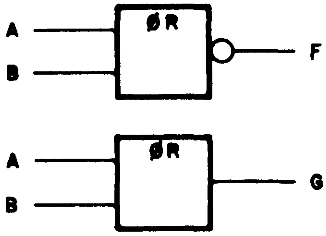
INFORMATION CONTAINED WITHIN LOGIC SYMBOLS

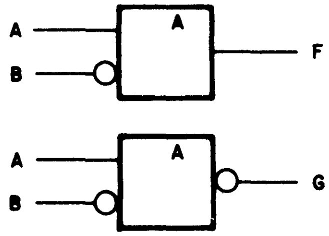
Discrete Component Circuits

Figure 7-5 shows a schematic (as shown on card schematic diagram) and the logical representation (as shown on logic diagrams) for the same discrete component circuit. Four lines of information are contained within the logic symbol. The top line is the function identifier and designates the broad logic function of that particular symbol. In this case, PA represents a high level amplifier, the logic function performed by the circuit. The third line, also an alphabetic code, designates the circuit type being used (HAB). The circuit type is a subdivision of the function identifier (a specific high level amplifier). By using the circuit type designator, detailed information on that particular circuit can be derived in the following paragraphs (see Discrete Component Circuit Descriptions).

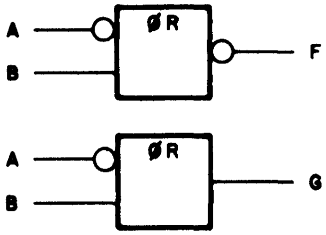


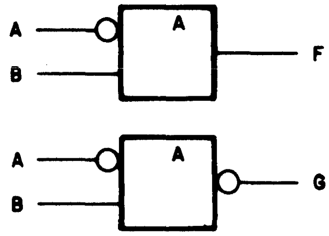
A	B	F	G
0	0	1	0
0	1	0	1
1	0	0	1
1	1	0	1



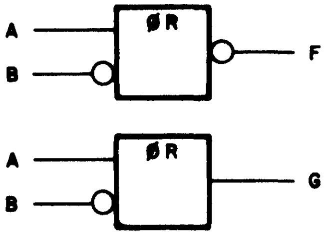


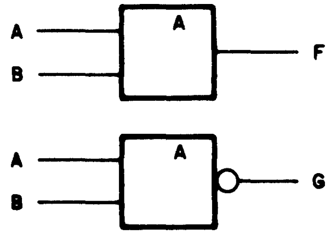
A	B	F	G
0	0	0	1
0	1	0	1
1	0	1	0
1	1	0	1



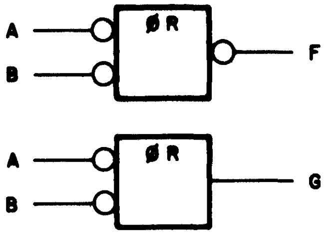


A	B	F	G
0	0	0	1
0	1	1	0
1	0	0	1
1	1	0	1





A	B	F	G
0	0	0	1
0	1	0	1
1	0	0	1
1	1	1	0



3U5

Figure 7-4. Truth Table

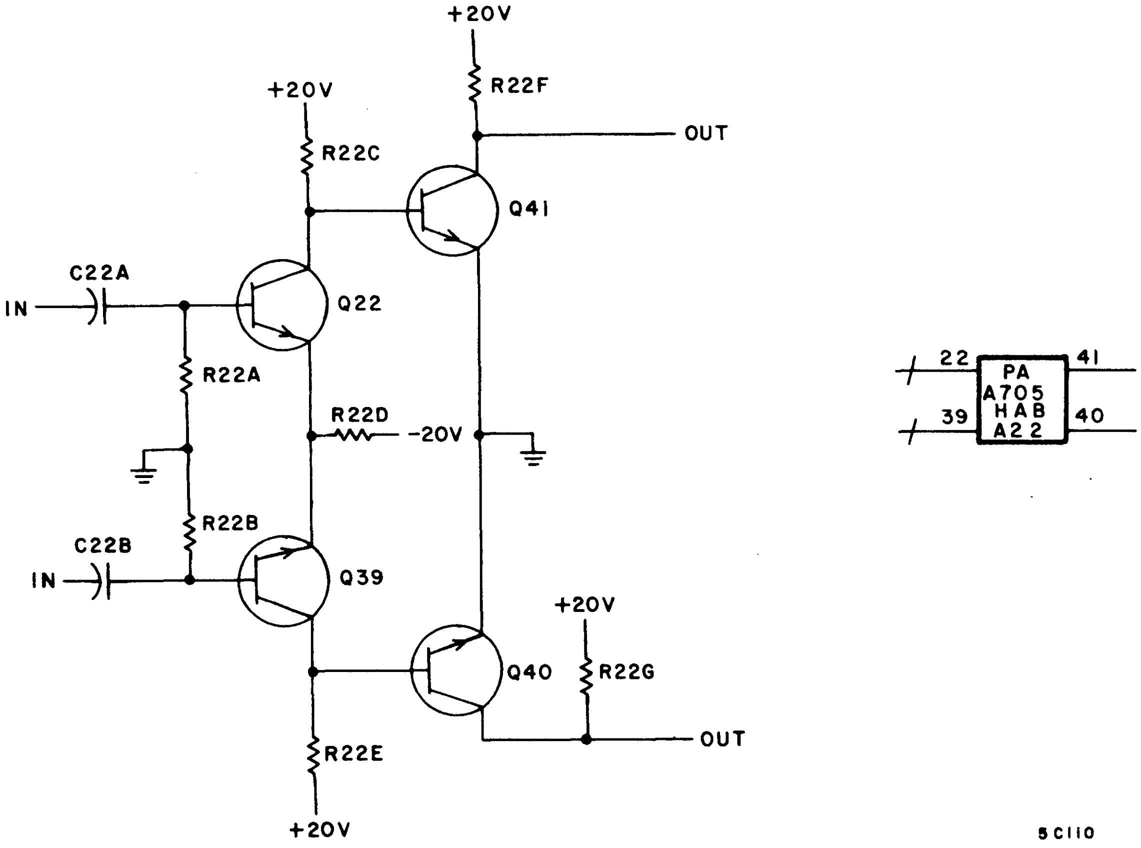


Figure 7-5. Discrete Component Circuit

The second line within the symbol is used to differentiate that particular symbol from similar symbols that appear in the logic diagram. It is called the logic term and consists of a one-letter prefix and an assigned identification number (in this case, A705).

The numbers on the input lines to the symbol indicate which transistor is driven by that input line. For example, the upper input has a number 22 on its line, showing that it drives transistor number 22 (ie., Q22 on the card schematic diagram).

The output lines also have numbers associated with them. These numbers indicate which transistor directly feeds the output line. For example, the lower output line has a number 40 above it, indicating that the output from transistor number 40 (Q40 on the card schematic diagram) drives the lower output line. For other circuits additional transistor numbers may appear below the logic symbol. These numbers refer to internal transistors that are not directly connected to any input or output line, but are a part of the circuit.

Intebrid Circuits

Figure 7-6 shows the schematic version (as shown on card schematic diagram) and the logical representation (as shown on logic diagrams) for the same Intebrid circuit. The first and second lines of information inside both blocks are the same, and have the same meaning as for the discrete component circuit.

Line three identifies the Intebrid circuit type (D24), and on the logic symbol additionally identifies the section (B) of the circuit chip. (Refer to the Key to Logic Symbols sheet of the logic diagrams for detailed coverage of Intebrid circuit types being used and the number of sections in each chip.)

The fourth information line in the block is for location information. On the schematic version, 1C identifies the matrix block (Figure 7-1) in which the chip is located and B identifies the section of the chip. The fourth line of the logic identifies the card matrix location and it also identifies the logic chassis row (A) and the mating connector in the row (13).

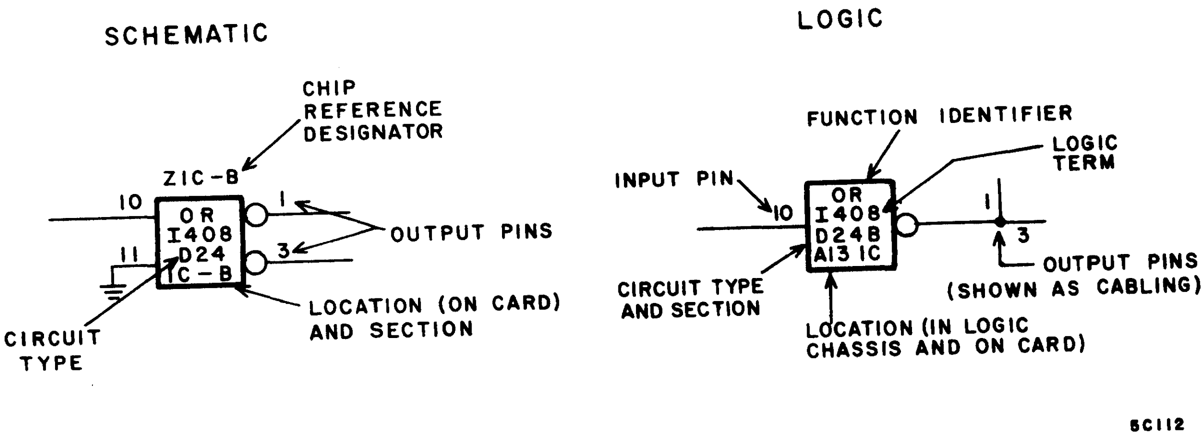


Figure 7-6. Intebrid Circuit

Pin information for the schematic and logic versions are similar with two exceptions. The logic version does not show unused chip pins, whereas the schematic version shows all unused pins connected to ground. Secondly, the schematic version shows a separate origin for each chip output pin, while the logic version may show a single origin and identify each pin as the line branches to its destination. This scheme is termed cabling and conserves space and preserves appearance.

WIRED FUNCTIONS

The logical representation for wired functions is shown in Figure 7-7. These functions are used where circuits have the capability of being combined as an AND function by having the outputs connected. This is simply a physical connection and no electrical or electronic components are involved. However, the logical interpretation of the wired function is consistent with the AND truth table in Figure 7-4. Arrowheads are used to depict logic flow into the gate. The gate output has no arrowhead.

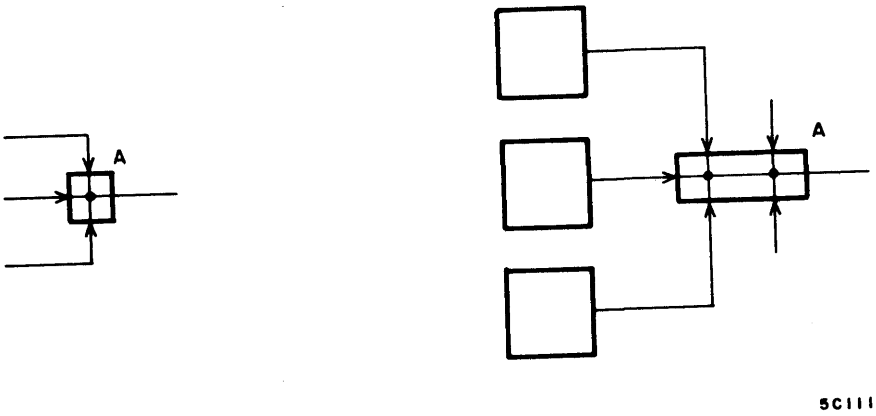


Figure 7-7. Wired Functions

STANDARD/NON-STANDARD LOGIC LEVEL INDICATOR

The input to a logic function at a voltage other than the standard logic level is represented by a slash across the non-standard level line. Absence of the slash (or absence of an A, see below) indicates a standard logic level on that line. Figure 7-5 illustrates the use of this symbol.

When the input signal to a logic function is an analog signal, the input line will have an A across it.

INTEBRID CIRCUIT DESCRIPTIONS

Detailed functional descriptions and schematic diagrams for Intebrid circuits are provided in CDC Pub. No. 60201000.

DISCRETE COMPONENT CIRCUIT DESCRIPTIONS

Figures 7-8 through 7-51 are the schematic diagrams for the discrete component circuits used in this device. A verbal description supports each circuit diagram.

The order of presentation is in accordance with the 3-letter alphabetical circuit type designator.

Low Level Amplifier - FAB

The FAB circuit (Figure 7-8) is a low level amplifier that amplifies the analog read signal from the head. Input B is a gate input.

When input B is +20v, diodes CRNA, CRNB, CRNC, CRND, CRNE and CRNF are forward biased. The voltage between CRNC and CRNE and between CRND and CRNF is clamped at approximately +2.0v. With all diodes forward biased, the read signal can pass to the amplifier.

When input B is ground, diodes CRNG and CRNH clamp the voltage at +0.6v. This reverse biases the input diodes. No read signal can enter.

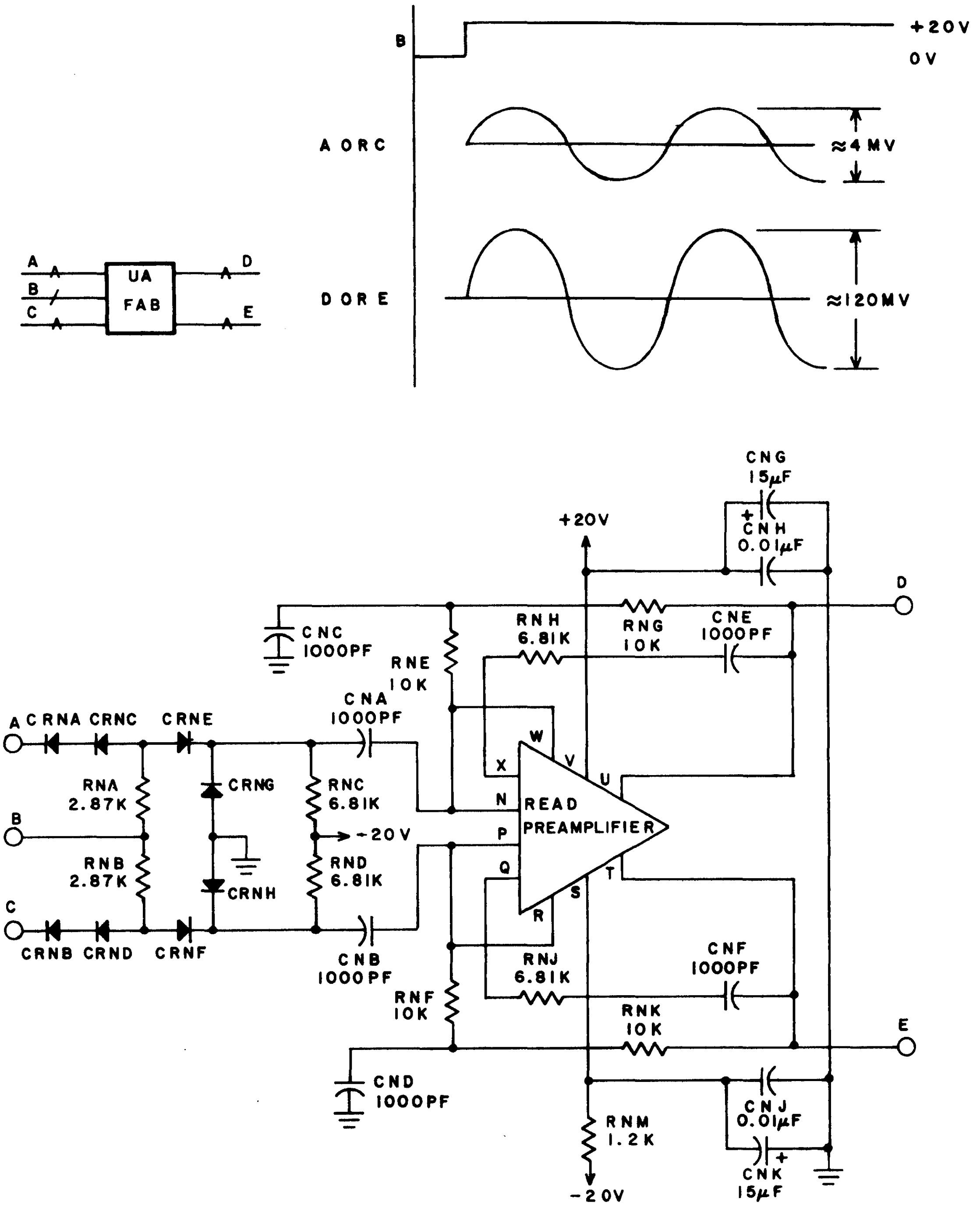
The preamplifier is a three stage amplifier using an emitter follower output stage for low output impedance. The integrated preamplifier has discrete component ac and dc feedback.

AC feedback is provided by CNE and RNH in the top half and CNF and RNJ in the lower half of the circuit. The signal is brought back to the emitters of the input stage to increase input impedance.

DC feedback is provided by RNG, RNE and CNC (to ground) in the upper half and RNK, RNF and CND (to ground) in the lower half of the circuit. This feedback helps to stabilize the output.

Capacitors CNG, CNH and CNJ, and CNK filter noise from the +20v and -20v power supplies, respectively. The electrolytic capacitors filter low frequency noise. The paper capacitors filter high frequency noise.

Open loop gain in the amplifier is approximately 180. Closed loop gain in the amplifier is approximately 30.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

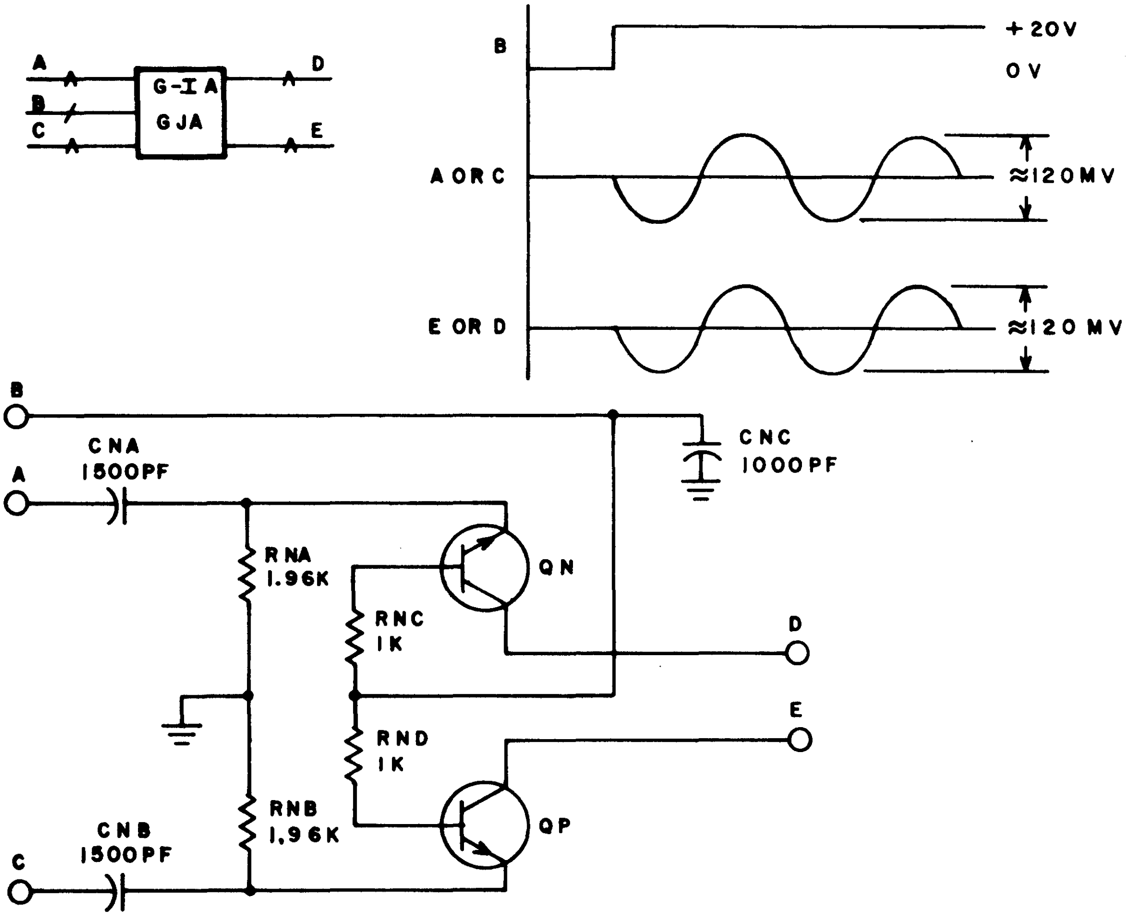
5C31

Figure 7-8. Low Level Amplifier - FAB

Gated Intermediate Level Amplifier - GJA

The GJA circuit (Figure 7-9) is an analog gate that is controlled by input B. When input B is +20v, both transistors are on. All analog signals pass through the circuit. Capacitors CNA and CNB ensure that only analog signals are passed. CNC filters noise spikes from the gating signal. Dc power for the transistors is supplied by the circuit in the next stage.

When input B is +0.2v, both transistors are off. No signals pass through the circuit.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

5C32

Figure 7-9. Gated Intermediate Level Amplifier - GJA

High Level Amplifier - HAA

The HAA circuit (Figure 7-10) is gated by an analog gate circuit (GJA) and provides the load and biasing for that circuit.

The preamplifier, ac feedback and dc feedback are identical to the FAB circuit. Capacitor CND is added to the output of the second stage to decouple high frequency noise.

High Level Amplifier - HAB

Input to the HAB circuit (Figure 7-11) is a balanced square wave. Output is also a balanced square wave that follows the input.

When input A is positive, B is at 0v. Transistor QN is on and QP is off. The base of QQ falls to near ground. Transistor QQ is off. Output C rises to approximately +0. 7v. With QP off, QR turns on. Output D falls to ground.

When input B is positive, A is at ground. Transistor QN is off, QP is on, QQ is on and QR is off. Output C is at ground. Output B rises to +0. 7v.

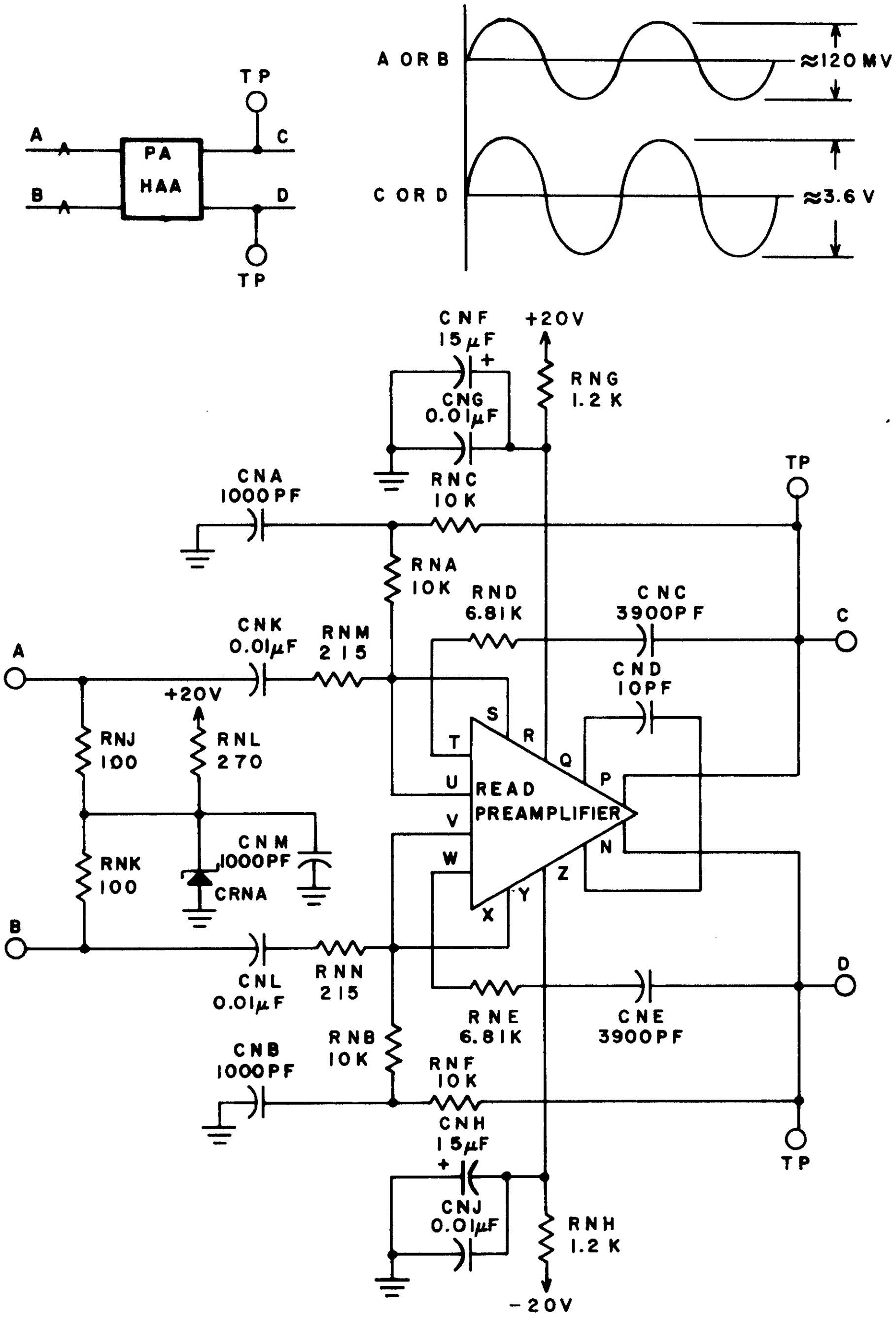
High Level Amplifier - HJA

The HJA circuit (Figure 7-12) increases the input signal power to transmit over a coaxial cable. The input is a differential signal of approximately 3. 6v peak to peak.

The input signal across A and B is divided between resistors RNA and RNB. Transistors QN and QP are forward biased with a gain of 3. The -20v through resistor RNH and diodes CRNA and CRNB and through resistor RNJ and diodes CRNC and CRND forward biases QQ and QT, respectively. Transistors QQ and QT are in a common collector configuration to provide a current gain.

Transistors QR and QS are emitter followers that draw very little current from QQ and QT. They provide low impedance for discharging CNC and CND, thus reducing delay time when crossing the zero volt point.

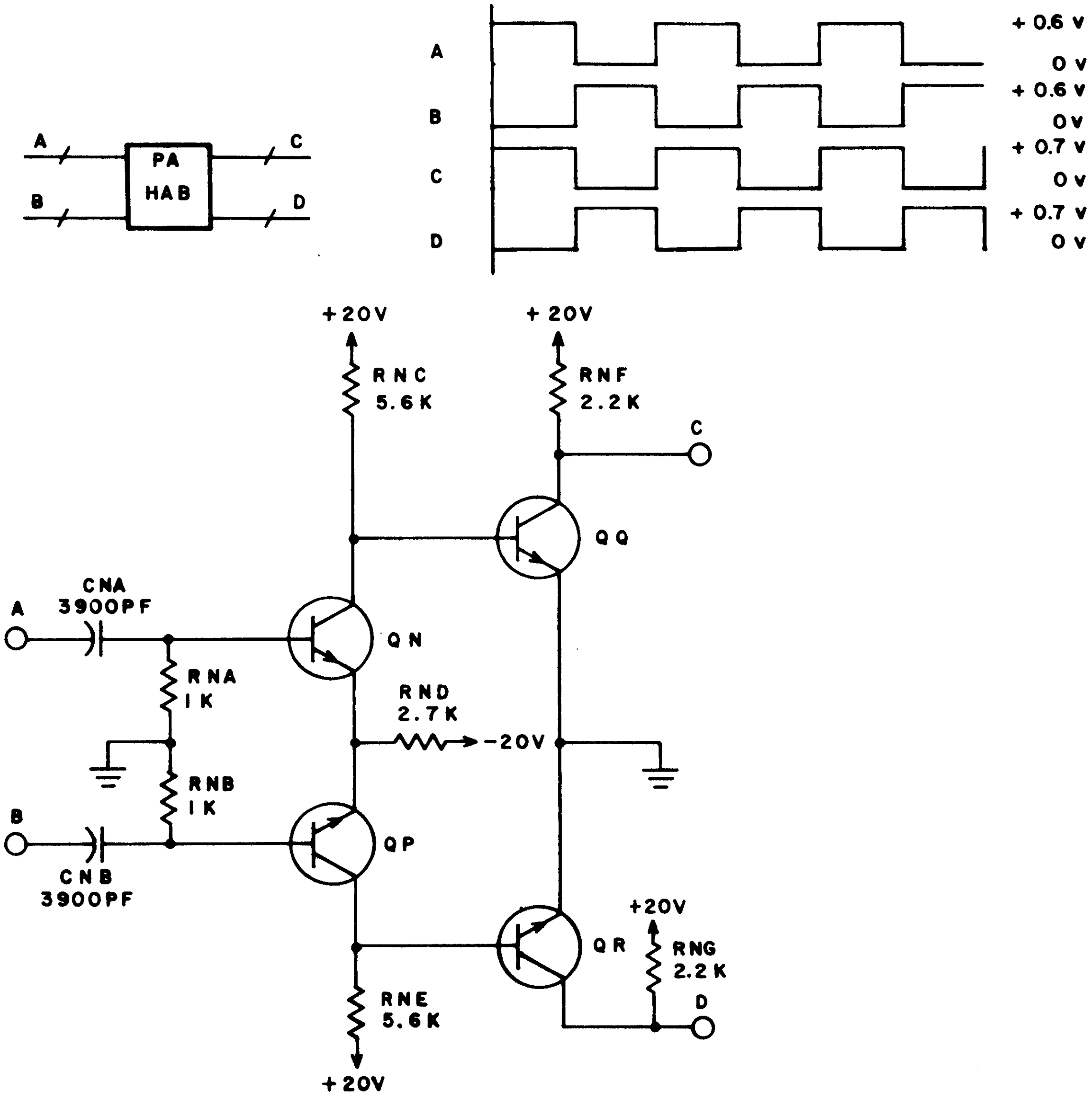
Output voltage is approximately the same as input voltage. Output current is 20 ma maximum.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

5C30

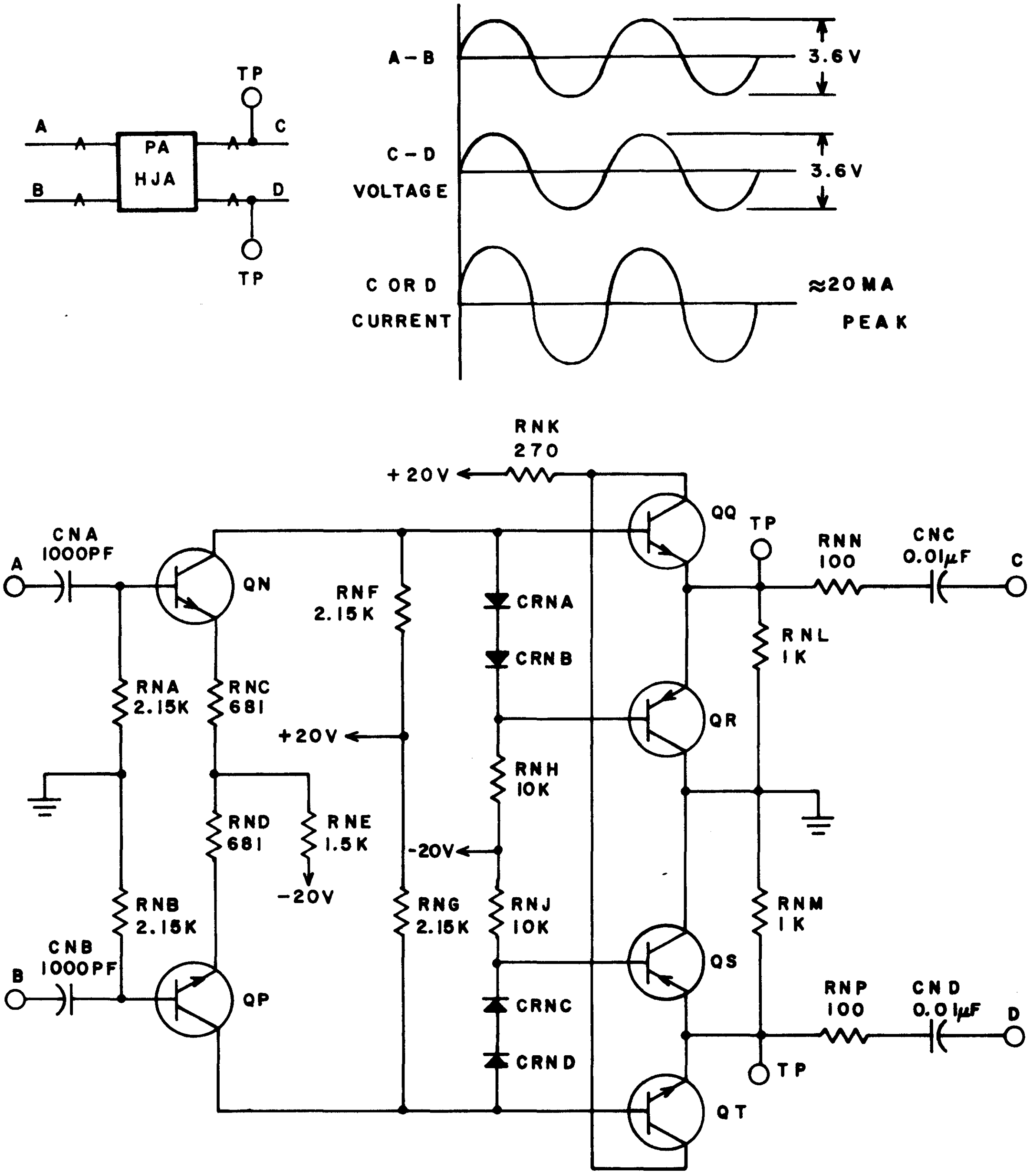
Figure 7-10. High Level Amplifier - HAA



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

5C25

Figure 7-11. High Level Amplifier - HAB



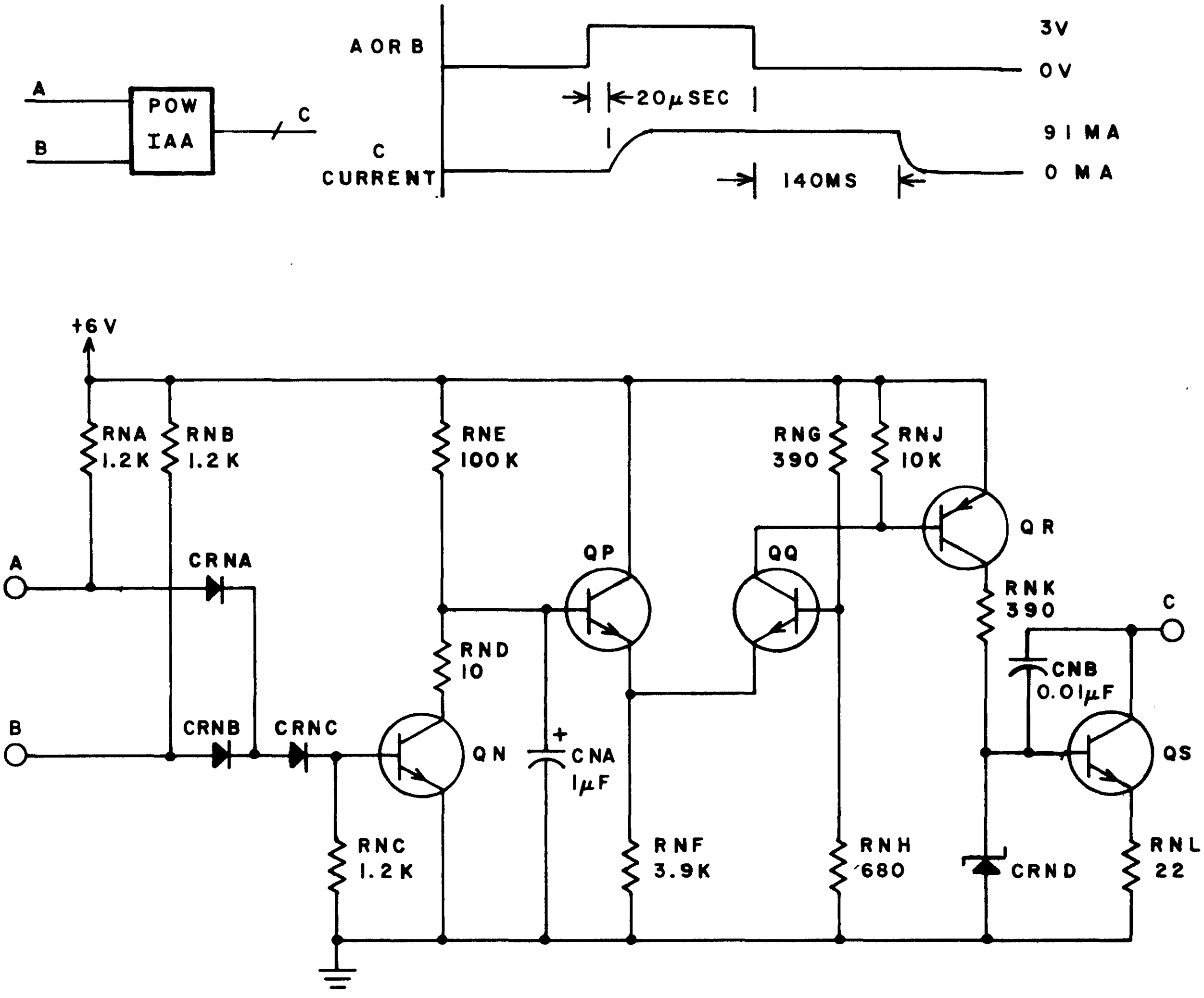
NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

5C29

Figure 7-12. High Level Amplifier - HJA

Lamp Driver - IAA

The IAA Circuit (Figure 7-13) sinks a current of 91 ma to drive a lamp. Capacitor CNB slows down switching time of QS and provides a ramp output to prolong the life of the lamp. A "1" input at either A or B or both lights the lamp. Only when both A and B are "0" is the lamp extinguished.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.
8C35

Figure 7-13. Lamp Driver - IAA

A "1" at either or both inputs turns QN on. CNA discharges through RND and QN. The base of QP goes to ground. Transistor QP is off, so the base of QQ (3.8v) is more positive than its emitter. Transistor QQ is on, causing current to flow through RNJ. The voltage drop across RNJ (approximately 0.7v) turns QR on. Transistor QS turns on. Zener diode CRND clamps the voltage across RNL at 2.0v, which is a current of 91 ma.

A "0" at both inputs turns QN off. CNA charges through RNE until QP turns on. With QP on, QQ, QR and QS are off. No current flows in the lamp.

Lamp Driver - IBA

The IBA circuit (Figure 7-14) sinks a constant load current of 200 ma. Capacitor CNA ramps the output to prolong the life of the lamp connected to output B.

A "1" on input A turns QP on. The base of QN is at ground. Transistor QN is off. The base of QR is clamped at +2.7v by Zener diode CRNC. Transistor QR is on. A 2-volt drop across RNE assures a 200-ma current.

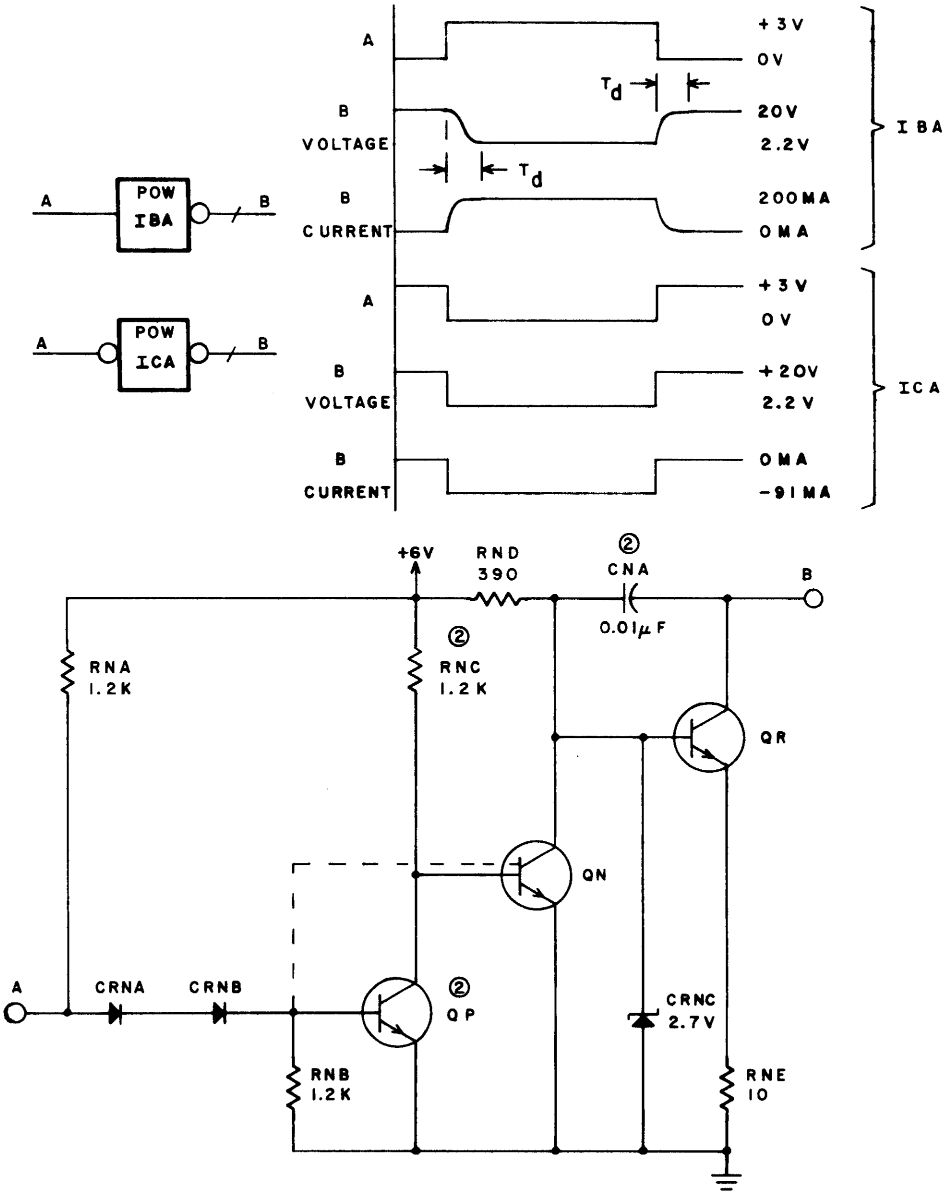
A "0" on input A turns QP off. The collector clamps at +0.7v when QN turns on. The base of QR goes to ground. Transistor QR is off. No current flows.

Lamp Driver - ICA

The ICA circuit (Figure 7-14) functions as a switch supplying current to a lamp at output B. When input A receives a "0" (ground) signal, the lamp turns on. When input A receives a "1" (+3v) signal, the lamp turns off.

Output B is connected through a lamp to a voltage supply, typically +20v. When input A receives a "0" signal, transistor QN turns off. This allows the +6v supply to forward bias transistor QR through resistor RND. Transistor QR turns on, conducting current from the voltage supply, through the lamp and RNE to ground. The lamp lights.

When input A receives a "1" signal, QN turns on. Transistor QN conducts current away from the base of QR, removing the forward bias. Transistor QR stops conducting. The lamp goes out.



NOTES:

1. VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

② COMPONENT AND CONNECTING WIRES NOT USED ON ICA. DOTTED LINE SHOWS QN BASE CONNECTION FOR ICA, ENTIRE CIRCUIT (LESS DOTTED LINE) FOR IBA.

5C5

Figure 7-14. Lamp Driver - IBA, ICA

The voltage drop across RNE when QR conducts is directly proportional to the load current. At a load current of 200 ma, the voltage across RNE is 2 volts. The base of QR cannot go more positive than +2.7v because of Zener diode CRNC. Therefore, QR starts losing its forward bias when the load current reaches 200 ma (2 volts across RNE). Transistor QR is thereby protected against a short circuit.

Low Speed Driver - IDA

The IDA circuit (Figure 7-15) acts as a switch. Outputs B and C are connected through external resistors and a common load (typically a solenoid) to an external voltage supply. A "1" at input A causes current to flow through the external load. A "0" at input A shuts off the current flow.

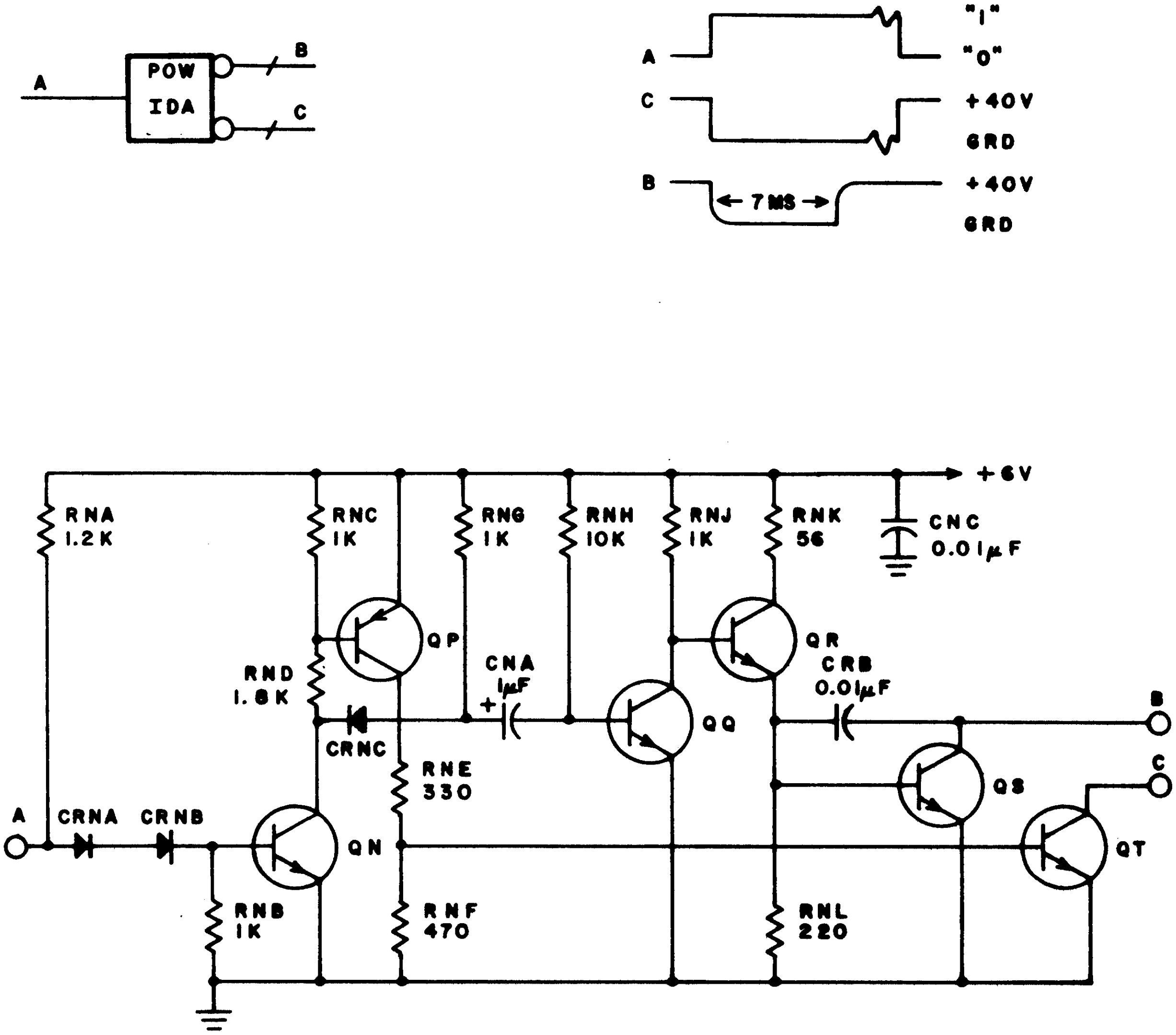
A "0" at input A turns off transistor QN. The emitter and base of QP are both at +6v. Transistor QP is, therefore, not conducting, which keeps QT from conducting. The left side of capacitor CNA charges to +6v, while the right side is held at approximately +0.7v by resistor RNH and the base-emitter voltage drop across QQ. Transistor QQ is held on by the current through RNH, driving the base of QR to ground. Transistor QR is off. The base of QS is at ground and is off. No current flows through the external load.

A "1" at input A turns on transistor QN. The base of QP goes to ground, turning QP on. This allows the +6v supply to flow through RNE to the base of QT, turning it on. Then, 200 ma of current flows through the external load and QT to ground.

When the collector of QN goes to ground, the left side of CNA also goes to ground. This back biases the base-emitter junction of QQ by approximately 5.3v (the original voltage across CNA). Transistor QQ turns off, allowing the base of QR to go positive. Transistor QR turns on and drives the base of QS positive. Transistor QS turns on and allows an additional 850 ma of current through the external load and QS to ground.

The base of QQ then rises toward +6v through the charging action of resistor RNH on CNA. When the base of QQ reaches +0.7v, QQ turns on and QR turns off. This stops the current flowing through QS by driving the base of QS to ground. The 850 ma of current through QS lasts approximately 7 ms.

CNB limits the rise and fall time of the 850-ma current pulse.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

SC19

Figure 7-15. Low Speed Driver - IDA

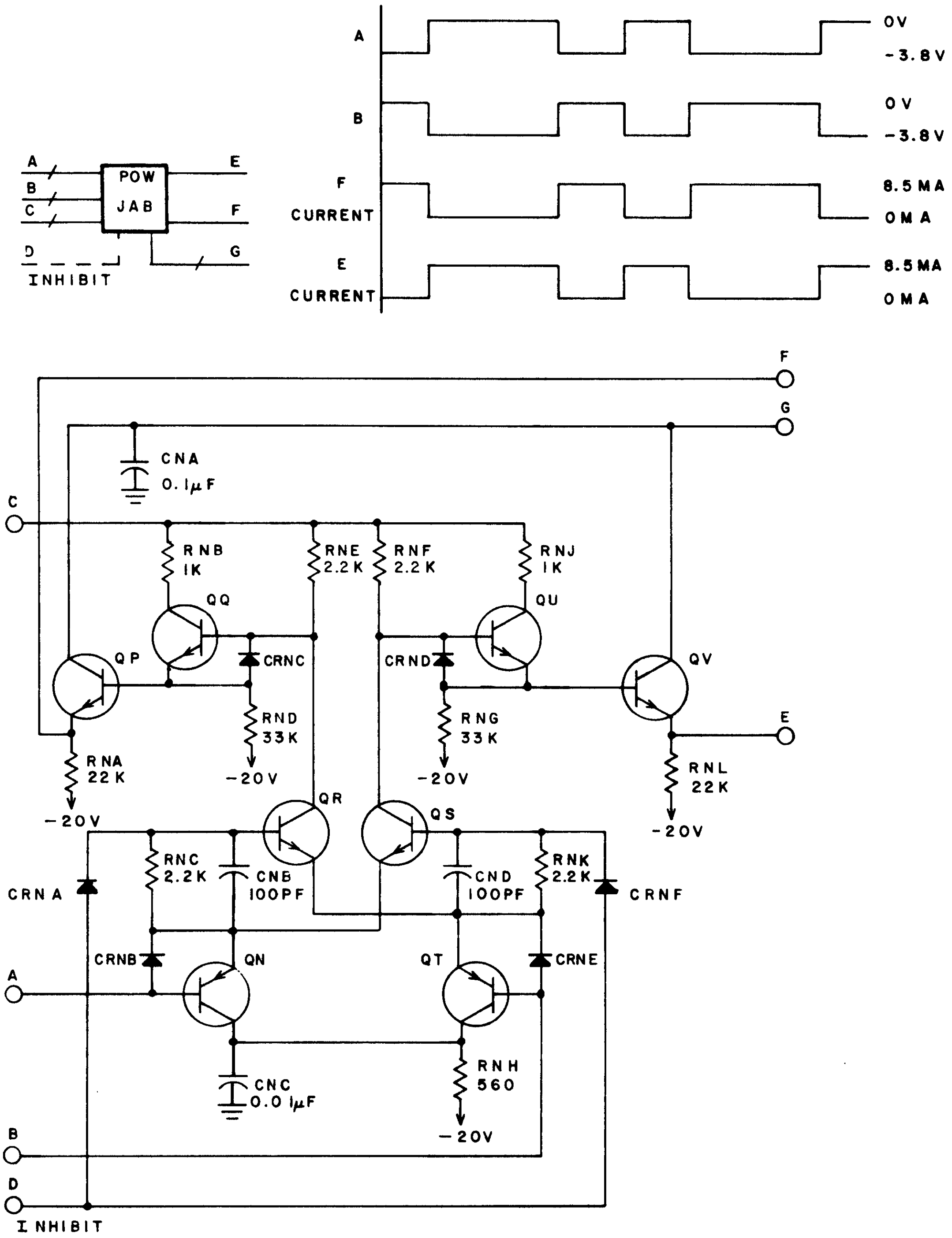
Write Driver - JAB

The JAB circuit (Figure 7-16) provides current to the write heads so that data may be recorded. Outputs E and F are connected to opposite ends of the write head, which is center tapped to ground. When input A is positive, current flows through output E to its half of the write head. When input B is positive, current flows through output F to its half of the write head. When A is positive and the unit is writing, B is negative. When A is negative and the unit is writing, B is positive. Therefore, only one half of the write head may be activated at any one instant while the unit is writing.

With a positive charge on input A transistor QN is off. The base of QR is positive and the emitter of QS is positive. The negative voltage at B turns transistor QT on. This drives the emitter of QR negative. Transistor QR conducts,driving the base of QQ to about -2v. Transistor QQ is an emitter follower, so the emitter of QQ is also near -2v. The -2v on the base of QP turns QP off. No current flows through output F (-20v through resistor RNA only reverse biases an external diode). With QT on, the base of QS goes slightly negative. Transistor QS is off, allowing the base of QU to go to +40v. Transistor QU is an emitter follower, so the emitter of QU also goes to about +40v. The +40v on the base of QV turns QV on. Current now flows from a +40v supply connected to output G through transistor QV and its half of the write head to ground. A resistor lies between output E and the write head to limit the current flow in the write head.

When input A goes negative and B goes positive, QN and QS are on and QR and QT are off. On the bases of QQ and QU are currents of +40v and -2v, respectively. The emitter of QQ goes to about +40v. The emitter of QU goes to about -2v. Transistor QV is off. No current flows through output E. Transistor QP is on. Current flows from the +40v source connected to output G through QP and its half of the write head to ground.

Input D supplies a negative voltage when the unit is writing to reverse bias diodes CRNA and CRNF. If the unit is not writing, D is grounded and both inputs A and B go negative. This turns on QR and QS. Transistors QP and QV are, therefore, off and no current flows through the write head.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

5C55

Figure 7-16. Write Driver - JAB

Erase Driver - JBB

The JBB circuit controls the current driving the erase heads. When input E (Figure 7-17) is a high voltage, output H provides current to erase heads.

When input E goes to a high voltage, capacitor CPA charges, causing a 10-μsec delay before transistors QR and QP turn on completely. Output G is connected to a +40v supply in a fault detect circuit. When QR is on, current flows from G through QR to the erase head connected to output H. The ramp output protects the information on neighboring tracks from being destroyed.

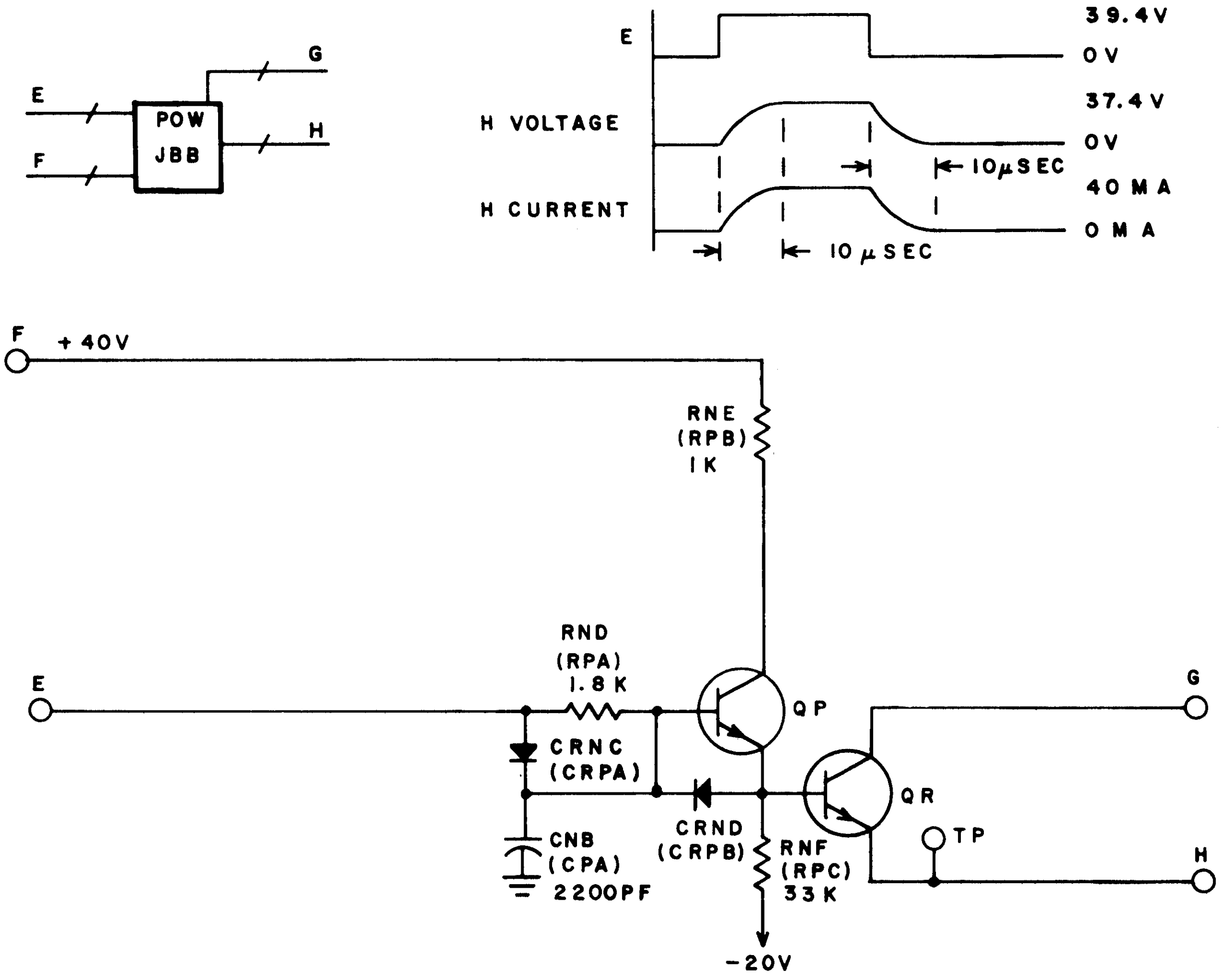
When E drops to 0v, CPA discharges through RPA. After 10 μsec, QP and QR are off. Output H is at 0v.

Line Transmitter - LAA

The LAA circuit (Figure 7-18) provides a positive voltage output at C and a negative voltage output at D when either A or B or both are a "1" input. When A and B are both "0", the output is determined by the external load circuit connected to C and D.

If both A and B are "0", QN is off. The base of QP goes positive and QP conducts. This causes the emitter of QQ to be more positive than its grounded base. Transistor QQ conducts. The collector voltages for QP and QQ will be approximately +0.9v and +0.2v, respectively. The difference in collector voltage is due to the positive charge on the base of QP and the grounded base of QQ. RNC is smaller than RND to compensate for this voltage difference. The emitters of QR and QS will be at +2.4v and -4.0v, respectively. The base of QR is held at about +4.9v by RNF and RNE. The base of QS is held at about -4.9v by RNG and RNH. Both QR and QS are off. The voltage at C and D is, therefore, dependent on any external voltage supply that may be present.

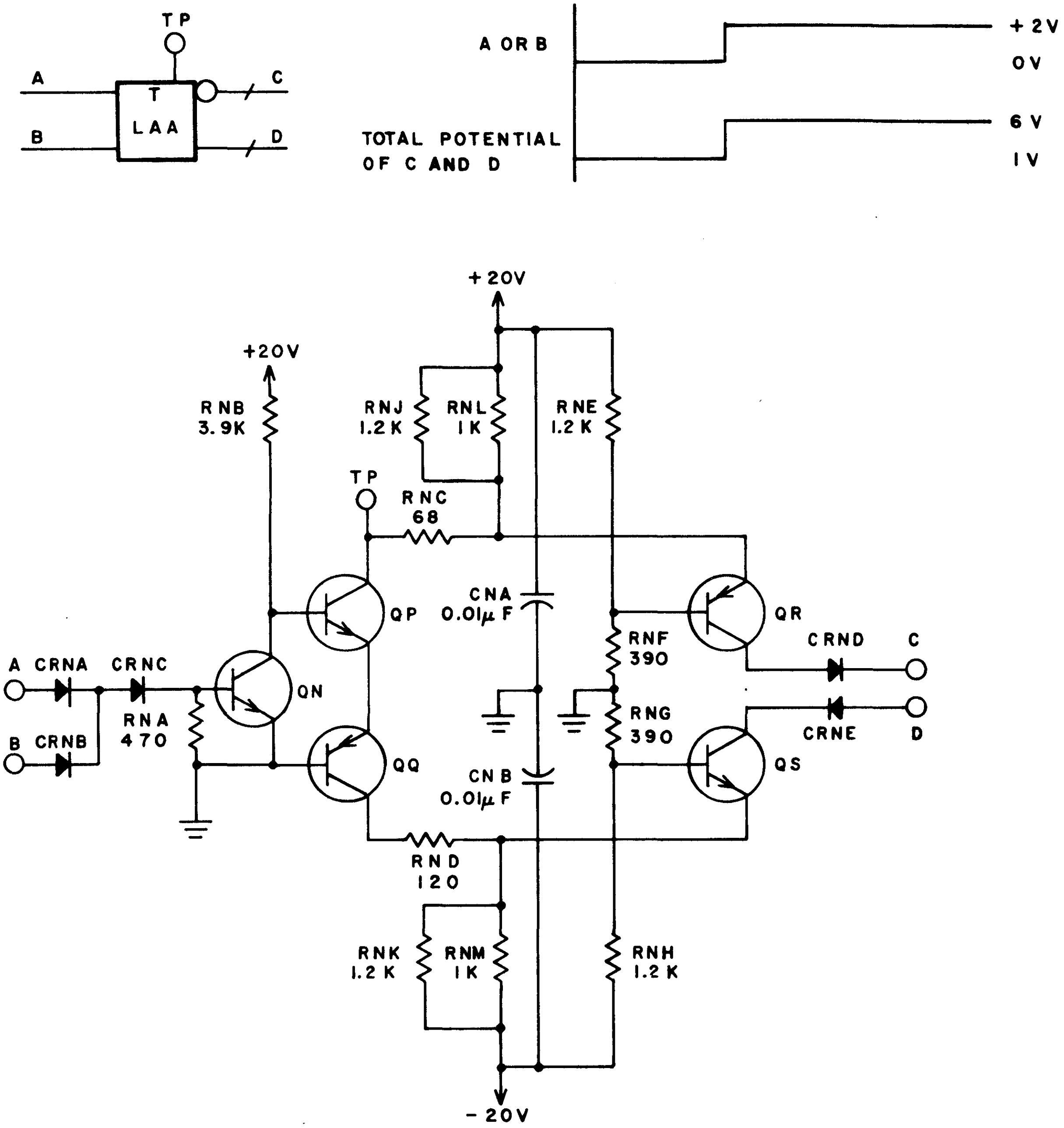
If either or both of the inputs go to "1", QN turns on. Current flows away from the base of QP turning QP off. Transistor QQ is, therefore, off. Transistors QR and QS are then forward biased and conduct about 25.0 ma of current. CRND and CRNE are forward biased and the output at C goes positive, while the output at D goes negative. The voltage of either output is determined by the current flow through the external load, but must be kept under 4.9v.



NOTES:

1 VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

Figure 7-17. Erase Driver - JBB



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

5C20

Figure 7-18. Line Transmitter - LAA

Oscillator - MAA

The MAA circuit (Figure 7-19) produces an amplified, oscillating signal at a prescribed frequency. The circuit description is divided into three parts: the D. C. conditions throughout the circuit; the oscillator section of the circuit; and the amplifier circuit.

D. C. Conditions

CRNA, RNA, RNB and RND hold the base of QN at approximately +17 volts. CRNB is reverse biased by 3 volts and does not conduct. The emitter of QN is held at about +16v, producing a collector current in QN of about 16 ma.

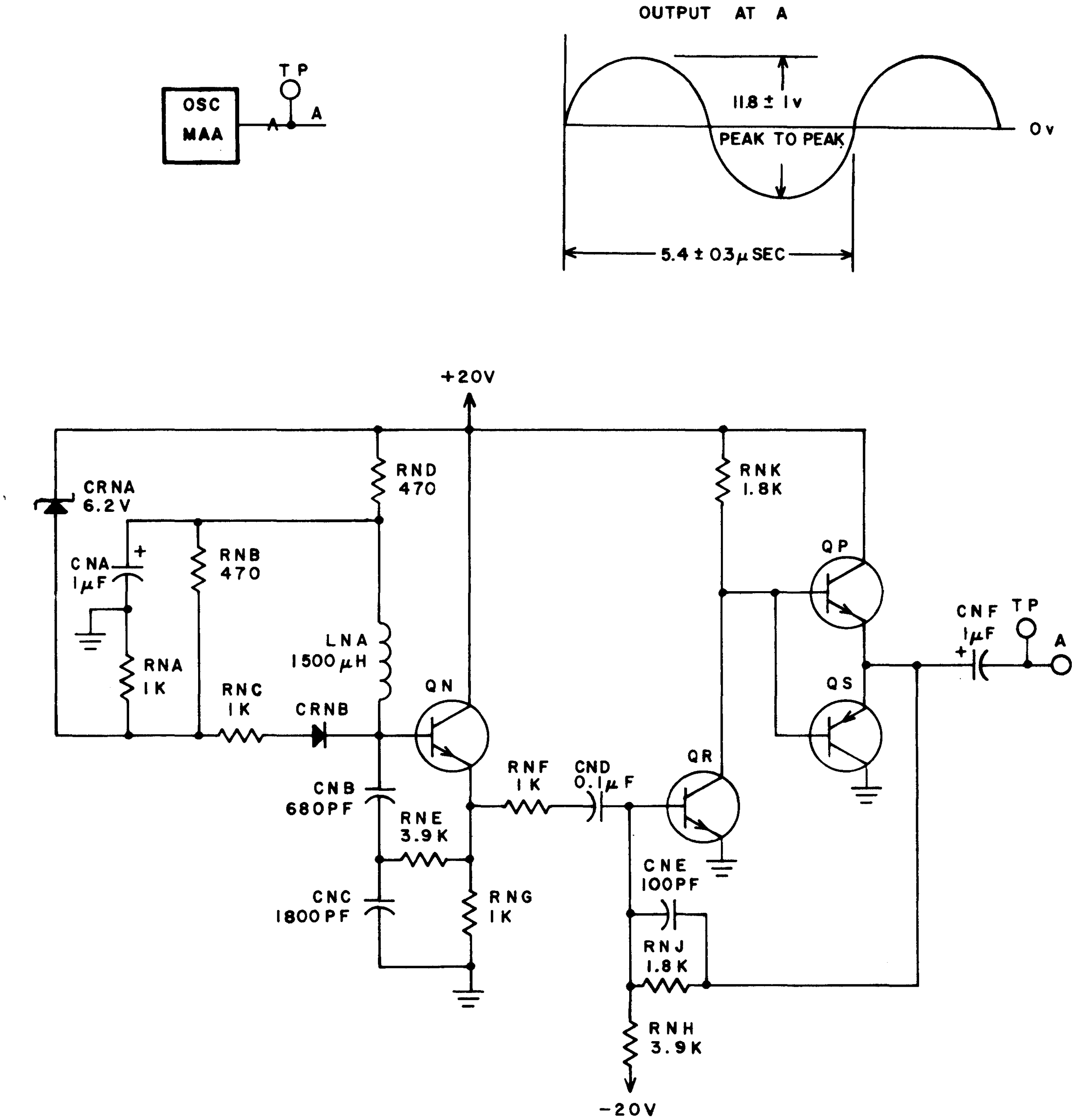
The base-emitter voltage drop across QR holds the base of QR near +0.7v. The current through RNH is then 5.1 ma. With the base current of QR at a low level, the 5.1 ma must flow through RNJ. The voltage at the junction of the emitters of QP and QS must then be about +10v. To maintain this +10v, the collector voltage of QR must be near +10v. The collector current of QR is, therefore, 5.55 ma.

Oscillator

Transistor QN acts as an emitter follower yielding a high current gain with nearly no voltage loss. CNB, CNC, and LNA form a resonant network. Near the resonant frequency, the signal voltage at the junction of LNA and CNB can be much greater than the voltage through RNE in the feed-back portion of the circuit. The gain around the loop formed by QN, RNE, CNB and LNA is greater than 1. The system, therefore, oscillates. When the signal at the base of QN exceeds 6v peak to peak, QN approaches saturation, thereby limiting the amplitude of the oscillation.

Amplifier

Transistor QR is a common emitter amplifier. The output of QR is directly connected to the bases of QP and QS. Transistors QP and QS are emitter followers that provide a low impedance output. Capacitor CNF isolates dc voltages from the load.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

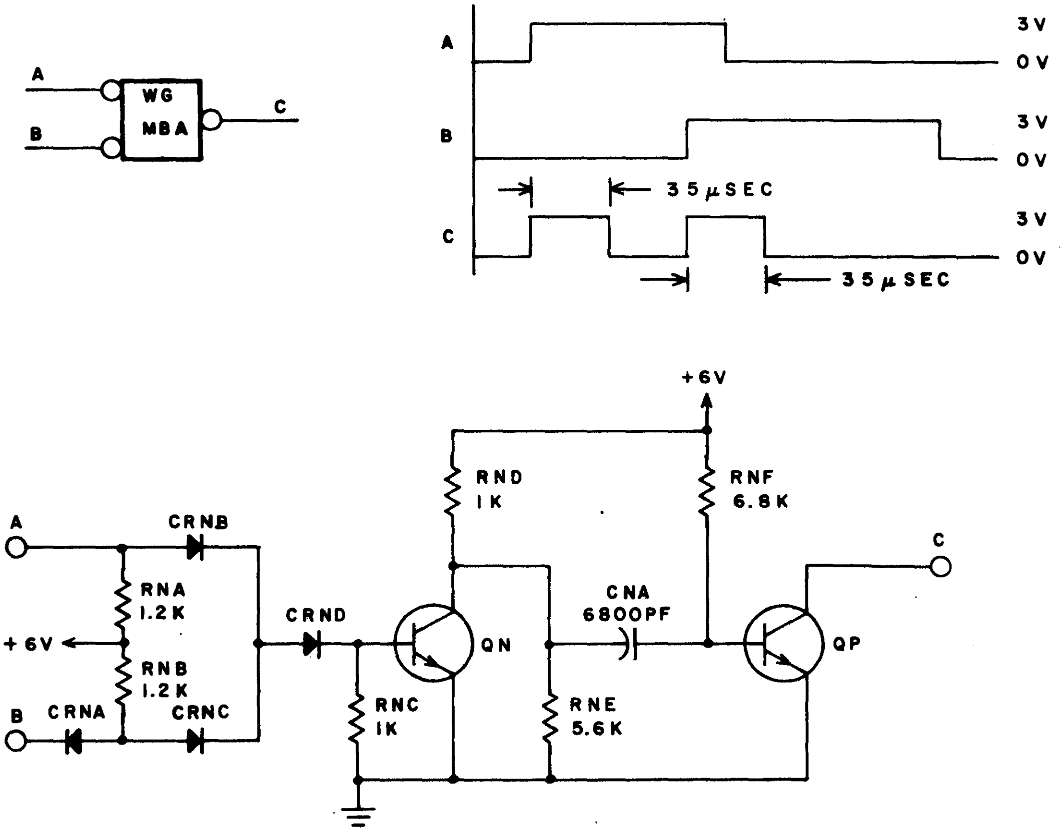
5C18

Figure 7-19. Oscillator - MAA

Waveform Generator - MBA

The MBA circuit (Figure 7-20) is a waveform generator whose output at C is normally at "0" when both inputs A and B are at a "0". When either or both of the inputs go to a "1", a "1" pulse is created at output C for a predetermined length of time.

When both inputs are at "0" (ground), transistor QN is turned off. Transistor QP is forward biased by the +6v source through RNF. Transistor QP then conducts current from output C directly to ground. The output is a "0". During this period the left side of CNA goes to about +5v, while the right side is held at +0. 7v by the base-emitter voltage drop across QP.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

5C17

Figure 7-20. Waveform Generator - MBA

When either or both of the inputs experience a "1", QN turns on. Transistor QN then conducts current away from the left end of CNA, driving it to approximately ground. The voltage across CNA cannot change immediately, so the base of QP goes to about -4. 3v, turning QP off. With QP not conducting the output goes to a "1" (voltage is supplied by the circuit driven by MBA). CNA now charges through RNF until the base of QP reaches approximately +0. 6v. Transistor QP then begins to turn on and the output falls back to "0". The pulse width in this case is about 35 usec.

When both inputs return to "0", QN is again turned off. The left side of CNA goes toward +5v through the voltage divider formed by RND and RNE. The right side of CNA is again held at +0. 7v by the base-emitter voltage drop across QP.

Adjustable Waveform Generator - MBC

The MBC circuit (Figure 7-21) is a tuned amplifier which is rung by the negative clock and data pulses present at input A.

The tank circuit connected to the collector of QN is tuned (and is adjustable) to twice the frequency of the input data pulses (each data pulse falls between two clock pulses; absence of a data pulse is interpreted as a zero). The high Q of the circuit provides a fly wheel effect and yields a sinusoidal signal that is almost totally free of peak shift.

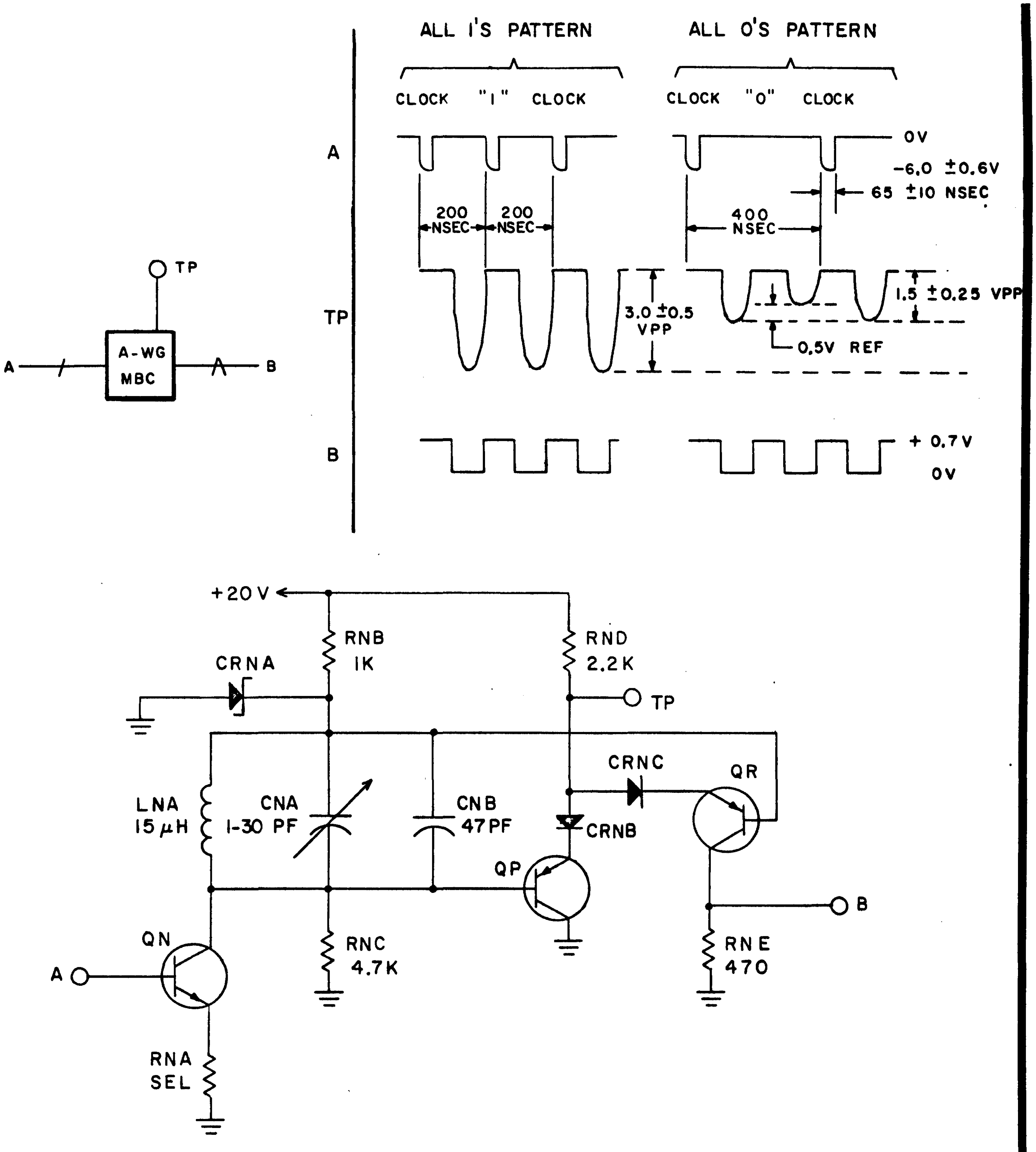
Transistors QP and QR form a zero-crossing detector, emitter follower circuit that provides high impedance so as not to distort the sine wave. The circuit clips the positive half of each sinusoidal excursion so that the signal at the TP is a half-wave rectified sine wave.

The transistor in the output load (next circuit) functions to clamp this rectified signal and to provide what is nearly a square wave output at B.

Quantizing Detector - QAA

The input at A to the QAA circuit (Figure 7-22) is an AC signal. When input A is positive, output B is a "0" or ground. When input A is a null, output B is a "1".

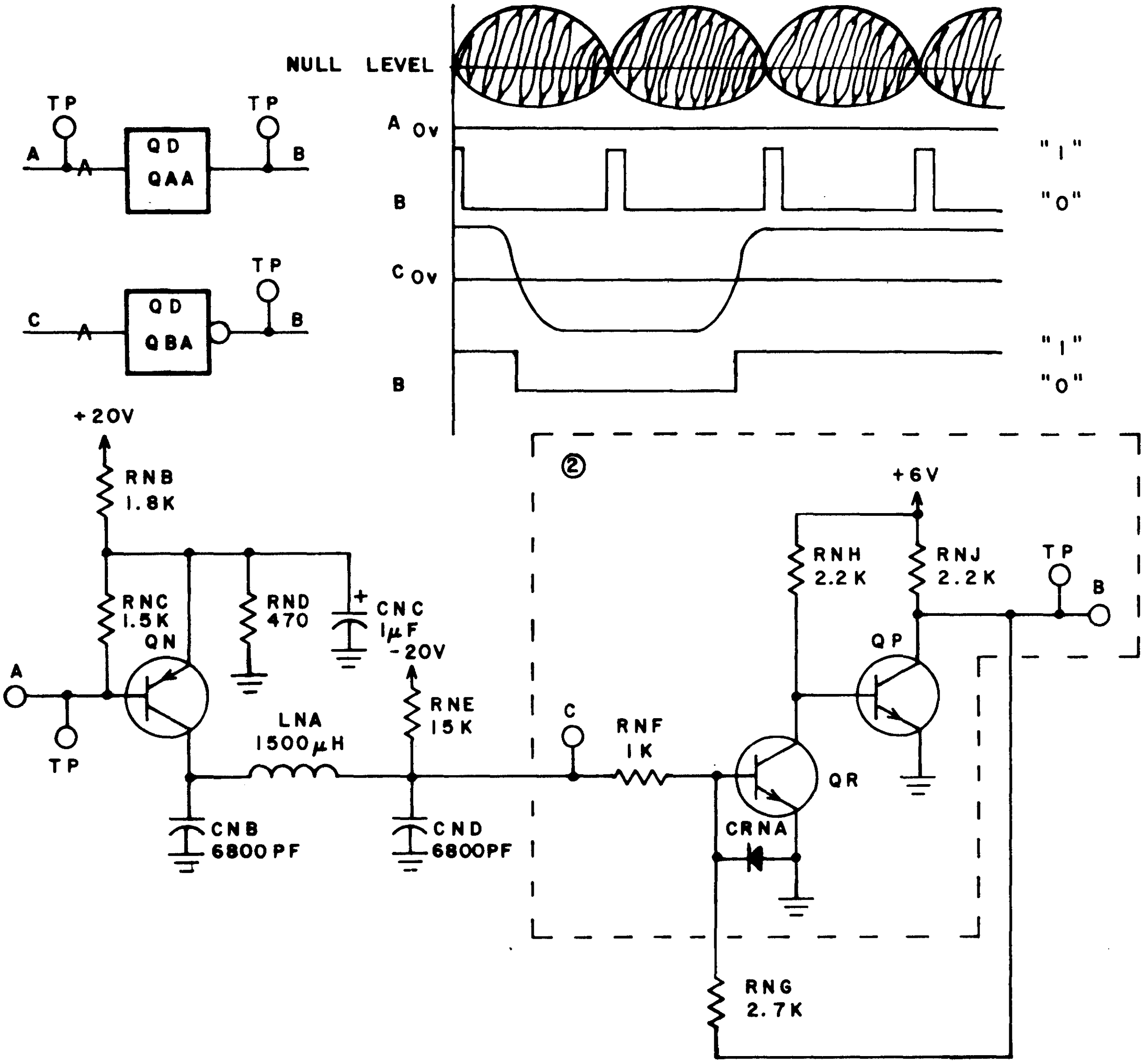
When input A is positive, transistor QN is off. The base of QR goes toward -20v, but is held at about -0. 7 volts by CRNA. Transistor QR is, therefore, off. This allows the base of QP to go positive. Transistor QP turns on, leaving output B at ground.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

5C127A

Figure 7-21. Adjustable Waveform Generator - MBC



NOTES:

1. VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

② QAA USES ENTIRE SCHEMATIC. DOTTED LINE ENCLOSES SCHEMATIC FOR QBA.

5C16

Figure 7-22. Quantizing Detector - QAA, QBA

When the signal on input A drops to a null, QN turns on, applying a positive charge across CNB. CNB, LNA and CND filter the signal to remove any variations in the envelop on the input signal (waveform A). When CND charges to a positive voltage, QR turns on. This drives the base of QP to ground. QP turns off, allowing current to flow from the +6v source through RNJ to output B. A "1" (+3v) appears at B.

Quantizing Detector - QBA

The QBA circuit (Figure 7-22) gives a "0" output at B when input C is negative. When input C is positive, output B will be a "1".

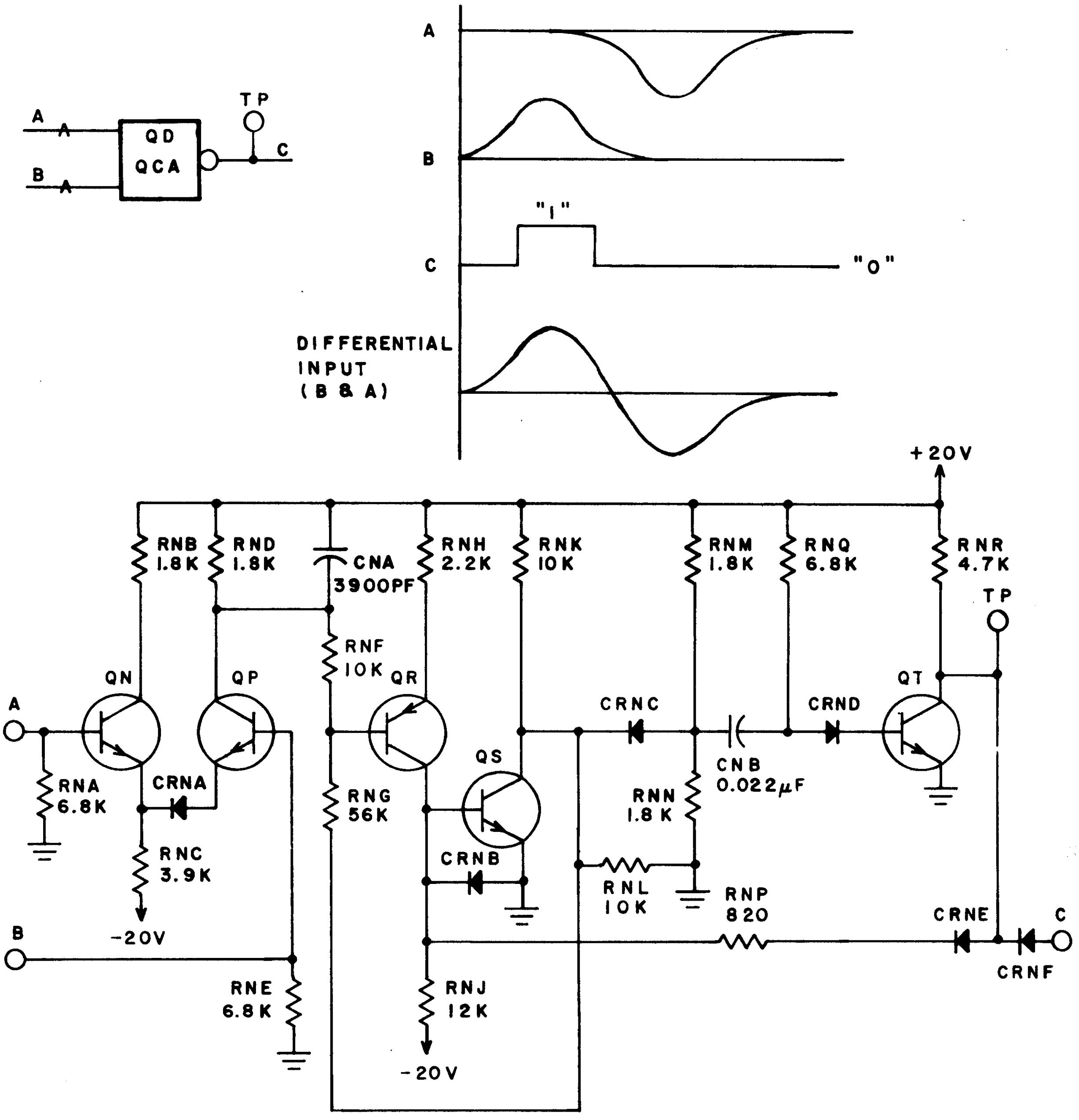
With a negative input at C, the base of QR is negative. The negative voltage is limited to about -0. 7v by CRNA. Transistor QR turns off, driving the base of QP positive. Transistor QP, therefore, conducts current from the +6v source through RNJ to ground. Output B is at ground, or a "0".

With a positive signal at input C, the base of QR is positive. Transistor QR conducts current from the +6v supply through RNH to ground. The base of QP is, therefore, at ground and QP is off. A voltage of +3v is therefore felt at output B (a "1").

Quantizing Detector - QCA

Inputs A and B of the QCA circuit (Figure 7-23) are connected to the outputs of a sector transducer preamplifier. Each time a sector is detected by the transducer, a 55-μsec "1" (+3v) pulse appears at output C. The input at A and B is an analog signal. The output at C is a standard logic signal.

With a 0-volt differential input across A and B, diode CRNA holds transistor QP off, while transistor QN is on. The collector of QP is at about +19v. Transistor QR is, therefore, off. The base-emitter junction of QS is reversed biased through resistor RNJ. Transistor QS is off. Transistor QT is turned on by the forward bias supplied through resistor RNQ and diode CRND. With QT on, diode CRNF is forward biased and conducts current from output C through QT to ground. The output is near ground, or a "0".



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

5C22

Figure 7-23. Quantizing Detector - QCA

DAPN
A11
B11

When a sector mark appears, the differential voltage across inputs A and B rises with B more positive than A. Transistor QP turns on and its collector voltage falls to about +11v. The drop in voltage is felt at the base of QR. Transistor QR turns on, raising the voltage on the base of QS. Transistor QS turns on. Transistors QS and QT comprise a single shot circuit whose pulse width is determined by resistor RNQ and capacitor CNB. Transistor QT turns off, reverse biasing diode CRNF. Output C rises to a "1" level. After 55 μsec, CNB charges sufficiently to turn on transistor QT. Diode CRNF is again forward biased and the output returns to a "0". Resistor RNP provides feedback to keep QS on while QT is off.

Speed Detector - QDA

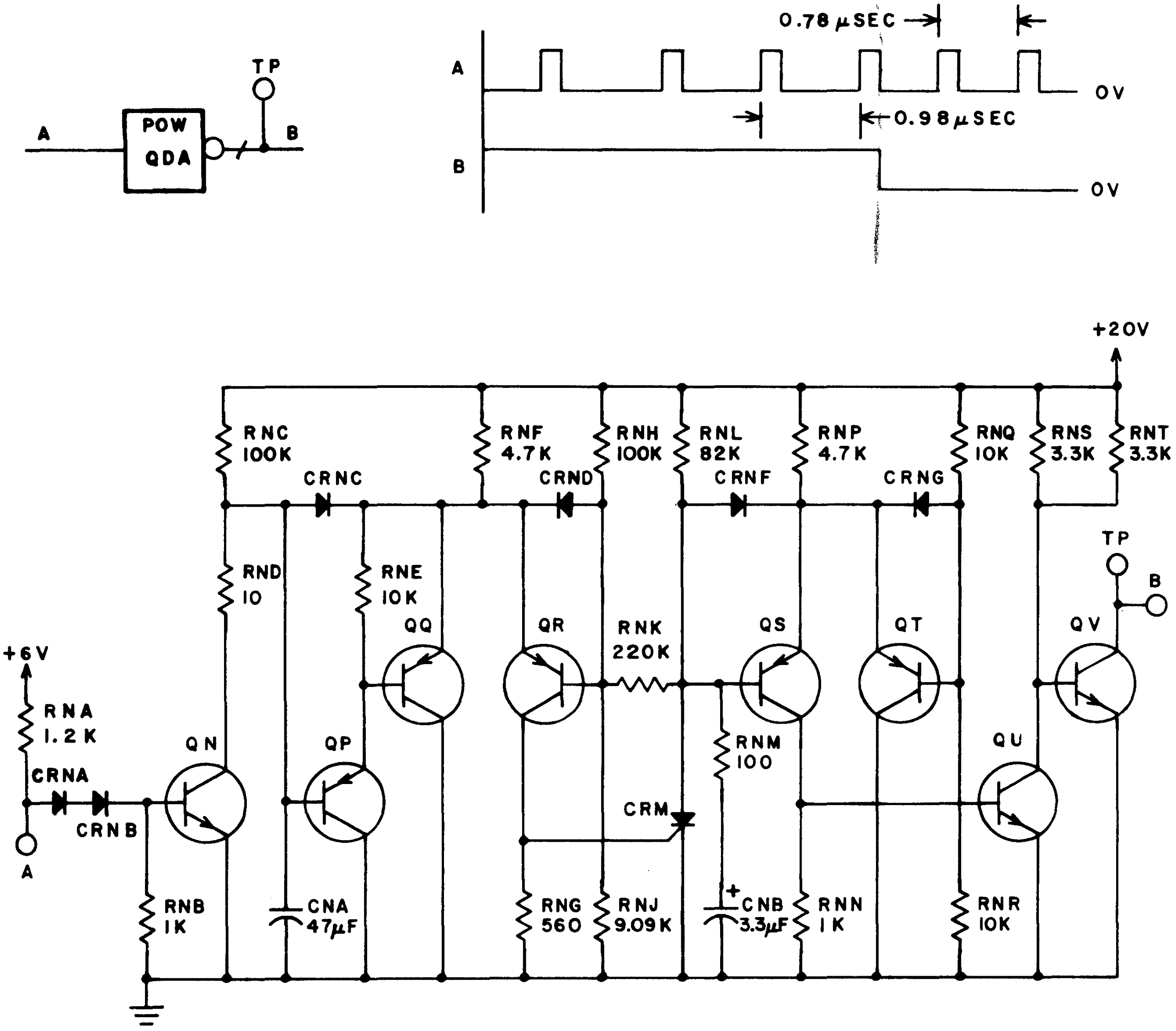
The QDA circuit (Figure 7-24) monitors sector pulses to determine whether the spindle is at a predetermined speed. If the spindle is below speed, no output is present. When the spindle reaches the desired speed, an output current activates the speed relay which signals the controller that the unit is up to speed.

Each time a sector is sensed, a short "1" pulse is applied at input A. Transistor QN conducts and completely discharges capacitor CNA through RND to ground. When the pulse is removed, CNA charges through RNC. When the base of QP reaches the voltage at the base of QR, QP and QQ turn off. Transistor QR conducts current to silicon controlled rectifier CRM, turning it on. CRM draws current from the base of QS driving it to ground, and from the base of QR through RNK. The base of QR falls to about 9.03 volts. OR then turns on firmly and prevents "runt spikes" on the signal to CRM. Once CRM is turned on, CNB begins discharging through RNM and CRM. CRM remains on until the discharge current from CNB falls below the holding current of CRM (typically 1 ma). With the base of QS near ground, QS conducts. Transistor QT turns off, QU is on, and QV is off. No output signal is felt at B.

If the spindle is below speed, pulses arrive at the input at a low repetition rate. CNA repeatedly discharges and recharges to the point where QP and QQ are turned off. The output of QR is a series of positive pulses with a pulse width determined by

$$T = T_I - T_C$$

where T_I is the time between input pulses and T_C is the time for CNA to change to the point where QP is turned off. The pulses repeatedly trigger CRM. CRM holds the voltage at the base of QS below the point where QS can turn off. Since QS is constantly on, QV is constantly off. No output is felt at B.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

5C9

Figure 7-24. Speed Detector - QDA

When the spindle reaches the required speed, the pulses at input A have the same period as T_C. The pulse width out of QR becomes $T_I - T_C = 0$. Transistor QR never emits a pulse. With no pulses out of QR, CRM never turns on. This permits CNB to charge to the point where QS is constantly off. The higher voltage at the base of QS is fed back to the base of QR through RNK to raise the voltage required across CNA to turn off QP. This feedback prevents rapid fluctuation of the output when the spindle is near the required speed. With QS constantly off, QU is off and QV is on. Current flowing through QV activates the speed relay connected to B, and signals the controller that the unit is up to speed.

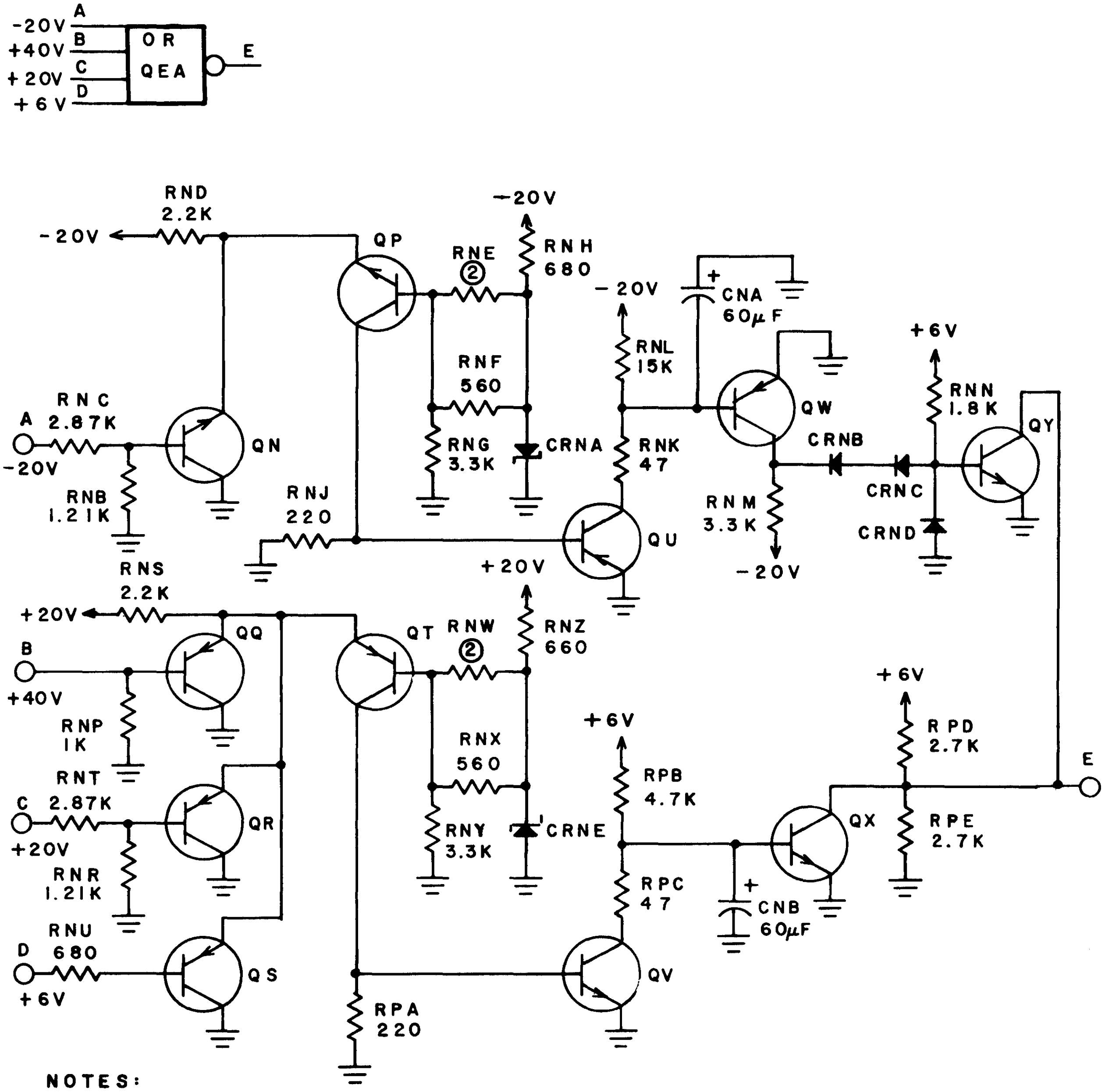
Or - QEA

The QEA circuit (Figure 7-25) detects any decrease in voltage supply greater than 15%. A fault condition will occur if:

1. -20 supply decreases below -17.0v
2. +40v supply decreases below +34.0v
3. +20v supply decreases below +17.0v
4. +6v supply decreases below +5.1v

If all positive supplies are normal, QQ, QR and QS are off. Their emitters are held at +5.8v by Zener diode CRNE and the value of RNW (determined by testing to give a precise collector voltage). Current is pulled through QT, causing a voltage drop across resistor RPA. This voltage drop turns QV on. Transistor QX turns off. If any of the voltage supplies drop below 15% of their operating values, the respective transistor turns on. Transistor QT will then be off. Transistor QV turns off. Transistor QX turns on, driving the output to ground.

The negative voltage segment of the circuit is similar to the positive section. A decrease in the -20v supply below 15% will turn QN on. Transistor QP turns off, causing QU to turn off. Transistor QW turns on causing a voltage drop across RNM which turns QY on. The output drops to ground.



NOTES:

1. VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY

② RESISTOR VALUE TO BE SELECTED.

Figure 7-25. Or - QEA

Quantizing Detector - QFA

The QFA circuit (Figure 7-26) detects a fault in the write and erase drivers or in the head select circuit. If there is an open in the head, either of the drivers is non-functional, or more than one head is selected, a fault signal occurs.

Inputs A and B are connected to the write and erase driver circuits and enter across a voltage bridge to the base of QP. Normally, both inputs are approximately 32v. All diodes are forward biased. Voltage on the base of QP is 32v and the emitter is at 31.4v due to a reverse bias 0.6v base-emitter voltage across QP. Transistor QP is off. All input current goes to ground through RND.

If input A is higher than input B by 1.4v, CRNB and CRNC are forward biased. CRNA and CRND are reverse biased. The voltage on the base of QP becomes that of input B. The emitter of QP is 0.7v higher than the base due to a 0.7v drop across CRNB. Transistor QP is on.

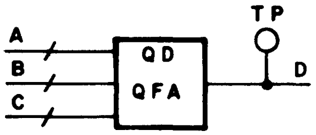
If input B is higher than input A by 1.4v, CRNA and CRND are forward biased. CRNB and CRNC are reverse biased. The base of QP is at the voltage of input A. The emitter of QP is 0.7v higher than the base. Transistor QP is on.

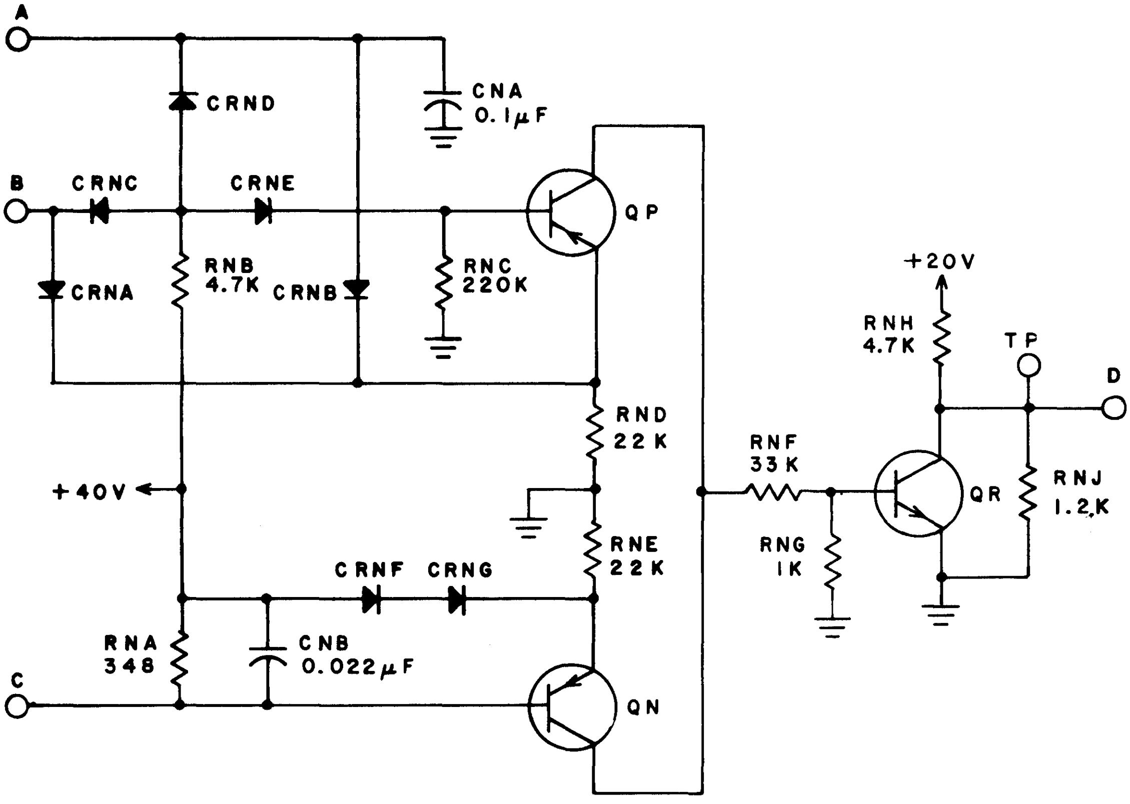
Input C is connected to the head select circuits. If more than one head is selected, the drop in effective resistance (due to external resistors in parallel) results in an increase in current through RNA. This increases the voltage drop across RNA, turning QN on.

If either QN or QP is on, QR turns on. Output D goes to ground to signify a fault condition.

Quantizing Detector - QFB

The QFB circuit (Figure 7-27) is used to amplify and shape an incoming wave. The input at A and B is a differential sine wave. The output at C and D is an amplified and clipped version of the input wave.

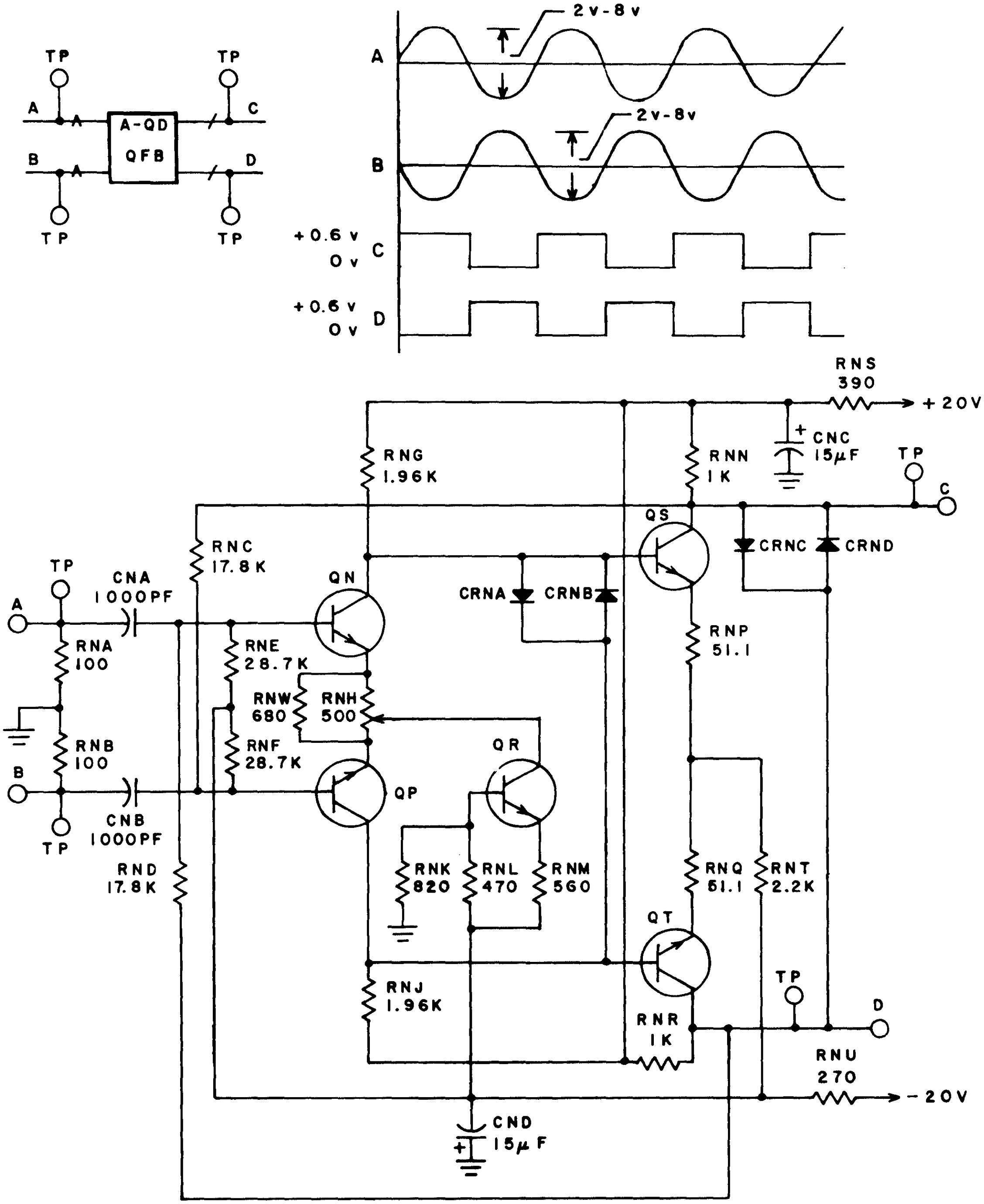




NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

5C27

Figure 7-26. Quantizing Detector - QFA



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

5C24

Figure 7-27. Quantizing Detector - QFB

Transistor QR is the current source for the differential amplifier stage consisting of QN and QP. Capacitors CNA and CNB filter out dc and low frequency noise and pass the input wave which alternately turns on QN and QP. The output at the collectors of QN and QP are clipped by diodes CRNA and CRNB to approximate a square wave. This square wave is fed to the bases of QS and QT for another stage of differential amplification. The square wave output at the collectors of QS and QT is again clipped by diodes CRNC and CRND. The output at C and D is a clipped, square wave between 0v and +0.6v corresponding to the rise and fall of the sine wave at inputs A and B, respectively.

Quantizing Detector - QFF

The QFF circuit (Figure 7-28) produces a positive pulse output in response to a positive input pulse. The width of the output pulse is independent of the input and is adjustable.

Assume a condition where QN is on. With the collector of QN at ground, QP turns off and CNC begins charging (through RNL to ground via QN and QS) toward Vcc volts. The duration of the charging period is controlled by the time constant RNL x CNC. When the base of QQ reaches 0.7 volts, QQ turns on, QS turns off, and the output goes to ground.

With the circuit in the condition of the preceding paragraph, a no-signal state will have the following effect: Ground level at base of QN turns it off. Since QS is also off, current is drawn through the base of QP and turns it on. Current now flows through QP charging CNC in the opposite direction (from preceding paragraph) to about -5.3 volts (Zener diode CRNC voltage minus the 0.7 base-emitter voltage of QQ). As the current increases and decreases (during charging period) through QP, the remaining current still flows through RNL thereby keeping QQ on.

When a clock or data pulse is applied to the base of QN it turns on. With the QN collector at ground, QP turns off and a -5.3v base-emitter voltage appears across QQ, turning it off. Capacitor CNC again charges through the variable resistor RNL until QQ turns on.

When the circuit has been adjusted so that the width of the output pulse exceeds that of the input pulse, QS stays on (after the input drops) to hold the base of QP at ground.

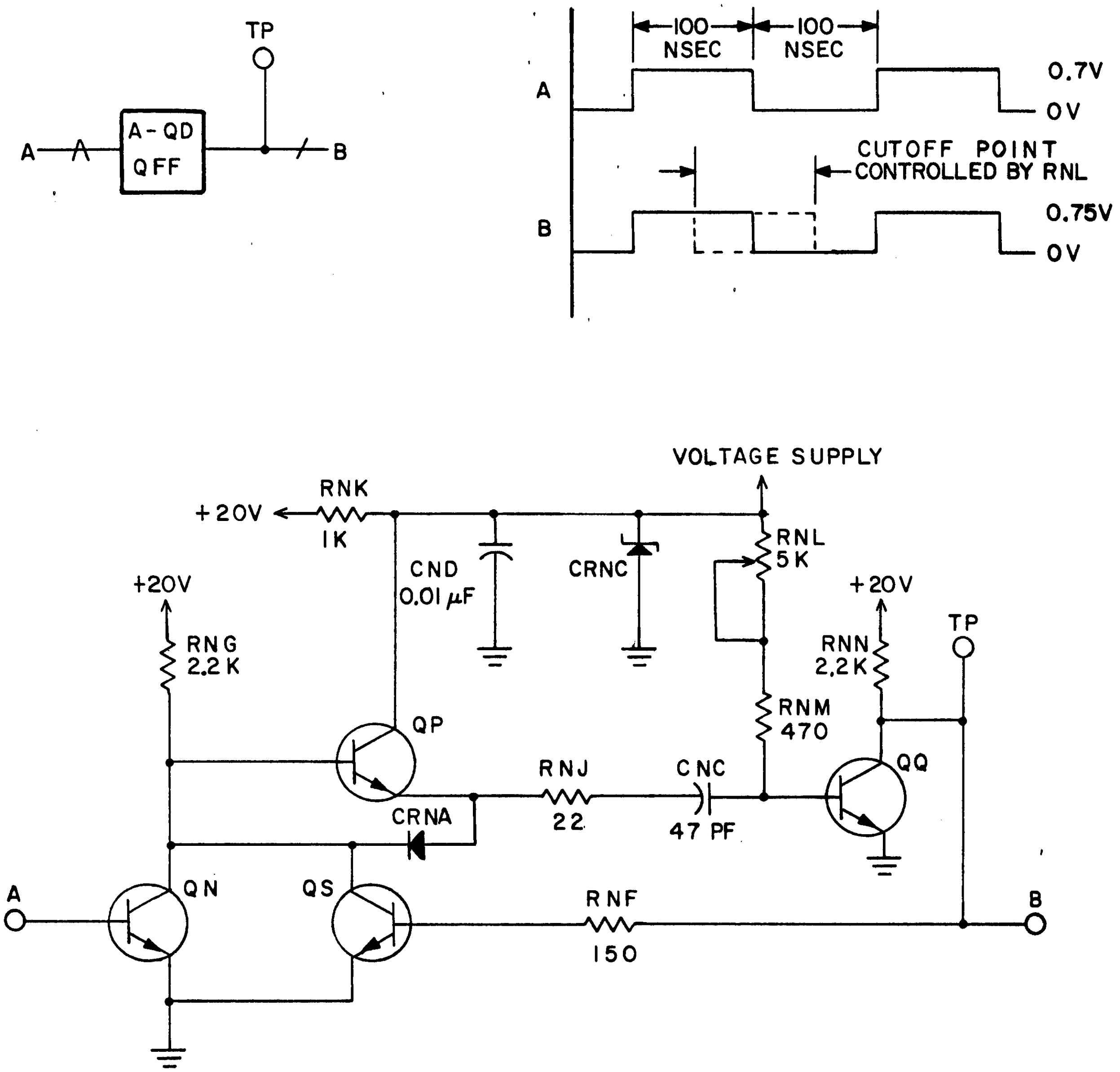
Capacitor CND is a filter capacitor to provide a constant voltage across CRNC.

Line Receiver - RAA

The line receiver circuit, RAA, (Figure 7-29) provides a "1" output at C and D when the difference in input voltage (A minus B) is greater than +0.6v. Under any other input conditions, the output will be a "0".

Diode CRNA is used to maintain the threshold level at +0.6v. Without CRNA the threshold would be about +0.1v. That is, if input B were just 0.1v less positive than input A, the circuit would switch to an output of "1".

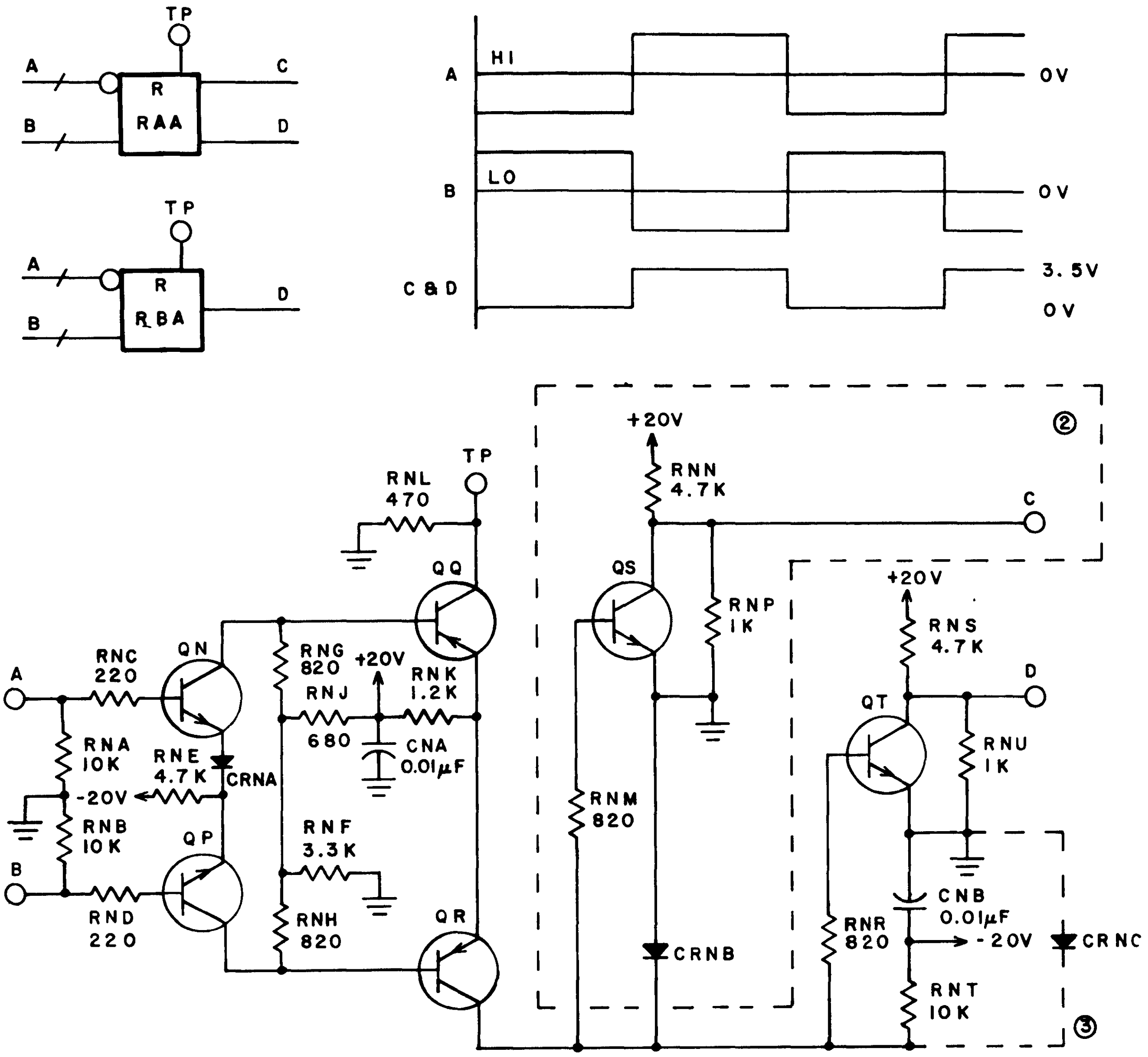
Resistor RNE supplies the emitters of QN and QP with a constant current of about 4.25 ma. If the current in one transistor increases, the current in the other transistor must decrease by an equal amount. If input B is more positive than input A (A minus B is negative), QP will be turned on and QN will be turned off. If the difference "A minus B" is only slightly negative, QP will conduct more than QN, but both will be on.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY

5C128

Figure 7-28. Quantizing Detector - QFF



NOTES:

1. VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

② PORTION WITHIN DOTTED LINE IS USED FOR RAA ONLY.

③ CRNC USED ON RBA ONLY.

5C10

Figure 7-29. Line Receiver - RAA

The base of QR, therefore, becomes more negative than the base of QQ. Transistor QR turns on, driving its collector and the bases of QS and QT positive. Transistors QS and QT turn on, conducting current from the +20v supply through RNN and RNS, respectively, to ground. The output at C and D is near 0v or a "0".

If input A is at least +0.6v more positive than input B (A minus B is greater than or equal to +0.6v), QN turns on and QP turns off. The base of QQ is then more negative than the base of QR. Transistor QQ turns on conducting current from the +20v supply, through RNK and RNL to ground. Transistors QS and QT are turned off as there is no current to their bases. Current is then allowed to flow from the +20v supply, through the load resistors to outputs C and D. The value of the output voltage is tempered by the resistors RNP and RNU to ground, and is held at a "1" level. The output is a "1".

Line Receiver - RBA

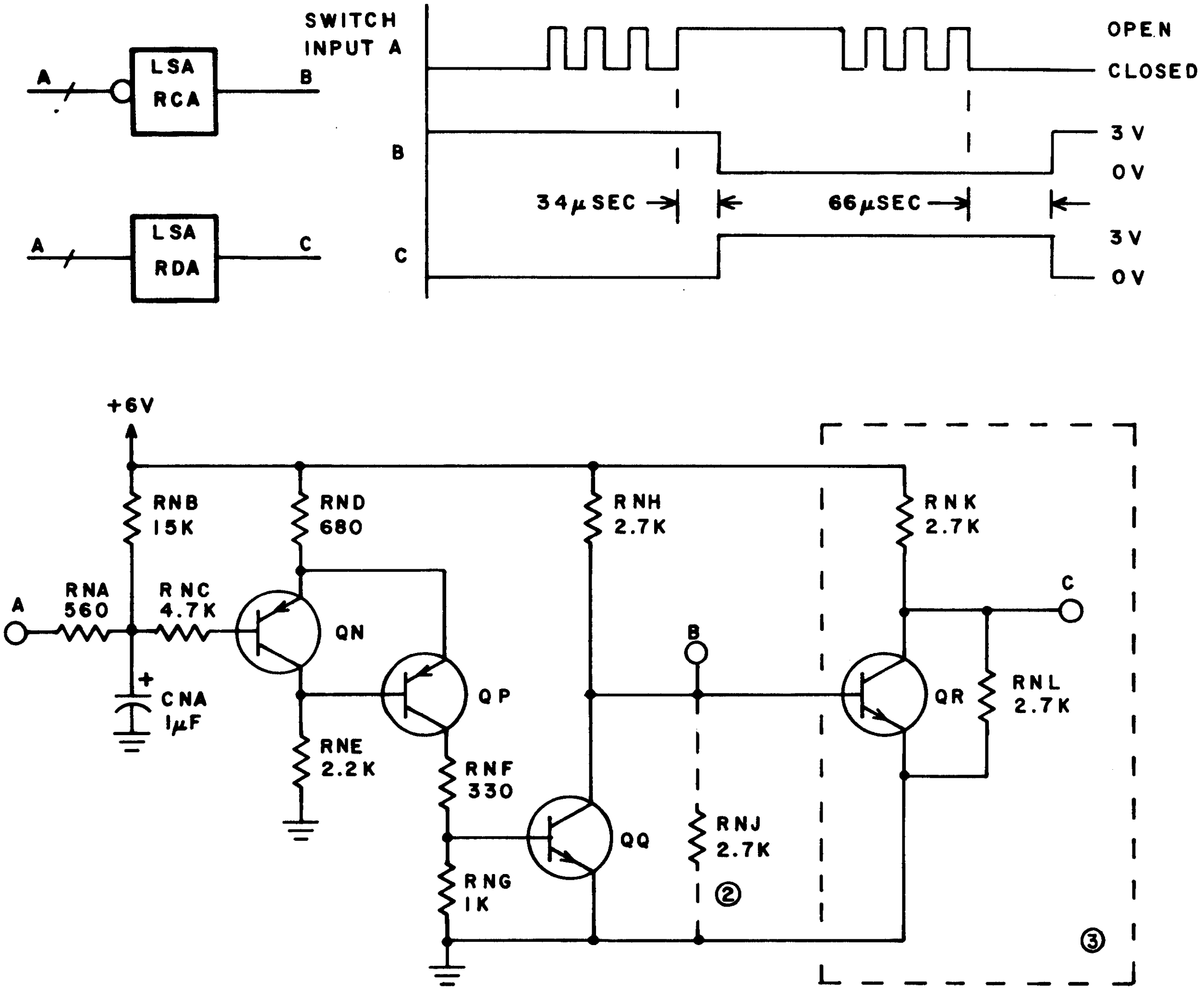
The operation of the RBA circuit (Figure 7-29) is identical to the RAA circuit, except that output C and its related circuitry are omitted. Output D remains intact (with the addition of diode CRNC) and functions the same as output D in the RAA circuit. For a detailed discussion of the RBA circuit, refer to the discussion of the RAA circuit.

Switch Receiver - RDA

Switch Receiver RDA (Figure 7-30) produces a "1" (+3v) output at C when the grounded switch connected to input A is open. When the switch is closed a "0" (0v) is felt at output C.

A switch to ground is connected to input A. When this switch is open, capacitor CNA approaches +6v and QN is shut off. Transistor QP is, therefore, on and conducts current to the base of QQ through resistor RNF. Transistor QQ turns on, driving the base of QR to ground. Transistor QR is off, which allows current to flow from the +6v supply through RNK to output C. The output is a positive voltage, or a "1".

When the switch is closed, the voltage across CNA rapidly increases through RNA and the switch to ground because of the short time constant of RNA and CNA. Any contact bounce on the switch will increase the discharge time. As the voltage across CNA decreases, QN begins to turn on. As QN conducts current to the base of QP, the forward bias on QP is decreased and QP begins to turn off. As QR turns off, the current through RND decreases due to the higher lead resistance (RNE) of QN compared with QP (RNF). The current drop through RND causes a decrease in the voltage drop across RND. The bias on QN is, therefore, increased. The cycle goes rapidly to completion. Transistor QP is shut off. With QP off, the base of QQ is near ground, causing QQ to shut off. This allows the +6v supply to flow through RNH to the base of QR. Transistor QR, therefore, conducts current away from output C and the output is near ground or "0".



NOTES:

1. VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

② DOTTED CONNECTION AND RESISTOR RNJ ARE FOR RCA ONLY.

③ CIRCUIT WITHIN BROKEN LINE BOX IS ADDED FOR RDA ONLY.

5C11

Figure 7-30. Switch Receiver - RDA, RCA

When the switch is opened again, CNA charges slowly to +6v due to the long time constant of RNB and CNA. Any contact bounce on the switch will hold CNA well below the switching level of QN until the bouncing ceases. As the voltage across CNA increases, QN begins to turn off. Transistor QP begins to conduct current away from the emitter of QN. Transistor QP turns on rapidly because of this positive feedback. The output then returns to "1".

Switch Receiver - RCA

The operation of the RCA circuit is similar to the RDA circuit, except that transistor QR is omitted and the output is taken directly from the collector of QQ at B (Figure 7-30). The output is, therefore, opposite from the output of the RDA circuit under the same switch condition. When the switch is open, the output at B is a "0". When the switch is closed, the output at B is a "1". For a detailed discussion of this circuit refer to the RDA circuit description.

Line Receiver - RFA

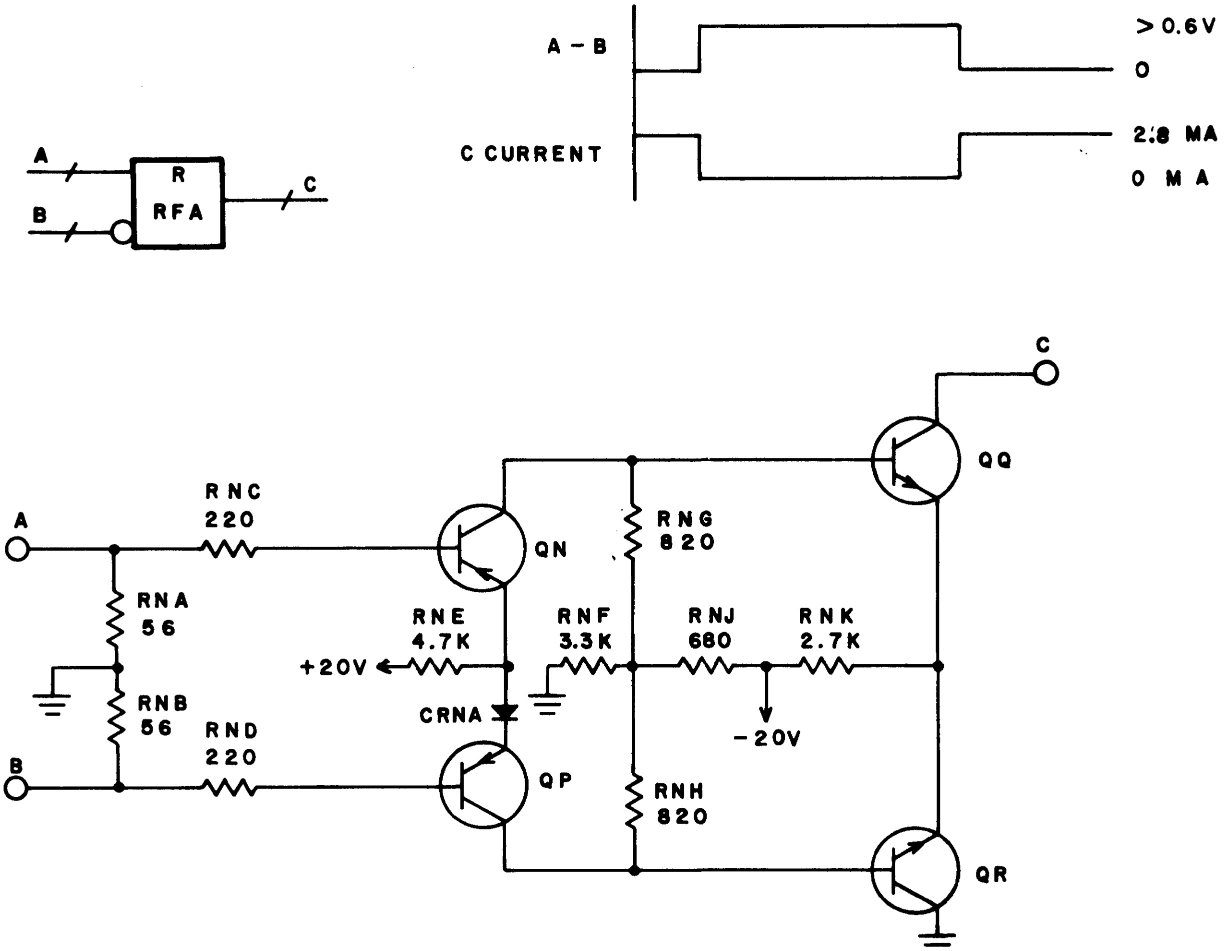
The RFA circuit (Figure 7-31) provides a non-standard "0" output at C when input A is at least 0.6v more negative than input B. Diode CRNA holds the threshold at 0.6v. Under all other input conditions the output will be a non-standard "1".

If the differential input (A-B) is greater than 0.6v, transistor QP turns on and QN turns off. This drives the base of transistor QR more positive than the base of QQ. Transistor QR conducts current from the -20v supply, through RNK to ground. The output at C is near 0v.

If the differential input (A-B) is less than 0.6v, QN turns on and QP turns off. The base of QQ goes more positive than the base of QR. Transistor QQ conducts and a negative voltage is felt at output C.

Since a "1" is defined in MDD logic as the most positive voltage, the 0v output in the first case is interpreted as a non-standard level "1". The negative voltage output in the second case is, therefore, a non-standard level "0".

The receiver is self-terminated with 56 ohms to ground on each line.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

8C46

Figure 7-31. Line Receiver - RFA

Delay - UA-, UBA

The capacitive delay circuit (Figure 7-32) delays a "1" input at A for a specified period of time before providing a "1" output at B. The delay time for a "0" pulse is negligible. The delay circuit consists of a capacitor connected to ground.

Assume that a "0" (ground) enters at A. If the capacitor is discharged, it remains discharged. The output is an immediate "0". If the capacitor is charged when the "0" signal enters, it discharges almost instantaneously. The "0" appears at output B with no noticeable delay.

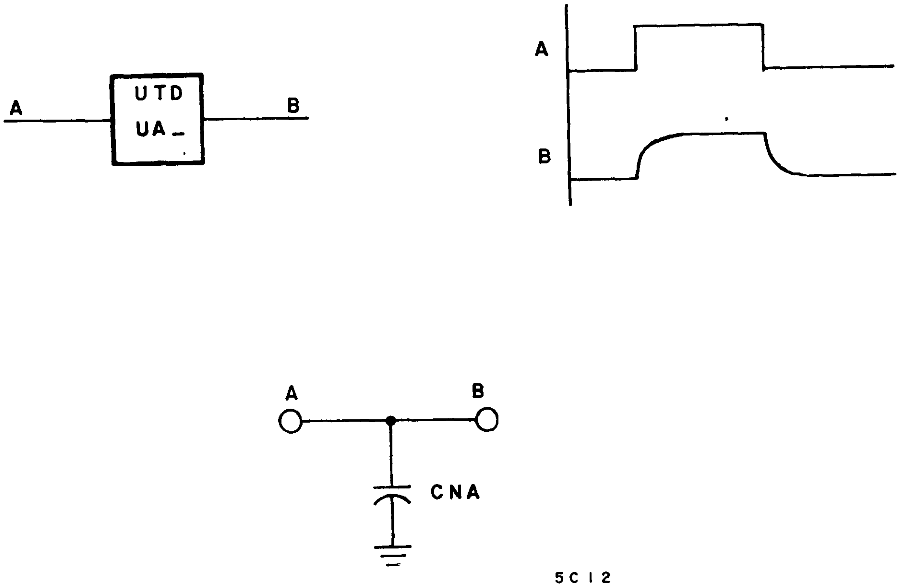


Figure 7-32. Delay - UA-, UBA

If a "1" (+3. 0v) enters at A, and the capacitor is discharged, the capacitor must first charge to a minimum "1" voltage (typically +0. 7v) before the "1" appears at output B. The time necessary to charge the capacitor to this minimum voltage is the delay time of the circuit. The charge time is dependent on the value of the capacitor, the value of an external resistor between the source voltage and the delay circuit, and the minimum voltage required to produce a "1" response.

Delay times for capacitive delays used in the MDD unit are as follows:

Delay	Time
UAA	0. 3 μsec
UAB	0. 4 μsec
UAC	0. 2 μsec
UAD	1 μsec
UAE	500 μsec
UAF	2 μsec
UAG	0. 1 μsec
UAL	10 μsec
UAM	8 μsec
UAN	5 μsec
UBA	15 μsec

Delay Circuit - UCA

The UCA circuit (Figure 7-33) provides a delayed "0" output signal at B a set time after a "0" is felt at input A. A "1" signal is not delayed.

The operation of the UCA circuit is similar to the UDA circuit except the final transistor QU (Figure 7-33) is omitted for the UCA circuit. This allows a "0" output when transistor QT (Figure 7-33) conducts, and a "1" output when QT is turned off. For a detailed discussion of this circuit, refer to the UDA circuit.

The time delay is still dependent upon the values of RNC and CNA. The delay for a UCA circuit will be slightly less than the delay for an identical UDA circuit due to the extra time taken for transistor QU to turn on in the UDA circuit.

Delay Circuit - UCB

The UCB circuit is identical in operation to the UCA circuit (Figure 7-33). The values of RNC and CNA are changed to produce a different time delay.

Delay Circuit - UCC

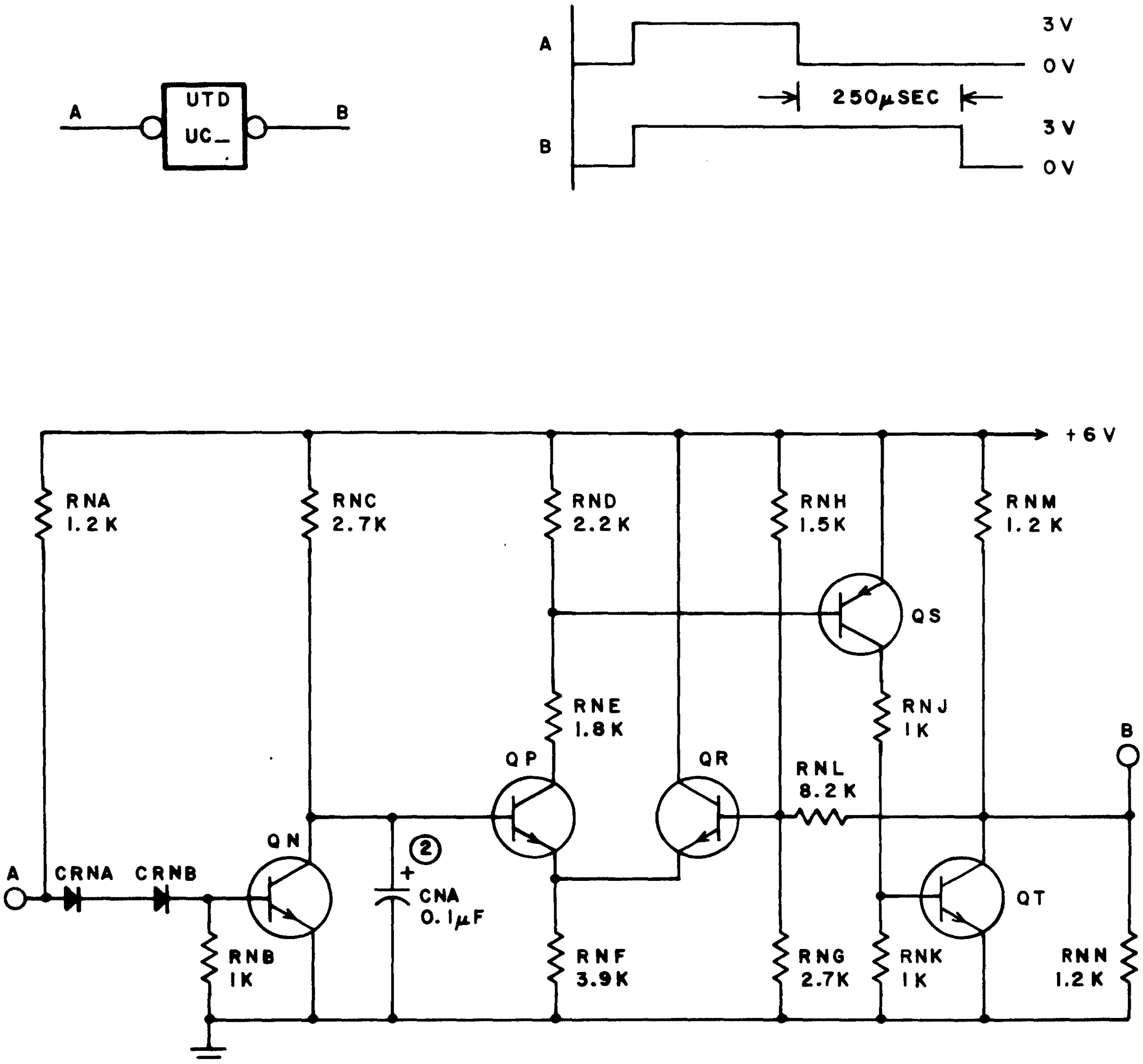
The UCC circuit is identical in operation to the UCA circuit (Figure 7-33). The values of CNA and several resistors are changed. In addition, a 10-ohm resistor is added in series with the collector of QN to increase the discharge time of CNA when QN is turned on.

Delay Circuit - UCD

The UCD circuit is identical in operation to the UCA circuit (Figure 7-33). The values of CNA and several resistors are changed. In addition, resistors RNA and RNB and their connections are omitted, CRNA and CRNB are replaced by a 1K resistor, and a 47-ohm resistor is added in series with the collector of QN to increase the discharge time of CNA.

Delay Circuit - UCE

The UCE circuit is identical in operation to the UCA circuit (Figure 7-33). The values of CNA, RNC and RNH are changed. In addition, a 47-ohm resistor is added in series with the collector of QN to increase the discharge time of CNA. The feedback to the base of QR through RNL is omitted. Resistor RNG is replaced by a 3.6v Zener diode to limit the voltage on the base of QR to +3.6v.



NOTES:

1. VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

② CNA IS AN ELECTROLYTIC CAPACITOR FOR UCA AND UCE CIRCUITS ONLY.

5C8

Figure 7-33. Delay Circuit - UCA, UCB, UCC, UCD, UCE

Delay - UDA

The UDA circuit (Figure 7-34) provides a "1" output at B a set length of time after a "0" enters at input A. There is no delay for a "1" input signal. The output is an immediate "0".

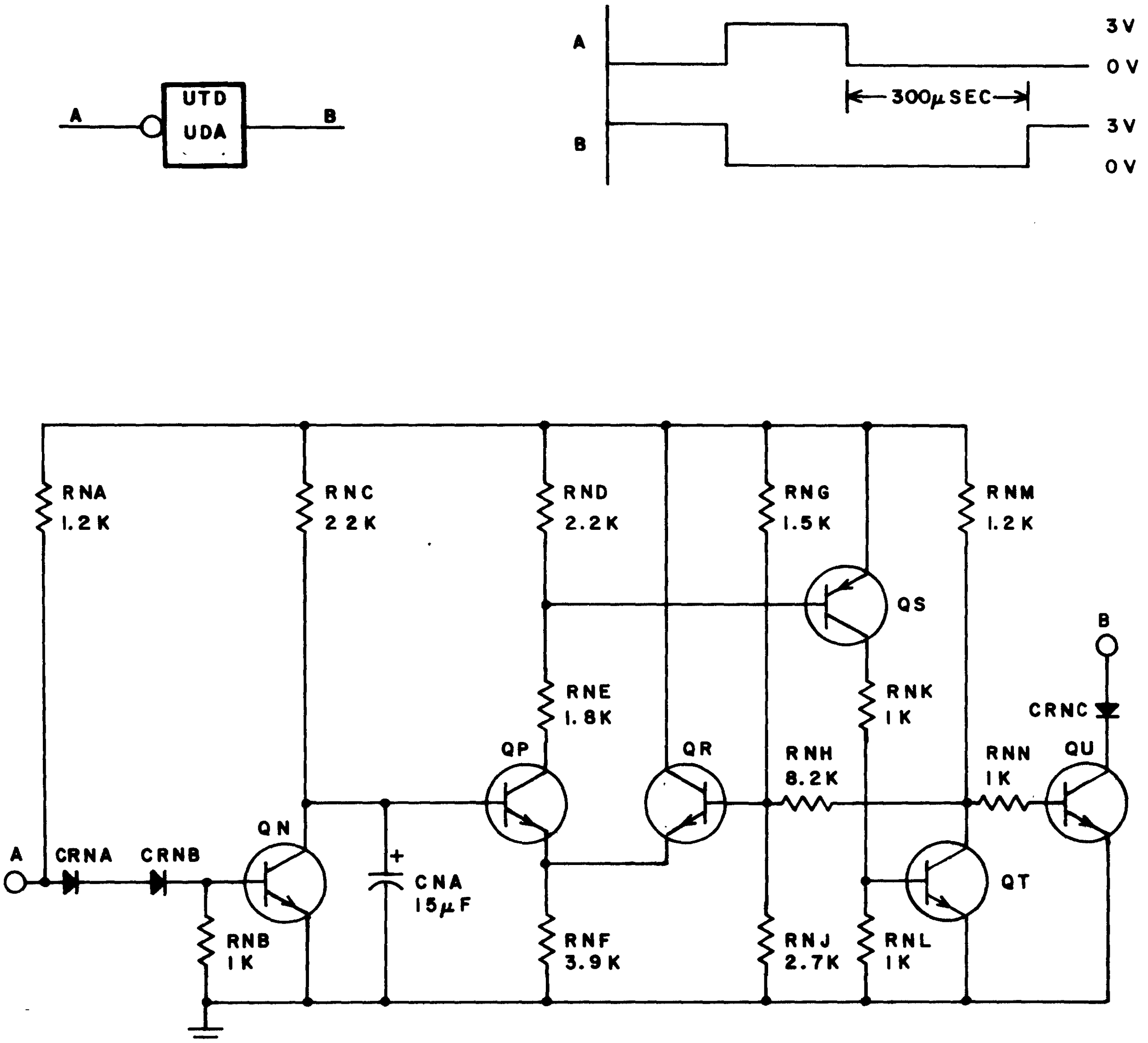
When a "1" appears at input A, QN conducts current from the +6v supply, through RNC to ground. The base of QP, therefore, approaches ground. The base of QR is held at approximately +3.8v by the voltage dividing action of RNG and RNJ. The emitters of QP and QR are, therefore, held at approximately +3 volts. QP is off. The base and emitter of QS remain at +6 volts, so QS is off. The base and emitter of QT are both at ground. Transistor QT is off. The collector of QT goes to approximately +2.4v due to the voltage dividing network formed by RNM, RNN and the base-emitter voltage drop across QU. Transistor QU is turned on and the output is held near ground, or a "0".

When a "0" (ground) appears at input A, QN turns off. This allows capacitor CNA to begin charging from the +6v supply through RNC. When the voltage at the base of QP reaches approximately +3.8v, QP starts to conduct, drawing current away from the base of QS. Transistor QS starts to turn on, forward biasing the base of QT. Transistor QT starts conducting. As the collector of QT approaches ground, the voltage on the base of QR is drawn off through RNH. This decreases the voltage on the emitters of QR and QP and drives QP to saturation. With QP saturated, QS and QT are also driven toward saturation. When QT conducts, the base of QN goes toward ground. Transistor QU is cut off and the output voltage rises to a "1" level.

The time delay is determined by the values of RNC and CNA.

Delay - UDB

The operation of the UDB circuit is identical to that of the UDA except the size of capacitor CNA (Figure 7-34) differs to cause a delay of 115 ±25 ms.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

5C7

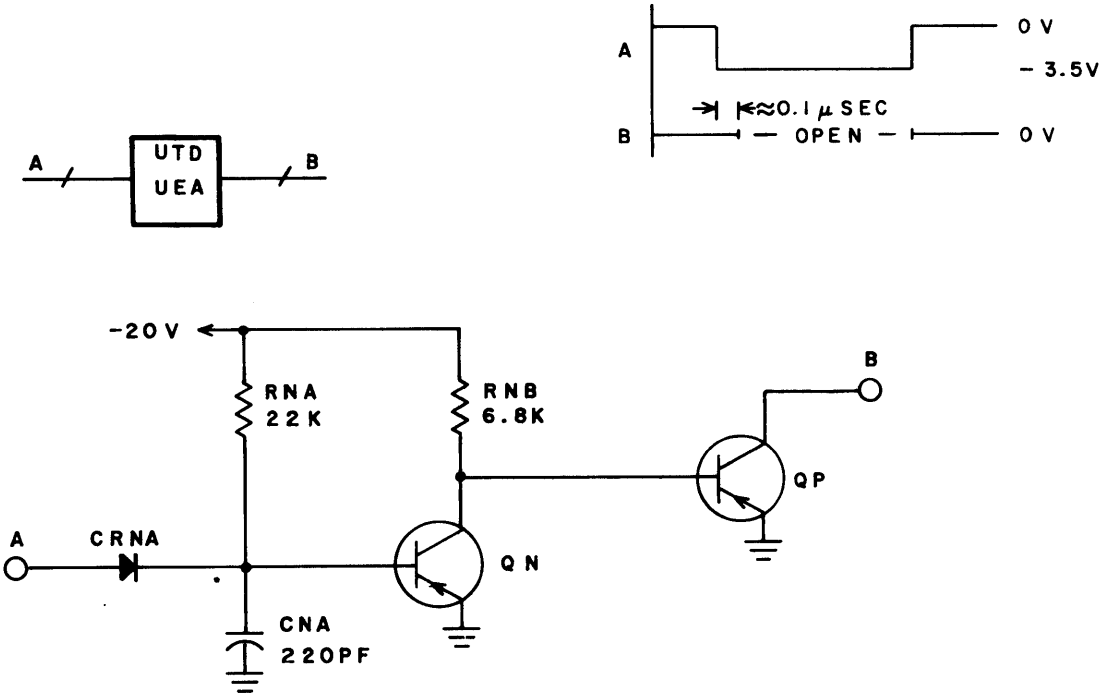
Figure 7-34. Delay - UDA, UDB

Undirectional Time Delay - UEA

The UEA circuit (Figure 7-35) provides a 0.1-μsec delay between the time that a -3.5v signal appears at A and the time that transistor QP turns off. Output at B is either ground or an open circuit.

When input A is near ground, QN is off. Transistor QP is on. The output is ground.

When input A goes to -3.5v, capacitor CNA begins charging. After 0.1 μsec the base of QN is sufficiently negative to turn QN on. Transistor QP turns off. The output is an open circuit.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

6C44

Figure 7-35. Undirectional Time Delay - UEA

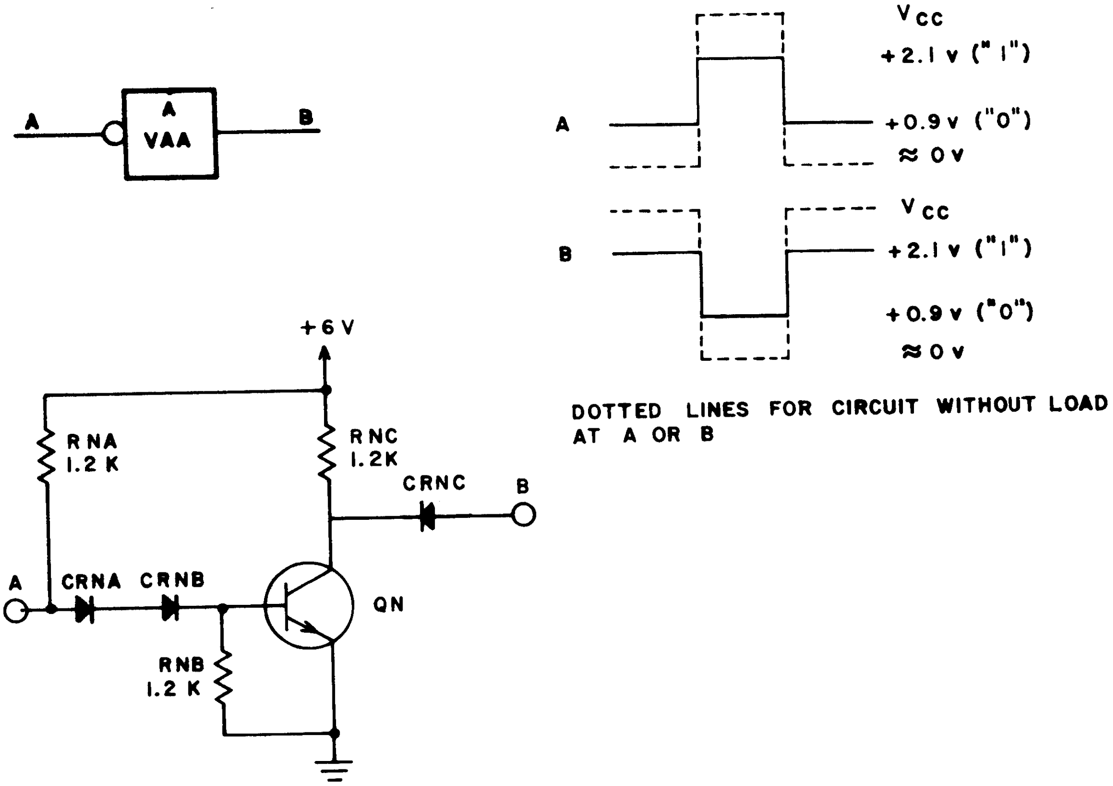
And - VAA

The VAA circuit (Figure 7-36) consists of a single NPN transistor. When all inputs connected to A are at a "1" level, the output at B will be a "0". Any "0" appearing at A will result in a "1" output at B.

When the input to A is a "0", A is held at about +0.9v. This input is not sufficient to forward bias diodes CRNA and CRNB or transistor QN. Transistor QN is off. The output at B is a "1".

When the input to A is a "1", A rises to about +2.1v. This voltage forward biases CRNA, CRNB and QN. Transistor QN turns on, conducting current away from B to ground. Output B is left at about +0.9v, or a "0".

Diodes CRNA and CRNB provide noise immunity up to 1.4v. Resistor RNB connected to ground turns off QN when the positive voltage is removed from A.



DOTTED LINES FOR CIRCUIT WITHOUT LOAD AT A OR B

NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

5C21

Figure 7-36. And - VAA

And - VAB

The VAB circuit (Figure 7-37) consists of two silicon peripheral logic inverters whose outputs share a common load resistor, RNE. When both inputs A and B are "0" (ground), the output at C will be a "1" (+3v). If either or both of the inputs are a "1", the output at C will be a "0". This is an AND gate for zeroes, or a NAND function.

When both A and B are at ground, QN and QP are off. The output at C is supplied from the +20v source through RNE. The output is a positive voltage, representing a non-logical "1". If input A experiences a positive voltage while B is at ground, QP turns on and conducts current from the +20v supply through RNE to ground. The "0" on B has no effect, as all the supply voltage is tapped to ground. The output at C is ground, or a "0". The situation is similar if A is "0" and B is "1". The output is "0". If both A and B have positive voltage applied to them, QN and QP both conduct. The output is "0".

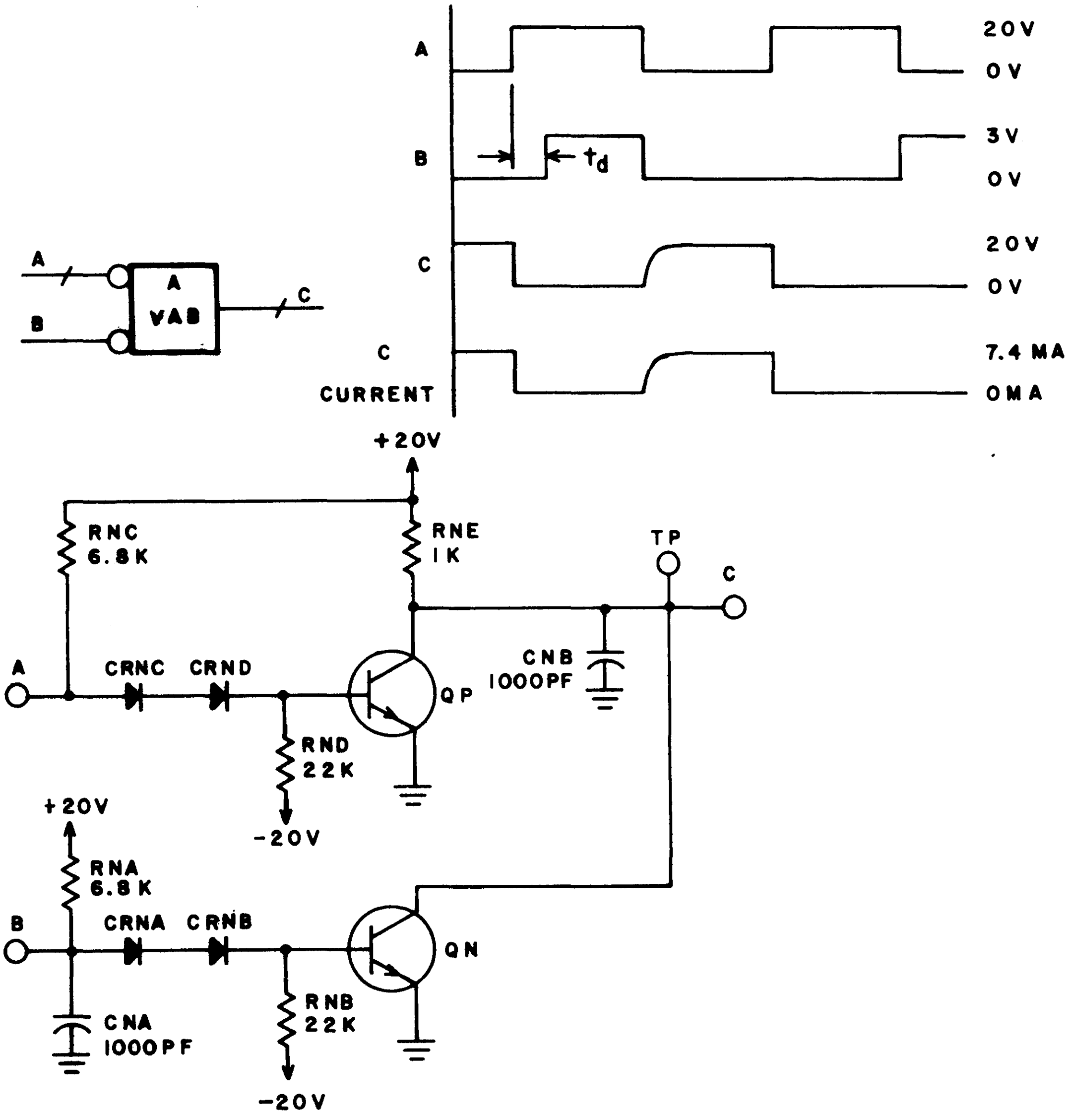
Capacitors CNA and CNB provide a one's delay on input B and output C, respectively. They also maintain a noise barrier to isolate the circuit from stray pulses on the lines.

And/Or (Single Input) - VAC, VJW

The single input AND/OR or silicon peripheral logic (SPL) inverter (Figure 7-38) provides an inversion from input A to output B: A "1" on A produces a "0" on B, or a "0" on A produces a "1" on B. The inverter's output may be connected to the output of other inverters to form NAND functions or NOR functions.

The SPL inverter is a single NPN silicon transistor connected as a common emitter amplifier. When A is a "0" (between 0v and +0.3v) the transistor is off. This allows current to flow from the +20v supply, through RNB to output B. The output is a "1". When input A is a "1" (between +0.7v and +3.0v) the transistor turns on. The transistor conducts current from the +20v source, through RNB to ground. This leaves output B near ground, or a "0".

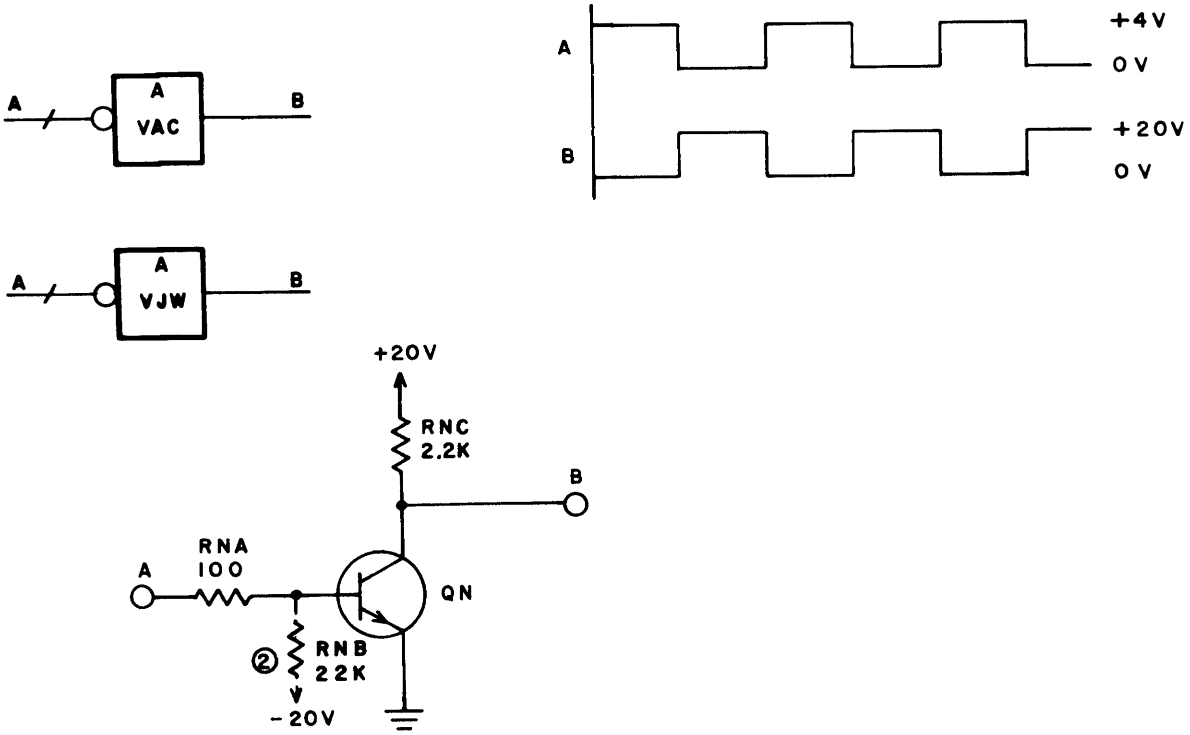
Since the base-emitter threshold for a silicon transistor is approximately +0.7v, the circuit ignores up to 0.5v of transient noise.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

5C14

Figure 7-37. And - VAB



NOTES:

1. VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.
② DOTTED LINE TO -20V AND RESISTOR RNB FOR VJW ONLY.

5C13

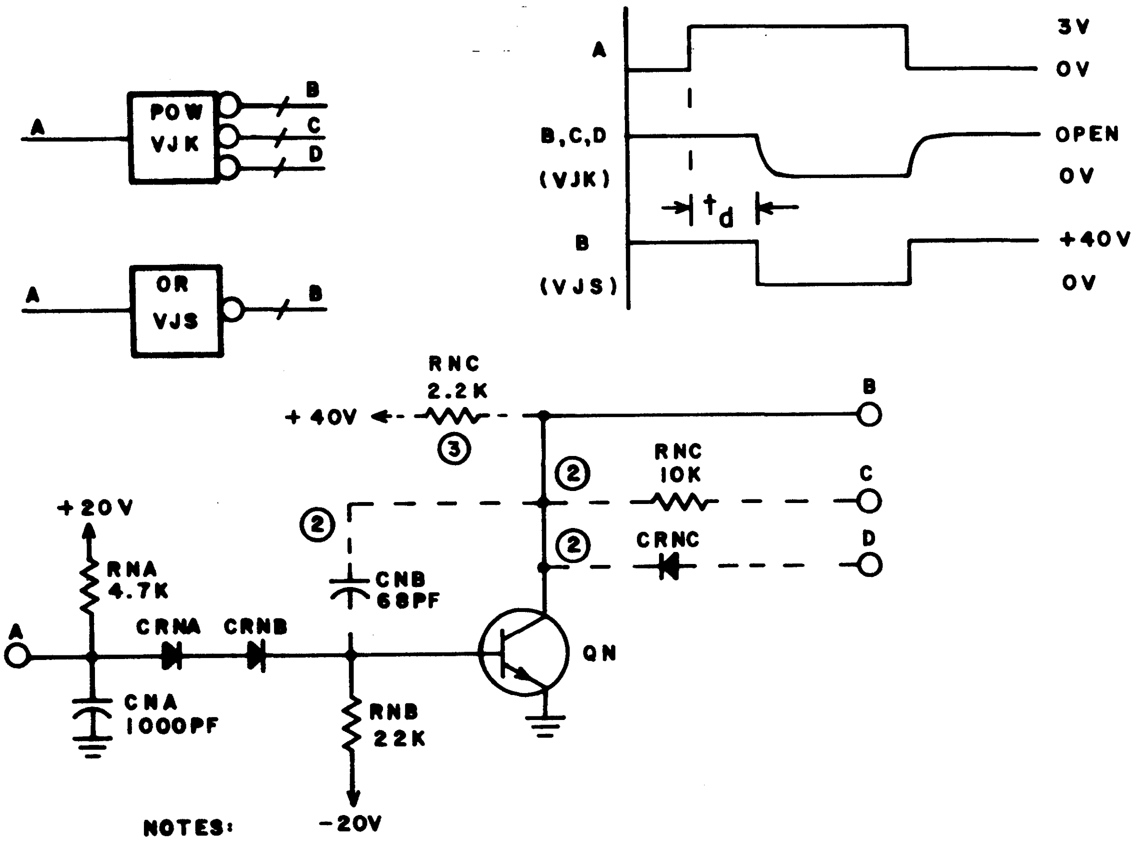
Figure 7-38. And/Or (Single Input) - VAC, VJW

If the circuit drives just one other transistor, the output may be connected directly to the base of the driven transistor. For a fan-out of 2 or more, a base isolation resistor is required for each driven transistor. This resistor ensures that the base drive provided to each of the driven transistors will be nearly independent of differences in base-emitter voltages. For a fan-out of 2 the collector load resistor must be reduced by one-half its value for driving one transistor to provide for the additional voltage drop across the isolation resistors.

Switching time for an inverter with a fan-out of 1 is typically 15 nsec.

Power Driver - VJK

The VJK circuit (Figure 7-39) is similar to the VJS circuit with the addition of capacitor CNB and two outputs. CNB slows the switching time of QN and provides a ramp output. Output B connects to the center tap of the head. Output C contains a 10K resistor and is connected to a voltage supply in a fault detect circuit. If two heads are selected the effective resistance falls to 5K (two 10K resistors in parallel). The increase in current causes a Fault signal. Output D contains a diode that isolates each Write Gate.



NOTES:

1. VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

② USED FOR VJK ONLY.

③ USED FOR VJS ONLY.

8C34

Figure 7-39. Power Driver - VJK

Power Driver - VJL

The VJL circuit (Figure 7-40) is a gate used to bias an analog gate.

If +20v appears at A, QN turns on. The base of QP goes to ground. Transistor QP is off. Capacitor CNA charges through RND to +20v. Output at B is a ramp to +20v.

A +0.2v signal at A turns QN off. When QP turns on, the collector voltage of QN clamps at +0.7v. CNA discharges rapidly through QP. Output B drops to ground.

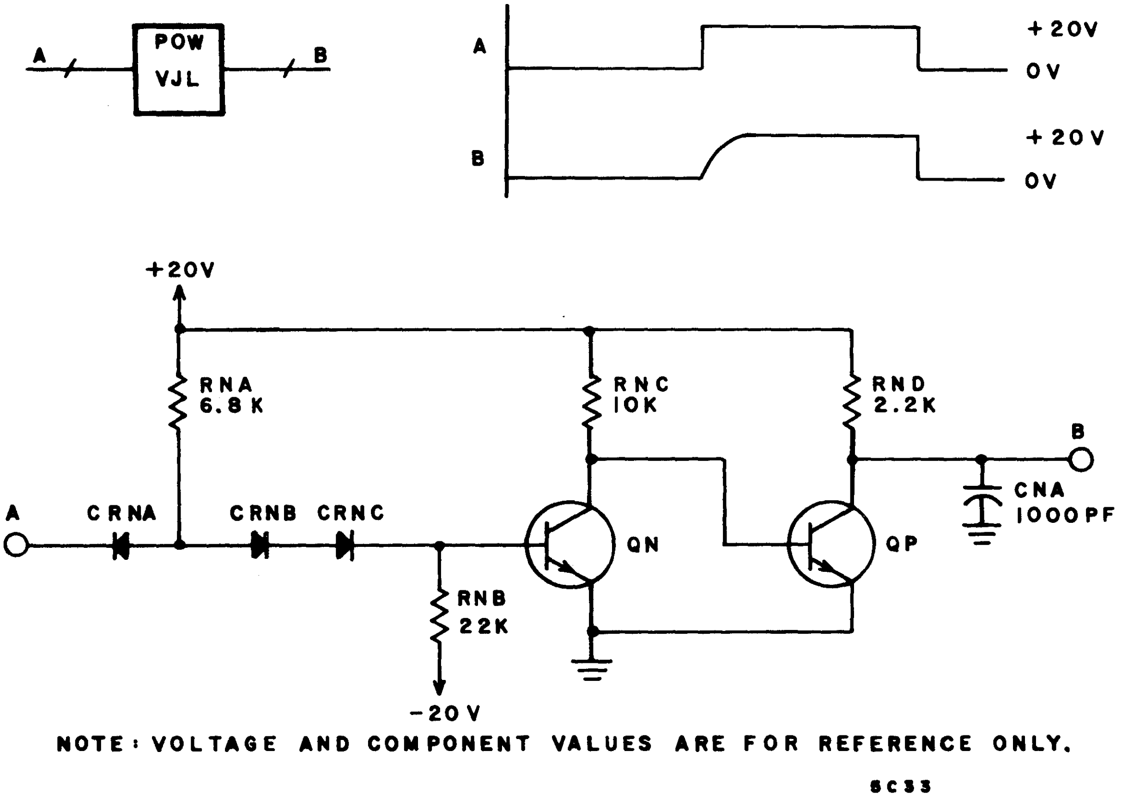


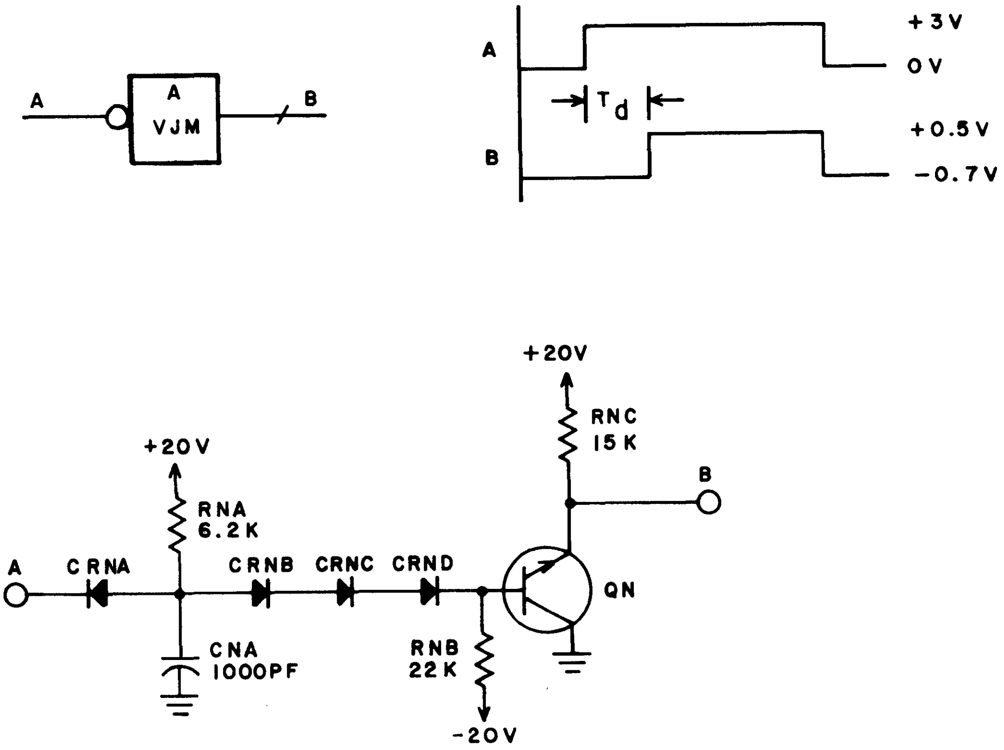
Figure 7-40. Power Driver - VJL

And - VJM

The VJM circuit (Figure 7-41) gates a particular receiver into operation. A "0" input at A results in an "open" enable signal to the receiver. A "1" input at A disables the receiver.

A "0" (0v) input forward biases diode CRNA. The +20v supply current is drawn through RNA and CRNA, leaving the base of QN reverse biased. Transistor QN is off. Output is held at -0. 7v by the next stage.

A "1" input turns QN on. The output goes to ground. No receiver signal can pass into the receiver.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

5C26

Figure 7-41. And - VJM

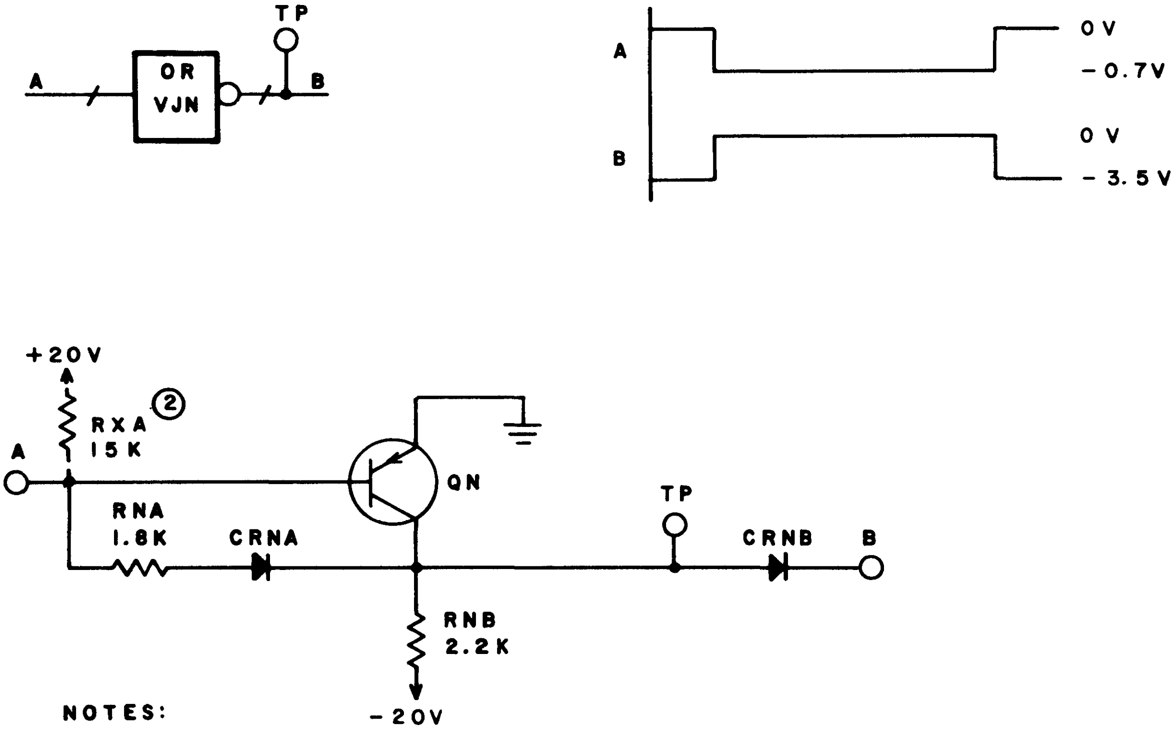
Or - VJN

The VJN circuit (Figure 7-42) is a NAND circuit that inverts the input signal. Input A is connected to the output of a receiver and to a gating circuit. If the Write gate is off, the base of QN is grounded. The circuit is disabled.

When the write gate is on, QN turns on and the receiver inputs a "0". Transistor QN turns on further and goes into saturation. Output voltage at B is approximately -0. 2v.

When the receiver inputs a "1", QN comes out of saturation. Output at B is approximately -3. 5v.

Whenever the write gate is on, QN is on to some degree. Only when the write gate is off is the base of QN at ground and QN off.



NOTES:

1. VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

② RESISTOR AND POWER SUPPLY EXTERNAL TO VJN.

5C43

Figure 7-42. Or - VJN

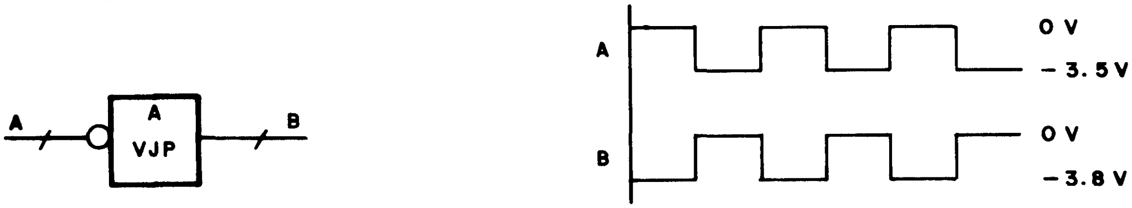
And - VJP

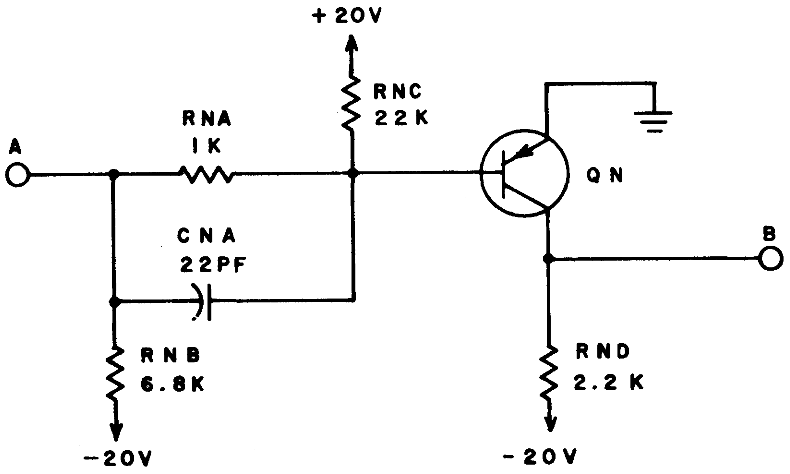
The VJP circuit (Figure 7-43) is normally used as the input circuit to a toggle flip-flop. It ties two receiver outputs to a single-ended output. Capacitor CNA is used to reduce the input impedance for faster switching.

When input A is near ground the base of QN is at approximately +0.9v. Transistor QN is off. Output at B approaches -20v, but is clamped at -3.8v by a Zener diode in the following circuit.

When input A is -3.5v, QN turns on. Output drops to approximately -0.2v.

Input to A is short (100 nsec), negative, data pulses. Output B is also short pulses.





NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

5C42

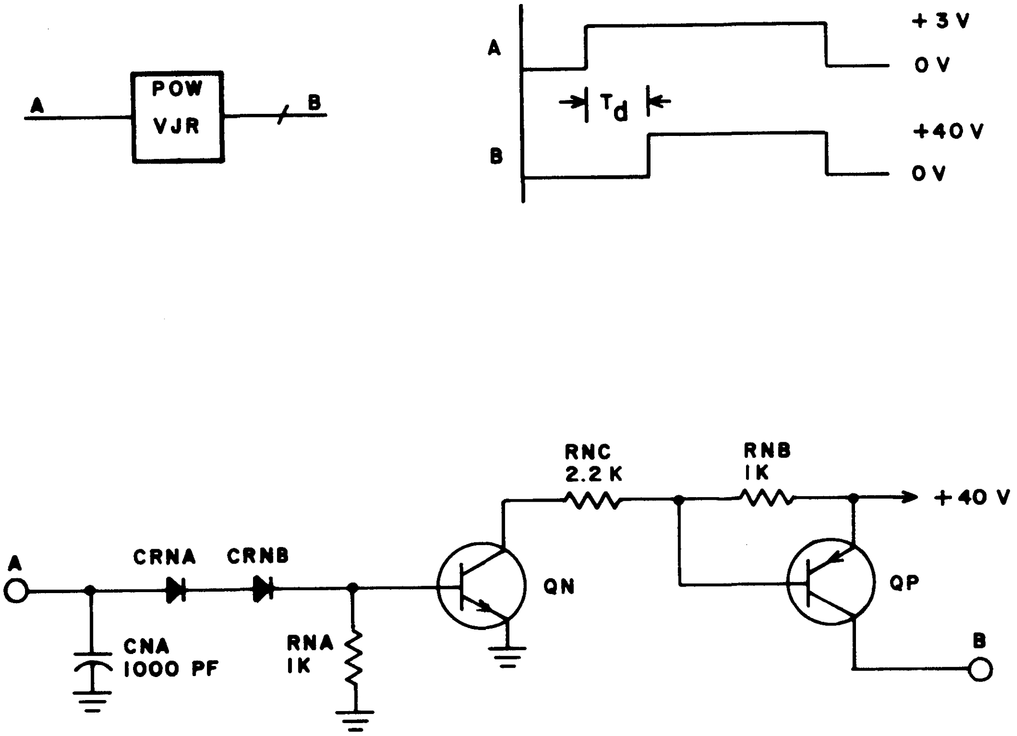
Figure 7-43. And - VJP

Power Driver - VJR

The VJR circuit (Figure 7-44) is a +40v switch. A "1" on input A produces +40v at output B. A "0" on input A stops current flow.

A "1" input turns QN on. Transistor QN conducts current from the +40v supply, causing a voltage drop across resistor RNB. This voltage drop turns on QP. Output B is at +40v.

A "0" input turns QN off. Since current no longer flows, the emitter and base of QP are at equal voltage. Transistor QP is off. Output B goes to ground.



NOTE:
VOLTAGE AND COMPONENT VALUES
ARE FOR REFERENCE ONLY.

SC28

Figure 7-44. Power Driver - VJR

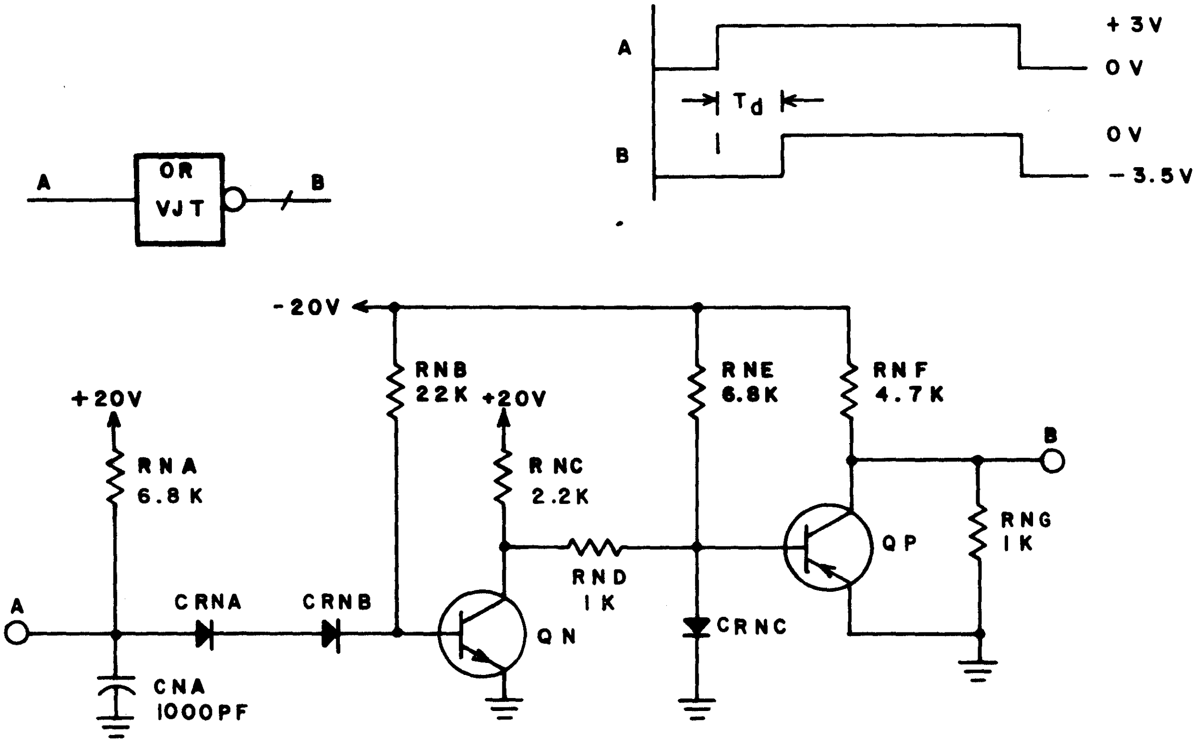
Or - VJS

The VJS circuit (Figure 7-39) is a standard inverter with a capacitor delay at the input. A "1" at input A pulls the output at B to ground. A "0" produces a +40v output.

Or - VJT

The VJT Circuit (Figure 7-45) is a gate to the WBB toggle flip-flop. A "1" input at A produces a ground at B, which keeps the flip-flop off. A "0" input at A produces a -3.5v output at B, which releases the flip-flop and presets it in a given state.

When a "0" is applied to input A, the base of QN goes to ground. Transistor QN is off. The base of QP is clamped at +0.6v by diode CRNC. Transistor QP is off. Output B is -3.5v derived from the voltage dividing network of RNF and RNG.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

8C48

Figure 7-45. Or - VJT

When A goes to a "1", capacitor CNA charges. After a delay, the base of QN is positive enough to turn QN on. The base of QP goes negative through resistor RNE. Transistor QP turns on. The output at B drops to ground.

And - VJU, VJV

The VJU and VJV circuits (Figure 7-46) are functionally identical. They consist of a standard inverter circuit with a capacitive filter input. The capacitor also presents a delay.

A "1" on input A reverse biases diode CRNA. Capacitor CNA charges through RNA until it is clamped at about 3 diode voltages (approximately 2. 1v). QN turns on. Output B falls to ground.

If input A is a "0", CNA discharges through CRNA. Transistor QN turns off. Output B rises to a "1" level due to the clamping by a Zener diode.

And/Or - VJW

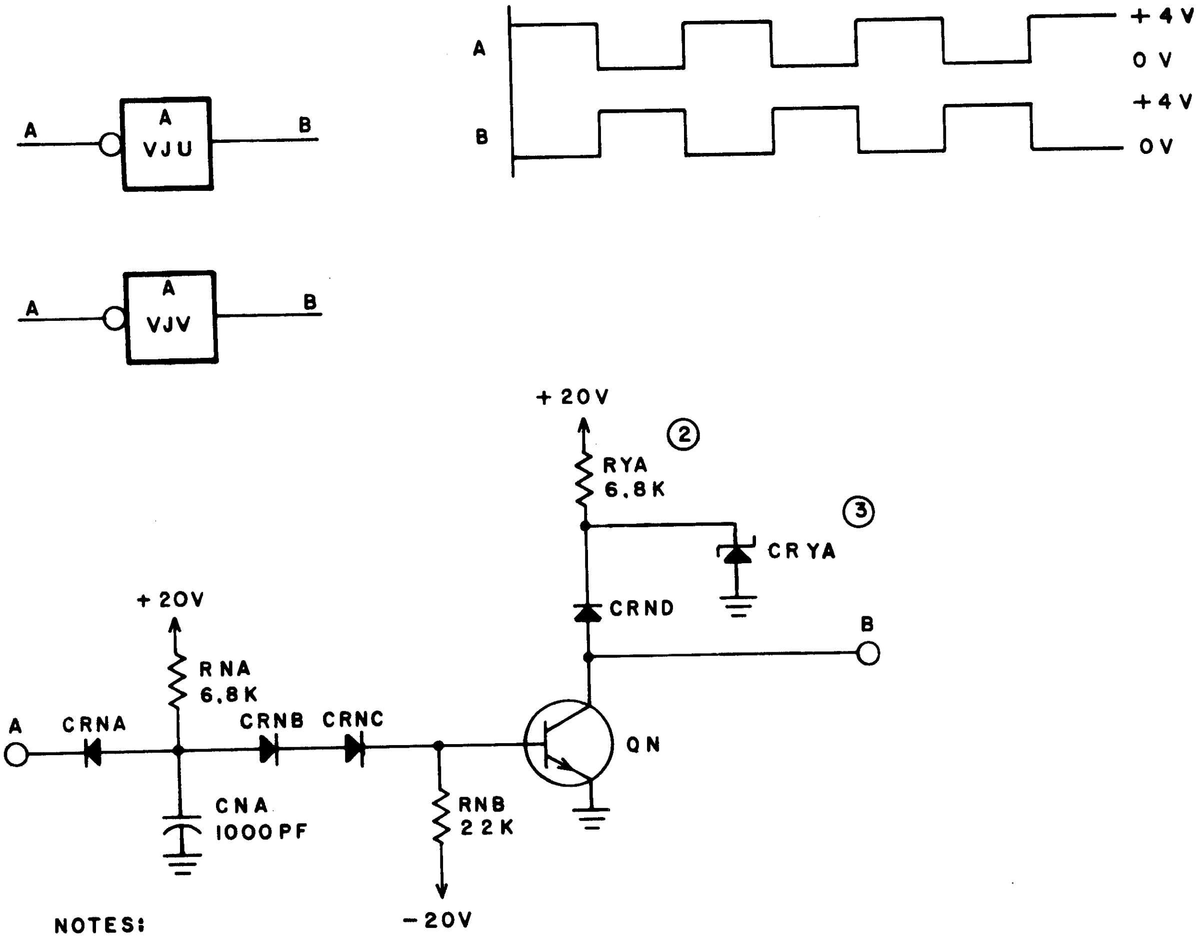
Refer to circuit description for circuit type VAC.

Flip-Flop - WBB

The WBB circuit (Figure 7-47) is a toggle flip-flop with gate and data inputs.

Input B holds both transistors off by grounding the bases when the circuit is off. When a write operation is to be performed, the base of QP is released while QN is still grounded by input C. This sets an initial condition for the flip-flop: QP is on, QN is off.

After the flip-flop is pre-set it is toggled through input A by a series of negative data pulses. The leading edge of the negative data pulse begins charging capacitor CNB. Diode CRND becomes forward biased. QP is on. Output E is at ground. A voltage of -3.6v across Zener diode CRNK keeps CRNN reverse biased. CRNK and CRNM clamp the output of QN at -3. 8v.



NOTES:

1. VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

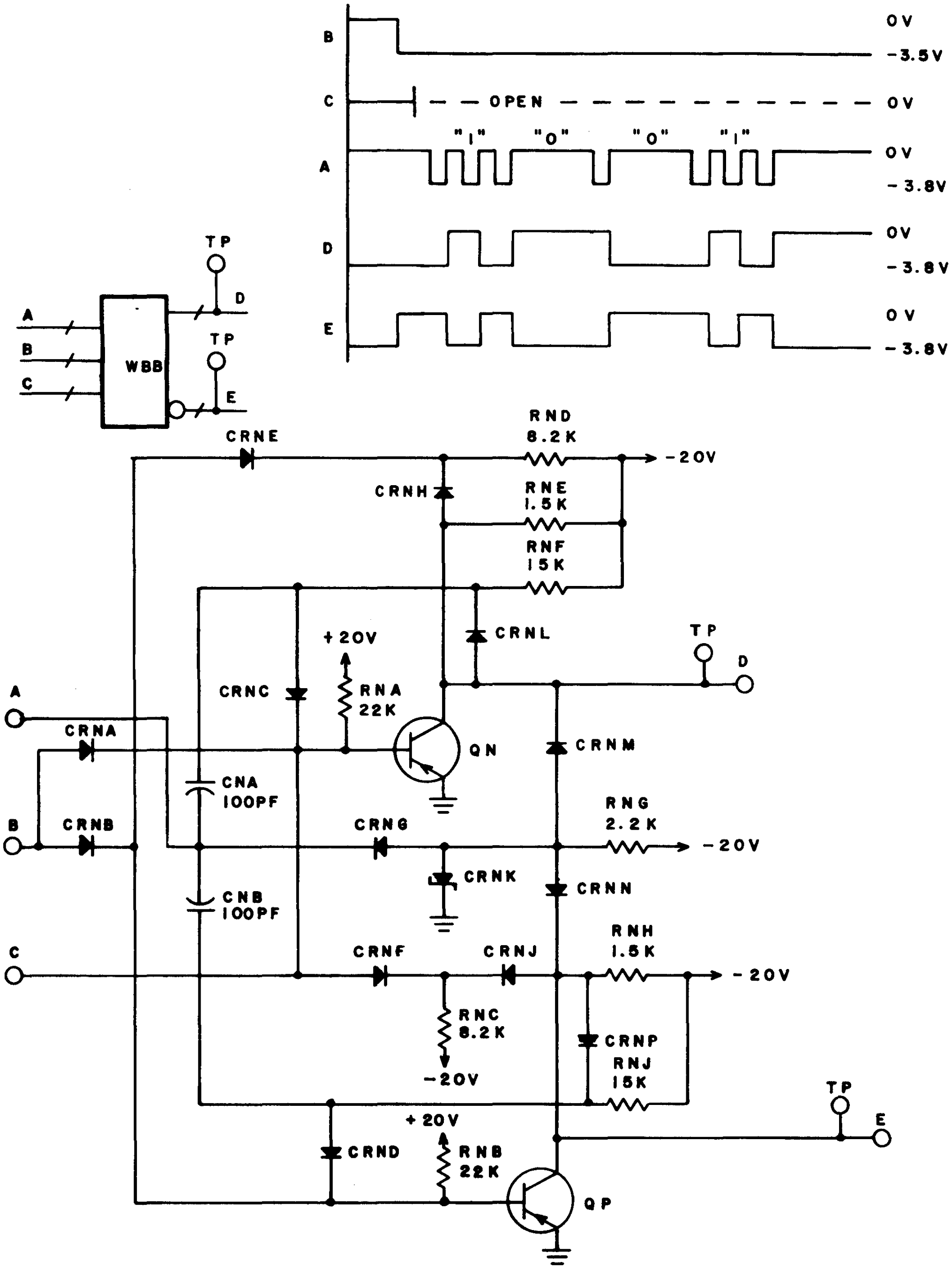
② RESISTOR EXTERNAL TO VJV. RYA BECOMES RNC FOR VJU.

③ DIODE EXTERNAL TO VJV, BECOMES CRNE FOR VJU.

8C39

Figure 7-46. And - VJU, VJV

The trailing edge of the data pulse results in a positive pulse to the base of QP. Transistor QP turns off. Output E goes toward -4v. Both sides of CNA are at ground. Therefore, CRNC and CRNF are forward biased by the -20v source through RNC. The base of QN goes negative. Transistor QN turns on and Output D drops to ground. Diodes CRNM and CRNJ are now reverse biased. Since the collector of QP is more negative than the voltage across Zener diode CRNK (-3.6v), CRNN is forward biased. This clamps the voltage at output E at approximately -3.8v.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

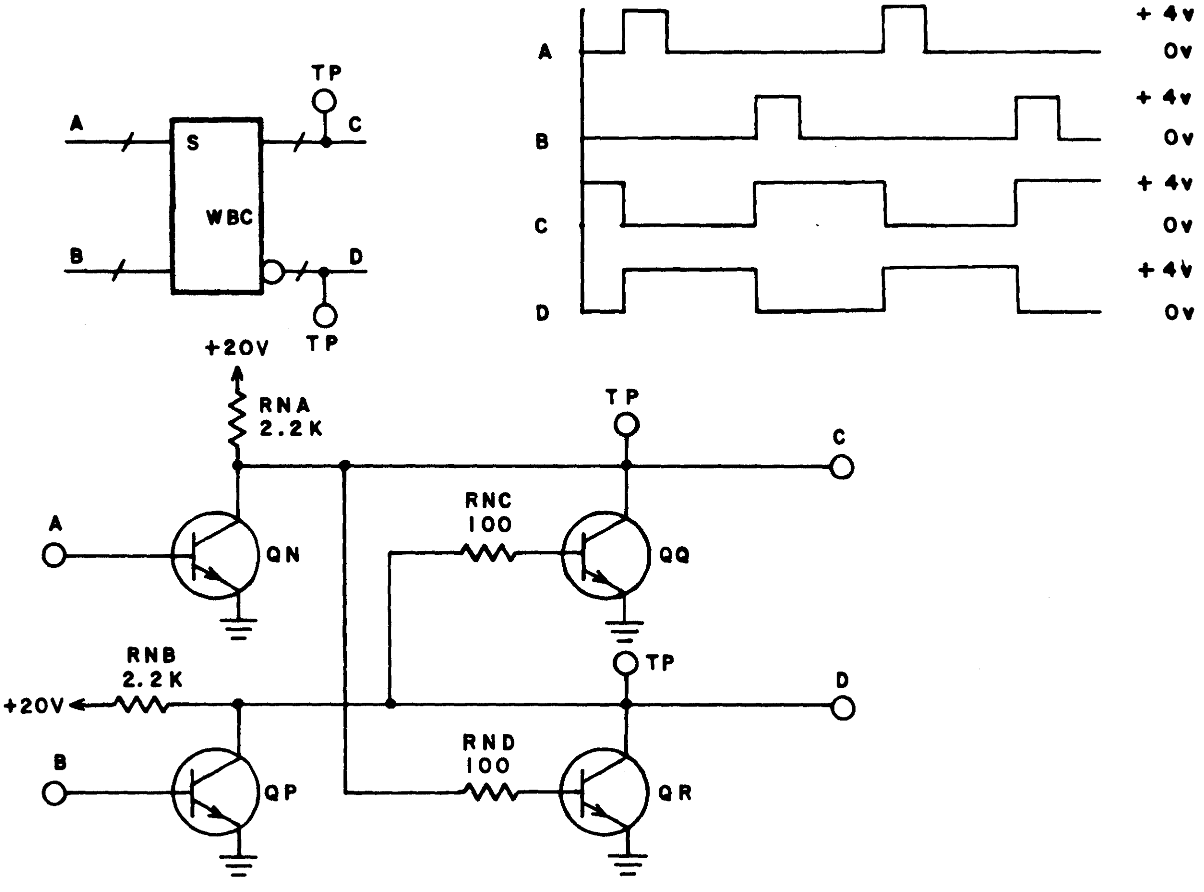
5C41

Figure 7-47. Flip-Flop - WBB

The leading edge of the next negative pulse charges CNA and discharges CNB since both sides of CNB are at about -3.8v. The flip-flop will toggle on the ground-going edge of the pulse in the same manner as described for the first pulse.

Toggle Flip-Flop - WBC

Inputs to A and B of the WBC flip-flop (Figure 7-48) are either a positive pulse or ground. If A has positive pulse, then B is at ground. If A is at ground then B has a positive pulse. If input A receives a positive pulse, output C will be at ground and output D will be a constant positive voltage. A positive pulse at B will toggle the flip-flop. C will then be a positive voltage and D will be at ground.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

8C36

Figure 7-48. Toggle Flip-Flop - WBC

A positive pulse to input A turns on transistor QN, which drives the base of QR to ground. Transistor QR is turned off. Input B is at ground and QP is off. The base of QQ is, therefore, positive and QQ turns on. This latches the base of QR at ground and puts a ground on output C. With QP off and QR latched off, current flows from the +20v source through RNB to output D.

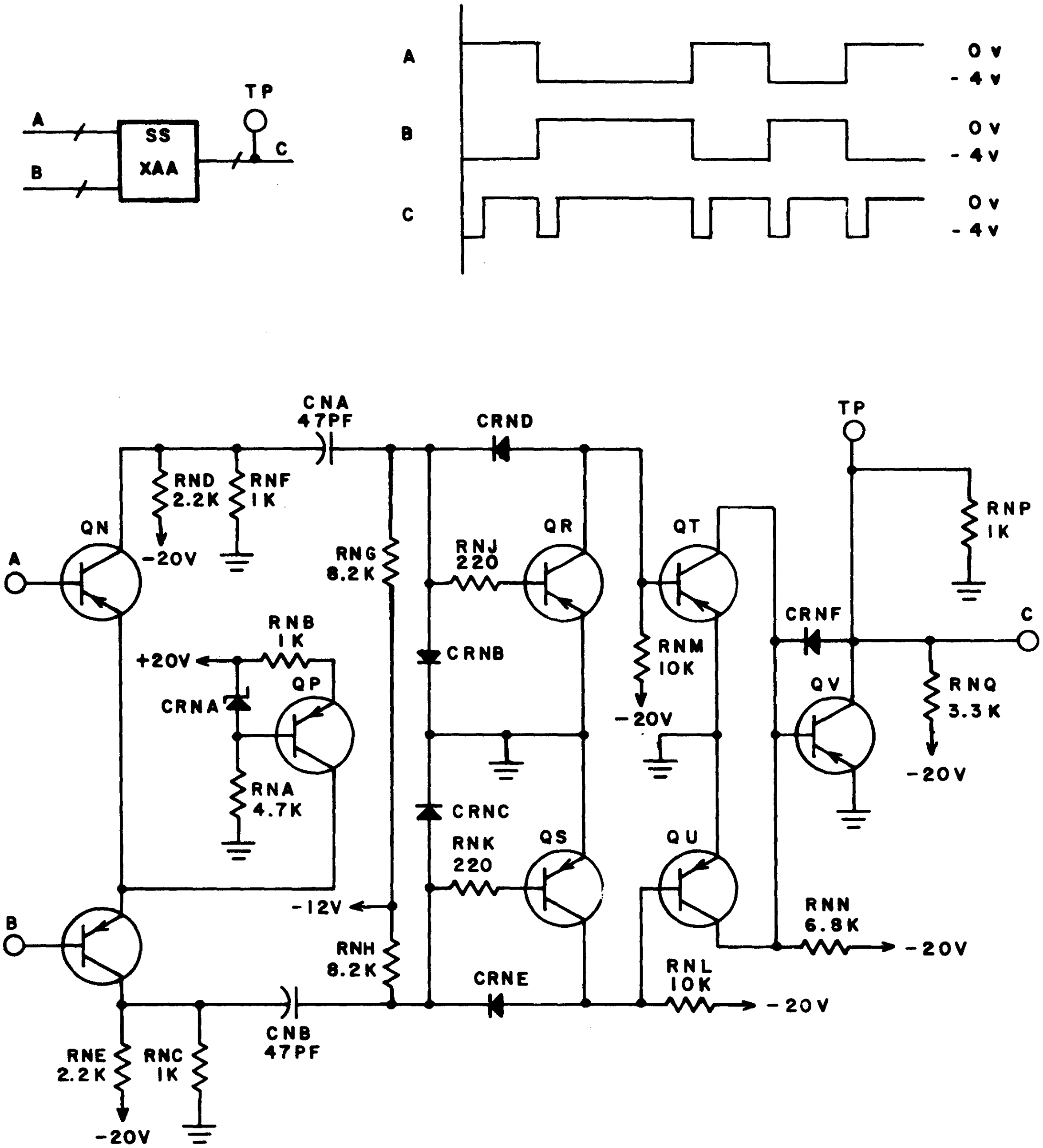
When a positive pulse is felt at B, QP turns on. This drives the base of QQ to ground, turning QQ off. Input A is at ground and QN is off. The base of QR is, therefore, positive. Transistor QR conducts, latching the base of QQ at ground and driving output D to ground. With QN and QQ off, output C is positive.

Pulse Shaper - XAA

The input to A and B (Figure 7-49) of the XAA circuit is a 0.7v balanced square wave centered around a positive voltage. Each time the inputs change polarity a short negative pulse is formed at output C.

The square wave input is sufficient to alternately turn QN and QQ on and off. A current of about 5.6 ma is alternately switched between QN and QQ. When input A is more positive than input B, QN turns off. The voltage at the collector of QN is about -20v. The voltage at the junction of RNG and RNJ is -1.6v. When the inputs switch, QN turns on. The collector of QN rises to about -8.7v. CNA forms a positive pulse to the base of QR. The positive pulse turns QR off, QT on and QV off for the duration of the pulse. The amplitude of the pulse is limited by CRNB. Charging time for CNA is about 100 nsec. When the inputs switch again, QQ turns on and QN turns off. CNB forms a positive pulse which turns QV off again for the duration of the pulse. The output at C is ground until QV is turned off. During the short time that QV is off, a negative pulse appears at output C.

Diodes CRND and CRNE prevent saturation of QR and QS. As the collectors of QR and QS approach ground, the negative voltage at the left ends of RNJ and RNK is limited to the sum of the voltage drops across QR and CRND or QS and CRNE, respectively. Diode CRNF prevents QV from saturating.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

Figure 7-49. Pulse Shaper - XAA

Pulse Shaper - XAB

The input at A of the XAB circuit (Figure 7-50) is a balanced square wave between 0v and +4v. The output at B is normally positive, but drops to ground for a short time at the leading edge of the ground portion of the input wave.

During the positive portion of the input wave, transistors QN and QP are on. This leaves the bases of QQ and QR near ground. Transistors QQ and QR are off. The output at B is a positive voltage supplied through resistor RNE.

When the input wave goes to ground, transistors QN and QP turn off. With QP off, the base-emitter junction of QR is forward biased. Transistor QR conducts and the output at B drops to near ground. With QN off, capacitor CNA charges toward +20v. When the charge on CNA reaches a level sufficient to turn on QQ, the base of QR again drops to ground. Transistor QR turns off. The output at B returns to the positive level.

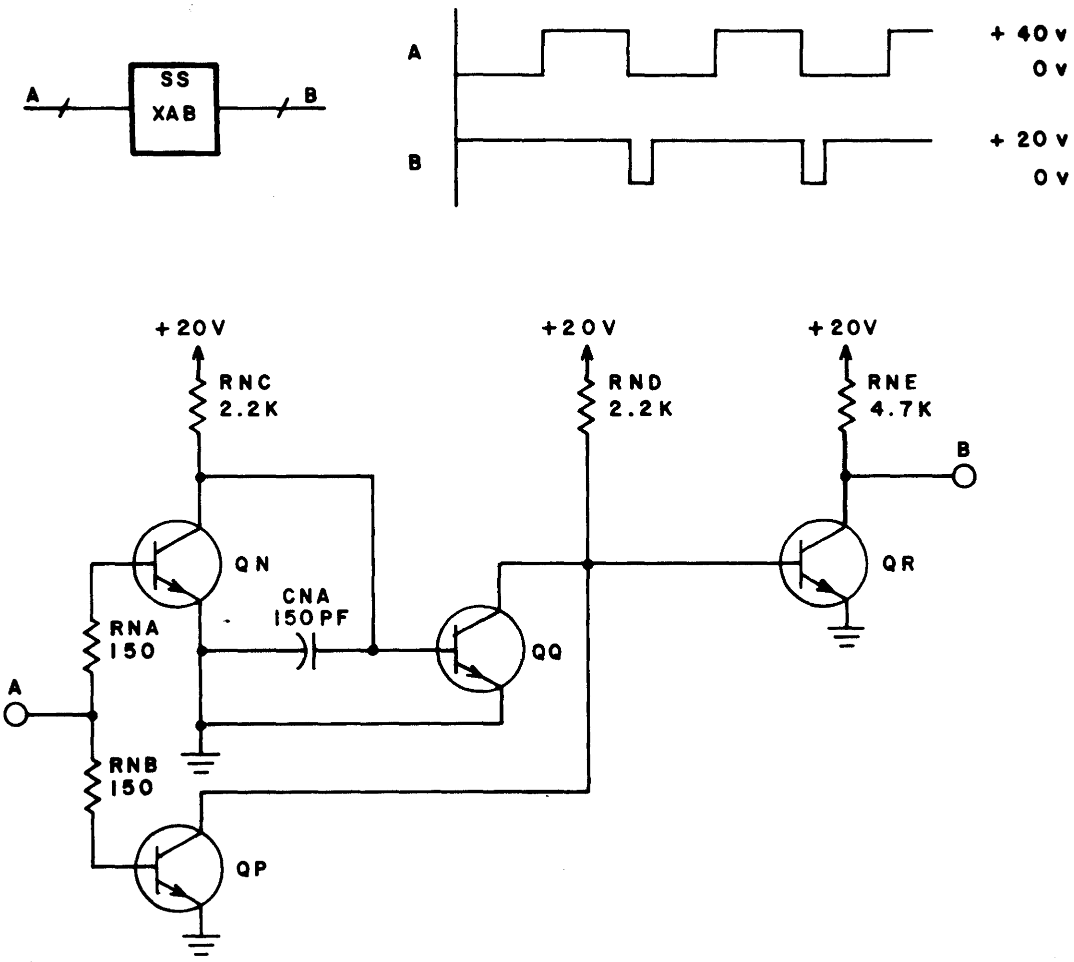
Pulse Shaper - XAC

The XAC circuit (Figure 7-51) produces a 100-nsec ground pulse at output C when the inputs at A and B change state. The output is normally positive. Input A is connected to the set side of a flip-flop and input B is connected to the clear side.

When the flip-flop is clear, the base of QR is positive. Transistor QR conducts 10 ma of current from the -20v supply through RND, RNC, QS, QR and RNB. The collector of QN is at +20v and the collector of QR is near +13v. Transistors QT and QU are on and QV and QW are off.

When the flip-flop sets, QR turns off and QN turns on. The collector of QN goes to +13v, which drives the base of QT to about -6v. This turns QT off, driving the base of QV positive. QV turns on and the output at C goes to ground. Capacitor CNA charges through RNE with a time constant of 135 nsec. After 100 nsec the voltage at the base of QT has risen to +0.7v and QT turns on. This drives the base of QV to ground. QV turns off and the output at C returns to a positive level.

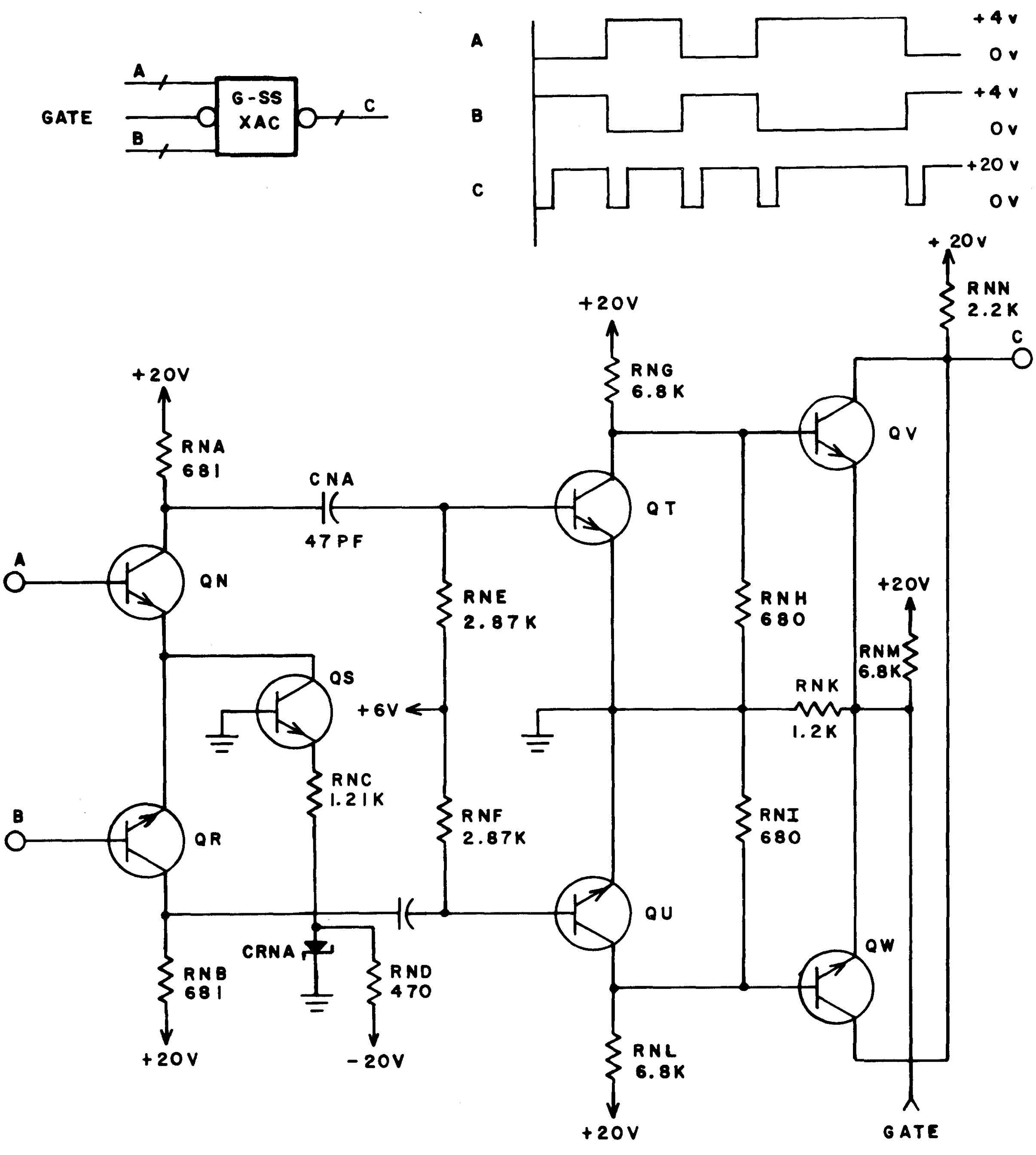
When the flip-flop clears again, a 100-nsec ground pulse is formed at C by QR, CNB, QU and QW.



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

8C38

Figure 7-50. Pulse Shaper - XAB



NOTE: VOLTAGE AND COMPONENT VALUES ARE FOR REFERENCE ONLY.

5C6

Figure 7-51. Pulse Shaper - XAC

HEAD AND DISK PACK REPLACEMENT CRITERIA

HEAD REPLACEMENT CRITERIA

Heads of the MDD have been designed so that they should not need replacement if given proper preventive maintenance and care. If a head requires replacement refer to the Preface of this manual for the publication containing the Maintenance section. Refer to that section for Head/Arm Replacement procedure. A head is defective and needs replacing if any of the following conditions exist:

1. Consistent oxide buildup on head, indicating repeated head/disk impact.
2. Appreciable oxide buildup located primarily on the edge of the ferrite insert, indicating a warped head.
3. Oxide or wear over 1/2 of the head face surface.
4. A head which is scratched over 1/2 of the head face surface.
5. Concentric scratches on disk surface. Inspect the head for imbedded particles.
6. Audible ping indicating that the head is hitting the disk surface.

DISK PACK REPLACEMENT CRITERIA

The disk pack is designed to last the lifetime of the equipment. Replacement of the disk pack is required only if excessive runout (see Disk Pack Runout Check) is encountered or physical damage to the pack results in the loss of recording ability.

A disk pack is defective and needs replacement if any of the following conditions exist:

1. Damage to the disk pack resulting in a bent or broken disk. If a disk is bent perform Disk Pack Runout Check procedure.
2. Gouged or scored disk surface causing the loss of stored data.
3. Imbedded particles in a disk surface that cannot be removed by cleaning and are causing damage to the heads.

Disk Pack Runout Check

This procedure determines whether a bent disk pack may remain in use. If the disk pack fails to meet the requirements of the procedure, it should be returned to the manufacturer for reconditioning.

1. Extend the upper deck drawer forward.
2. Release four half-turn fasteners securing right-hand shroud side cover. Set the side cover aside.
3. Install the disk pack to be checked on the spindle of the upper deck.
4. Grasp the pack cleaning brushes, override the shaft detent mechanism, and rotate the brushes into the disk pack.
5. Place the disk pack runout gage (P/N 84357600) base against the underside of the upper deck shield and set the switch on the base of the gage to ON (Figure 7-52).
6. Turn the bezel of the dial indicator to indicate zero. Orient the dial indicator so that the plastic tip is not only contacting a disk surface but is deflected for an indication of approximately 0.020 inch. Tighten dial indicator in this position. Turn the bezel to set the dial indicator to zero.

NOTE

A mirror is required to observe dial indicator when some disk surfaces are checked.

7. Manually and slowly rotate the disk pack one full revolution while carefully observing the dial indicator. The sum of the deviations (to either side of zero) should not exceed 0.012 inch.
8. If a total deflection of 0.012 inch is encountered in step 7, recheck the indication. The total deflection must occur in a disk circumference of 4 inches or more.
9. Repeat steps 6 through 8 for the 19 remaining disk surfaces.
10. Rotate the pack cleaning brushes clear of the disk surfaces.
11. Remove the disk pack and the disk pack runout gage.
12. Install the shroud side cover.

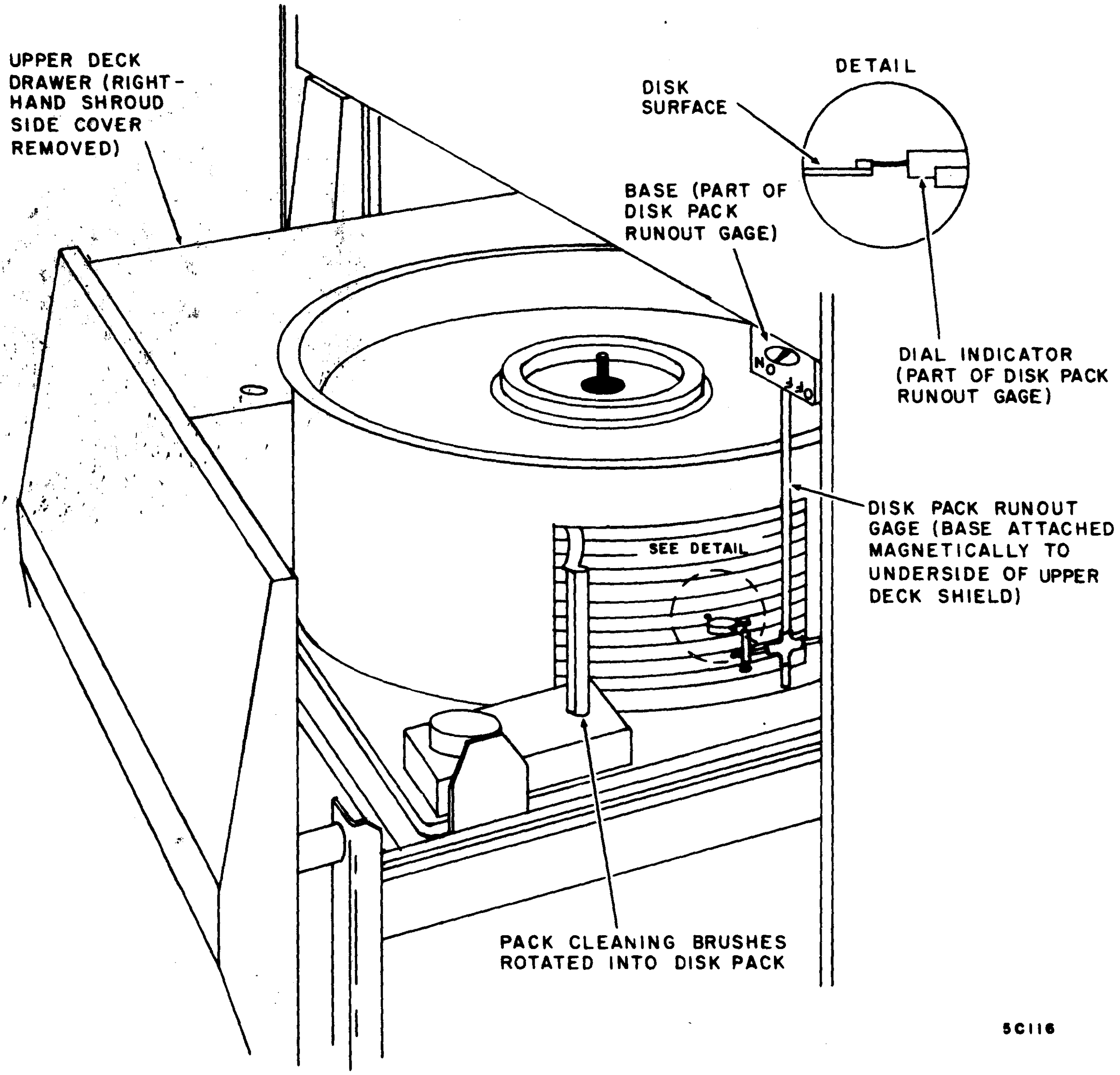
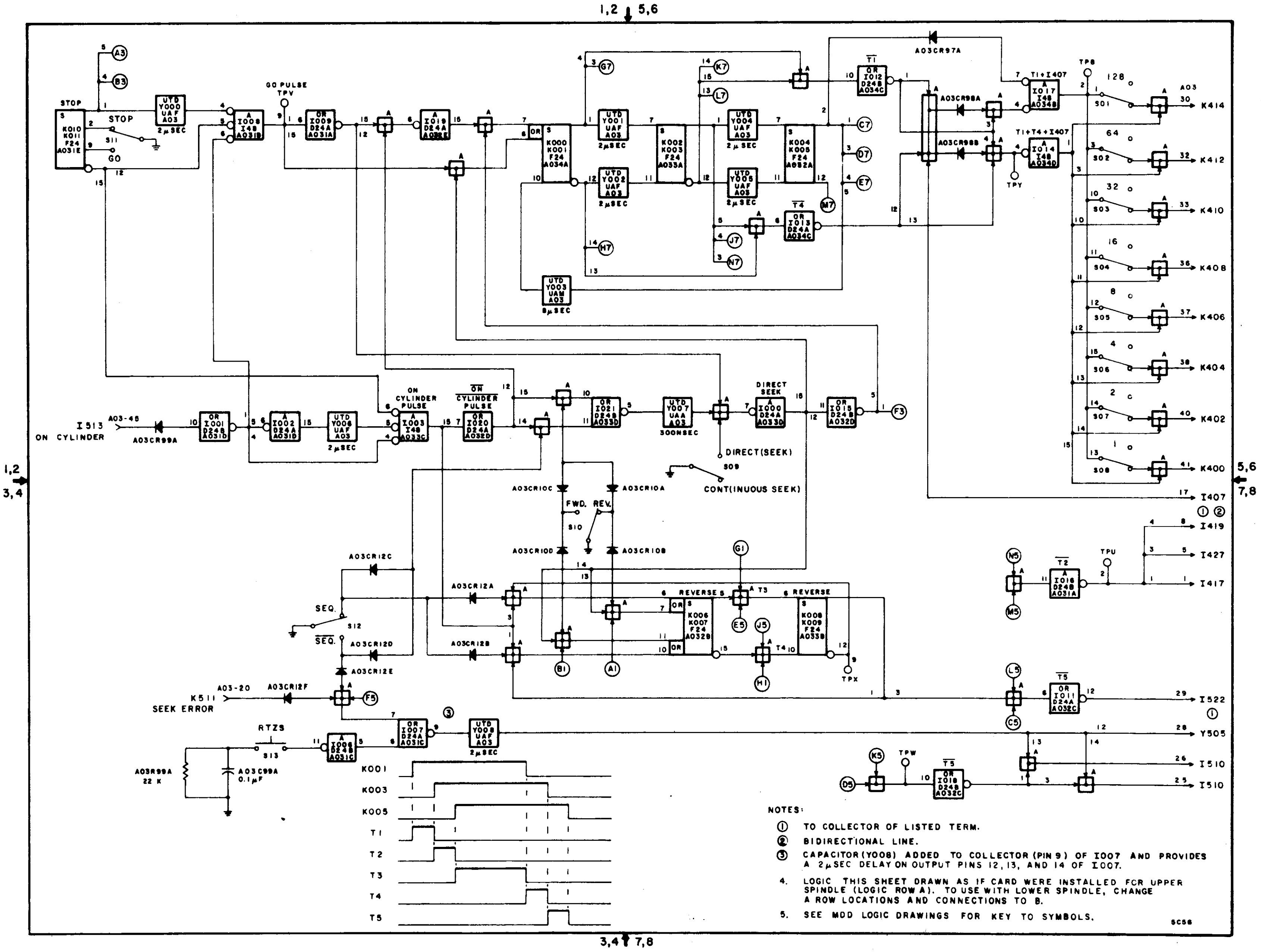


Figure 7-52. Disk Pack Runout Check

TESTER CARD

The Tester Card (P/N 40072100) is a special tool used extensively in the maintenance procedures of Section 6. As an aid in using the card, the schematic diagram (8FFN) is provided in Section 5 and Figure 7-53 is the logical portrayal of the same card.



NOTES:

① TO COLLECTOR OF LISTED TERM.

② BIDIRECTIONAL LINE.

③ CAPACITOR (Y008) ADDED TO COLLECTOR (PIN 9) OF I007 AND PROVIDES A 2μSEC DELAY ON OUTPUT PINS 12, 13, AND 14 OF I007.

4. LOGIC THIS SHEET DRAWN AS IF CARD WERE INSTALLED FOR UPPER SPINDLE (LOGIC ROW A). TO USE WITH LOWER SPINDLE, CHANGE A ROW LOCATIONS AND CONNECTIONS TO B.

5. SEE MOD LOGIC DRAWINGS FOR KEY TO SYMBOLS.

Figure 7-53. Logical Presentation of Tester Card

SECTION 8

PARTS DATA

Information for this section is included in CONTROL DATA® BM1A5/BM1A6 Multiple Disk Drive Parts List Manual.
Pub. No. 70601900

SECTION 9

WIRE LISTS

WIRE LISTS

DESCRIPTION OF WIRE LISTS

The two types of wire lists are:

1. The line printer format which shows logic wiring.
2. The corporate (typed) form which shows non-logic wiring.

LOGIC WIRE LISTS

The following is an example of the logic wire lists with an identification, and an explanation of the columns.

Wire Identification	Wire Length	Wire Origin Location	Wire Origin Pin Number	Component Code	Wire Destination Location	Wire Destination Pin Number	Wire Size	Color Code	Change Order
AK50010	03	A14	28	O	A16	18			
AK50020	05	A14	25	O	A08	14			
AK50030	05	A14	14	O	A09	37			
AK50210	04	A07	10	O	A11	16			
AK50211	04	A11	16	O	A18	34			
1100520	02	B06	48	R	B07	48	20	222	1234
1100521	02	B07	48	R	B08	48	20	222	5678
1100522	02	B08	48	R	B09	48	20	222	
1100523	02	B09	48	R	B10	48	20	222	
1100524	02	B10	48	R	B11	48	20	222	

Wire Identification

If the identifier begins with a letter, the wire provides an input to a logic term; first letter identifies the logic row of the term, second letter and the first three digits identify the logic term receiving the input via this wire. If the identifier begins with a numeral, the wire is not directly providing an input to a logic term and is generally classified as a miscellaneous jumper. A sequential advance in the second to the last digit indicates additional inputs to the same term.

AK50010 - single input OR to K500
AK50020 - single input OR to K500

A sequential advance in the last digit indicates the interconnections of an AND input.

AK50210 }
AK50211 } Two input AND to K502

Wire Length

This column gives the wire length in inches.

Wire Origin Location

This column locates the origin of the wire on the logic chassis. Wires having a common signal at two or more locations are interconnected in series. In the sample, the fourth and fifth wires shown have a common signal. The Wire Destination Location of the first wire becomes the Wire Origin Location of the second so that the series string is from A07 pin 10 to A11 pin 16 to A13 pin 34. Note that the first four characters of the Wire Identification terms are the same for the three wires and that the sequencing is from 10 to 11 in the last two characters.

Wire Origin Pin Number

This column identifies the origin pin or terminal of the wire.

Component Code

This column identifies the components that are located in the Wire Origin Location and the Wire Destination Location columns. The code letters are identified as follows:

O - When both ends terminate at a logic card

R - When one end terminates at a miscellaneous component (switch, resistor, etc.)

X - When one end terminates at a jack (or connector pin)

Wire Desitnation Location

This column locates the destination of the wire on the logic chassis.

Wire Destination Pin Number

This column identifies the destination pin or terminal of the wire.

Wire Size

This column identifies the size (AWG) of the wire.

Color Code

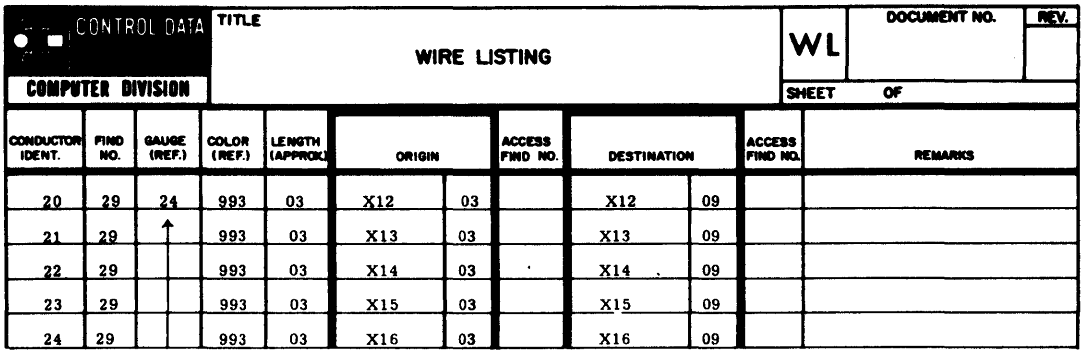
Solid colored wires are identified by repeating (3 times) the code number in this column. Multicolored wires are identified by a number having two or three digits. Each digit of the number identifies one of the colors. The code numbers are identified as follows:

0 - Black
1 - Brown
2 - Red
3 - Orange
4 - Yellow
5 - Green
6 - Blue
7 - Violet
8 - Gray
9 - White
S - Shield

Change Order

This column identifies the engineering, field, or publications change order that affected and/or altered that wire.

NON-LOGIC LISTS



CONTROL DATA
COMPUTER DIVISION

TITLE
WIRE LISTING

WL
DOCUMENT NO.
REV.
SHEET OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)		COLOR (REF.)	LENGTH (APPROX.)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
20	29	24		993	03	X12	03		X12	09		
21	29	↑		993	03	X13	03		X13	09		
22	29			993	03	X14	03		X14	09		
23	29			993	03	X15	03		X15	09		
24	29			993	03	X16	03		X16	09		

Wire lists other than logic are on a standard corporate form. The remaining columns of the form contain information NOT normally applicable to field usage and therefore are not explained.

The other columns indicate:

Gauge (Ref) - Size of conductor (AWG)
Color (Ref) - Color information
Length (Approx) - Length of conductor in inches
Origin - Origin point of conductor
Destination - Destination point of conductor
Remarks - Useful comments

In multi-digit color codes, the first digit denotes base color and the remaining digits denote tracer colors. The color codes for the non-logic lists are the same as those for logic wiring.

DWN	K Kutkowski	3-20-69	CONTROL DATA CORPORATION	TITLE LOGIC WIRE LIST LOGIC CHASSIS (03)	PREFIX LW · DOCUMENT NO. 70951400 · REV L
CHKD		3-27-69	NRMOPS	FIRST USED ON MULT. DISK DRIVE	SHEET 26
ENG		3-27-69	CODE IDENT 19333		
MFG					
APPR					

SHEET REVISION STATUS

REVISION RECORD

REV	ECO	DESCRIPTION	DRFT	DATE	APP
A		RELEASED		4-3-69	
B	PM 5543	CHANGED 4 CARDS	EW	6-19-69	
C	PM 5546	ADDED & DELETED CARDS	EW	7-14-69	
D	PM 5496	EXTENSIVE CHANGES	EW	8-25-69	
E	PM 5453	ADDED SEVERAL CARDS	EW	9-23-69	
F	PE11118A	CHANGED 2 CARDS	EW	12-8-69	
G	PE 11417	CHANGED 2 CARDS	EW	3-4-70	
H	PE 21103	ADDED 4 CARDS	EW	4-27-70	
J	PE 21143	CHG ONE CARD	EW	4-29-70	
K	PE21253	DELETED & ADDED 4 CARDS	EW	10-12-70	
L	FE 21997	CHG. ONE CARD	EW	2-23-71	

NOTES:

DETACHED LISTS

CONTROL DATA CORPORATION NORMANDALE DIVISION	CODE IDENT 19333	SHEET 25	DN	DOCUMENT NO. 70951400	REV L

NOTES:

1. FOR MECH ASSY AND PL SEE 70951803.
2. FOR CARD PLACEMENT LIST SEE DWG 70957800 AND LOGIC SCHEMATIC 70954900.
3. INSTALL A SOLID BLACK JUMPER WIRE, FIND NO. 76 FROM PIN 2 AND PIN 50 OF EACH CONNECTOR, NUMBER A01 THRU A29 AND B01 THRU B29, TO THE CLOSEST HOLE IN THE CONNECTOR MOUNTING BAR FOR GROUNDING.
4. IF THE FIRST LETTER OF WIRE IDENTIFICATION IS A "X", "Y", OR "Z" IT MEANS THE WIRE IS INSTALLED IN THE LOGIC CHASSIS BUT A LOGIC ELEMENT BY THAT TERM NAME IS NOT SHOWN ON LOGIC SCHEMATIC OR USED IN SINGLE CHANNEL UNITS.

AI52030	02	A07	21	0	A08	09	LOGIC CHASSIS (03)	
AI52110	04	A11	36	0	A08	13	LOGIC CHASSIS (03)	
AI52210	04	A07	24	0	A11	32	LOGIC CHASSIS (03)	
AI52220	02	A07	32	0	A08	25	LOGIC CHASSIS (03)	
AI52230	03	A07	30	0	A08	16	LOGIC CHASSIS (03)	
AI52310	06	A08	29	0	A17	12	LOGIC CHASSIS (03)	
AI52320	11	A08	28	0	A27	38	LOGIC CHASSIS (03)	
AI52331	03	A08	30	0	A08	50	LOGIC CHASSIS (03)	
AI60010	11	A08	41	0	A27	32	LOGIC CHASSIS (03)	
AI60021	03	A08	44	0	A07	50	LOGIC CHASSIS (03)	
AI60210	06	A15	01	0	A08	33	LOGIC CHASSIS (03)	
AI60610	05	A15	26	0	A08	40	LOGIC CHASSIS (03)	
AI61210	05	A17	22	0	A11	36	LOGIC CHASSIS (03)	
AI62210	05	A14	05	0	A11	44	LOGIC CHASSIS (03)	
AI62310	02	A14	13	0	A15	05	LOGIC CHASSIS (03)	
AI62410	02	A14	16	0	A15	10	LOGIC CHASSIS (03)	
AI62510	02	A14	12	0	A15	18	LOGIC CHASSIS (03)	
AK10010	04	A16	33	0	A21	18	LOGIC CHASSIS (03)	
AK10011	02	A21	18	0	A21	13	LOGIC CHASSIS (03)	
AK10210	04	A16	25	0	A21	17	LOGIC CHASSIS (03)	
AK10211	02	A21	17	0	A21	16	LOGIC CHASSIS (03)	
AK10410	04	A16	22	0	A21	22	LOGIC CHASSIS (03)	
AK10411	03	A21	22	0	A21	10	LOGIC CHASSIS (03)	
AK10610	05	A16	12	0	A21	21	LOGIC CHASSIS (03)	
AK10611	02	A21	21	0	A21	14	LOGIC CHASSIS (03)	
AK10810	04	A16	37	0	A21	41	LOGIC CHASSIS (03)	
AK10811	02	A21	41	0	A21	33	LOGIC CHASSIS (03)	
AK11010	04	A16	29	0	A21	42	LOGIC CHASSIS (03)	
AK11011	03	A21	42	0	A21	30	LOGIC CHASSIS (03)	
AK11210	05	A16	18	0	A21	44	LOGIC CHASSIS (03)	
AK11211	03	A21	44	0	A21	29	LOGIC CHASSIS (03)	
AK11410	06	A16	08	0	A21	45	LOGIC CHASSIS (03)	
AK11411	03	A21	45	0	A21	36	LOGIC CHASSIS (03)	
AK20310	07	A19	22	0	A29	38	LOGIC CHASSIS (03)	
AK30110	02	A06	38	0	A06	21	LOGIC CHASSIS (03)	
AK40010	03	A13	32	0	A14	13	LOGIC CHASSIS (03)	
AK40210	02	A13	20	0	A14	12	LOGIC CHASSIS (03)	
AK40410	02	A13	12	0	A15	08	LOGIC CHASSIS (03)	
AK40610	05	A13	05	0	A15	41	LOGIC CHASSIS (03)	
AK40620	03	A13	30	0	A12	13	LOGIC CHASSIS (03)	
AK40710	03	A13	40	0	A12	26	LOGIC CHASSIS (03)	
AK40810	03	A12	25	0	A14	16	LOGIC CHASSIS (03)	
AK41010	04	A12	17	0	A16	29	LOGIC CHASSIS (03)	
AK41210	04	A12	12	0	A14	28	LOGIC CHASSIS (03)	
AK41410	04	A12	01	0	A16	08	LOGIC CHASSIS (03)	
AK50010	03	A14	28	0	A16	18	LOGIC CHASSIS (03)	
AK50020	05	A14	25	0	A08	14	LOGIC CHASSIS (03)	
AK50030	06	A14	14	0	A08	12	LOGIC CHASSIS (03)	5546
AK50210	04	A07	10	0	A11	16	LOGIC CHASSIS (03)	
AK50211	04	A11	16	0	A13	34	LOGIC CHASSIS (03)	
AK50212	04	A13	34	0	A11	42	LOGIC CHASSIS (03)	21103
AK50310	02	A07	12	0	A06	05	LOGIC CHASSIS (03)	
AK50311	06	A06	05	0	A13	28	LOGIC CHASSIS (03)	
AK50610	04	A07	26	0	A11	14	LOGIC CHASSIS (03)	
AK50620	04	A07	33	0	A08	13	LOGIC CHASSIS (03)	

AK50710	05	A07	36	0	A11	09	LOGIC CHASSIS (03)	
AK50810	05	A07	42	0	A11	13	LOGIC CHASSIS (03)	
AK50910	05	A07	40	0	A11	10	LOGIC CHASSIS (03)	
AK51110	02	A11	32	0	A12	37	LOGIC CHASSIS (03)	
AK51120	04	A11	37	0	A11	50	LOGIC CHASSIS (03)	21103
AK60010	04	A15	05	0	A16	33	LOGIC CHASSIS (03)	
AK60210	02	A15	18	0	A16	25	LOGIC CHASSIS (03)	
AK60410	03	A15	08	0	A16	22	LOGIC CHASSIS (03)	
AK60610	04	A15	41	0	A16	12	LOGIC CHASSIS (03)	
AK60810	04	A15	10	0	A16	37	LOGIC CHASSIS (03)	
AK61010	04	A17	36	0	A14	21	LOGIC CHASSIS (03)	
AK61210	05	A17	37	0	A11	33	LOGIC CHASSIS (03)	
AK61410	04	A17	17	0	A14	24	LOGIC CHASSIS (03)	
AK61810	04	A17	24	0	A14	10	LOGIC CHASSIS (03)	
AK62010	04	A17	01	0	A14	17	LOGIC CHASSIS (03)	
AT00010	07	A24	01	0	A16	34	LOGIC CHASSIS (03)	
AT00020	11	A24	05	0	B16	34	LOGIC CHASSIS (03)	
AT00110	06	A24	12	0	A16	26	LOGIC CHASSIS (03)	
AT00120	10	A24	14	0	B16	26	LOGIC CHASSIS (03)	
AT00210	06	A24	17	0	A16	20	LOGIC CHASSIS (03)	
AT00220	09	A24	18	0	B16	20	LOGIC CHASSIS (03)	
AT00310	06	A24	25	0	A16	09	LOGIC CHASSIS (03)	
AT00320	08	A24	26	0	B16	09	LOGIC CHASSIS (03)	
AT00410	06	A24	30	0	A16	38	LOGIC CHASSIS (03)	
AT00420	09	A24	32	0	B16	38	LOGIC CHASSIS (03)	
AT00510	06	A24	36	0	A16	30	LOGIC CHASSIS (03)	
AT00520	09	A24	37	0	B16	30	LOGIC CHASSIS (03)	
AT00610	07	A24	41	0	A16	16	LOGIC CHASSIS (03)	
AT00620	08	A24	42	0	B16	16	LOGIC CHASSIS (03)	
AT00710	07	A26	01	0	A16	05	LOGIC CHASSIS (03)	
AT00720	10	A26	05	0	B16	05	LOGIC CHASSIS (03)	
AT00811	02	A26	12	0	A26	02	LOGIC CHASSIS (03)	
AT00821	03	A26	14	0	A25	02	LOGIC CHASSIS (03)	
AT01210	07	A28	01	0	A18	12	LOGIC CHASSIS (03)	
AT01220	10	A28	05	0	B18	12	LOGIC CHASSIS (03)	
AT01310	07	A28	12	0	A18	10	LOGIC CHASSIS (03)	
AT01320	09	A28	14	0	B18	10	LOGIC CHASSIS (03)	
AT01410	03	A28	17	0	A28	02	LOGIC CHASSIS (03)	
AT01420	02	A28	17	0	A28	18	LOGIC CHASSIS (03)	
AT01610	07	A28	25	0	A18	09	LOGIC CHASSIS (03)	
AT01620	09	A28	26	0	B18	09	LOGIC CHASSIS (03)	
AT01711	02	A19	16	0	A18	14	LOGIC CHASSIS (03)	
AT01710	07	A28	30	0	A19	16	LOGIC CHASSIS (03)	
AT01720	08	A28	32	0	B19	16	LOGIC CHASSIS (03)	
AT01721	02	B19	16	0	B18	14	LOGIC CHASSIS (03)	
AT01810	07	A28	36	0	A18	01	LOGIC CHASSIS (03)	
AT01820	08	A28	37	0	B18	01	LOGIC CHASSIS (03)	
AT01910	06	A26	17	0	A18	08	LOGIC CHASSIS (03)	
AT01920	02	A26	18	0	A26	26	LOGIC CHASSIS (03)	
AT02010	08	A26	25	0	B18	08	LOGIC CHASSIS (03)	
AT02020	02	A26	26	0	A26	32	LOGIC CHASSIS (03)	
AT02110	06	A26	30	0	A18	44	LOGIC CHASSIS (03)	
AT02120	02	A26	32	0	A26	37	LOGIC CHASSIS (03)	
AT02210	09	A26	36	0	B18	44	LOGIC CHASSIS (03)	
AT02220	02	A26	37	0	A26	42	LOGIC CHASSIS (03)	

AT02310	05	A28	41	0	A22	33	LOGIC CHASSIS (03)	
AT02320	02	A28	42	0	A28	50	LOGIC CHASSIS (03)	
AT02410	08	A26	41	0	B22	33	LOGIC CHASSIS (03)	
AT02420	02	A26	42	0	A26	50	LOGIC CHASSIS (03)	
AY40410	05	A13	10	0	A07	08	LOGIC CHASSIS (03)	
AY51510	03	A08	24	0	A11	20	LOGIC CHASSIS (03)	
AY51511	06	A11	20	0	A18	37	LOGIC CHASSIS (03)	
AY60110	03	A17	10	0	A14	09	LOGIC CHASSIS (03)	
AY60410	04	A08	37	0	A11	40	LOGIC CHASSIS (03)	5543
AY60411	03	A11	40	0	A14	33	LOGIC CHASSIS (03)	5543
BI11811	03	B16	44	0	B15	50	LOGIC CHASSIS (03)	
BI11820	10	B16	45	0	A25	40	LOGIC CHASSIS (03)	
BI12010	04	B16	41	0	B12	28	LOGIC CHASSIS (03)	
BI12110	08	B16	21	0	A25	45	LOGIC CHASSIS (03)	
BI12211	02	B16	42	0	B16	50	LOGIC CHASSIS (03)	
BI20010	04	B17	21	0	B12	36	LOGIC CHASSIS (03)	
BI20020	09	B17	25	0	A29	45	LOGIC CHASSIS (03)	
BI20120	02	B17	40	0	B17	21	LOGIC CHASSIS (03)	5546
BI21710	04	B18	05	0	B19	29	LOGIC CHASSIS (03)	
BI21810	07	B19	08	0	A25	25	LOGIC CHASSIS (03)	
BI22110	08	B19	12	0	A27	25	LOGIC CHASSIS (03)	
BI22310	08	B19	14	0	A29	33	LOGIC CHASSIS (03)	
BI22411	03	B19	18	0	B19	02	LOGIC CHASSIS (03)	
BI22510	10	B19	40	0	A29	25	LOGIC CHASSIS (03)	
BI22810	11	B19	42	0	A29	20	LOGIC CHASSIS (03)	
BI23010	02	B19	21	0	B18	21	LOGIC CHASSIS (03)	
BI23210	02	B19	34	0	B20	26	LOGIC CHASSIS (03)	
BI24910	03	B19	24	0	B17	28	LOGIC CHASSIS (03)	
BI30010	03	B06	01	0	B08	05	LOGIC CHASSIS (03)	
BI30210	04	B06	40	0	B06	50	LOGIC CHASSIS (03)	
BI30410	06	B06	17	0	B11	44	LOGIC CHASSIS (03)	
BI30420	08	B06	12	0	B18	20	LOGIC CHASSIS (03)	5453
BI34610	06	B18	36	0	B11	22	LOGIC CHASSIS (03)	
BI34710	03	B18	16	0	B18	02	LOGIC CHASSIS (03)	
BI34910	08	B18	41	0	B06	29	LOGIC CHASSIS (03)	
BI34911	08	B18	41	0	B06	45	LOGIC CHASSIS (03)	5453
BI40011	02	B12	05	0	B12	02	LOGIC CHASSIS (03)	
BI40020	09	B12	08	0	A25	33	LOGIC CHASSIS (03)	
BI40710	05	B12	36	0	B08	09	LOGIC CHASSIS (03)	
BI40720	03	B12	37	0	B14	29	LOGIC CHASSIS (03)	
BI40730	04	B12	32	0	B07	38	LOGIC CHASSIS (03)	
BI40910	03	B13	21	0	B12	10	LOGIC CHASSIS (03)	
BI40911	04	B12	10	0	B08	20	LOGIC CHASSIS (03)	
BI41011	03	B12	09	0	B13	24	LOGIC CHASSIS (03)	
BI41010	05	B12	09	0	B08	21	LOGIC CHASSIS (03)	
BI41210	05	B11	08	0	B12	40	LOGIC CHASSIS (03)	
BI41211	04	B12	40	0	B13	13	LOGIC CHASSIS (03)	
BI41220	05	B11	05	0	B12	41	LOGIC CHASSIS (03)	
BI41221	04	B12	41	0	B13	17	LOGIC CHASSIS (03)	
BI41310	04	B11	01	0	B12	34	LOGIC CHASSIS (03)	
BI41510	04	B11	12	0	B12	38	LOGIC CHASSIS (03)	
BI41511	04	B12	38	0	B13	09	LOGIC CHASSIS (03)	
BI41710	04	B13	45	0	B11	17	LOGIC CHASSIS (03)	
BI41810	03	B13	41	0	B11	29	LOGIC CHASSIS (03)	
BI42210	03	B12	20	0	B13	08	LOGIC CHASSIS (03)	

LW70951400 MDD SINGLE CHANNEL

BI42220	04	B12	21	0	B13	01	LOGIC CHASSIS (03)
BI42230	02	B12	22	0	B13	18	LOGIC CHASSIS (03)
BI42710	04	B13	42	0	B11	13	LOGIC CHASSIS (03)
BI50910	04	B08	16	0	B12	17	LOGIC CHASSIS (03)
BI50920	04	B08	18	0	B12	12	LOGIC CHASSIS (03)
BI50930	04	B08	17	0	B13	12	LOGIC CHASSIS (03)
BI51310	05	B11	41	0	B07	09	LOGIC CHASSIS (03)
BI51410	04	B11	21	0	B07	25	LOGIC CHASSIS (03)
BI52010	06	B07	20	0	B14	38	LOGIC CHASSIS (03)
BI52020	07	B07	14	0	B17	14	LOGIC CHASSIS (03)
BI52030	03	B07	21	0	B08	09	LOGIC CHASSIS (03)
BI52110	04	B11	36	0	B08	13	LOGIC CHASSIS (03)
BI52210	04	B07	24	0	B11	32	LOGIC CHASSIS (03)
BI52220	03	B07	32	0	B08	25	LOGIC CHASSIS (03)
BI52230	03	B07	30	0	B08	16	LOGIC CHASSIS (03)
BI52310	06	B08	29	0	B17	12	LOGIC CHASSIS (03)
BI52320	12	B08	28	0	A27	40	LOGIC CHASSIS (03)
BI52331	03	B08	30	0	B08	50	LOGIC CHASSIS (03)
BI60010	12	B08	41	0	A27	33	LOGIC CHASSIS (03)
BI60021	03	B08	44	0	B07	50	LOGIC CHASSIS (03)
BI60210	06	B15	01	0	B08	33	LOGIC CHASSIS (03)
BI60610	05	B15	26	0	B08	40	LOGIC CHASSIS (03)
BI61210	05	B17	22	0	B11	36	LOGIC CHASSIS (03)
BI62210	05	B14	05	0	B11	44	LOGIC CHASSIS (03)
BI62310	02	B14	13	0	B15	05	LOGIC CHASSIS (03)
BI62410	02	B14	16	0	B15	10	LOGIC CHASSIS (03)
BI62510	02	B14	12	0	B15	18	LOGIC CHASSIS (03)
BK10010	04	B16	33	0	B21	18	LOGIC CHASSIS (03)
BK10011	02	B21	18	0	B21	13	LOGIC CHASSIS (03)
BK10210	04	B16	25	0	B21	17	LOGIC CHASSIS (03)
BK10211	02	B21	17	0	B21	16	LOGIC CHASSIS (03)
BK10410	04	B16	22	0	B21	22	LOGIC CHASSIS (03)
BK10411	03	B21	22	0	B21	10	LOGIC CHASSIS (03)
BK10610	05	B16	12	0	B21	21	LOGIC CHASSIS (03)
BK10611	02	B21	21	0	B21	14	LOGIC CHASSIS (03)
BK10810	04	B16	37	0	B21	41	LOGIC CHASSIS (03)
BK10811	02	B21	41	0	B21	33	LOGIC CHASSIS (03)
BK11010	04	B16	29	0	B21	42	LOGIC CHASSIS (03)
BK11011	03	B21	42	0	B21	30	LOGIC CHASSIS (03)
BK11210	05	B16	18	0	B21	44	LOGIC CHASSIS (03)
BK11211	03	B21	44	0	B21	29	LOGIC CHASSIS (03)
BK11410	06	B16	08	0	B21	45	LOGIC CHASSIS (03)
BK11411	03	B21	45	0	B21	36	LOGIC CHASSIS (03)
BK20310	08	B19	22	0	A29	40	LOGIC CHASSIS (03)
BK30110	02	B06	38	0	B06	21	LOGIC CHASSIS (03)
BK40010	03	B13	32	0	B14	13	LOGIC CHASSIS (03)
BK40210	02	B13	20	0	B14	12	LOGIC CHASSIS (03)
BK40410	02	B13	12	0	B15	08	LOGIC CHASSIS (03)
BK40610	05	B13	05	0	B15	41	LOGIC CHASSIS (03)
BK40620	03	B13	30	0	B12	13	LOGIC CHASSIS (03)
BK40710	03	B13	40	0	B12	26	LOGIC CHASSIS (03)
BK40810	03	B12	25	0	B14	16	LOGIC CHASSIS (03)
BK41010	04	B12	17	0	B16	29	LOGIC CHASSIS (03)
BK41210	04	B12	12	0	B14	28	LOGIC CHASSIS (03)
BK41410	04	B12	01	0	B16	08	LOGIC CHASSIS (03)

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BK50010	03	B14	28	0	B16	18	LOGIC CHASSIS (03)	
BK50020	05	B14	25	0	B08	14	LOGIC CHASSIS (03)	
BK50030	06	B14	14	0	B08	12	LOGIC CHASSIS (03)	5546
BK50210	04	B07	10	0	B11	16	LOGIC CHASSIS (03)	
BK50211	04	B11	16	0	B13	34	LOGIC CHASSIS (03)	
BK50212	04	B13	34	0	B11	42	LOGIC CHASSIS (03)	21103
BK50310	02	B07	12	0	B06	05	LOGIC CHASSIS (03)	
BK50311	06	B06	05	0	B13	28	LOGIC CHASSIS (03)	
BK50610	04	B07	26	0	B11	14	LOGIC CHASSIS (03)	
BK50620	04	B07	33	0	B08	13	LOGIC CHASSIS (03)	
BK50710	05	B07	36	0	B11	09	LOGIC CHASSIS (03)	
BK50810	05	B07	42	0	B11	13	LOGIC CHASSIS (03)	
BK50910	05	B07	40	0	B11	10	LOGIC CHASSIS (03)	
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BK51120	03	B11	37	0	B11	50	LOGIC CHASSIS (03)	21103
BK60010	04	B15	05	0	B16	33	LOGIC CHASSIS (03)	
BK60210	02	B15	18	0	B16	25	LOGIC CHASSIS (03)	
BK60410	03	B15	08	0	B16	22	LOGIC CHASSIS (03)	
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BK61010	03	B17	36	0	B14	21	LOGIC CHASSIS (03)	
BK61210	05	B17	37	0	B11	33	LOGIC CHASSIS (03)	
BK61410	04	B17	17	0	B14	24	LOGIC CHASSIS (03)	
BK61810	04	B17	24	0	B14	10	LOGIC CHASSIS (03)	
BK62010	04	B17	01	0	B14	17	LOGIC CHASSIS (03)	
BT00010	08	B24	01	0	A16	36	LOGIC CHASSIS (03)	
BT00020	07	B24	05	0	B16	36	LOGIC CHASSIS (03)	
BT00110	08	B24	12	0	A16	28	LOGIC CHASSIS (03)	
BT00120	08	B24	14	0	B16	28	LOGIC CHASSIS (03)	
BT00210	09	B24	17	0	A16	17	LOGIC CHASSIS (03)	
BT00220	06	B24	18	0	B16	17	LOGIC CHASSIS (03)	
BT00310	10	B24	25	0	A16	10	LOGIC CHASSIS (03)	
BT00320	06	B24	26	0	B16	10	LOGIC CHASSIS (03)	
BT00410	08	B24	30	0	A16	40	LOGIC CHASSIS (03)	
BT00420	06	B24	32	0	B16	40	LOGIC CHASSIS (03)	
BT00510	09	B24	36	0	A16	32	LOGIC CHASSIS (03)	
BT00520	06	B24	37	0	B16	32	LOGIC CHASSIS (03)	
BT00610	11	B24	41	0	A16	13	LOGIC CHASSIS (03)	
BT00620	06	B24	42	0	B16	13	LOGIC CHASSIS (03)	
BT00710	09	B26	01	0	A16	01	LOGIC CHASSIS (03)	
BT00720	06	B26	05	0	B16	01	LOGIC CHASSIS (03)	
BT00811	02	B26	12	0	B26	02	LOGIC CHASSIS (03)	
BT00821	03	B26	14	0	B25	02	LOGIC CHASSIS (03)	
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BT01220	07	B28	05	0	B18	32	LOGIC CHASSIS (03)	
BT01310	09	B28	12	0	A18	29	LOGIC CHASSIS (03)	
BT01320	07	B28	14	0	B18	29	LOGIC CHASSIS (03)	
BT01410	03	B28	17	0	B28	02	LOGIC CHASSIS (03)	11417
BT01420	02	B28	18	0	B28	17	LOGIC CHASSIS (03)	11417
BT01610	10	B28	25	0	A18	30	LOGIC CHASSIS (03)	
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BT01810	10	B28	36	0	A18	34	LOGIC CHASSIS (03)	
BT01820	07	B28	37	0	B18	34	LOGIC CHASSIS (03)	
BT01910	09	B26	17	0	A18	25	LOGIC CHASSIS (03)	
BT01920	02	B26	18	0	B26	26	LOGIC CHASSIS (03)	

BT02010	06	B26	25	0	B18	25	LOGIC CHASSIS	(03)	
BT02020	02	B26	26	0	B26	32	LOGIC CHASSIS	(03)	
BT02110	10	B26	30	0	A19	32	LOGIC CHASSIS	(03)	
BT02111	03	A19	32	0	A18	45	LOGIC CHASSIS	(03)	
BT02120	02	B26	32	0	B26	37	LOGIC CHASSIS	(03)	
BT02211	02	B19	32	0	B18	45		(03)	
BT02210	06	B26	36	0	B19	32		(03)	
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BT02320	02	B28	42	0	B28	50	LOGIC CHASSIS	(03)	
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BT02420	02	B26	42	0	B26	50	LOGIC CHASSIS	(03)	
BY40410	05	B13	10	0	B07	08	LOGIC CHASSIS	(03)	
BY51510	03	B08	24	0	B11	20	LOGIC CHASSIS	(03)	
BY51511	06	B11	20	0	B18	37	LOGIC CHASSIS	(03)	
BY60110	03	B17	10	0	B14	09	LOGIC CHASSIS	(03)	
BY60410	03	B08	37	0	B11	40	LOGIC CHASSIS	(03)	5543
BY60411	03	B11	40	0	B14	33	LOGIC CHASSIS	(03)	5543
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XI23930	04	A20	14	0	A19	36	LOGIC CHASSIS	(03)	5496
XI23940	04	A20	16	0	A19	41	LOGIC CHASSIS	(03)	5496
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XI24110	02	A20	29	0	A19	21	LOGIC CHASSIS (03)	5496
XI24310	03	A20	37	0	A19	26	LOGIC CHASSIS (03)	5496
XI24410	04	A20	45	0	A19	13	LOGIC CHASSIS (03)	5496
XI25010	04	A20	41	0	A17	30	LOGIC CHASSIS (03)	5496
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YI24110	02	B20	29	0	B19	21	LOGIC CHASSIS (03)	5496
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0301910	IJ200 22	X	A27	28	LOGIC CHASSIS (03)	000
0302010	IJ200 25	X	A27	29	LOGIC CHASSIS (03)	444
0302110	IJ200 23	X	A25	28	LOGIC CHASSIS (03)	000
0302210	IJ200 26	X	A25	29	LOGIC CHASSIS (03)	444
0302310	IJ200 24	X	A27	36	LOGIC CHASSIS (03)	000
0302410	IJ200 27	X	A27	37	LOGIC CHASSIS (03)	444
0302510	IJ200 28	X	A25	41	LOGIC CHASSIS (03)	000
0302610	IJ200 31	X	A25	42	LOGIC CHASSIS (03)	444
0302710	IJ200 29	X	A27	41	LOGIC CHASSIS (03)	000
0302810	IJ200 32	X	A27	42	LOGIC CHASSIS (03)	444
0302910	IJ200 30	X	A28	21	LOGIC CHASSIS (03)	000
0303010	IJ200 33	X	A28	24	LOGIC CHASSIS (03)	444
0303110	IJ200 34	X	A28	08	LOGIC CHASSIS (03)	000
0303210	IJ200 37	X	A28	09	LOGIC CHASSIS (03)	444
0303310	IJ200 35	X	A28	13	LOGIC CHASSIS (03)	000
0303410	IJ200 38	X	A28	16	LOGIC CHASSIS (03)	444
0303510	IJ200 40	X	A25	21	LOGIC CHASSIS (03)	000
0303610	IJ200 43	X	A25	22	LOGIC CHASSIS (03)	444
0303710	IJ200 41	X	A27	21	LOGIC CHASSIS (03)	000
0303810	IJ200 44	X	A27	22	LOGIC CHASSIS (03)	444
0303910	IJ200 42	X	A29	21	LOGIC CHASSIS (03)	000
0304010	IJ200 45	X	A29	22	LOGIC CHASSIS (03)	444
0304110	IJ200 46	X	A29	16	LOGIC CHASSIS (03)	000
0304210	IJ200 49	X	A29	17	LOGIC CHASSIS (03)	444
0304310	IJ200 47	X	A29	28	LOGIC CHASSIS (03)	000
0304410	IJ200 50	X	A29	29	LOGIC CHASSIS (03)	444
0304510	IJ200 58	X	A28	28	LOGIC CHASSIS (03)	000
0304610	IJ200 62	X	A28	29	LOGIC CHASSIS (03)	444
0304710	IJ200 59	X	A28	33	LOGIC CHASSIS (03)	000
0304810	IJ200 63	X	A28	34	LOGIC CHASSIS (03)	444
0304910	IJ200 60	X	A28	38	LOGIC CHASSIS (03)	000
0305010	IJ200 64	X	A28	40	LOGIC CHASSIS (03)	444
0305110	IJ200 65	X	A29	36	LOGIC CHASSIS (03)	000
0305210	IJ200 70	X	A29	37	LOGIC CHASSIS (03)	444
0305310	IJ200 66	X	A26	13	LOGIC CHASSIS (03)	000
0305410	IJ200 71	X	A26	16	LOGIC CHASSIS (03)	444
0305510	IJ200 67	X	A29	41	LOGIC CHASSIS (03)	000
0305610	IJ200 72	X	A29	42	LOGIC CHASSIS (03)	444
0400110	IJ201 01	X	A24	08	LOGIC CHASSIS (03)	000
0400210	IJ201 04	X	A24	09	LOGIC CHASSIS (03)	444
0400310	IJ201 02	X	A24	13	LOGIC CHASSIS (03)	000
0400410	IJ201 05	X	A24	16	LOGIC CHASSIS (03)	444
0400510	IJ201 03	X	A24	21	LOGIC CHASSIS (03)	000
0400610	IJ201 07	X	A24	24	LOGIC CHASSIS (03)	444
0400710	IJ201 08	X	A24	28	LOGIC CHASSIS (03)	000
0400810	IJ201 12	X	A24	29	LOGIC CHASSIS (03)	444
0400910	IJ201 10	X	A24	33	LOGIC CHASSIS (03)	000
0401010	IJ201 13	X	A24	34	LOGIC CHASSIS (03)	444
0401110	IJ201 11	X	A24	38	LOGIC CHASSIS (03)	000
0401210	IJ201 14	X	A24	40	LOGIC CHASSIS (03)	444
0401310	IJ201 15	X	A24	44	LOGIC CHASSIS (03)	000

0401410	IJ201	18	X	A24	45	LOGIC CHASSIS (03)	444
0401510	IJ201	16	X	A26	08	LOGIC CHASSIS (03)	000
0401610	IJ201	20	X	A26	09	LOGIC CHASSIS (03)	444
0401710	IJ201	17	X	A25	36	LOGIC CHASSIS (03)	000
0401810	IJ201	21	X	A25	37	LOGIC CHASSIS (03)	444
0401910	IJ201	22	X	A27	28	LOGIC CHASSIS (03)	000
0402010	IJ201	25	X	A27	29	LOGIC CHASSIS (03)	444
0402110	IJ201	23	X	A25	28	LOGIC CHASSIS (03)	000
0402210	IJ201	26	X	A25	29	LOGIC CHASSIS (03)	444
0402310	IJ201	24	X	A27	36	LOGIC CHASSIS (03)	000
0402410	IJ201	27	X	A27	37	LOGIC CHASSIS (03)	444
0402510	IJ201	28	X	A25	41	LOGIC CHASSIS (03)	000
0402610	IJ201	31	X	A25	42	LOGIC CHASSIS (03)	444
0402710	IJ201	29	X	A27	41	LOGIC CHASSIS (03)	000
0402810	IJ201	32	X	A27	42	LOGIC CHASSIS (03)	444
0402910	IJ201	30	X	A28	21	LOGIC CHASSIS (03)	000
0403010	IJ201	33	X	A28	24	LOGIC CHASSIS (03)	444
0403110	IJ201	34	X	A28	08	LOGIC CHASSIS (03)	000
0403210	IJ201	37	X	A28	09	LOGIC CHASSIS (03)	444
0403310	IJ201	35	X	A28	13	LOGIC CHASSIS (03)	000
0403410	IJ201	38	X	A28	16	LOGIC CHASSIS (03)	444
0403510	IJ201	40	X	A25	21	LOGIC CHASSIS (03)	000
0403610	IJ201	43	X	A25	22	LOGIC CHASSIS (03)	444
0403710	IJ201	41	X	A27	21	LOGIC CHASSIS (03)	000
0403810	IJ201	44	X	A27	22	LOGIC CHASSIS (03)	444
0403910	IJ201	42	X	A29	21	LOGIC CHASSIS (03)	000
0404010	IJ201	45	X	A29	22	LOGIC CHASSIS (03)	444
0404110	IJ201	46	X	A29	16	LOGIC CHASSIS (03)	000
0404210	IJ201	49	X	A29	17	LOGIC CHASSIS (03)	444
0404310	IJ201	47	X	A29	28	LOGIC CHASSIS (03)	000
0404410	IJ201	50	X	A29	29	LOGIC CHASSIS (03)	444
0404510	IJ201	58	X	A28	28	LOGIC CHASSIS (03)	000
0404610	IJ201	62	X	A28	29	LOGIC CHASSIS (03)	444
0404710	IJ201	59	X	A28	33	LOGIC CHASSIS (03)	000
0404810	IJ201	63	X	A28	34	LOGIC CHASSIS (03)	444
0404910	IJ201	60	X	A28	38	LOGIC CHASSIS (03)	000
0405010	IJ201	64	X	A28	40	LOGIC CHASSIS (03)	444
0405110	IJ201	65	X	A29	36	LOGIC CHASSIS (03)	000
0405210	IJ201	70	X	A29	37	LOGIC CHASSIS (03)	444
0405310	IJ201	66	X	A26	13	LOGIC CHASSIS (03)	000
0405410	IJ201	71	X	A26	16	LOGIC CHASSIS (03)	444
0405510	IJ201	67	X	A29	41	LOGIC CHASSIS (03)	000
0405610	IJ201	72	X	A29	42	LOGIC CHASSIS (03)	444
0500110	IJ202	B	X	A26	21	LOGIC CHASSIS (03)	000
0500210	IJ202	D	X	A26	24	LOGIC CHASSIS (03)	444
0500310	IJ202	BB	X	A26	28	LOGIC CHASSIS (03)	000
0500410	IJ202	DD	X	A26	29	LOGIC CHASSIS (03)	444
0500510	IJ202	E	X	A26	33	LOGIC CHASSIS (03)	000
0500610	IJ202	H	X	A26	34	LOGIC CHASSIS (03)	444
0500710	IJ202	EE	X	A26	38	LOGIC CHASSIS (03)	000
0500810	IJ202	HH	X	A26	40	LOGIC CHASSIS (03)	444
0500910	IJ202	F	X	A28	44	LOGIC CHASSIS (03)	000
0501010	IJ202	J	X	A28	45	LOGIC CHASSIS (03)	444
0501110	IJ202	FF	X	A26	44	LOGIC CHASSIS (03)	000
0501210	IJ202	JJ	X	A26	45	LOGIC CHASSIS (03)	444

0600110	IIJ20001	X	B25	01	LOGIC CHASSIS (03)	000
0600210	IIJ20004	X	B25	05	LOGIC CHASSIS (03)	444
0600310	IIJ20002	X	B25	09	LOGIC CHASSIS (03)	000
0600410	IIJ20005	X	B25	12	LOGIC CHASSIS (03)	444
0600510	IIJ20003	X	B25	16	9LOGIC CHASSIS (03)	000
0600610	IIJ20007	X	B25	17	LOGIC CHASSIS (03)	444
0600710	IIJ20008	X	B27	01	LOGIC CHASSIS (03)	000
0600810	IIJ20012	X	B27	05	LOGIC CHASSIS (03)	444
0600910	IIJ20010	X	B27	09	LOGIC CHASSIS (03)	000
0601010	IIJ20013	X	B27	12	LOGIC CHASSIS (03)	444
0601110	IIJ20011	X	B27	16	LOGIC CHASSIS (03)	000
0601210	IIJ20014	X	B27	17	LOGIC CHASSIS (03)	444
0601310	IIJ20015	X	B29	01	LOGIC CHASSIS (03)	000
0601410	IIJ20018	X	B29	05	LOGIC CHASSIS (03)	444
0601510	IIJ20016	X	B29	09	LOGIC CHASSIS (03)	000
0601610	IIJ20020	X	B29	12	LOGIC CHASSIS (03)	444
0601710	IIJ20017	X	B25	36	LOGIC CHASSIS (03)	000
0601810	IIJ20021	X	B25	37	LOGIC CHASSIS (03)	444
0601910	IIJ20022	X	B27	28	LOGIC CHASSIS (03)	000
0602010	IIJ20025	X	B27	29	LOGIC CHASSIS (03)	444
0602110	IIJ20023	X	B25	28	LOGIC CHASSIS (03)	000
0602210	IIJ20026	X	B25	29	LOGIC CHASSIS (03)	444
0602310	IIJ20024	X	B27	36	LOGIC CHASSIS (03)	000
0602410	IIJ20027	X	B27	37	LOGIC CHASSIS (03)	444
0602510	IIJ20028	X	B25	41	LOGIC CHASSIS (03)	000
0602610	IIJ20031	X	B25	42	LOGIC CHASSIS (03)	444
0602710	IIJ20029	X	B27	41	LOGIC CHASSIS (03)	000
0602810	IIJ20032	X	B27	42	LOGIC CHASSIS (03)	444
0602910	IIJ20030	X	B28	21	LOGIC CHASSIS (03)	000
0603010	IIJ20033	X	B28	24	LOGIC CHASSIS (03)	444
0603110	IIJ20034	X	B28	08	LOGIC CHASSIS (03)	000
0603210	IIJ20037	X	B28	09	LOGIC CHASSIS (03)	444
0603310	IIJ20035	X	B28	13	LOGIC CHASSIS (03)	000
0603410	IIJ20038	X	B28	16	LOGIC CHASSIS (03)	444
0603510	IIJ20040	X	B25	21	LOGIC CHASSIS (03)	000
0603610	IIJ20043	X	B25	22	LOGIC CHASSIS (03)	444
0603710	IIJ20041	X	B27	21	LOGIC CHASSIS (03)	000
0603810	IIJ20044	X	B27	22	LOGIC CHASSIS (03)	444
0603910	IIJ20042	X	B29	21	LOGIC CHASSIS (03)	000
0604010	IIJ20045	X	B29	22	LOGIC CHASSIS (03)	444
0604110	IIJ20046	X	B29	16	LOGIC CHASSIS (03)	000
0604210	IIJ20049	X	B29	17	LOGIC CHASSIS (03)	444
0604310	IIJ20047	X	B29	28	LOGIC CHASSIS (03)	000
0604410	IIJ20050	X	B29	29	LOGIC CHASSIS (03)	444
0604510	IIJ20058	X	B28	28	LOGIC CHASSIS (03)	000
0604610	IIJ20062	X	B28	29	LOGIC CHASSIS (03)	444
0604710	IIJ20059	X	B28	33	LOGIC CHASSIS (03)	000
0604810	IIJ20063	X	B28	34	LOGIC CHASSIS (03)	444
0604910	IIJ20060	X	B28	38	LOGIC CHASSIS (03)	000
0605010	IIJ20064	X	B28	40	LOGIC CHASSIS (03)	444
0605110	IIJ20065	X	B29	36	LOGIC CHASSIS (03)	000
0605210	IIJ20070	X	B29	37	LOGIC CHASSIS (03)	444
0605310	IIJ20066	X	B26	13	LOGIC CHASSIS (03)	000
0605410	IIJ20071	X	B26	16	LOGIC CHASSIS (03)	444
0605510	IIJ20067	X	B29	41	LOGIC CHASSIS (03)	000

0605610	IIJ20072	X	B29	42	LOGIC CHASSIS (03)	444
0700110	IIJ20101	X	B24	08	LOGIC CHASSIS (03)	000
0700210	IIJ20104	X	B24	09	LOGIC CHASSIS (03)	444
0700310	IIJ20102	X	B24	13	LOGIC CHASSIS (03)	000
0700410	IIJ20105	X	B24	16	LOGIC CHASSIS (03)	444
0700510	IIJ20103	X	B24	21	LOGIC CHASSIS (03)	000
0700610	IIJ20107	X	B24	24	LOGIC CHASSIS (03)	444
0700710	IIJ20108	X	B24	28	LOGIC CHASSIS (03)	000
0700810	IIJ20112	X	B24	29	LOGIC CHASSIS (03)	444
0700910	IIJ20110	X	B24	33	LOGIC CHASSIS (03)	000
0701010	IIJ20113	X	B24	34	LOGIC CHASSIS (03)	444
0701110	IIJ20111	X	B24	38	LOGIC CHASSIS (03)	000
0701210	IIJ20114	X	B24	40	LOGIC CHASSIS (03)	444
0701310	IIJ20115	X	B24	44	LOGIC CHASSIS (03)	000
0701410	IIJ20118	X	B24	45	LOGIC CHASSIS (03)	444
0701510	IIJ20116	X	B26	08	LOGIC CHASSIS (03)	000
0701610	IIJ20120	X	B26	09	LOGIC CHASSIS (03)	444
0701710	IIJ20117	X	B25	36	LOGIC CHASSIS (03)	000
0701810	IIJ20121	X	B25	37	LOGIC CHASSIS (03)	444
0701910	IIJ20122	X	B27	28	LOGIC CHASSIS (03)	000
0702010	IIJ20125	X	B27	29	LOGIC CHASSIS (03)	444
0702110	IIJ20123	X	B25	28	LOGIC CHASSIS (03)	000
0702210	IIJ20126	X	B25	29	LOGIC CHASSIS (03)	444
0702310	IIJ20124	X	B27	36	LOGIC CHASSIS (03)	000
0702410	IIJ20127	X	B27	37	LOGIC CHASSIS (03)	444
0702510	IIJ20128	X	B25	41	LOGIC CHASSIS (03)	000
0702610	IIJ20131	X	B25	42	LOGIC CHASSIS (03)	444
0702710	IIJ20129	X	B27	41	LOGIC CHASSIS (03)	000
0702810	IIJ20132	X	B27	42	LOGIC CHASSIS (03)	444
0702910	IIJ20130	X	B28	21	LOGIC CHASSIS (03)	000
0703010	IIJ20133	X	B28	24	LOGIC CHASSIS (03)	444
0703110	IIJ20134	X	B28	08	LOGIC CHASSIS (03)	000
0703210	IIJ20137	X	B28	09	LOGIC CHASSIS (03)	444
0703310	IIJ20135	X	B28	13	LOGIC CHASSIS (03)	000
0703410	IIJ20138	X	B28	16	LOGIC CHASSIS (03)	444
0703510	IIJ20140	X	B25	21	LOGIC CHASSIS (03)	000
0703610	IIJ20143	X	B25	22	LOGIC CHASSIS (03)	444
0703710	IIJ20141	X	B27	21	LOGIC CHASSIS (03)	000
0703810	IIJ20144	X	B27	22	LOGIC CHASSIS (03)	444
0703910	IIJ20142	X	B29	21	LOGIC CHASSIS (03)	000
0704010	IIJ20145	X	B29	22	LOGIC CHASSIS (03)	444
0704110	IIJ20146	X	B29	16	LOGIC CHASSIS (03)	000
0704210	IIJ20149	X	B29	17	LOGIC CHASSIS (03)	444
0704310	IIJ20147	X	B29	28	LOGIC CHASSIS (03)	000
0704410	IIJ20150	X	B29	29	LOGIC CHASSIS (03)	444
0704510	IIJ20158	X	B28	28	LOGIC CHASSIS (03)	000
0704610	IIJ20162	X	B28	29	LOGIC CHASSIS (03)	444
0704710	IIJ20159	X	B28	33	LOGIC CHASSIS (03)	000
0704810	IIJ20163	X	B28	34	LOGIC CHASSIS (03)	444
0704910	IIJ20160	X	B28	38	LOGIC CHASSIS (03)	000
0705010	IIJ20164	X	B28	40	LOGIC CHASSIS (03)	444
0705110	IIJ20165	X	B29	36	LOGIC CHASSIS (03)	000
0705210	IIJ20170	X	B29	37	LOGIC CHASSIS (03)	444
0705310	IIJ20166	X	B26	13	LOGIC CHASSIS (03)	000
0705410	IIJ20171	X	B26	16	LOGIC CHASSIS (03)	444

0705510		IIJ20167		X	B29	41	LOGIC CHASSIS (03)	000
0705610		IIJ20172		X	B29	42	LOGIC CHASSIS (03)	444
0800110		IIJ202 B		X	B26	21	LOGIC CHASSIS (03)	000
0800210		IIJ202 D		X	B26	24	LOGIC CHASSIS (03)	444
0800310		IIJ202BB		X	B26	28	LOGIC CHASSIS (03)	000
0800410		IIJ202DD		X	B26	29	LOGIC CHASSIS (03)	444
0800510		IIJ202 E		X	B26	33	LOGIC CHASSIS (03)	000
0800610		IIJ202 H		X	B26	34	LOGIC CHASSIS (03)	444
0800710		IIJ202EE		X	B26	38	LOGIC CHASSIS (03)	000
0800810		IIJ202HH		X	B26	40	LOGIC CHASSIS (03)	444
0800910		IIJ202 F		X	B28	44	LOGIC CHASSIS (03)	000
0801010		IIJ202 J		X	B28	45	LOGIC CHASSIS (03)	444
0801110		IIJ202FF		X	B26	44	LOGIC CHASSIS (03)	000
0801210		IIJ202JJ		X	B26	45	LOGIC CHASSIS (03)	444
0900110	04	A03	45	0	A06	17	LOGIC CHASSIS (03)	
0900210	06	A03	20	0	A11	33	LOGIC CHASSIS (03)	
0900310	06	A03	30	0	A12	45	LOGIC CHASSIS (03)	
0900410	07	A03	32	0	A12	14	LOGIC CHASSIS (03)	
0900510	06	A03	33	0	A12	44	LOGIC CHASSIS (03)	
0900610	06	A03	36	0	A12	42	LOGIC CHASSIS (03)	
0900710	07	A03	37	0	A13	38	LOGIC CHASSIS (03)	
0900810	07	A03	38	0	A13	37	LOGIC CHASSIS (03)	
0900910	07	A03	40	0	A13	36	LOGIC CHASSIS (03)	
0901010	07	A03	41	0	A13	33	LOGIC CHASSIS (03)	
0901110	07	A03	17	0	A12	33	LOGIC CHASSIS (03)	
0901210	04	A03	29	0	A07	16	LOGIC CHASSIS (03)	
0901310	04	A03	25	0	A08	10	LOGIC CHASSIS (03)	
0901510	05	A03	28	0	A08	08	LOGIC CHASSIS (03)	
0901610	07	A03	08	0	A13	10	LOGIC CHASSIS (03)	
0901710	07	A03	05	0	A13	44	LOGIC CHASSIS (03)	
0901810	08	A03	01	0	A13	45	LOGIC CHASSIS (03)	
1000110	04	B03	45	0	B06	17	LOGIC CHASSIS (03)	
1000210	06	B03	20	0	B11	33	LOGIC CHASSIS (03)	
1000310	06	B03	30	0	B12	45	LOGIC CHASSIS (03)	
1000410	07	B03	32	0	B12	14	LOGIC CHASSIS (03)	
1000510	06	B03	33	0	B12	44	LOGIC CHASSIS (03)	
1000610	06	B03	36	0	B12	42	LOGIC CHASSIS (03)	
1000710	07	B03	37	0	B13	38	LOGIC CHASSIS (03)	
1000810	07	B03	38	0	B13	37	LOGIC CHASSIS (03)	
1000910	07	B03	40	0	B13	36	LOGIC CHASSIS (03)	
1001010	07	B03	41	0	B13	33	LOGIC CHASSIS (03)	21143
1001110	07	B03	17	0	B12	33	LOGIC CHASSIS (03)	
1001210	04	B03	29	0	B07	16	LOGIC CHASSIS (03)	
1001310	04	B03	25	0	B08	10	LOGIC CHASSIS (03)	
1001510	05	B03	28	0	B08	08	LOGIC CHASSIS (03)	
1001610	07	B03	08	0	B13	10	LOGIC CHASSIS (03)	
1001710	07	B03	05	0	B13	44	LOGIC CHASSIS (03)	
1001810	08	B03	01	0	B13	45	LOGIC CHASSIS (03)	
1100010	02	A01	06	R	A02	06	LOGIC CHASSIS (03)	20 666
1100011	02	A02	06	R	A03	06	LOGIC CHASSIS (03)	20 666
1100012	02	A03	06	R	A04	06	LOGIC CHASSIS (03)	20 666
1100013	02	A04	06	R	A05	06	LOGIC CHASSIS (03)	20 666
1100020	02	A06	06	R	A07	06	LOGIC CHASSIS (03)	20 666
1100021	02	A07	06	R	A08	06	LOGIC CHASSIS (03)	20 666
1100022	02	A08	06	R	A09	06	LOGIC CHASSIS (03)	20 666

1100023	02	A09	06	R	A10	06	LOGIC CHASSIS (03)	20	666	
1100030	02	A12	06	R	A13	06	LOGIC CHASSIS (03)	20	666	
1100031	02	A13	06	R	A14	06	LOGIC CHASSIS (03)	20	666	
1100032	02	A14	06	R	A15	06	LOGIC CHASSIS (03)	20	666	
1100033	02	A15	06	R	A16	06	LOGIC CHASSIS (03)	20	666	
1100034	02	A16	06	R	A17	06	LOGIC CHASSIS (03)	20	666	
1100035	**02**	**A11**	**06**	**R**	**A12**	**06**	**LOGIC CHASSIS (03)**	**20**	**222**	**21253**
1100040	02	A18	06	R	A19	06	LOGIC CHASSIS (03)	20	666	
1100041	02	A19	06	R	A20	06	LOGIC CHASSIS (03)	20	666	
1100042	02	A20	06	R	A21	06	LOGIC CHASSIS (03)	20	666	
1100043	02	A21	06	R	A22	06	LOGIC CHASSIS (03)	20	666	
1100044	02	A22	06	R	A23	06	LOGIC CHASSIS (03)	20	666	
1100051	02	A25	06	R	A26	06	LOGIC CHASSIS (03)	20	666	
1100050	02	A24	06	R	A25	06	LOGIC CHASSIS (03)	20	666	
1100061	02	A28	06	R	A29	06	LOGIC CHASSIS (03)	20	666	
1100060	02	A27	06	R	A28	06	LOGIC CHASSIS (03)	20	666	
1100110	02	A01	46	R	A02	46	LOGIC CHASSIS (03)	20	222	
1100111	02	A02	46	R	A03	46	LOGIC CHASSIS (03)	20	222	
1100112	02	A03	46	R	A04	46	LOGIC CHASSIS (03)	20	222	
1100113	02	A04	46	R	A05	46	LOGIC CHASSIS (03)	20	222	
1100120	02	A06	46	R	A07	46	LOGIC CHASSIS (03)	20	222	
1100121	02	A07	46	R	A08	46	LOGIC CHASSIS (03)	20	222	
1100122	02	A08	46	R	A09	46	LOGIC CHASSIS (03)	20	222	
1100123	02	A09	46	R	A10	46	LOGIC CHASSIS (03)	20	222	
1100130	02	A12	46	R	A13	46	LOGIC CHASSIS (03)	20	222	
1100132	02	A14	46	R	A15	46	LOGIC CHASSIS (03)	20	222	
1100131	02	A13	46	R	A14	46	LOGIC CHASSIS (03)	20	222	
1100133	02	A15	46	R	A16	46	LOGIC CHASSIS (03)	20	222	
1100134	02	A16	46	R	A17	46	LOGIC CHASSIS (03)	20	222	
1100135	**02**	**A11**	**46**	**R**	**A12**	**46**	**LOGIC CHASSIS (03)**	**20**	**222**	**21253**
1100140	02	A18	46	R	A19	46	LOGIC CHASSIS (03)	20	222	
1100141	02	A19	46	R	A20	46	LOGIC CHASSIS (03)	20	222	
1100143	02	A21	46	R	A22	46	LOGIC CHASSIS (03)	20	222	
1100142	02	A20	46	R	A21	46	LOGIC CHASSIS (03)	20	222	
1100144	02	A22	46	R	A23	46	LOGIC CHASSIS (03)	20	222	
1100150	02	A24	46	R	A25	46	LOGIC CHASSIS (03)	20	222	
1100151	02	A25	46	R	A26	46	LOGIC CHASSIS (03)	20	222	
1100160	02	A27	46	R	A28	46	LOGIC CHASSIS (03)	20	222	
1100161	02	A28	46	R	A29	46	LOGIC CHASSIS (03)	20	222	
1100210	02	A01	48	R	A02	48	LOGIC CHASSIS (03)	20	222	
1100211	02	A02	48	R	A03	48	LOGIC CHASSIS (03)	20	222	
1100212	02	A03	48	R	A04	48	LOGIC CHASSIS (03)	20	222	
1100213	02	A04	48	R	A05	48	LOGIC CHASSIS (03)	20	222	
1100220	02	A06	48	R	A07	48	LOGIC CHASSIS (03)	20	222	
1100221	02	A07	48	R	A08	48	LOGIC CHASSIS (03)	20	222	
1100222	02	A08	48	R	A09	48	LOGIC CHASSIS (03)	20	222	
1100223	02	A09	48	R	A10	48	LOGIC CHASSIS (03)	20	222	
1100230	02	A12	48	R	A13	48	LOGIC CHASSIS (03)	20	222	
1100231	02	A13	48	R	A14	48	LOGIC CHASSIS (03)	20	222	
1100232	02	A14	48	R	A15	48	LOGIC CHASSIS (03)	20	222	
1100233	02	A15	48	R	A16	48	LOGIC CHASSIS (03)	20	222	
1100234	02	A16	48	R	A17	48	LOGIC CHASSIS (03)	20	222	
1100235	02	A11	48	R	A12	48	LOGIC CHASSIS (03)	20	222	11118A
1100243	02	A21	48	R	A22	48	LOGIC CHASSIS (03)	20	222	
1100240	02	A18	48	R	A19	48	LOGIC CHASSIS (03)	20	222	

1100241	02	A19	48	R	A20	48	LOGIC CHASSIS (03)	20	222	
1100242	02	A20	48	R	A21	48	LOGIC CHASSIS (03)	20	222	
1100244	02	A22	48	R	A23	48	LOGIC CHASSIS (03)	20	222	
1100310	02	B01	06	R	B02	06	LOGIC CHASSIS (03)	20	666	
1100311	02	B02	06	R	B03	06	LOGIC CHASSIS (03)	20	666	
1100312	02	B03	06	R	B04	06	LOGIC CHASSIS (03)	20	666	
1100313	02	B04	06	R	B05	06	LOGIC CHASSIS (03)	20	666	
1100320	02	B06	06	R	B07	06	LOGIC CHASSIS (03)	20	666	
1100321	02	B07	06	R	B08	06	LOGIC CHASSIS (03)	20	666	
1100322	02	B08	06	R	B09	06	LOGIC CHASSIS (03)	20	666	
1100323	02	B09	06	R	B10	06	LOGIC CHASSIS (03)	20	666	
1100332	02	B14	06	R	B15	06	LOGIC CHASSIS (03)	20	666	
1100330	02	B12	06	R	B13	06	LOGIC CHASSIS (03)	20	666	
1100331	02	B13	06	R	B14	06	LOGIC CHASSIS (03)	20	666	
1100333	02	B15	06	R	B16	06	LOGIC CHASSIS (03)	20	666	
1100334	02	B16	06	R	B17	06	LOGIC CHASSIS (03)	20	666	
1100335	**02**	**B11**	**06**	**R**	**B12**	**06**	**LOGIC CHASSIS (03)**	**20**	**222**	**21253**
1100340	02	B18	06	R	B19	06	LOGIC CHASSIS (03)	20	666	
1100341	02	B19	06	R	B20	06	LOGIC CHASSIS (03)	20	666	
1100342	02	B20	06	R	B21	06	LOGIC CHASSIS (03)	20	666	
1100343	02	B21	06	R	B22	06	LOGIC CHASSIS (03)	20	666	
1100344	02	B22	06	R	B23	06	LOGIC CHASSIS (03)	20	666	
1100350	02	B24	06	R	B25	06	LOGIC CHASSIS (03)	20	666	
1100351	02	B25	06	R	B26	06	LOGIC CHASSIS (03)	20	666	
1100360	02	B27	06	R	B28	06	LOGIC CHASSIS (03)	20	666	
1100361	02	B28	06	R	B29	06	LOGIC CHASSIS (03)	20	666	
1100410	02	B01	46	R	B02	46	LOGIC CHASSIS (03)	20	222	
1100411	02	B02	46	R	B03	46	LOGIC CHASSIS (03)	20	222	
1100412	02	B03	46	R	B04	46	LOGIC CHASSIS (03)	20	222	
1100413	02	B04	46	R	B05	46	LOGIC CHASSIS (03)	20	222	
1100420	02	B06	46	R	B07	46	LOGIC CHASSIS (03)	20	222	
1100421	02	B07	46	R	B08	46	LOGIC CHASSIS (03)	20	222	
1100422	02	B08	46	R	B09	46	LOGIC CHASSIS (03)	20	222	
1100423	02	B09	46	R	B10	46	LOGIC CHASSIS (03)	20	222	
1100430	02	B12	46	R	B13	46	LOGIC CHASSIS (03)	20	222	
1100431	02	B13	46	R	B14	46	LOGIC CHASSIS (03)	20	222	
1100432	02	B14	46	R	B15	46	LOGIC CHASSIS (03)	20	222	
1100433	02	B15	46	R	B16	46	LOGIC CHASSIS (03)	20	222	
1100434	02	B16	46	R	B17	46	LOGIC CHASSIS (03)	20	222	
1100435	**02**	**B11**	**46**	**R**	**B17**	**46**	**LOGIC CHASSIS (03)**	**20**	**222**	**21253**
1100440	02	B18	46	R	B19	46	LOGIC CHASSIS (03)	20	222	
1100441	02	B19	46	R	B20	46	LOGIC CHASSIS (03)	20	222	
1100442	02	B20	46	R	B21	46	LOGIC CHASSIS (03)	20	222	
1100443	02	B21	46	R	B22	46	LOGIC CHASSIS (03)	20	222	
1100444	02	B22	46	R	B23	46	LOGIC CHASSIS (03)	20	222	
1100451	02	B25	46	R	B26	46	LOGIC CHASSIS (03)	20	222	
1100450	02	B24	46	R	B25	46	LOGIC CHASSIS (03)	20	222	
1100460	02	B27	46	R	B28	46	LOGIC CHASSIS (03)	20	222	
1100461	02	B28	46	R	B29	46	LOGIC CHASSIS (03)	20	222	
1100510	02	B01	48	R	B02	48	LOGIC CHASSIS (03)	20	222	
1100511	02	B02	48	R	B03	48	LOGIC CHASSIS (03)	20	222	
1100512	02	B03	48	R	B04	48	LOGIC CHASSIS (03)	20	222	
1100513	02	B04	48	R	B05	48	LOGIC CHASSIS (03)	20	222	
1100520	02	B06	48	R	B07	48	LOGIC CHASSIS (03)	20	222	
1100521	02	B07	48	R	B08	48	LOGIC CHASSIS (03)	20	222	

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1100522     02  B08   48 R  B09   48   LOGIC CHASSIS (03)     20 222
1100523     02  B09   48 R  B10   48   LOGIC CHASSIS (03)     20 222
1100530     02  B12   48 R  B13   48   LOGIC CHASSIS (03)     20 222
1100531     02  B13   48 R  B14   48   LOGIC CHASSIS (03)     20 222
1100532     02  B14   48 R  B15   48   LOGIC CHASSIS (03)     20 222
1100533     02  B15   48 R  B16   48   LOGIC CHASSIS (03)     20 222
1100534     02  B16   48 R  B17   48   LOGIC CHASSIS (03)     20 222
1100535     02  B11   48 R  B12   48   LOGIC CHASSIS (03)     20 222    11118A
1100540     02  B18   48 R  B19   48   LOGIC CHASSIS (03)     20 222
1100541     02  B19   48 R  B20   48   LOGIC CHASSIS (03)     20 222
1100542     02  B20   48 R  B21   48   LOGIC CHASSIS (03)     20 222
1100543     02  B21   48 R  B22   48   LOGIC CHASSIS (03)     20 222
1100544     02  B22   48 R  B23   48   LOGIC CHASSIS (03)     20 222
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DWN	E. WILLIAMS	3/31/71	CONTROL DATA	TITLE LOGIC WIRE LIST LOGIC CHASSIS	PREFIX LW	DOCUMENT NO. 73129700	REV A
CHKD	E. WILLIAMS	3/31/71	NRMOPS				
ENG							
MFG			CODE IDENT 19333	FIRST USED ON MDD		SHEET 25	
APPR							

SHEET REVISION STATUS

REVISION RECORD

REV	ECO	DESCRIPTION	DRFT	DATE	APP
A	PE 24073	DWG SIMILAR TO & CREATED BY USING MASTER FROM 72970000	EW	31 MAR 71	

NOTES:

DETACHED LISTS

CONTROL DATA	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 24	DOCUMENT NO. 73129700	REV. A

NOTES:

1. FOR MECH. ASSY & PL SEE 70951800.
2. ASSOCIATED DOCUMENTS:
   SINGLE CHANNEL - CP 73128100
   SCH 70954900
   DUAL CHANNEL - CP 70951200
   SCH 70952000
3. INSTALL A SOLID BLACK JUMPER WIRE, FN 76 FROM PIN 2 & PIN 50 OF EACH CONNECTOR, NUMBER A01 THRU A29 AND B01 THRU B29 TO THE CLOSEST HOLE IN THE CONNECTOR MOUNTING BAR FOR GROUNDING.

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LW73129700 CII MOD DC                    REVISION A

ID NO  LENGTH   ORIGIN    S  DESTINATION TITLE                       SIZE/COLOR  ECO

AI23420      02  A20    01 0  A19    10    LOGIC CHASSIS
AI23430      02  A20    09 0  A19    05    LOGIC CHASSIS
AI23440      02  A20    12 0  A19    17    LOGIC CHASSIS
AI23510      10  A20    10 0  B27    24    LOGIC CHASSIS
AI23610      10  A20    22 0  B29    32    LOGIC CHASSIS
AI23710      02  A20    21 0  A19    30    LOGIC CHASSIS
AI23810      10  A20    13 0  B29    24    LOGIC CHASSIS
AI23910      04  A20    17 0  A19    37    LOGIC CHASSIS
AI23920      04  A20    20 0  A19    38    LOGIC CHASSIS
AI23930      04  A20    14 0  A19    36    LOGIC CHASSIS
AI23940      04  A20    16 0  A19    41    LOGIC CHASSIS
AI24010      09  A20    18 0  B29    18    LOGIC CHASSIS
AI24110      02  A20    29 0  A19    21    LOGIC CHASSIS
AI24310      03  A20    37 0  A19    26    LOGIC CHASSIS
AI24410      04  A20    45 0  A19    13    LOGIC CHASSIS
AI24910      03  A19    24 0  A17    28    LOGIC CHASSIS
AI25010      04  A20    41 0  A17    30    LOGIC CHASSIS
AI30010      03  A06    01 0  A08    05    LOGIC CHASSIS
AI30210      04  A06    40 0  A06    50    LOGIC CHASSIS
AI30410      06  A06    17 0  A11    44    LOGIC CHASSIS
AI30420      08  A06    12 0  A18    20    LOGIC CHASSIS
AI34610      06  A18    36 0  A11    22    LOGIC CHASSIS
AI34710      02  A18    16 0  A18    02    LOGIC CHASSIS
AI34910      08  A18    41 0  A06    29    LOGIC CHASSIS
AI34911      08  A18    41 0  A06    45    LOGIC CHASSIS
AI40010      11  A12    05 0  B25    32    LOGIC CHASSIS
AI40020      08  A12    08 0  A25    32    LOGIC CHASSIS
AI40710      05  A12    36 0  A08    09    LOGIC CHASSIS
AI40720      03  A12    37 0  A14    29    LOGIC CHASSIS
AI40730      04  A12    32 0  A07    38    LOGIC CHASSIS
AI40910      03  A13    21 0  A12    10    LOGIC CHASSIS
AI40911      04  A12    10 0  A08    20    LOGIC CHASSIS
AI41010      05  A12    09 0  A08    21    LOGIC CHASSIS
AI41011      03  A12    09 0  A13    24    LOGIC CHASSIS
AI41210      04  A11    08 0  A12    40    LOGIC CHASSIS
AI41211      04  A12    40 0  A13    13    LOGIC CHASSIS
AI41220      05  A11    05 0  A12    41    LOGIC CHASSIS
AI41221      04  A12    41 0  A13    17    LOGIC CHASSIS
AI41310      04  A11    01 0  A12    34    LOGIC CHASSIS
AI41510      04  A11    12 0  A12    38    LOGIC CHASSIS
AI41511      04  A12    38 0  A13    09    LOGIC CHASSIS
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LW73129700 CII MOD DC                    REVISION A

ID NO  LENGTH   ORIGIN    S  DESTINATION TITLE                    SIZE/COLOR  ECO

AI10010    04   A21    13 0  A25    08   LOGIC CHASSIS
AI10020    08   A21    12 0  B25    08   LOGIC CHASSIS
AI10110    04   A21    16 0  A25    13   LOGIC CHASSIS
AI10120    08   A21    08 0  B25    13   LOGIC CHASSIS
AI10210    04   A21    10 0  A25    18   LOGIC CHASSIS
AI10220    09   A21    05 0  B25    18   LOGIC CHASSIS
AI10310    05   A21    14 0  A27    08   LOGIC CHASSIS
AI10320    08   A21    09 0  B27    08   LOGIC CHASSIS
AI10410    05   A21    33 0  A27    13   LOGIC CHASSIS
AI10420    08   A21    32 0  B27    13   LOGIC CHASSIS
AI10510    05   A21    30 0  A27    18   LOGIC CHASSIS
AI10520    07   A21    40 0  B27    18   LOGIC CHASSIS
AI10610    06   A21    29 0  A29    08   LOGIC CHASSIS
AI10620    07   A21    38 0  B29    08   LOGIC CHASSIS
AI10710    06   A21    36 0  A29    13   LOGIC CHASSIS
AI10720    08   A21    37 0  B29    13   LOGIC CHASSIS
AI10810    04   A21    01 0  A20    25   LOGIC CHASSIS
AI10910    02   A21    34 0  A19    29   LOGIC CHASSIS
AI11810    09   A16    44 0  B25    38   LOGIC CHASSIS
AI11820    06   A16    45 0  A25    38   LOGIC CHASSIS
AI12010    04   A16    41 0  A12    28   LOGIC CHASSIS
AI12110    06   A16    21 0  A25    44   LOGIC CHASSIS
AI12110    06   A16    21 0  A25    44   LOGIC CHASSIS
AI12210    09   A16    42 0  B25    44   LOGIC CHASSIS
AI20010    05   A17    21 0  A12    36   LOGIC CHASSIS
AI20020    08   A17    25 0  A29    44   LOGIC CHASSIS
AI20110    11   A17    29 0  B29    44   LOGIC CHASSIS
AI20120    02   A17    40 0  A17    21   LOGIC CHASSIS
AI21510    03   A18    22 0  A20    25   LOGIC CHASSIS
AI21710    04   A18    05 0  A19    29   LOGIC CHASSIS
AI21810    05   A19    08 0  A25    24   LOGIC CHASSIS
AI22110    06   A19    12 0  A27    24   LOGIC CHASSIS
AI22310    07   A19    14 0  A29    32   LOGIC CHASSIS
AI22410    03   A19    18 0  A20    32   LOGIC CHASSIS
AI22411    03   A19    18 0  A21    24   LOGIC CHASSIS
AI22510    07   A19    40 0  A29    24   LOGIC CHASSIS
AI22810    07   A19    42 0  A29    18   LOGIC CHASSIS
AI23010    03   A19    21 0  A18    21   LOGIC CHASSIS
AI23210    02   A19    34 0  A20    26   LOGIC CHASSIS
AI23310    09   A20    08 0  B25    24   LOGIC CHASSIS
AI23410    02   A20    05 0  A19    09   LOGIC CHASSIS
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ID NO	LENGTH	ORIGIN		S	DESTINATION		TITLE	SIZE/COLOR	ECO
AI41710	04	A13	45	0	A11	17	LOGIC CHASSIS		
AI41810	03	A13	41	0	A11	29	LOGIC CHASSIS		
AI42210	03	A12	20	0	A13	08	LOGIC CHASSIS		
AI42220	04	A12	21	0	A13	01	LOGIC CHASSIS		
AI42230	02	A12	22	0	A13	18	LOGIC CHASSIS		
AI42710	04	A13	42	0	A11	13	LOGIC CHASSIS		
AI50910	04	A08	16	0	A12	17	LOGIC CHASSIS		
AI50920	04	A08	18	0	A12	12	LOGIC CHASSIS		
AI50930	04	A13	12	0	A08	17	LOGIC CHASSIS		
AI51310	05	A11	41	0	A07	09	LOGIC CHASSIS		
AI51410	04	A11	21	0	A07	25	LOGIC CHASSIS		
AI52010	06	A07	20	0	A14	38	LOGIC CHASSIS		
AI52020	07	A07	14	0	A17	14	LOGIC CHASSIS		
AI52030	02	A07	21	0	A08	09	LOGIC CHASSIS		
AI52110	04	A11	36	0	A08	13	LOGIC CHASSIS		
AI52210	04	A07	24	0	A11	32	LOGIC CHASSIS		
AI52220	02	A07	32	0	A08	25	LOGIC CHASSIS		
AI52230	03	A07	30	0	A08	16	LOGIC CHASSIS		
AI52310	06	A08	29	0	A17	12	LOGIC CHASSIS		
AI52320	11	A08	28	0	A27	38	LOGIC CHASSIS		
AI52330	13	A08	30	0	B27	38	LOGIC CHASSIS		
AI52340	07	A08	32	0	A17	13	LOGIC CHASSIS		
AI60010	11	A08	41	0	A27	32	LOGIC CHASSIS		
AI60020	12	A08	44	0	B27	32	LOGIC CHASSIS		
AI60210	06	A15	01	0	A08	33	LOGIC CHASSIS		
AI60610	05	A15	26	0	A08	40	LOGIC CHASSIS		
AI61210	05	A17	22	0	A11	36	LOGIC CHASSIS		
AI62210	05	A14	05	0	A11	44	LOGIC CHASSIS		
AI62310	02	A14	13	0	A15	05	LOGIC CHASSIS		
AI62410	02	A14	16	0	A15	10	LOGIC CHASSIS		
AI62510	02	A14	12	0	A15	18	LOGIC CHASSIS		
AK10010	04	A16	33	0	A21	18	LOGIC CHASSIS		
AK10210	04	A16	25	0	A21	17	LOGIC CHASSIS		
AK10410	04	A16	22	0	A21	22	LOGIC CHASSIS		
AK10610	05	A16	12	0	A21	21	LOGIC CHASSIS		
AK10810	04	A16	37	0	A21	41	LOGIC CHASSIS		
AK11010	04	A16	29	0	A21	42	LOGIC CHASSIS		
AK11210	05	A16	18	0	A21	44	LOGIC CHASSIS		
AK11410	06	A16	08	0	A21	45	LOGIC CHASSIS		
AK20210	03	A19	28	0	A20	44	LOGIC CHASSIS		
AK20310	07	A19	22	0	A29	38	LOGIC CHASSIS		

ID NO	LENGTH	ORIGIN		S	DESTINATION		TITLE	SIZE/COLOR	ECO
AK20510	09	A20	40	0	B29	38	LOGIC CHASSIS		
AK30110	02	A06	38	0	A06	21	LOGIC CHASSIS		
AK40010	03	A13	32	0	A14	13	LOGIC CHASSIS		
AK40210	02	A13	20	0	A14	12	LOGIC CHASSIS		
AK40410	02	A13	12	0	A15	08	LOGIC CHASSIS		
AK40610	05	A13	05	0	A15	41	LOGIC CHASSIS		
AK40620	03	A13	30	0	A12	13	LOGIC CHASSIS		
AK40710	03	A13	40	0	A12	26	LOGIC CHASSIS		
AK40810	03	A12	25	0	A14	16	LOGIC CHASSIS		
AK41010	04	A12	17	0	A16	29	LOGIC CHASSIS		
AK41210	04	A12	12	0	A14	28	LOGIC CHASSIS		
AK41410	04	A12	01	0	A16	08	LOGIC CHASSIS		
AK50010	03	A14	28	0	A16	18	LOGIC CHASSIS		
AK50020	05	A14	25	0	A08	14	LOGIC CHASSIS		
AK50030	06	A14	14	0	A08	12	LOGIC CHASSIS		
AK50210	04	A07	10	0	A11	16	LOGIC CHASSIS		
AK50211	04	A11	16	0	A13	34	LOGIC CHASSIS		
AK50212	04	A13	34	0	A11	42	LOGIC CHASSIS		
AK50310	02	A07	12	0	A06	05	LOGIC CHASSIS		
AK50311	06	A06	05	0	A13	28	LOGIC CHASSIS		
AK50610	04	A07	26	0	A11	14	LOGIC CHASSIS		
AK50620	04	A07	33	0	A08	13	LOGIC CHASSIS		
AK50710	05	A07	36	0	A11	09	LOGIC CHASSIS		
AK50810	05	A07	42	0	A11	13	LOGIC CHASSIS		
AK50910	05	A07	40	0	A11	10	LOGIC CHASSIS		
AK51110	02	A11	32	0	A12	37	LOGIC CHASSIS		
AK51120	03	A11	37	0	A11	50	LOGIC CHASSIS		
AK60010	04	A15	05	0	A16	33	LOGIC CHASSIS		
AK60210	02	A15	18	0	A16	25	LOGIC CHASSIS		
AK60410	03	A15	08	0	A16	22	LOGIC CHASSIS		
AK60610	04	A15	41	0	A16	12	LOGIC CHASSIS		
AK60810	04	A15	10	0	A16	37	LOGIC CHASSIS		
AK61010	04	A17	36	0	A14	21	LOGIC CHASSIS		
AK61210	05	A17	37	0	A11	33	LOGIC CHASSIS		
AK61410	04	A17	17	0	A14	24	LOGIC CHASSIS		
AK61810	04	A17	24	0	A14	10	LOGIC CHASSIS		
AK62010	04	A17	01	0	A14	17	LOGIC CHASSIS		
AT00010	07	A24	01	0	A16	34	LOGIC CHASSIS		
AT00020	11	A24	05	0	B16	34	LOGIC CHASSIS		
AT00110	06	A24	12	0	A16	26	LOGIC CHASSIS		
AT00120	10	A24	14	0	B16	26	LOGIC CHASSIS		

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ID NO  LENGTH   ORIGIN   S  DESTINATION TITLE                         SIZE/COLOR  ECO

AT00210     06  A24   17 0  A16   20    LOGIC CHASSIS
AT00220     09  A24   18 0  B16   20    LOGIC CHASSIS
AT00310     06  A24   25 0  A16   09    LOGIC CHASSIS
AT00320     08  A24   26 0  B16   09    LOGIC CHASSIS
AT00410     06  A24   30 0  A16   38    LOGIC CHASSIS
AT00420     09  A24   32 0  B16   38    LOGIC CHASSIS
AT00510     06  A24   36 0  A16   30    LOGIC CHASSIS
AT00520     09  A24   37 0  B16   30    LOGIC CHASSIS
AT00610     07  A24   41 0  A16   16    LOGIC CHASSIS
AT00620     08  A24   42 0  B16   16    LOGIC CHASSIS
AT00710     07  A26   01 0  A16   05    LOGIC CHASSIS
AT00720     10  A26   05 0  B16   05    LOGIC CHASSIS
AT00810     05  A26   12 0  A20   28    LOGIC CHASSIS
AT00811     04  A26   12 0  A21   26    LOGIC CHASSIS
AT00820     10  A26   14 0  B20   28    LOGIC CHASSIS
AT00821     04  A26   14 0  A21   28    LOGIC CHASSIS
AT01210     07  A28   01 0  A18   12    LOGIC CHASSIS
AT01220     10  A28   05 0  B18   12    LOGIC CHASSIS
AT01310     07  A28   12 0  A18   10    LOGIC CHASSIS
AT01320     09  A28   14 0  B18   10    LOGIC CHASSIS
AT01410     03  A28   17 0  A28   02    LOGIC CHASSIS
AT01420     02  A28   17 0  A28   18    LOGIC CHASSIS
AT01610     07  A28   25 0  A18   09    LOGIC CHASSIS
AT01620     09  A28   26 0  B18   09    LOGIC CHASSIS
AT01710     07  A28   30 0  A19   16    LOGIC CHASSIS
AT01711     02  A19   16 0  A18   14    LOGIC CHASSIS
AT01720     08  A28   32 0  B19   16    LOGIC CHASSIS
AT01721     02  B19   16 0  B18   14    LOGIC CHASSIS
AT01810     07  A28   36 0  A18   01    LOGIC CHASSIS
AT01820     08  A28   37 0  B18   01    LOGIC CHASSIS
AT01910     06  A26   17 0  A18   08    LOGIC CHASSIS
AT01920     02  A26   18 0  A26   26    LOGIC CHASSIS
AT02010     08  A26   25 0  B18   08    LOGIC CHASSIS
AT02020     02  A26   26 0  A26   32    LOGIC CHASSIS
AT02110     06  A26   30 0  A18   44    LOGIC CHASSIS
AT02111     03  A18   44 0  A20   38    LOGIC CHASSIS
AT02120     02  A26   32 0  A26   37    LOGIC CHASSIS
AT02210     09  A26   36 0  B18   44    LOGIC CHASSIS
AT02211     03  B18   44 0  B20   38    LOGIC CHASSIS
AT02220     02  A26   37 0  A26   42    LOGIC CHASSIS
AT02310     05  A28   41 0  A22   33    LOGIC CHASSIS
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LW73129700 CII MOD DC                    REVISION A

ID NO  LENGTH   ORIGIN    S  DESTINATION TITLE                      SIZE/COLOR  ECO

AT02320      02  A28    42 0  A28    50   LOGIC CHASSIS
AT02410      08  A26    41 0  B22    33   LOGIC CHASSIS
AT02420      02  A26    42 0  A26    50   LOGIC CHASSIS
AY40410      05  A13    10 0  A07    08   LOGIC CHASSIS
AY51510      03  A08    24 0  A11    20   LOGIC CHASSIS
AY51511      06  A11    20 0  A18    37   LOGIC CHASSIS
AY60110      03  A17    10 0  A14    09   LOGIC CHASSIS
AY60410      04  A08    37 0  A11    40   LOGIC CHASSIS
AY60411      03  A11    40 0  A14    33   LOGIC CHASSIS
BI10010      08  B21    13 0  A25    10   LOGIC CHASSIS
BI10020      04  B21    12 0  B25    10   LOGIC CHASSIS
BI10110      08  B21    16 0  A25    14   LOGIC CHASSIS
BI10120      04  B21    08 0  B25    14   LOGIC CHASSIS
BI10210      08  B21    10 0  A25    20   LOGIC CHASSIS
BI10220      04  B21    05 0  B25    20   LOGIC CHASSIS
BI10310      09  B21    14 0  A27    10   LOGIC CHASSIS
BI10320      05  B21    09 0  B27    10   LOGIC CHASSIS
BI10410      10  B21    33 0  A27    14   LOGIC CHASSIS
BI10420      05  B21    32 0  B27    14   LOGIC CHASSIS
BI10510      09  B21    30 0  A27    20   LOGIC CHASSIS
BI10520      05  B21    40 0  B27    20   LOGIC CHASSIS
BI10610      10  B21    29 0  A29    10   LOGIC CHASSIS
BI10620      06  B21    38 0  B29    10   LOGIC CHASSIS
BI10710      10  B21    36 0  A29    14   LOGIC CHASSIS
BI10720      06  B21    37 0  B29    14   LOGIC CHASSIS
BI10810      04  B21    01 0  B20    25   LOGIC CHASSIS
BI10910      02  B21    34 0  B19    29   LOGIC CHASSIS
BI11810      09  B16    44 0  B25    40   LOGIC CHASSIS
BI11820      10  B16    45 0  A25    40   LOGIC CHASSIS
BI12010      04  B16    41 0  B12    28   LOGIC CHASSIS
BI12110      08  B16    21 0  A25    45   LOGIC CHASSIS
BI12210      07  B16    42 0  B25    45   LOGIC CHASSIS
BI20010      04  B17    21 0  B12    36   LOGIC CHASSIS
BI20020      09  B17    25 0  A29    45   LOGIC CHASSIS
BI20110      08  B17    29 0  B29    45   LOGIC CHASSIS
BI20120      02  B17    40 0  B17    21   LOGIC CHASSIS
BI21510      03  B18    22 0  B20    25   LOGIC CHASSIS
BI21710      04  B18    05 0  B19    29   LOGIC CHASSIS
BI21810      07  B19    08 0  A25    25   LOGIC CHASSIS
BI22110      08  B19    12 0  A27    25   LOGIC CHASSIS
BI22310      08  B19    14 0  A29    33   LOGIC CHASSIS
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ID NO	LENGT-	ORIGIN		S	DESTINATION		TITLE	SIZE/COLOR	ECO
AT00210	06	A24	17	0	A16	20	LOGIC CHASSIS		
AT00220	09	A24	18	0	B16	20	LOGIC CHASSIS		
AT00310	06	A24	25	0	A16	09	LOGIC CHASSIS		
AT00320	08	A24	26	0	B16	09	LOGIC CHASSIS		
AT00410	06	A24	30	0	A16	38	LOGIC CHASSIS		
AT00420	09	A24	32	0	B16	38	LOGIC CHASSIS		
AT00510	06	A24	36	0	A16	30	LOGIC CHASSIS		
AT00520	09	A24	37	0	B16	30	LOGIC CHASSIS		
AT00610	07	A24	41	0	A16	16	LOGIC CHASSIS		
AT00620	08	A24	42	0	B16	16	LOGIC CHASSIS		
AT00710	07	A26	01	0	A16	05	LOGIC CHASSIS		
AT00720	10	A26	05	0	B16	05	LOGIC CHASSIS		
AT00810	05	A26	12	0	A20	28	LOGIC CHASSIS		
AT00811	04	A26	12	0	A21	26	LOGIC CHASSIS		
AT00820	10	A26	14	0	B20	28	LOGIC CHASSIS		
AT00821	04	A26	14	0	A21	28	LOGIC CHASSIS		
AT01210	07	A28	01	0	A18	12	LOGIC CHASSIS		
AT01220	10	A28	05	0	B18	12	LOGIC CHASSIS		
AT01310	07	A28	12	0	A18	10	LOGIC CHASSIS		
AT01320	09	A28	14	0	B18	10	LOGIC CHASSIS		
AT01410	03	A28	17	0	A28	02	LOGIC CHASSIS		
AT01420	02	A28	17	0	A28	18	LOGIC CHASSIS		
AT01610	07	A28	25	0	A18	09	LOGIC CHASSIS		
AT01620	09	A28	26	0	B18	09	LOGIC CHASSIS		
AT01710	07	A28	30	0	A19	16	LOGIC CHASSIS		
AT01711	02	A19	16	0	A18	14	LOGIC CHASSIS		
AT01720	08	A28	32	0	B19	16	LOGIC CHASSIS		
AT01721	02	B19	16	0	B18	14	LOGIC CHASSIS		
AT01810	07	A28	36	0	A18	01	LOGIC CHASSIS		
AT01820	08	A28	37	0	B18	01	LOGIC CHASSIS		
AT01910	06	A26	17	0	A18	08	LOGIC CHASSIS		
AT01920	02	A26	18	0	A26	26	LOGIC CHASSIS		
AT02010	08	A26	25	0	B18	08	LOGIC CHASSIS		
AT02020	02	A26	26	0	A26	32	LOGIC CHASSIS		
AT02110	06	A26	30	0	A18	44	LOGIC CHASSIS		
AT02111	03	A18	44	0	A20	38	LOGIC CHASSIS		
AT02120	02	A26	32	0	A26	37	LOGIC CHASSIS		
AT02210	09	A26	36	0	B18	44	LOGIC CHASSIS		
AT02211	03	B18	44	0	B20	38	LOGIC CHASSIS		
AT02220	02	A26	37	0	A26	42	LOGIC CHASSIS		
AT02310	05	A28	41	0	A22	33	LOGIC CHASSIS		

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ID NO    LENGTH   ORIGIN   S  DESTINATION TITLE                        SIZE/COLOR  ECO

AT02320      02   A28   42 0  A28    50   LOGIC CHASSIS
AT02410      08   A26   41 0  B22    33   LOGIC CHASSIS
AT02420      02   A26   42 0  A26    50   LOGIC CHASSIS
AY40410      05   A13   10 0  A07    08   LOGIC CHASSIS
AY51510      03   A08   24 0  A11    20   LOGIC CHASSIS
AY51511      06   A11   20 0  A18    37   LOGIC CHASSIS
AY60110      03   A17   10 0  A14    09   LOGIC CHASSIS
AY60410      04   A08   37 0  A11    40   LOGIC CHASSIS
AY60411      03   A11   40 0  A14    33   LOGIC CHASSIS
BI10010      08   B21   13 0  A25    10   LOGIC CHASSIS
BI10020      04   B21   12 0  B25    10   LOGIC CHASSIS
BI10110      08   B21   16 0  A25    14   LOGIC CHASSIS
BI10120      04   B21   08 0  B25    14   LOGIC CHASSIS
BI10210      08   B21   10 0  A25    20   LOGIC CHASSIS
BI10220      04   B21   05 0  B25    20   LOGIC CHASSIS
BI10310      09   B21   14 0  A27    10   LOGIC CHASSIS
BI10320      05   B21   09 0  B27    10   LOGIC CHASSIS
BI10410      10   B21   33 0  A27    14   LOGIC CHASSIS
BI10420      05   B21   32 0  B27    14   LOGIC CHASSIS
BI10510      09   B21   30 0  A27    20   LOGIC CHASSIS
BI10520      05   B21   40 0  B27    20   LOGIC CHASSIS
BI10610      10   B21   29 0  A29    10   LOGIC CHASSIS
BI10620      06   B21   38 0  B29    10   LOGIC CHASSIS
BI10710      10   B21   36 0  A29    14   LOGIC CHASSIS
BI10720      06   B21   37 0  B29    14   LOGIC CHASSIS
BI10810      04   B21   01 0  B20    25   LOGIC CHASSIS
BI10910      02   B21   34 0  B19    29   LOGIC CHASSIS
BI11810      09   B16   44 0  B25    40   LOGIC CHASSIS
BI11820      10   B16   45 0  A25    40   LOGIC CHASSIS
BI12010      04   B16   41 0  B12    28   LOGIC CHASSIS
BI12110      08   B16   21 0  A25    45   LOGIC CHASSIS
BI12210      07   B16   42 0  B25    45   LOGIC CHASSIS
BI20010      04   B17   21 0  B12    36   LOGIC CHASSIS
BI20020      09   B17   25 0  A29    45   LOGIC CHASSIS
BI20110      08   B17   29 0  B29    45   LOGIC CHASSIS
BI20120      02   B17   40 0  B17    21   LOGIC CHASSIS
BI21510      03   B18   22 0  B20    25   LOGIC CHASSIS
BI21710      04   B18   05 0  B19    29   LOGIC CHASSIS
BI21810      07   B19   08 0  A25    25   LOGIC CHASSIS
BI22110      08   B19   12 0  A27    25   LOGIC CHASSIS
BI22310      08   B19   14 0  A29    33   LOGIC CHASSIS
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LW73129700 CII MOD DC                    REVISION A

ID NO   LENGTH   ORIGIN    S  DESTINATION TITLE                         SIZE/COLOR  ECO

BI22410     03   B19   18  0  B20    32    LOGIC CHASSIS
BI22411     03   B19   18  0  A21    25    LOGIC CHASSIS
BI22510     10   B19   40  0  A29    25    LOGIC CHASSIS
BI22810     11   B19   42  0  A29    20    LOGIC CHASSIS
BI23010     02   B19   21  0  B18    21    LOGIC CHASSIS
BI23210     02   B19   34  0  B20    26    LOGIC CHASSIS
BI23310     05   B20   08  0  B25    25    LOGIC CHASSIS
BI23410     02   B20   05  0  B19    09    LOGIC CHASSIS
BI23420     02   B20   01  0  B19    10    LOGIC CHASSIS
BI23430     02   B20   09  0  B19    05    LOGIC CHASSIS
BI23440     02   B20   12  0  B19    17    LOGIC CHASSIS
BI23510     06   B20   10  0  B27    25    LOGIC CHASSIS
BI23610     07   B20   22  0  B29    33    LOGIC CHASSIS
BI23710     02   B20   21  0  B19    30    LOGIC CHASSIS
BI23810     07   B20   13  0  B29    25    LOGIC CHASSIS
BI23910     04   B20   17  0  B19    37    LOGIC CHASSIS
BI23920     04   B20   20  0  B19    38    LOGIC CHASSIS
BI23930     04   B20   14  0  B19    36    LOGIC CHASSIS
BI23940     04   B20   16  0  B19    41    LOGIC CHASSIS
BI24010     07   B20   18  0  B29    20    LOGIC CHASSIS
BI24110     02   B20   29  0  B19    21    LOGIC CHASSIS
BI24310     03   B20   37  0  B19    26    LOGIC CHASSIS
BI24410     04   B20   45  0  B19    13    LOGIC CHASSIS
BI24910     03   B19   24  0  B17    28    LOGIC CHASSIS
BI25010     03   B20   41  0  B17    30    LOGIC CHASSIS
BI30010     03   B06   01  0  B08    05    LOGIC CHASSIS
BI30210     04   B06   40  0  B06    50    LOGIC CHASSIS
BI30410     06   B06   17  0  B11    44    LOGIC CHASSIS
BI30420     08   B06   12  0  B18    20    LOGIC CHASSIS
BI34610     06   B18   36  0  B11    22    LOGIC CHASSIS
BI34710     03   B18   16  0  B18    02    LOGIC CHASSIS
BI34910     08   B18   41  0  B06    29    LOGIC CHASSIS
BI34911     08   B18   41  0  B06    45    LOGIC CHASSIS
BI40010     09   B12   05  0  B25    33    LOGIC CHASSIS
BI40020     09   B12   08  0  A25    33    LOGIC CHASSIS
BI40710     05   B12   36  0  B08    09    LOGIC CHASSIS
BI40720     03   B12   37  0  B14    29    LOGIC CHASSIS
BI40730     04   B12   32  0  B07    38    LOGIC CHASSIS
BI40910     03   B13   21  0  B12    10    LOGIC CHASSIS
BI40911     04   B12   10  0  B08    20    LOGIC CHASSIS
BI41010     05   B12   09  0  B08    21    LOGIC CHASSIS
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LW73129700 CII MDD DC                 REVISION A

ID NO  LENGTH   ORIGIN   S  DESTINATION TITLE                   SIZE/COLOR  ECO

BI41011    03   B12   09 0  B13    24   LOGIC CHASSIS
BI41210    05   B11   08 0  B12    40   LOGIC CHASSIS
BI41211    04   B12   40 0  B13    13   LOGIC CHASSIS
BI41220    05   B11   05 0  B12    41   LOGIC CHASSIS
BI41221    04   B12   41 0  B13    17   LOGIC CHASSIS
BI41310    04   B11   01 0  B12    34   LOGIC CHASSIS
BI41510    04   B11   12 0  B12    38   LOGIC CHASSIS
BI41511    04   B12   38 0  B13    09   LOGIC CHASSIS
BI41710    04   B13   45 0  B11    17   LOGIC CHASSIS
BI41810    03   B13   41 0  B11    29   LOGIC CHASSIS
BI42210    03   B12   20 0  B13    08   LOGIC CHASSIS
BI42220    04   B12   21 0  B13    01   LOGIC CHASSIS
BI42230    02   B12   22 0  B13    18   LOGIC CHASSIS
BI42710    04   B13   42 0  B11    13   LOGIC CHASSIS
BI50910    04   B08   16 0  B12    17   LOGIC CHASSIS
BI50920    04   B08   18 0  B12    12   LOGIC CHASSIS
BI50930    04   B13   12 0  B08    17   LOGIC CHASSIS
BI51310    05   B11   41 0  B07    09   LOGIC CHASSIS
BI51410    04   A11   21 0  A07    25   LOGIC CHASSIS
BI52010    06   B07   20 0  B14    38   LOGIC CHASSIS
BI52020    07   B07   14 0  B17    14   LOGIC CHASSIS
BI52030    03   B07   21 0  B08    09   LOGIC CHASSIS
BI52110    04   B11   36 0  B08    13   LOGIC CHASSIS
BI52210    04   B07   24 0  B11    32   LOGIC CHASSIS
BI52220    03   B07   32 0  B08    25   LOGIC CHASSIS
BI52230    03   B07   30 0  B08    16   LOGIC CHASSIS
BI52310    06   B08   29 0  B17    12   LOGIC CHASSIS
BI52320    12   B08   28 0  A27    40   LOGIC CHASSIS
BI52330    11   B08   30 0  B27    40   LOGIC CHASSIS
BI52340    07   B08   32 0  B17    13   LOGIC CHASSIS
BI60010    12   B08   41 0  A27    33   LOGIC CHASSIS
BI60020    11   B08   44 0  B27    33   LOGIC CHASSIS
BI60210    06   B15   01 0  B08    33   LOGIC CHASSIS
BI60610    05   B15   26 0  B08    40   LOGIC CHASSIS
BI61210    05   B17   22 0  B11    36   LOGIC CHASSIS
BI62210    05   B14   05 0  B11    44   LOGIC CHASSIS
BI62310    02   B14   13 0  B15    05   LOGIC CHASSIS
BI62410    02   B14   16 0  B15    10   LOGIC CHASSIS
BI62510    02   B14   12 0  B15    18   LOGIC CHASSIS
BK10010    04   B16   33 0  B21    18   LOGIC CHASSIS
BK10210    04   B16   25 0  B21    17   LOGIC CHASSIS
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LW73129700 CII MDD DC        ,          REVISION A

ID NO  LENGTH    ORIGIN    S  DESTINATION TITLE                   SIZE/COLOR  ECO

BK10410     04   B16   22 0   B21    22    LOGIC CHASSIS
BK10610     05   B16   12 0   B21    21    LOGIC CHASSIS
BK10810     04   B16   37 0   B21    41    LOGIC CHASSIS
BK11010     04   B16   29 0   B21    42    LOGIC CHASSIS
BK11210     05   B16   18 0   B21    44    LOGIC CHASSIS
BK11410     06   B16   08 0   B21    45    LOGIC CHASSIS
BK20210     03   B19   28 0   B20    44    LOGIC CHASSIS
BK20310     08   B19   22 0   A29    40    LOGIC CHASSIS
BK20510     06   B20   40 0   B29    40    LOGIC CHASSIS
BK30110     02   B06   38 0   B06    21    LOGIC CHASSIS
BK40010     03   B13   32 0   B14    13    LOGIC CHASSIS
BK40210     02   B13   20 0   B14    12    LOGIC CHASSIS
BK40410     02   B13   12 0   B15    08    LOGIC CHASSIS
BK40610     05   B13   05 0   B15    41    LOGIC CHASSIS
BK40620     03   B13   30 0   B12    13    LOGIC CHASSIS
BK40710     03   B13   40 0   B12    26    LOGIC CHASSIS
BK40810     03   B12   25 0   B14    16    LOGIC CHASSIS
BK41010     04   B12   17 0   B16    29    LOGIC CHASSIS
BK41210     04   B12   12 0   B14    28    LOGIC CHASSIS
BK41410     04   B12   01 0   B16    08    LOGIC CHASSIS
BK50010     03   B14   28 0   B16    18    LOGIC CHASSIS
BK50020     05   B14   25 0   B08    14    LOGIC CHASSIS
BK50030     06   B14   14 0   B08    12    LOGIC CHASSIS
BK50210     04   B07   10 0   B11    16    LOGIC CHASSIS
BK50211     04   B11   16 0   B13    34    LOGIC CHASSIS
BK50212     04   B13   34 0   B11    42    LOGIC CHASSIS
BK50310     02   B07   12 0   B06    05    LOGIC CHASSIS
BK50311     06   B06   05 0   B13    28    LOGIC CHASSIS
BK50610     04   B07   26 0   B11    14    LOGIC CHASSIS
BK50620     04   B07   33 0   B08    13    LOGIC CHASSIS
BK50710     05   B07   36 0   B11    09    LOGIC CHASSIS
BK50810     05   B07   42 0   B11    13    LOGIC CHASSIS
BK50910     05   B07   40 0   B11    10    LOGIC CHASSIS
BK51110     02   B11   32 0   B12    37    LOGIC CHASSIS
BK51120     03   B11   37 0   B11    50    LOGIC CHASSIS
BK60010     04   B15   05 0   B16    33    LOGIC CHASSIS
BK60210     02   B15   18 0   B16    25    LOGIC CHASSIS
BK60410     03   B15   08 0   B16    22    LOGIC CHASSIS
BK60610     04   B15   41 0   B16    12    LOGIC CHASSIS
BK60810     04   B15   10 0   B16    37    LOGIC CHASSIS
BK61010     03   B17   36 0   B14    21    LOGIC CHASSIS
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ID NO	LENGTH	ORIGIN		S	DESTINATION		TITLE	SIZE/COLOR	ECO
BK61210	05	B17	37	0	B11	33	LOGIC CHASSIS		
BK61410	04	B17	17	0	B14	24	LOGIC CHASSIS		
BK61810	04	B17	24	0	B14	10	LOGIC CHASSIS		
BK62010	04	B17	01	0	B14	17	LOGIC CHASSIS		
BT00010	08	B24	01	0	A16	36	LOGIC CHASSIS		
BT00020	07	B24	05	0	B16	36	LOGIC CHASSIS		
BT00110	08	B24	12	0	A16	28	LOGIC CHASSIS		
BT00120	08	B24	14	0	B16	28	LOGIC CHASSIS		
BT00210	09	B24	17	0	A16	17	LOGIC CHASSIS		
BT00220	06	B24	18	0	B16	17	LOGIC CHASSIS		
BT00310	10	B24	25	0	A16	10	LOGIC CHASSIS		
BT00320	06	B24	26	0	B16	10	LOGIC CHASSIS		
BT00410	08	B24	30	0	A16	40	LOGIC CHASSIS		
BT00420	06	B24	32	0	B16	40	LOGIC CHASSIS		
BT00510	09	B24	36	0	A16	32	LOGIC CHASSIS		
BT00520	06	B24	37	0	B16	32	LOGIC CHASSIS		
BT00610	11	B24	41	0	A16	13	LOGIC CHASSIS		
BT00620	06	B24	42	0	B16	13	LOGIC CHASSIS		
BT00710	09	B26	01	0	A16	01	LOGIC CHASSIS		
BT00720	06	B26	05	0	B16	01	LOGIC CHASSIS		
BT00810	08	B26	12	0	A19	25	LOGIC CHASSIS		
BT00820	05	B26	14	0	B19	25	LOGIC CHASSIS		
BT01210	08	B28	01	0	A18	32	LOGIC CHASSIS		
BT01220	07	B28	05	0	B18	32	LOGIC CHASSIS		
BT01310	09	B28	12	0	A18	29	LOGIC CHASSIS		
BT01320	07	B28	14	0	B18	29	LOGIC CHASSIS		
BT01410	03	B28	17	0	B28	02	LOGIC CHASSIS		
BT01420	02	B28	18	0	B28	17	LOGIC CHASSIS		
BT01610	10	B28	25	0	A18	30	LOGIC CHASSIS		
BT01620	07	B28	26	0	B18	30	LOGIC CHASSIS		
BT01710	10	B28	30	0	A20	24	LOGIC CHASSIS		
BT01711	04	A20	24	0	A18	33	LOGIC CHASSIS		
BT01720	06	B28	32	0	B20	24	LOGIC CHASSIS		
BT01721	03	B20	24	0	B18	33	LOGIC CHASSIS		
BT01810	10	B28	36	0	A18	34	LOGIC CHASSIS		
BT01820	07	B28	37	0	B18	34	LOGIC CHASSIS		
BT01910	09	B26	17	0	A18	25	LOGIC CHASSIS		
BT01920	02	B26	18	0	B26	26	LOGIC CHASSIS		
BT02010	06	B26	25	0	B18	25	LOGIC CHASSIS		
BT02020	02	B26	26	0	B26	32	LOGIC CHASSIS		
BT02110	10	B26	30	0	A19	32	LOGIC CHASSIS		

```
LW73129700 CII MDD DC                      REVISION A

ID NO  LENGTH    ORIGIN    S  DESTINATION TITLE                     SIZE/COLOR  ECO

BT02111      03  A19    32 0  A18    45    LOGIC CHASSIS
BT02120      02  B26    32 0  B26    37    LOGIC CHASSIS
BT02210      06  B26    36 0  B19    32    LOGIC CHASSIS
BT02211      02  B19    32 0  B18    45    LOGIC CHASSIS
BT02220      02  B26    37 0  B26    42    LOGIC CHASSIS
BT02310      10  B28    41 0  A22    21    LOGIC CHASSIS
BT02320      02  B28    42 0  B28    50    LOGIC CHASSIS
BT02410      05  B26    41 0  B22    21    LOGIC CHASSIS
BT02420      02  B26    42 0  B26    50    LOGIC CHASSIS
BY40410      05  B13    10 0  B07    08    LOGIC CHASSIS
BY51510      03  B08    24 0  B11    20    LOGIC CHASSIS
BY51511      06  B11    20 0  B18    37    LOGIC CHASSIS
BY60110      03  B17    10 0  B14    09    LOGIC CHASSIS
BY60410      03  B08    37 0  B11    40    LOGIC CHASSIS
BY60411      03  B11    40 0  B14    33    LOGIC CHASSIS
0100110      05  A18    21 0  A14    44    LOGIC CHASSIS
0100210      02  A18    24 0  A17    22    LOGIC CHASSIS
0100310      02  A18    18 0  A17    20    LOGIC CHASSIS
0100410      03  A18    20 0  A17    37    LOGIC CHASSIS
0100510      04  A18    17 0  A14    05    LOGIC CHASSIS
0100710      05  B18    21 0  B14    44    LOGIC CHASSIS
0100810      02  B18    24 0  B17    22    LOGIC CHASSIS
0100910      02  B18    18 0  B17    20    LOGIC CHASSIS
0101010      03  B18    20 0  B17    37    LOGIC CHASSIS
0101110      04  B18    17 0  B14    05    LOGIC CHASSIS
0200110      02  A25    01 0  A24    08    LOGIC CHASSIS
0200210      02  A25    05 0  A24    09    LOGIC CHASSIS
0200310      02  A25    09 0  A24    13    LOGIC CHASSIS
0200410      02  A25    12 0  A24    16    LOGIC CHASSIS
0200510      02  A25    16 0  A24    21    LOGIC CHASSIS
0200610      02  A25    17 0  A24    24    LOGIC CHASSIS
0200710      05  A25    26 0  A19    44    LOGIC CHASSIS
0200810      09  A25    34 0  B19    44    LOGIC CHASSIS
0200910      04  A26    21 0  A30    12    LOGIC CHASSIS
0201010      04  A26    24 0  A30    14    LOGIC CHASSIS
0201110      04  A26    28 0  A30    13    LOGIC CHASSIS
0201210      04  A26    29 0  A30    16    LOGIC CHASSIS
0201310      04  A26    33 0  A30    17    LOGIC CHASSIS
0201410      04  A26    34 0  A30    18    LOGIC CHASSIS
0201510      05  A26    38 0  A30    20    LOGIC CHASSIS
0201610      05  A26    40 0  A30    22    LOGIC CHASSIS
```

```
ID NO  LENGTH   ORIGIN   S  DESTINATION TITLE                      SIZE/COLOR  ECO

0201710     05  A26   44 0  A30    09    LOGIC CHASSIS
0201810     05  A26   45 0  A30    10    LOGIC CHASSIS
0201910     06  A27   26 0  A19    44    LOGIC CHASSIS
0202010     09  A27   34 0  B19    44    LOGIC CHASSIS
0202110     04  A27   01 0  A24    28    LOGIC CHASSIS
0202210     04  A27   05 0  A24    29    LOGIC CHASSIS
0202310     04  A27   09 0  A24    33    LOGIC CHASSIS
0202410     04  A27   12 0  A24    34    LOGIC CHASSIS
0202510     04  A27   16 0  A24    38    LOGIC CHASSIS
0202610     04  A27   17 0  A24    40    LOGIC CHASSIS
0202710     05  A28   44 0  A30    05    LOGIC CHASSIS
0202810     05  A28   45 0  A30    08    LOGIC CHASSIS
0202910     06  A29   01 0  A24    44    LOGIC CHASSIS
0203010     06  A29   05 0  A24    45    LOGIC CHASSIS
0203110     04  A29   09 0  A26    08    LOGIC CHASSIS
0203210     03  A29   12 0  A26    09    LOGIC CHASSIS
0203310     02  B25   01 0  B24    08    LOGIC CHASSIS
0203410     02  B25   05 0  B24    09    LOGIC CHASSIS
0203510     02  B25   09 0  B24    13    LOGIC CHASSIS
0203610     02  B25   12 0  B24    16    LOGIC CHASSIS
0203710     02  B25   16 0  B24    21    LOGIC CHASSIS
0203810     02  B25   17 0  B24    24    LOGIC CHASSIS
0203910     08  B25   26 0  A20    36    LOGIC CHASSIS
0204010     04  B25   34 0  B20    36    LOGIC CHASSIS
0204110     04  B27   01 0  B24    28    LOGIC CHASSIS
0204210     04  B27   05 0  B24    29    LOGIC CHASSIS
0204310     04  B27   09 0  B24    33    LOGIC CHASSIS
0204410     04  B27   12 0  B24    34    LOGIC CHASSIS
0204510     04  B27   16 0  B24    38    LOGIC CHASSIS
0204610     04  B27   17 0  B24    40    LOGIC CHASSIS
0204710     08  B27   26 0  A20    36    LOGIC CHASSIS
0204810     05  B27   34 0  B20    36    LOGIC CHASSIS
0204910     04  B26   21 0  B30    12    LOGIC CHASSIS
0205010     04  B26   24 0  B30    14    LOGIC CHASSIS
0205110     04  B26   28 0  B30    13    LOGIC CHASSIS
0205210     04  B26   29 0  B30    16    LOGIC CHASSIS
0205310     04  B26   33 0  B30    17    LOGIC CHASSIS
0205410     04  B26   34 0  B30    18    LOGIC CHASSIS
0205510     05  B26   38 0  B30    20    LOGIC CHASSIS
0205610     05  B26   40 0  B30    22    LOGIC CHASSIS
0205710     05  B26   44 0  B30    09    LOGIC CHASSIS
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LW73129700 CII MDD DC                          REVISION A

ID NO  LENGTH   ORIGIN     S  DESTINATION TITLE                          SIZE/COLOR  ECO

0205810      05   B26    45 0  B30    10    LOGIC CHASSIS
0205910      05   B28    44 0  B30    05    LOGIC CHASSIS
0206010      05   B28    45 0  B30    08    LOGIC CHASSIS
0206110      06   B29    01 0  B24    44    LOGIC CHASSIS
0206210      06   B29    05 0  B24    45    LOGIC CHASSIS
0206310      03   B29    09 0  B26    08    LOGIC CHASSIS
0206410      03   B29    12 0  B26    09    LOGIC CHASSIS
0206510      06   A22    13 0  A14    18    LOGIC CHASSIS
0206610      03   A22    25 0  A21    34    LOGIC CHASSIS
0206710      03   A22    18 0  A21    01    LOGIC CHASSIS
0206810      06   B22    13 0  B14    18    LOGIC CHASSIS
0206910      03   B22    25 0  B21    34    LOGIC CHASSIS
0207010      04   B22    18 0  B21    01    LOGIC CHASSIS
0207110      04   A14    26 0  A17    16    LOGIC CHASSIS
0207210      04   B14    26 0  B17    16    LOGIC CHASSIS
0207310      09   A06    44 0  A20    29    LOGIC CHASSIS
0207410      09   B06    44 0  B20    29    LOGIC CHASSIS
0300110           IJ200 01 X  A25    01    LOGIC CHASSIS            000
0300210           IJ200 04 X  A25    05    LOGIC CHASSIS            444
0300310           IJ200 02 X  A25    09    LOGIC CHASSIS            000
0300410           IJ200 05 X  A25    12    LOGIC CHASSIS            444
0300510           IJ200 03 X  A25    16    LOGIC CHASSIS            000
0300610           IJ200 07 X  A25    17    LOGIC CHASSIS            444
0300710           IJ200 08 X  A27    01    LOGIC CHASSIS            000
0300810           IJ200 12 X  A27    05    LOGIC CHASSIS            444
0300910           IJ200 10 X  A27    09    LOGIC CHASSIS            000
0301010           IJ200 13 X  A27    12    LOGIC CHASSIS            444
0301110           IJ200 11 X  A27    16    LOGIC CHASSIS            000
0301210           IJ200 14 X  A27    17    LOGIC CHASSIS            444
0301310           IJ200 15 X  A29    01    LOGIC CHASSIS            000
0301410           IJ200 18 X  A29    05    LOGIC CHASSIS            444
0301510           IJ200 16 X  A29    09    LOGIC CHASSIS            000
0301610           IJ200 20 X  A29    12    LOGIC CHASSIS            444
0301710           IJ200 17 X  A25    36    LOGIC CHASSIS            000
0301810           IJ200 21 X  A25    37    LOGIC CHASSIS            444
0301910           IJ200 22 X  A27    28    LOGIC CHASSIS            000
0302010           IJ200 25 X  A27    29    LOGIC CHASSIS            444
0302110           IJ200 23 X  A25    28    LOGIC CHASSIS            000
0302210           IJ200 26 X  A25    29    LOGIC CHASSIS            444
0302310           IJ200 24 X  A27    36    LOGIC CHASSIS            000
0302410           IJ200 27 X  A27    37    LOGIC CHASSIS            444
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LW73129700 CII MDD DC                  REVISION A

ID NO  LENGTH   ORIGIN    S  DESTINATION TITLE                       SIZE/COLOR  ECO

0302510         IJ200 28  X  A25    41    LOGIC CHASSIS                    000
0302610         IJ200 31  X  A25    42    LOGIC CHASSIS                    444
0302710         IJ200 29  X  A27    41    LOGIC CHASSIS                    000
0302810         IJ200 32  X  A27    42    LOGIC CHASSIS                    444
0302910         IJ200 30  X  A28    21    LOGIC CHASSIS                    000
0303010         IJ200 33  X  A28    24    LOGIC CHASSIS                    444
0303110         IJ200 34  X  A28    08    LOGIC CHASSIS                    000
0303210         IJ200 37  X  A28    09    LOGIC CHASSIS                    444
0303310         IJ200 35  X  A28    13    LOGIC CHASSIS                    000
0303410         IJ200 38  X  A28    16    LOGIC CHASSIS                    444
0303510         IJ200 40  X  A25    21    LOGIC CHASSIS                    000
0303610         IJ200 43  X  A25    22    LOGIC CHASSIS                    444
0303710         IJ200 41  X  A27    21    LOGIC CHASSIS                    000
0303810         IJ200 44  X  A27    22    LOGIC CHASSIS                    444
0303910         IJ200 42  X  A29    21    LOGIC CHASSIS                    000
0304010         IJ200 45  X  A29    22    LOGIC CHASSIS                    444
0304110         IJ200 46  X  A29    16    LOGIC CHASSIS                    000
0304210         IJ200 49  X  A29    17    LOGIC CHASSIS                    444
0304310         IJ200 47  X  A29    28    LOGIC CHASSIS                    000
0304410         IJ200 50  X  A29    29    LOGIC CHASSIS                    444
0304510         IJ200 58  X  A28    28    LOGIC CHASSIS                    000
0304610         IJ200 62  X  A28    29    LOGIC CHASSIS                    444
0304710         IJ200 59  X  A28    33    LOGIC CHASSIS                    000
0304810         IJ200 63  X  A28    34    LOGIC CHASSIS                    444
0304910         IJ200 60  X  A28    38    LOGIC CHASSIS                    000
0305010         IJ200 64  X  A28    40    LOGIC CHASSIS                    444
0305110         IJ200 65  X  A29    36    LOGIC CHASSIS                    000
0305210         IJ200 70  X  A29    37    LOGIC CHASSIS                    444
0305310         IJ200 66  X  A26    13    LOGIC CHASSIS                    000
0305410         IJ200 71  X  A26    16    LOGIC CHASSIS                    444
0305510         IJ200 67  X  A29    41    LOGIC CHASSIS                    000
0305610         IJ200 72  X  A29    42    LOGIC CHASSIS                    444
0400110         IJ201 01  X  A24    08    LOGIC CHASSIS                    000
0400210         IJ201 04  X  A24    09    LOGIC CHASSIS                    444
0400310         IJ201 02  X  A24    13    LOGIC CHASSIS                    000
0400410         IJ201 05  X  A24    16    LOGIC CHASSIS                    444
0400510         IJ201 03  X  A24    21    LOGIC CHASSIS                    000
0400610         IJ201 07  X  A24    24    LOGIC CHASSIS                    444
0400710         IJ201 08  X  A24    28    LOGIC CHASSIS                    000
0400810         IJ201 12  X  A24    29    LOGIC CHASSIS                    444
0400910         IJ201 10  X  A24    33    LOGIC CHASSIS                    000
```

ID NO	LENGTH	ORIGIN	S	DESTINATION	TITLE	SIZE/COLOR	ECO
0401010		IJ201 13	X	A24 34	LOGIC CHASSIS	444	
0401110		IJ201 11	X	A24 38	LOGIC CHASSIS	000	
0401210		IJ201 14	X	A24 40	LOGIC CHASSIS	444	
0401310		IJ201 15	X	A24 44	LOGIC CHASSIS	000	
0401410		IJ201 18	X	A24 45	LOGIC CHASSIS	444	
0401510		IJ201 16	X	A26 08	LOGIC CHASSIS	000	
0401610		IJ201 20	X	A26 09	LOGIC CHASSIS	444	
0401710		IJ201 17	X	A25 36	LOGIC CHASSIS	000	
0401810		IJ201 21	X	A25 37	LOGIC CHASSIS	444	
0401910		IJ201 22	X	A27 28	LOGIC CHASSIS	000	
0402010		IJ201 25	X	A27 29	LOGIC CHASSIS	444	
0402110		IJ201 23	X	A25 28	LOGIC CHASSIS	000	
0402210		IJ201 26	X	A25 29	LOGIC CHASSIS	444	
0402310		IJ201 24	X	A27 36	LOGIC CHASSIS	000	
0402410		IJ201 27	X	A27 37	LOGIC CHASSIS	444	
0402510		IJ201 28	X	A25 41	LOGIC CHASSIS	000	
0402610		IJ201 31	X	A25 42	LOGIC CHASSIS	444	
0402710		IJ201 29	X	A27 41	LOGIC CHASSIS	000	
0402810		IJ201 32	X	A27 42	LOGIC CHASSIS	444	
0402910		IJ201 30	X	A28 21	LOGIC CHASSIS	000	
0403010		IJ201 33	X	A28 24	LOGIC CHASSIS	444	
0403110		IJ201 34	X	A28 08	LOGIC CHASSIS	000	
0403210		IJ201 37	X	A28 09	LOGIC CHASSIS	444	
0403310		IJ201 35	X	A28 13	LOGIC CHASSIS	000	
0403410		IJ201 38	X	A28 16	LOGIC CHASSIS	444	
0403510		IJ201 40	X	A25 21	LOGIC CHASSIS	000	
0403610		IJ201 43	X	A25 22	LOGIC CHASSIS	444	
0403710		IJ201 41	X	A27 21	LOGIC CHASSIS	000	
0403810		IJ201 44	X	A27 22	LOGIC CHASSIS	444	
0403910		IJ201 42	X	A29 21	LOGIC CHASSIS	000	
0404010		IJ201 45	X	A29 22	LOGIC CHASSIS	444	
0404110		IJ201 46	X	A29 16	LOGIC CHASSIS	000	
0404210		IJ201 49	X	A29 17	LOGIC CHASSIS	444	
0404310		IJ201 47	X	A29 28	LOGIC CHASSIS	000	
0404410		IJ201 50	X	A29 29	LOGIC CHASSIS	444	
0404510		IJ201 58	X	A28 28	LOGIC CHASSIS	000	
0404610		IJ201 62	X	A28 29	LOGIC CHASSIS	444	
0404710		IJ201 59	X	A28 33	LOGIC CHASSIS	000	
0404810		IJ201 63	X	A28 34	LOGIC CHASSIS	444	
0404910		IJ201 60	X	A28 38	LOGIC CHASSIS	000	
0405010		IJ201 64	X	A28 40	LOGIC CHASSIS	444	

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LW73129700 CII MDD DC                REVISION A

ID NO  LENGTH   ORIGIN    S  DESTINATION TITLE                   SIZE/COLOR  ECO

0405110         IJ201 65  X  A29    36    LOGIC CHASSIS                 000
0405210         IJ201 70  X  A29    37    LOGIC CHASSIS                 444
0405310         IJ201 66  X  A26    13    LOGIC CHASSIS                 000
0405410         IJ201 71  X  A26    16    LOGIC CHASSIS                 444
0405510         IJ201 67  X  A29    41    LOGIC CHASSIS                 000
0405610         IJ201 72  X  A29    42    LOGIC CHASSIS                 444
0500110         IJ202  B  X  A26    21    LOGIC CHASSIS                 000
0500210         IJ202  D  X  A26    24    LOGIC CHASSIS                 444
0500310         IJ202 BB  X  A26    28    LOGIC CHASSIS                 000
0500410         IJ202 DD  X  A26    29    LOGIC CHASSIS                 444
0500510         IJ202  E  X  A26    33    LOGIC CHASSIS                 000
0500610         IJ202  H  X  A26    34    LOGIC CHASSIS                 444
0500710         IJ202 EE  X  A26    38    LOGIC CHASSIS                 000
0500810         IJ202 HH  X  A26    40    LOGIC CHASSIS                 444
0500910         IJ202  F  X  A28    44    LOGIC CHASSIS                 000
0501010         IJ202  J  X  A28    45    LOGIC CHASSIS                 444
0501110         IJ202 FF  X  A26    44    LOGIC CHASSIS                 000
0501210         IJ202 JJ  X  A26    45    LOGIC CHASSIS                 444
0520531505791LW72970000 CII MDD DC             REVIS    B 01
0600110         IIJ20001  X  B25    01    LOGIC CHASSIS                 000
0600210         IIJ20004  X  B25    05    LOGIC CHASSIS                 444
0600310         IIJ20002  X  B25    09    LOGIC CHASSIS                 000
0600410         IIJ20005  X  B25    12    LOGIC CHASSIS                 444
0600510         IIJ20003  X  B25    16    LOGIC CHASSIS                 000
0600610         IIJ20007  X  B25    17    LOGIC CHASSIS                 444
0600710         IIJ20008  X  B27    01    LOGIC CHASSIS                 000
0600810         IIJ20012  X  B27    05    LOGIC CHASSIS                 444
0600910         IIJ20010  X  B27    09    LOGIC CHASSIS                 000
0601010         IIJ20013  X  B27    12    LOGIC CHASSIS                 444
0601110         IIJ20011  X  B27    16    LOGIC CHASSIS                 000
0601210         IIJ20014  X  B27    17    LOGIC CHASSIS                 444
0601310         IIJ20015  X  B29    01    LOGIC CHASSIS                 000
0601410         IIJ20018  X  B29    05    LOGIC CHASSIS                 444
0601510         IIJ20016  X  B29    09    LOGIC CHASSIS                 000
0601610         IIJ20020  X  B29    12    LOGIC CHASSIS                 444
0601710         IIJ20017  X  B25    36    LOGIC CHASSIS                 000
0601810         IIJ20021  X  B25    37    LOGIC CHASSIS                 444
0601910         IIJ20022  X  B27    28    LOGIC CHASSIS                 000
0602010         IIJ20025  X  B27    29    LOGIC CHASSIS                 444
0602110         IIJ20023  X  B25    28    LOGIC CHASSIS                 000
0602210         IIJ20026  X  B25    29    LOGIC CHASSIS                 444
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ID NO	LENGTH	ORIGIN	S	DESTINATION	TITLE	SIZE/COLOR	ECO
0602310		IIJ20024	X	B27 36	LOGIC CHASSIS	000	
0602410		IIJ20027	X	B27 37	LOGIC CHASSIS	444	
0602510		IIJ20028	X	B25 41	LOGIC CHASSIS	000	
0602610		IIJ20031	X	B25 42	LOGIC CHASSIS	444	
0602710		IIJ20029	X	B27 41	LOGIC CHASSIS	000	
0602810		IIJ20032	X	B27 42	LOGIC CHASSIS	444	
0602910		IIJ20030	X	B28 21	LOGIC CHASSIS	000	
0603010		IIJ20033	X	B28 24	LOGIC CHASSIS	444	
0603110		IIJ20034	X	B28 08	LOGIC CHASSIS	000	
0603210		IIJ20037	X	B28 09	LOGIC CHASSIS	444	
0603310		IIJ20035	X	B28 13	LOGIC CHASSIS	000	
0603410		IIJ20038	X	B28 16	LOGIC CHASSIS	444	
0603510		IIJ20040	X	B25 21	LOGIC CHASSIS	000	
0603610		IIJ20043	X	B25 22	LOGIC CHASSIS	444	
0603710		IIJ20041	X	B27 21	LOGIC CHASSIS	000	
0603810		IIJ20044	X	B27 22	LOGIC CHASSIS	444	
0603910		IIJ20042	X	B29 21	LOGIC CHASSIS	000	
0604010		IIJ20045	X	B29 22	LOGIC CHASSIS	444	
0604110		IIJ20046	X	B29 16	LOGIC CHASSIS	000	
0604210		IIJ20049	X	B29 17	LOGIC CHASSIS	444	
0604310		IIJ20047	X	B29 28	LOGIC CHASSIS	000	
0604410		IIJ20050	X	B29 29	LOGIC CHASSIS	444	
0604510		IIJ20058	X	B28 28	LOGIC CHASSIS	000	
0604610		IIJ20062	X	B28 29	LOGIC CHASSIS	444	
0604710		IIJ20059	X	B28 33	LOGIC CHASSIS	000	
0604810		IIJ20063	X	B28 34	LOGIC CHASSIS	444	
0604910		IIJ20060	X	B28 38	LOGIC CHASSIS	000	
0605010		IIJ20064	X	B28 40	LOGIC CHASSIS	444	
0605110		IIJ20065	X	B29 36	LOGIC CHASSIS	000	
0605210		IIJ20070	X	B29 37	LOGIC CHASSIS	444	
0605310		IIJ20066	X	B26 13	LOGIC CHASSIS	000	
0605410		IIJ20071	X	B26 16	LOGIC CHASSIS	444	
0605510		IIJ20067	X	B29 41	LOGIC CHASSIS	000	
0605610		IIJ20072	X	B29 42	LOGIC CHASSIS	444	
0700110		IIJ20101	X	B24 08	LOGIC CHASSIS	000	
0700210		IIJ20104	X	B24 09	LOGIC CHASSIS	444	
0700310		IIJ20102	X	B24 13	LOGIC CHASSIS	000	
0700410		IIJ20105	X	B24 16	LOGIC CHASSIS	444	
0700510		IIJ20103	X	B24 21	LOGIC CHASSIS	000	
0700610		IIJ20107	X	B24 24	LOGIC CHASSIS	444	
0700710		IIJ20108	X	B24 28	LOGIC CHASSIS	000	

ID NO	LENGTH	ORIGIN	S	DESTINATION	TITLE	SIZE/COLOR	ECO
0700810		IIJ20112	X	B24 29	LOGIC CHASSIS	444	
0700910		IIJ20110	X	B24 33	LOGIC CHASSIS	000	
0701010		IIJ20113	X	B24 34	LOGIC CHASSIS	444	
0701110		IIJ20111	X	B24 38	LOGIC CHASSIS	000	
0701210		IIJ20114	X	B24 40	LOGIC CHASSIS	444	
0701310		IIJ20115	X	B24 44	LOGIC CHASSIS	000	
0701410		IIJ20118	X	B24 45	LOGIC CHASSIS	444	
0701510		IIJ20116	X	B26 08	LOGIC CHASSIS	000	
0701610		IIJ20120	X	B26 09	LOGIC CHASSIS	444	
0701710		IIJ20117	X	B25 36	LOGIC CHASSIS	000	
0701810		IIJ20121	X	B25 37	LOGIC CHASSIS	444	
0701910		IIJ20122	X	B27 28	LOGIC CHASSIS	000	
0702010		IIJ20125	X	B27 29	LOGIC CHASSIS	444	
0702110		IIJ20123	X	B25 28	LOGIC CHASSIS	000	
0702210		IIJ20126	X	B25 29	LOGIC CHASSIS	444	
0702310		IIJ20124	X	B27 36	LOGIC CHASSIS	000	
0702410		IIJ20127	X	B27 37	LOGIC CHASSIS	444	
0702510		IIJ20128	X	B25 41	LOGIC CHASSIS	000	
0702610		IIJ20131	X	B25 42	LOGIC CHASSIS	444	
0702710		IIJ20129	X	B27 41	LOGIC CHASSIS	000	
0702810		IIJ20132	X	B27 42	LOGIC CHASSIS	444	
0702910		IIJ20130	X	B28 21	LOGIC CHASSIS	000	
0703010		IIJ20133	X	B28 24	LOGIC CHASSIS	444	
0703110		IIJ20134	X	B28 08	LOGIC CHASSIS	000	
0703210		IIJ20137	X	B28 09	LOGIC CHASSIS	444	
0703310		IIJ20135	X	B28 13	LOGIC CHASSIS	000	
0703410		IIJ20138	X	B28 16	LOGIC CHASSIS	444	
0703510		IIJ20140	X	B25 21	LOGIC CHASSIS	000	
0703610		IIJ20143	X	B25 22	LOGIC CHASSIS	444	
0703710		IIJ20141	X	B27 21	LOGIC CHASSIS	000	
0703810		IIJ20144	X	B27 22	LOGIC CHASSIS	444	
0703910		IIJ20142	X	B29 21	LOGIC CHASSIS	000	
0704010		IIJ20145	X	B29 22	LOGIC CHASSIS	444	
0704110		IIJ20146	X	B29 16	LOGIC CHASSIS	000	
0704210		IIJ20149	X	B29 17	LOGIC CHASSIS	444	
0704310		IIJ20147	X	B29 28	LOGIC CHASSIS	000	
0704410		IIJ20150	X	B29 29	LOGIC CHASSIS	444	
0704510		IIJ20158	X	B28 28	LOGIC CHASSIS	000	
0704610		IIJ20162	X	B28 29	LOGIC CHASSIS	444	
0704710		IIJ20159	X	B28 33	LOGIC CHASSIS	000	
0704810		IIJ20163	X	B28 34	LOGIC CHASSIS	444	

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LW73129700 CII MDD DC                  REVISION A

ID NO  LENGTH    ORIGIN    S  DESTINATION TITLE                 SIZE/COLOR  ECO

0704910          IIJ20160 X  B28   38    LOGIC CHASSIS              000
0705010          IIJ20164 X  B28   40    LOGIC CHASSIS              444
0705110          IIJ20165 X  B29   36    LOGIC CHASSIS              000
0705210          IIJ20170 X  B29   37    LOGIC CHASSIS              444
0705310          IIJ20166 X  B26   13    LOGIC CHASSIS              000
0705410          IIJ20171 X  B26   16    LOGIC CHASSIS              444
0705510          IIJ20167 X  B29   41    LOGIC CHASSIS              000
0705610          IIJ20172 X  B29   42    LOGIC CHASSIS              444
0800110          IIJ202 B X  B26   21    LOGIC CHASSIS              000
0800210          IIJ202 D X  B26   24    LOGIC CHASSIS              444
0800310          IIJ202BB X  B26   28    LOGIC CHASSIS              000
0800410          IIJ202DD X  B26   29    LOGIC CHASSIS              444
0800510          IIJ202 E X  B26   33    LOGIC CHASSIS              000
0800610          IIJ202 H X  B26   34    LOGIC CHASSIS              444
0800710          IIJ202EE X  B26   38    LOGIC CHASSIS              000
0800810          IIJ202HH X  B26   40    LOGIC CHASSIS              444
0800910          IIJ202 F X  B28   44    LOGIC CHASSIS              000
0801010          IIJ202 J X  B28   45    LOGIC CHASSIS              444
0801110          IIJ202FF X  B26   44    LOGIC CHASSIS              000
0801210          IIJ202JJ X  B26   45    LOGIC CHASSIS              444
0900110     04   A03   45 0  A06   17    LOGIC CHASSIS
0900210     06   A03   20 0  A11   33    LOGIC CHASSIS
0900310     06   A03   30 0  A12   45    LOGIC CHASSIS
0900410     07   A03   32 0  A12   14    LOGIC CHASSIS
0900510     06   A03   33 0  A12   44    LOGIC CHASSIS
0900610     06   A03   36 0  A12   42    LOGIC CHASSIS
0900710     07   A03   37 0  A13   38    LOGIC CHASSIS
0900810     07   A03   38 0  A13   37    LOGIC CHASSIS
0900910     07   A03   40 0  A13   36    LOGIC CHASSIS
0901010     07   A03   41 0  A13   33    LOGIC CHASSIS
0901110     07   A03   17 0  A12   33    LOGIC CHASSIS
0901210     04   A03   29 0  A07   16    LOGIC CHASSIS
0901310     04   A03   25 0  A08   10    LOGIC CHASSIS
0901510     05   A03   28 0  A08   08    LOGIC CHASSIS
0901610     07   A03   08 0  A13   10    LOGIC CHASSIS
0901710     07   A03   05 0  A13   44    LOGIC CHASSIS
0901810     08   A03   01 0  A13   45    LOGIC CHASSIS
1000110     04   B03   45 0  B06   17    LOGIC CHASSIS
1000210     06   B03   20 0  B11   33    LOGIC CHASSIS
1000310     06   B03   30 0  B12   45    LOGIC CHASSIS
1000410     07   B03   32 0  B12   14    LOGIC CHASSIS
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ID NO  LENGTH   ORIGIN   S  DESTINATION TITLE                    SIZE/COLOR  ECO

1000510     06  B03   33 O  B12   44    LOGIC CHASSIS
1000610     06  B03   36 O  B12   42    LOGIC CHASSIS
1000710     07  B03   37 O  B13   38    LOGIC CHASSIS
1000810     07  B03   38 O  B13   37    LOGIC CHASSIS
1000910     07  B03   40 O  B13   36    LOGIC CHASSIS
1001010     07  B03   41 O  B13   33    LOGIC CHASSIS
1001110     07  B03   17 O  B12   33    LOGIC CHASSIS
1001210     04  B03   29 O  B07   16    LOGIC CHASSIS
1001310     04  B03   25 O  B08   10    LOGIC CHASSIS
1001510     05  B03   28 O  B08   08    LOGIC CHASSIS
1001610     07  B03   08 O  B13   10    LOGIC CHASSIS
1001710     07  B03   05 O  B13   44    LOGIC CHASSIS
1001810     08  B03   01 O  B13   45    LOGIC CHASSIS
1100010     02  A01   06 R  A02   06    LOGIC CHASSIS              20 666
1100011     02  A02   06 R  A03   06    LOGIC CHASSIS              20 666
1100012     02  A03   06 R  A04   06    LOGIC CHASSIS              20 666
1100013     02  A04   06 R  A05   06    LOGIC CHASSIS              20 666
1100020     02  A06   06 R  A07   06    LOGIC CHASSIS              20 666
1100021     02  A07   06 R  A08   06    LOGIC CHASSIS              20 666
1100022     02  A08   06 R  A09   06    LOGIC CHASSIS              20 666
1100023     02  A09   06 R  A10   06    LOGIC CHASSIS              20 666
1100030     02  A12   06 R  A13   06    LOGIC CHASSIS              20 666
1100031     02  A13   06 R  A14   06    LOGIC CHASSIS              20 666
1100032     02  A14   06 R  A15   06    LOGIC CHASSIS              20 666
1100033     02  A15   06 R  A16   06    LOGIC CHASSIS              20 666
1100034     02  A16   06 R  A17   06    LOGIC CHASSIS              20 666
1100035     02  A11   06 R  A12   06    LOGIC CHASSIS              20 666
1100040     02  A18   06 R  A19   06    LOGIC CHASSIS              20 666
1100041     02  A19   06 R  A20   06    LOGIC CHASSIS              20 666
1100042     02  A20   06 R  A21   06    LOGIC CHASSIS              20 666
1100043     02  A21   06 R  A22   06    LOGIC CHASSIS              20 666
1100044     02  A22   06 R  A23   06    LOGIC CHASSIS              20 666
1100050     02  A24   06 R  A25   06    LOGIC CHASSIS              20 666
1100051     02  A25   06 R  A26   06    LOGIC CHASSIS              20 666
1100060     02  A27   06 R  A28   06    LOGIC CHASSIS              20 666
1100061     02  A28   06 R  A29   06    LOGIC CHASSIS              20 666
1100110     02  A01   46 R  A02   46    LOGIC CHASSIS              20 222
1100111     02  A02   46 R  A03   46    LOGIC CHASSIS              20 222
1100112     02  A03   46 R  A04   46    LOGIC CHASSIS              20 222
1100113     02  A04   46 R  A05   46    LOGIC CHASSIS              20 222
1100120     02  A06   46 R  A07   46    LOGIC CHASSIS              20 222
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ID NO  LENGTH   ORIGIN    S  DESTINATION TITLE                  SIZE/COLOR  ECO

1100121     02  A07    46 R  A08    46   LOGIC CHASSIS              20 222
1100122     02  A08    46 R  A09    46   LOGIC CHASSIS              20 222
1100123     02  A09    46 R  A10    46   LOGIC CHASSIS              20 222
1100130     02  A12    46 R  A13    46   LOGIC CHASSIS              20 222
1100131     02  A13    46 R  A14    46   LOGIC CHASSIS              20 222
1100132     02  A14    46 R  A15    46   LOGIC CHASSIS              20 222
1100133     02  A15    46 R  A16    46   LOGIC CHASSIS              20 222
1100134     02  A16    46 R  A17    46   LOGIC CHASSIS              20 222
1100135     02  A11    46 R  A12    46   LOGIC CHASSIS              20 222
1100140     02  A18    46 R  A19    46   LOGIC CHASSIS              20 222
1100141     02  A19    46 R  A20    46   LOGIC CHASSIS              20 222
1100142     02  A20    46 R  A21    46   LOGIC CHASSIS              20 222
1100143     02  A21    46 R  A22    46   LOGIC CHASSIS              20 222
1100144     02  A22    46 R  A23    46   LOGIC CHASSIS              20 222
1100150     02  A24    46 R  A25    46   LOGIC CHASSIS              20 222
1100151     02  A25    46 R  A26    46   LOGIC CHASSIS              20 222
1100160     02  A27    46 R  A28    46   LOGIC CHASSIS              20 222
1100161     02  A28    46 R  A29    46   LOGIC CHASSIS              20 222
1100210     02  A01    48 R  A02    48   LOGIC CHASSIS              20 222
1100211     02  A02    48 R  A03    48   LOGIC CHASSIS              20 222
1100212     02  A03    48 R  A04    48   LOGIC CHASSIS              20 222
1100213     02  A04    48 R  A05    48   LOGIC CHASSIS              20 222
1100220     02  A06    48 R  A07    48   LOGIC CHASSIS              20 222
1100221     02  A07    48 R  A08    48   LOGIC CHASSIS              20 222
1100222     02  A08    48 R  A09    48   LOGIC CHASSIS              20 222
1100223     02  A09    48 R  A10    48   LOGIC CHASSIS              20 222
1100230     02  A12    48 R  A13    48   LOGIC CHASSIS              20 222
1100231     02  A13    48 R  A14    48   LOGIC CHASSIS              20 222
1100232     02  A14    48 R  A15    48   LOGIC CHASSIS              20 222
1100233     02  A15    48 R  A16    48   LOGIC CHASSIS              20 222
1100234     02  A16    48 R  A17    48   LOGIC CHASSIS              20 222
1100235     02  A11    48 R  A12    48   LOGIC CHASSIS              20 222
1100240     02  A18    48 R  A19    48   LOGIC CHASSIS              20 222
1100241     02  A19    48 R  A20    48   LOGIC CHASSIS              20 222
1100242     02  A20    48 R  A21    48   LOGIC CHASSIS              20 222
1100243     02  A21    48 R  A22    48   LOGIC CHASSIS              20 222
1100244     02  A22    48 R  A23    48   LOGIC CHASSIS              20 222
1100310     02  B01    06 R  B02    06   LOGIC CHASSIS              20 666
1100311     02  B02    06 R  B03    06   LOGIC CHASSIS              20 666
1100312     02  B03    06 R  B04    06   LOGIC CHASSIS              20 666
1100313     02  B04    06 R  B05    06   LOGIC CHASSIS              20 666
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ID NO  LENGTH   ORIGIN    S  DESTINATION TITLE                  SIZE/COLOR  ECO

1100320     02  B06    06 R  B07    06    LOGIC CHASSIS             20 666
1100321     02  B07    06 R  B08    06    LOGIC CHASSIS             20 666
1100322     02  B08    06 R  B09    06    LOGIC CHASSIS             20 666
1100323     02  B09    06 R  B10    06    LOGIC CHASSIS             20 666
1100330     02  B12    06 R  B13    06    LOGIC CHASSIS             20 666
1100331     02  B13    06 R  B14    06    LOGIC CHASSIS             20 666
1100332     02  B14    06 R  B15    06    LOGIC CHASSIS             20 666
1100333     02  B15    06 R  B16    06    LOGIC CHASSIS             20 666
1100334     02  B16    06 R  B17    06    LOGIC CHASSIS             20 666
1100335     02  B11    06 R  B12    06    LOGIC CHASSIS             20 666
1100340     02  B18    06 R  B19    06    LOGIC CHASSIS             20 666
1100341     02  B19    06 R  B20    06    LOGIC CHASSIS             20 666
1100342     02  B20    06 R  B21    06    LOGIC CHASSIS             20 666
1100343     02  B21    06 R  B22    06    LOGIC CHASSIS             20 666
1100344     02  B22    06 R  B23    06    LOGIC CHASSIS             20 666
1100350     02  B24    06 R  B25    06    LOGIC CHASSIS             20 666
1100351     02  B25    06 R  B26    06    LOGIC CHASSIS             20 666
1100360     02  B27    06 R  B28    06    LOGIC CHASSIS             20 666
1100361     02  B28    06 R  B29    06    LOGIC CHASSIS             20 666
1100410     02  B01    46 R  B02    46    LOGIC CHASSIS             20 222
1100411     02  B02    46 R  B03    46    LOGIC CHASSIS             20 222
1100412     02  B03    46 R  B04    46    LOGIC CHASSIS             20 222
1100413     02  B04    46 R  B05    46    LOGIC CHASSIS             20 222
1100420     02  B06    46 R  B07    46    LOGIC CHASSIS             20 222
1100421     02  B07    46 R  B08    46    LOGIC CHASSIS             20 222
1100422     02  B08    46 R  B09    46    LOGIC CHASSIS             20 222
1100423     02  B09    46 R  B10    46    LOGIC CHASSIS             20 222
1100430     02  B12    46 R  B13    46    LOGIC CHASSIS             20 222
1100431     02  B13    46 R  B14    46    LOGIC CHASSIS             20 222
1100432     02  B14    46 R  B15    46    LOGIC CHASSIS             20 222
1100433     02  B15    46 R  B16    46    LOGIC CHASSIS             20 222
1100434     02  B16    46 R  B17    46    LOGIC CHASSIS             20 222
1100435     02  B11    46 R  B12    46    LOGIC CHASSIS             20 222
1100440     02  B18    46 R  B19    46    LOGIC CHASSIS             20 222
1100441     02  B19    46 R  B20    46    LOGIC CHASSIS             20 222
1100442     02  B20    46 R  B21    46    LOGIC CHASSIS             20 222
1100443     02  B21    46 R  B22    46    LOGIC CHASSIS             20 222
1100444     02  B22    46 R  B23    46    LOGIC CHASSIS             20 222
1100450     02  B24    46 R  B25    46    LOGIC CHASSIS             20 222
1100451     02  B25    46 R  B26    46    LOGIC CHASSIS             20 222
1100460     02  B27    46 R  B28    46    LOGIC CHASSIS             20 222
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ID NO	LENGTH	ORIGIN		S	DESTINATION		TITLE	SIZE/COLOR		ECO
1100461	02	B28	46	R	B29	46	LOGIC CHASSIS	20	222	
1100510	02	B01	48	R	B02	48	LOGIC CHASSIS	20	222	
1100511	02	B02	48	R	B03	48	LOGIC CHASSIS	20	222	
1100512	02	B03	48	R	B04	48	LOGIC CHASSIS	20	222	
1100513	02	B04	48	R	B05	48	LOGIC CHASSIS	20	222	
1100520	02	B06	48	R	B07	48	LOGIC CHASSIS	20	222	
1100521	02	B07	48	R	B08	48	LOGIC CHASSIS	20	222	
1100522	02	B08	48	R	B09	48	LOGIC CHASSIS	20	222	
1100523	02	B09	48	R	B10	48	LOGIC CHASSIS	20	222	
1100530	02	B12	48	R	B13	48	LOGIC CHASSIS	20	222	
1100531	02	B13	48	R	B14	48	LOGIC CHASSIS	20	222	
1100532	02	B14	48	R	B15	48	LOGIC CHASSIS	20	222	
1100533	02	B15	48	R	B16	48	LOGIC CHASSIS	20	222	
1100534	02	B16	48	R	B17	48	LOGIC CHASSIS	20	222	
1100535	02	B11	48	R	B12	48	LOGIC CHASSIS	20	222	
1100540	02	B18	48	R	B19	48	LOGIC CHASSIS	20	222	
1100541	02	B19	48	R	B20	48	LOGIC CHASSIS	20	222	
1100542	02	B20	48	R	B21	48	LOGIC CHASSIS	20	222	
1100543	02	B21	48	R	B22	48	LOGIC CHASSIS	20	222	
1100544	02	B22	48	R	B23	48	LOGIC CHASSIS	20	222	

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE WIRE LIST - LOGIC CHASSIS HARNESS ASSY
PRODUCT MULTIPLE DISK DRIVE
WL
DOCUMENT NO. 40017600
REV. F
SHEET 1 OF 22

REVISION STATUS OF SHEETS

REVISIONS

REV.	ECO	DESCRIPTION	DRFT.	DATE	CHKD.	APPD.
A		RELEASED		11-27-68		MW
B	PM4660	SEE CO	DB	2-18-69	97	2-21-69
C	PM5578	SEE CO	GV	7-10-69	BCH	7-18
D	PM5578A	SEECO	GV	7-10-69	BCH	7-18
E	PE 11118	SEE CO	DS	9-17-69	97	9-18-9
F	PE11118A	SEE CO				

NOTES:

1. A HEXAGON IN THE ACCESS FIND NO. COLUMN INDICATES THAT THE CONDUCTOR IS ONE OF SEVERAL (ALL WITH THE SAME NUMBER IN THE HEXAGON) GOING INTO THE SAME TERMINAL. THE NUMBER IN FRONT OF A HEXAGON IS THE TERMINAL FIND NO.
2. FOR MECH ASSY AND PL SEE 70821200.

COPIES TO

BY SD DATE 10-10 CHKD. C.M. DATE 11/11/68 ENGR DATE 11/13/68

FORM AA 1672

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE WIRE LISTING
WL
DOCUMENT NO. 40017600
REV. F
SHEET 2 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
1	11	20	4		J204	42	13	J206	M	19	
2	↑	↑	↑		J206	N	19	J204	43	13	
3					J204	45	13	J206	R	19	
4					J206	S	19	J204	46	13	
5					J204	48	9 ①	IJ202	U	13	
6					IIJ202	U	13	J204	48	①	
7					J204	51	13	J206	$\overline{J}$	19	
8					J206	$\overline{k}$	19	J204	52	13	
9					J204	53	13	J206	HH	19	
10					J206	$\overline{m}$	19	J204	54	13	
11					J204	55	13	J206	$\overline{n}$	19	
12					J206	$\overline{P}$	19	J204	56	13	
13					J204	57	13	J206	$\overline{r}$	19	
14					J206	$\overline{s}$	19	J204	58	13	
15					J204	60	13	J206	$\overline{u}$	19	
16					J206	$\overline{v}$	19	J204	62	13	
17	↓	↓	↓		J204	64	9 ②	IJ202	X	13	
18					IIJ202	X	13	J204	64	②	
19	11	20	4		J204	65	9 ③	IJ202	Y	13	

FORM AA 1659

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

WL

DOCUMENT NO. 40017600

REV. F

SHEET 3 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
20	11	20	4		ⅡJ202	Y	13	J204	65	③	
21	↑	↑	↑		J204	66	9 ④	ⅠJ202	Z	13	
22					ⅡJ202	Z	13	J204	66	④	
23					J204	16	13	A4J205	21	19	
24					A3J205	18	19	J204	24	13	
25					J204	26	13	A3J205	21	19	
26					A4J205	18	19	J204	33	13	
27					J204	36	13	J206	E	19	
28					J206	F	19	J204	37	13	
29					J204	39	13	J206	J	19	
30					J206	K	19	J204	40	13	
31					J204	41	13	J206	L	19	
32					J206	T	19	A3J205	25	19	
33					A3J205	32	19	TB203	1	32 ⑤	
34					TB203	3	32	A3J205	35	19	
35					A3J205	36	19	TB203	7	15 ⑥	
36	↓	↓	↓		TB203	8	32	A4J205	36	19	
37					A4J205	35	19	TB203	4	32	
38	11	20	4		TB203	2	32 ⑥	A4J205	32	19	

FORM AA 1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

WL

DOCUMENT NO. 40017600

REV. F

SHEET 4 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
39	11	20	4		A4J205	25	19	J206	$\bar{w}$	19	
40	↑	↑	↑		A3TB202	35	21 ⑦	A3TB202	33	21 ⑧	
41					A3TB202	33	⑧	A3TB202	27	21 ⑨	
42					A3TB202	27	⑨	A3TB202	21	21 ⑩	
43					A3TB202	21	⑩	A3TB202	15	21 ⑪	
44					A3TB202	15	⑪	A3TB202	9	27	
45					A4TB202	35	21 ⑫	A4TB202	33	21 ⑬	
46					A4TB202	33	⑬	A4TB202	27	21 ⑭	
47					A4TB202	27	⑭	A4TB202	21	21 ⑮	
48					A4TB202	21	⑮	A4TB202	15	21 ⑯	
49					A4TB202	15	⑯	A4TB202	9	27	
50					TB203	3	15 ⑰	A23	46	29,30	
51					A17	46	29,30	TB203	3	⑰	
52					TB203	3	15 ⑱	A11	46	29,30	
53					B23	46	29,30	TB203	4	15 ⑲	
54					TB203	4	⑲	B17	46	29,30	
55	↓	↓	↓		B11	46	29,30	TB203	4	15 (61)	
56					TB203	5	32	A29	46	29,30	
57	11	20	4		B29	46	29,30	TB203	5	32	

FORM AA 1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL DOCUMENT NO. 40017600 REV. F

SHEET 5 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
58	11	20	4		TB203	5	32	A26	46	29,30	
59	↑	↑	↑		B26	46	29,30	TB203	5	32	
60					TB203	6	32	A29	6	29,30	
61					B29	6	29,30	TB203	6	32	
62					TB203	6	32	A26	6	29,30	
63					B26	6	29,30	TB203	6	32	
64					TB203	7	15 20	A23	6	29,30	
65					A17	6	29,30	TB203	7	15 21	
66					TB203	7	21	A11	6	29,30	
67					B23	6	29,30	TB203	8	15 22	
68					TB203	8	15, 49	B17	6	29,30	
69					B11	6	29,30	TB203	8	49	
70					TB203	9	15 23	A23	48	29,30	
71					A17	48	29,30	TB203	9	32	
72					TB203	9	15 24	A10	48	29,30	
73					B23	48	29,30	TB203	10	15 25	
74	↓	↓	↓		TB203	10	15 26	B17	48	29,30	
75					B10	48	29,30	TB203	10	32	
76	11	20	4		TB203	13	15 27	IJ202	R	13	

FORM AA 1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL DOCUMENT NO. 40017600 REV. F

SHEET 6 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
77	11	20	4		IIJ202	R	13	TB203	16	15 28	
78	↑	↑	↑		A3TB202	36	27	A3TB202	6	21 29	
79					A3TB202	6	29	TB203	1	15 30	
80					TB203	1	30	A4TB202	6	21 31	
81					A4TB202	6	31	A4TB202	36	27	
82					TB203	4	51	B05	46	29,30	
83					B05	48	29,30	TB203	10	26	
84					TB203	3	18	A05	46	29,30	
85					A05	48	29,30	TB203	9	24	
86					A05	6	29,30	TB203	7	46	
87	↓	↓	↓		TB203	8	32	B05	6	29,30	
88					A26	48	29,30	TB203	9	32	
89	11	20	4		TB203	10	32	B26	48	29,30	
90	12	24	4		A3TB204	1	22	J204	44	14	
91	↑	↑	↑		J204	49	13 32	IJ202	V	14	
92					IIJ202	V	14	J204	49	32	
93	↓	↓	↓		J204	50	13 33	IJ202	W	14	
94					IIJ202	W	14	J204	50	33	
95	12	24	4		J204	59	14	A4TB204	1	22	

FORM AA 1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL | DOCUMENT NO. 40017600 | REV. F
SHEET 7 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
96	12	24	4		A3TP201	–	22	J204	67	14	
97	↑	↑	↑		J204	70	14	A4TP201	–	22	
98					A3J205	39	20	A8	1	23,24	
99					A7	13	23,24	A3J205	23	20	
100					J204	4	14	B7	37	16,17	
101					B8	45	16,17	J204	5	14	
102					J204	7	14	A8	45	16,17	
103					A7	37	16,17	J204	8	14	
104					J204	10	14	J206	Z	20	
105					J206	CC	20	J204	22	14	
106					J204	15	14	A4J205	22	20	
107					J206	H	20	J204	25	14	
108					J204	27	14	A3J205	22	20	
109					A3J205	26	20	A8	2	16,17	
110					A8	1	16,17	A3J205	27	20	
111					A3J205	28	20	A3TB204	2	22	
112	↓	↓	↓		A11	30	16,17	A3J205	37	20	
113					A3J205	38	20	A11	45	16,17	
114	12	24	4		A14	1	16,17	A3J205	47	20	

FORM AA 1569

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL | DOCUMENT NO. 40017600 | REV. F
SHEET 8 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
115	12	24	4		A3J205	50	20	A14	8	16,17	
116	↑	↑	↑		A17	16	16,17	A3J205	51	20	
117					A3J205	52	20	A14	20	16,17	
118					A14	42	16,17	A3J205	53	20	
119					A3J205	54	20	A14	37	16,17	
120					A14	36	16,17	A3J205	55	20	
121					A3J205	56	20	A15	42	16,17	
122					A15	45	16,17	A3J205	57	20	
123					A3J205	58	20	A15	9	16,17	
124					A15	29	16,17	A3J205	59	20	
125					A3J205	60	20	A15	24	16,17	
126					A15	13	16,17	A3J205	62	20	
127					A3J205	63	20	A15	22	16,17	
128					A15	40	16,17	A3J205	64	20	
129					A3J205	65	20	A15	33	16,17	
130					A15	14	16,17	A3J205	66	20	
131	↓	↓	↓		A3J205	67	20	A15	28	16,17	
132					A15	34	16,17	A3J205	70	20	
133	12	24	4		A3J205	71	20	A15	12	16,17	

FORM AA 1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL
DOCUMENT NO. 40017600
REV. F
SHEET 9 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
134	12	24	4		A15	21	16,17	A3J205	72	20	
135	↑	↑	↑		A3J205	73	20	A15	20	16,17	
136					A15	38	16,17	A3J205	74	20	
137					A3J205	75	20	A15	36	16,17	
138					A15	16	16,17	A3J205	76	20	
139					A3J205	77	20	A15	17	16,17	
140					A15	25	16,17	A3J205	78	20	
141					A4J205	39	20	B8	1	16,17	
142					B7	13	16,17	A4J205	23	20	
143					A4J205	24	20	J206	$\overline{d}$	20	
144					A4J205	26	20	B8	2	16,17	
145					B8	1	16,17	A4J205	27	20	
146					A4J205	28	20	A4TB204	2	22	
147					B11	30	16,17	A4J205	37	20	
148					A4J205	38	20	B11	45	16,17	
149					B14	1	16,17	A4J205	47	20	
150	↓				A4J205	50	20	B14	8	16,17	
151		↓	↓		B17	16	16,17	A4J205	51	20	
152	12	24	4		A4J205	52	20	B14	20	16,17	

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CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL
DOCUMENT NO. 40017600
REV. F
SHEET 10 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
153	12	24	4		B14	42	16,17	A4J205	53	20	
154	↑	↑	↑		A4J205	54	20	B14	37	16,17	
155					B14	36	16,17	A4J205	55	20	
156					A4J205	56	20	B15	42	16,17	
157					B15	45	16,17	A4J205	57	20	
158					A4J205	58	20	B15	9	16,17	
159					B15	29	16,17	A4J205	59	20	
160					A4J205	60	20	B15	24	16,17	
161					B15	13	16,17	A4J205	62	20	
162					A4J205	63	20	B15	22	16,17	
163					B15	40	16,17	A4J205	64	20	
164					A4J205	65	20	B15	33	16,17	
165					B15	14	16,17	A4J205	66	20	
166					A4J205	67	20	B15	28	16,17	
167					B15	34	16,17	A4J205	70	20	
168					A4J205	71	20	B15	12	16,17	
169	↓	↓	↓		B15	21	16,17	A4J205	72	20	
170					A4J205	73	20	B15	20	16,17	
171	12	24	4		B15	38	16,17	A4J205	74	20	

FORM AA1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL
DOCUMENT NO. 40017600
REV. F
SHEET 11 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
172	12	24	4		A4J205	75	20	B15	36	16,17	
173	↑	↑	↑		B15	16	16,17	A4J205	76	20	
174					A4J205	77	20	B15	17	16,17	
175					B15	25	16,17	A4J205	78	20	
176					J206	B	20	A17	34	16,17	
177					A17	08	16,17	J206	D	20	
178					J206	C	20	TB203	3	32 ㉞	
179					TB203	1	32 ㉟	J206	U	20	
180					J206	V	20	A19	1	16,17	
181					A19	20	16,17	J206	W	20	
182					J206	X	20	A19	33	16,17	
183					A19	45	16,17	J206	Y	20	
184					J206	P	20	A3TB204	3	22	
185					A4TB204	3	22	J206	$\overline{t}$	20	
186					J206	$\overline{h}$	20	B17	08	16,17	
187					B17	34	16,17	J206	$\overline{e}$	20	
188					J206	$\overline{f}$	20	TB203	4	32 ㊱	
189	↓	↓	↓		TB203	2	32 ㊲	J206	$\overline{x}$	20	
190	12	24	4		J206	$\overline{y}$	20	B19	1	16,17	

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CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL
DOCUMENT NO. 40017600
REV. F
SHEET 12 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
191	12	24	4		B19	20	16,17	J206	$\overline{z}$	20	
192	↑	↑	↑		J206	AA	20	B19	33	16,17	
193					B19	45	16,17	J206	BB	20	
194					A3TB202	7	21,㊽	A3TB202	2	27	
195					A3TB202	5	21 ㊳	A3TB202	1	27	
196					A3TB202	30	27	A3TB202	31	27	
197					A3TB202	24	27	A3TB202	25	27	
198					A3TB202	18	27	A3TB202	19	27	
199					A3TB202	12	27	A3TB202	13	27	
200					A3TB202	34	27	A3TB202	31	27	
201					A3TB202	28	27	A3TB202	25	27	
202					A3TB202	22	27	A3TB202	19	27	
203					A3TB202	16	27	A3TB202	14	27	
204					A3TB202	5	㊳	A3TB202	8	27	
205					A3TB202	7	㊽	A3TB202	10	27	
206					A4TB202	7	21,㊾	A4TB202	2	27	
207					A4TB202	5	21 ㊴	A4TB202	1	27	
208	↓	↓	↓		A4TB202	30	27	A4TB202	31	27	
209	12	24	4		A4TB202	24	27	A4TB202	25	27	

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CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

WL

DOCUMENT NO. 40017600

REV. F

SHEET 13 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
210	12	24	4		A4TB202	18	27	A4TB202	19	27	
211	↑	↑	↑		A4TB202	12	27	A4TB202	13	27	
212					A4TB202	34	27	A4TB202	31	27	
213					A4TB202	28	27	A4TB202	25	27	
214					A4TB202	22	27	A4TB202	19	27	
215					A4TB202	16	27	A4TB202	14	27	
216					A4TB202	5	39	A4TB202	8	27	
217					A4TB202	7	49	A4TB202	10	27	
218					TB203	1	5	A3TP200	—	22	
219					A3TP203	—	22	TB203	3	34	
220					TB203	2	6	A4TP200	—	22	
221					A4TP203	—	22	TB203	4	36	
222					TB203	7	20	A3TP204	—	22	
223					A3TP202	—	22	TB203	9	23	
224					TB203	8	22	A4TP204	—	22	
225					A4TP202	—	22	TB203	10	25	
226	↓	↓	↓		TB203	13	15 27	IJ202	N	14	
227					IJ200	80	20	TB203	13	32 40	
228	12	24	4		TB203	13	40	IJ201	80	20	

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CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

WL

DOCUMENT NO. 40017600

REV. F

SHEET 14 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
229	12	24	4		A30	2	16,17	TB203	13	32 41	
230	↑	↑	↑		TB203	13	41	A30	50	16,17	
231					IIJ202	N	14	TB203	16	28	
232					TB203	16	32 42	IIJ200	80	20	
233					IIJ201	80	20	TB203	16	42	
234					TB203	16	32 43	B30	2	16,17	
235					B30	50	16,17	TB203	16	43	
236					TB203	1	35	A3TB204	7	22	
237					A3TB204	4	22	A14	45	16,17	
238					B14	45	16,17	A4TB204	4	22	
239					A4TB204	7	22	TB203	2	37	
240					A3TB202	36	27	A3TB202	37	27	
241					A4TB202	36	27	A4TB202	37	27	
242					A22	25	16,17	A3J205	40	20	
243					A3J205	41	20	A22	18	6,17	
244					B22	25	16,17	A4J205	40	20	
245	↓	↓	↓		A4J205	41	20	B22	18	16,17	
246					A3J205	24	20	J206	A	20	
247	12	24	4		A4S202	3	22	B17	9	16,17	

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CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

WL | DOCUMENT NO. 40017600 | REV. F

SHEET 15 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
248	12	24	4		A3S202	2	22	A17	33	16,17	
249	↑	↑	↑		A3S202	3	↑	A17	9	↑	
250					A3S202	4		A17	26		
251					A3S202	5		A17	5		
252					A4S202	C		B17	32		
253	↓	↓	↓		A4S202	1	↓	B17	44	↓	
254	12	24	4		A4S202	2	22	B17	33	16,17	
255	10	16	4		A3J205	1	18	TB203	3	15	
256	↑	↑	↑		TB203	7	15	A3J205	2	18	
257					A3J205	3	18	J204	21	9	
258					A3J205	20	18	TB203	1	34,㊿	
259					TB203	1	㊿	J204	1	9	
260					J204	2	9	TB203	1	15	
261					TB203	2	15	J204	3	9	
262					J204	11	9	TB203	6	15	
263					TB203	5	15	J204	12	9	
264					J204	13	9	TB203	9	15	
265	↓	↓	↓		TB203	10	15	J204	14	9	
266	10	16	4		J204	17	9	A3TB202	35	21	

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CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

WL | DOCUMENT NO. 40017600 | REV. F

SHEET 16 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS. FIND NO.	REMARKS
267	10	16	4		TB203	3	15	J204	18	9	
268			↑		J204	20	9	TB203	4	15	
269	↑	↑			TB203	7	15	J204	28	9	
270					J204	29	9	TB203	8	15	
271					A4J205	3	18	J204	30	9	
272					J204	35	9	A4TB202	35	21	
273					TB203	4	15	A4J205	1	18	
274					A4J205	20	18	TB203	2	15	
275					TB203	1	15	TOP BUSS BAR	—	23,24	
276	↓				MIDDLE BUSS BAR	—	23,24	TB203	2	(52) 34	
277		↓	↓		TB203	2	(52)	BOTTOM BUSS BAR	—	23,24	
278	10	16	4		TB203	8	15	A4J205	2	18	
279	12	24	4		A3S201	1	16	A17	41	16,17	
280	↑	↑	↑		A4S201	1	16	B17	41	↑	
281					A3DS200	B	27	A17	42		
282					A4DS200	B	27	B17	42		
283	↓	↓	↓		A3S202	C	22	A17	32	↓	
284	12	24	4		A3S202	1	22	A17	44	16,17	

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CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

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REV. F

SHEET 17 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
285	25	24									
285A			0		A3J205	4	20	A3TB202	35	⑦	
285B			4		A3J205	8	20	A3TB202	37	27	
286	25	24									
286A			0		A3TB202	9	27	A3J205	5	20	
286B			4		A3TB202	7	27	A3J205	10	20	
287	25	24									
287A			0		A3J205	7	20	A3TB202	15	27	
287B			4		A3J205	11	20	A3TB202	11	27	
288	25	24									
288A			0		A3TB202	21	27	A3J205	12	20	
288B			4		A3TB202	17	27	A3J205	15	20	
289	25	24									
289A			0		A3J205	13	20	A3TB202	27	27	
289B			4		A3J205	16	20	A3TB202	23	27	
290	25	24									
290A			0		A3TB202	33	27	A3J205	14	20	
290B			4		A3TB202	29	27	A3J205	17	20	

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CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL

DOCUMENT NO. 40017600

REV. F

SHEET 18 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
291	25	24									
291A			0		A3J205	31	20	A11	25	16,17	
291B			4		A3J205	34	20	A11	24	16,17	
292	25	24									
292A			0		IJ202	K	14	A3J205	45	20	
292B			4		IJ202	M	14	A3J205	46	20	
293	25	24									
293A			0		A3J205	48	20	IIJ202	K	14	
293B			4		A3J205	49	20	IIJ202	M	14	
294	25	24									
294A			0		A4J205	4	20	A4TB202	35	⑫	
294B			4		A4J205	8	20	A4TB202	37	27	
295	25	24									
295A			0		A4TB202	9	27	A4J205	5	20	
295B			4		A4TB202	7	27	A4J205	10	20	
296	25	24									
296A			0		A4J205	7	20	A4TB202	15	27	
296B			4		A4J205	11	20	A4TB202	11	27	

FORM AA1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

WL

DOCUMENT NO. 40017600

REV. F

SHEET 19 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
297	25	24									
297A			0		A4TB202	21	27	A4J205	12	20	
297B			4		A4TB202	17	27	A4J205	15	20	
298	25	24									
298A			0		A4J205	13	20	A4TB202	27	27	
298B			4		A4J205	16	20	A4TB202	23	27	
299	25	24									
299A			0		A4TB202	33	27	A4J205	14	20	
299B			4		A4TB202	29	27	A4J205	17	20	
300	25	24									
300A			0		A4J205	31	20	B11	25	16,17	
300B			4		A4J205	34	20	B11	24	16,17	
301	25	24									
301A			0		IJ202	KK	14	A4J205	45	20	
301B			4		IJ202	MM	14	A4J205	46	20	
302	25	24									
302A			0		A4J205	48	20	IIJ202	KK	14	
302B			4		A4J205	49	20	IIJ202	MM	14	

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CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

WL

DOCUMENT NO. 40017600

REV. F

SHEET 20 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
303	25	24									
303A			0		A7	1	16,17	A3TB202	20	27	
303B			4		A7	5	16,17	A3TB202	18	27	
304	25	24									
304A			0		A3TB202	14	27	A7	18	16,17	
304B			4		A3TB202	12	27	A7	17	16,17	
305	25	24									
305A			0		A7	28	16,17	A3TB202	32	27	
305B			4		A7	29	16,17	A3TB202	30	27	
306	25	24									
306A			0		A3TB202	26	27	A7	44	16,17	
306B			4		A3TB202	24	27	A7	45	16,17	
307	25	24									
307A			0		B7	1	16,17	A4TB202	20	27	
307B			4		B7	5	16,17	A4TB202	18	27	
308	25	24									
308A			0		A4TB202	14	27	B7	18	16,17	
308B			4		A4TB202	12	27	B7	17	16,17	

FORM AA 1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL
DOCUMENT NO. 40017600
REV. F
SHEET 21 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
309	25	24									
309A			0		B7	28	16,17	A4TB202	32	27	
309B			4		B7	29	16,17	A4TB202	30	27	
310	25	24									
310A			0		A4TB202	26	27	B7	44	16,17	
310B			4		A4TB202	24	27	B7	45	16,17	
311	12	24	4		A4S202	4	22	B17	26	16,17	
312	12	24	4		J206	$\bar{b}$	20	A18	42	16,17	
313	12	24	4		J206	EE	20	B18	42	16,17	
315	28	20									
315A			SHIELD		A3J205	29	19	A11	28	29,31	
315B			0		A3J205	30	19	A11	26	29,30	
315C			2		A3J205	33	19	A11	18	29,30	
316	28	20									
316A			SHIELD		A4J205	29	19	B11	28	29,31	
316B			0		A4J205	30	19	B11	26	29,30	
316C			2		A4J205	33	19	B11	18	29,30	

FORM AA1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL
DOCUMENT NO. 40017600
REV. F
SHEET 22 OF 22

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
320	33	24									
320A			SHIELD		A3J205	79	19 ㊹	A22	8	16,17	
320B			9		A3J205	80	20	A22	5	16,17	
321	33	24									
321A			SHIELD		A22	8	16,17	A3J205	79	㊹	
321B			9		A22	9	16,17	A3J205	82	20	
322	33	24									
322A			SHIELD		A4J205	79	19 ㊺	B22	8	16,17	
322B			9		A4J205	80	20	B22	5	16,17	
323	33	24									
323A			SHIELD		B22	8	16,17	A4J205	79	㊺	
323B			9		B22	9	16,17	A4J205	82	20	
324	11	20	4		A29	48	29,30	TB203	9	32	
325	11	20	4		TB203	10	32	B29	48	29,30	
326	12	24	4		A3J205	42	20	TB203	2	㊼	
327	↑	↑	↑		A4J205	42	↑	TB203	2	㊼ 35	
328					A3J205	43	↓	J206	$\bar{a}$	20	
329	↓	↓	↓		A4J205	43	20	J206	DD	20	
330	12	24	4		A4S202	05	22	B17	5	16,17	

FORM AA1669

CONTROL DATA CORPORATION
MINNEAPOLIS, MINNESOTA

TITLE		DOCUMENT NO.	REV.
WIRE LIST - LOGIC CHASSIS HARNESS ASSY	WL	70715000	K
PRODUCT MULTIPLE DISK DRIVE		SHEET 1 OF 23	

REVISION STATUS OF SHEETS

REVISIONS

REV.	ECO	DESCRIPTION	DRFT.	DATE	CHKD.	APPD.
A		RELEASED		11-27-65		
B	PM4660	SEE CO	DB	2-18-69	97	2-20-69
C	PM5578	SEE CO	GV	7-10-69	BCH	7-18
D	PM5578A	SEECO	GV	7-10-69	BCH	7-18
E	PE 11118	SEE CO	DS	9-17-69	97	9-18-9
F	11118 A	DWG NO WAS 40017600	DC	12-17-69	97 12/18	I-R
G	PE11451	ADDED NOTE 3 ≠ CHG WL	DC	3/31/70	97	II
H	PE11444	CHG WL 320A ≠ 322A	DC	3/31/70	97	II
J	PE11290	ADDED 331 - 338	DC	3/31/70	97	I-R
K	PE11451A	CHG NOTE 3 ≠ WL	DC	3/31/70	97	II

NOTES:

DN 70715000
DETACHED LISTS

COPIES TO	BY	SD	DATE 10-10	CHKD.	C.M.	DATE 11/11/68	ENGR	7lo

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE		DOCUMENT NO.	REV.
WIRE LISTING	WL	70715000	K
		SHEET 2 OF	

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
1	11	20	4		J204	42	13	J206	M	19	
2	↑	↑	↑		J206	N	19	J204	43	13	
3					J204	45	13	J206	R	19	
4					J206	S	19	J204	46	13	
5					J204	48	9 ①	IJ202	U	13	
6					IIJ202	U	13	J204	48	①	
7					J204	51	13	J206	$\overline{J}$	19	
8					J206	$\overline{k}$	19	J204	52	13	
9					J204	53	13	J206	HH	19	
10					J206	$\overline{m}$	19	J204	54	13	
11					J204	55	13	J206	$\overline{n}$	19	
12					J206	$\overline{P}$	19	J204	56	13	
13					J204	57	13	J206	$\overline{r}$	19	
14					J206	$\overline{s}$	19	J204	58	13	
15					J204	60	13	J206	$\overline{u}$	19	
16					J206	$\overline{v}$	19	J204	62	13	
17					J204	64	9 ②	IJ202	X	13	
18	↓	↓	↓		IIJ202	X	13	J204	64	②	
19	11	20	4		J204	65	9 ③	IJ202	Y	13	

FORM AA1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL
DOCUMENT NO. 70715000
REV. K
SHEET 3 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
20	11	20	4		IIJ202	Y	13	J204	65	③	
21					J204	66	9 ④	IJ202	Z	13	
22	↑	↑	↑		IIJ202	Z	13	J204	66	④	
23					J204	16	13	A4J205	21	19	
24					A3J205	18	19	J204	24	13	
25					J204	26	13	A3J205	21	19	
26					A4J205	18	19	J204	33	13	
27					J204	36	13	J206	E	19	
28					J206	F	19	J204	37	13	
29					J204	39	13	J206	J	19	
30					J206	K	19	J204	40	13	
31					J204	41	13	J206	L	19	
32					J206	T	19	A3J205	25	19	
33					A3J205	32	19	TB203	1	32 ⑤	
34					TB203	3	32	A3J205	35	19	
35					A3J205	36	19	TB203	7	15 (46)	
36	↓	↓	↓		TB203	8	32	A4J205	36	19	
37					A4J205	35	19	TB203	4	32	
38	11	20	4		TB203	2	32 ⑥	A4J205	32	19	

FORM AA 1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL
DOCUMENT NO. 70715000
REV. K
SHEET 4 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
39	11	20	4		A4J205	25	19	J206	w̄	19	
40	↑	↑	↑		A3TB202	35	21 ⑦	A3TB202	33	21 ⑧	
41					A3TB202	33	⑧	A3TB202	27	21 ⑨	
42					A3TB202	27	⑨	A3TB202	21	21 ⑩	
43					A3TB202	21	⑩	A3TB202	15	21 ⑪	
44					A3TB202	15	⑪	A3TB202	9	27	
45					A4TB202	35	21 ⑫	A4TB202	33	21 ⑬	
46					A4TB202	33	⑬	A4TB202	27	21 ⑭	
47					A4TB202	27	⑭	A4TB202	21	21 ⑮	
48					A4TB202	21	⑮	A4TB202	15	21 ⑯	
49					A4TB202	15	⑯	A4TB202	9	27	
50					TB203	3	15 ⑰	A23	46	29,30	
51					A17	46	29,30	TB203	3	⑰	
52					TB203	3	15 ⑱	A11	46	29,30	
53					B23	46	29,30	TB203	4	15 ⑲	
54					TB203	4	⑲	B17	46	29,30	
55	↓	↓	↓		B11	46	29,30	TB203	4	15 (51)	
56					TB203	5	32	A29	46	29,30	
57	11	20	4		B29	46	29,30	TB203	5	32	

FORM AA 1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL
DOCUMENT NO. 70715000
REV. K
SHEET 5 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
58	11	20	4		TB203	5	32	A26	46	29,30	
59	↑	↑	↑		B26	46	29,30	TB203	5	32	
60					TB203	6	32	A29	6	29,30	
61					B29	6	29,30	TB203	6	32	
62					TB203	6	32	A26	6	29,30	
63					B26	6	29,30	TB203	6	32	
64					TB203	7	15 ⑳	A23	6	29,30	
65					A17	6	29,30	TB203	7	15 ㉑	
66					TB203	7	㉑	A11	6	29,30	
67					B23	6	29,30	TB203	8	15 ㉒	
68					TB203	8	15,㊾	B17	6	29,30	
69					B11	6	29,30	TB203	8	㊾	
70					TB203	9	15 ㉓	A23	48	29,30	
71					A17	48	29,30	TB203	9	32	
72					TB203	9	15 ㉔	A10	48	29,30	
73					B23	48	29,30	TB203	10	15 ㉕	
74	↓	↓	↓		TB203	10	15 ㉖	B17	48	29,30	
75					B10	48	29,30	TB203	10	32	
76	11	20	4		TB203	13	15 ㉗	IJ202	R	13	

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL
DOCUMENT NO. 70715000
REV. K
SHEET 6 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
77	11	20	4		IIJ202	R	13	TB203	16	15 ㉘	
78	↑	↑	↑		A3TB202	36	27	A3TB202	6	21 ㉙	
79					A3TB202	6	㉙	TB203	1	15 ㉚	
80					TB203	1	㉚	A4TB202	6	21 ㉛	
81					A4TB202	6	㉛	A4TB202	36	27	
82					TB203	4	(51)	B05	46	29,30	
83					B05	48	29,30	TB203	10	㉖	
84					TB203	3	⑱	A05	46	29,30	
85					A05	48	29,30	TB203	9	㉔	
86					A05	6	29,30	TB203	7	㊻	
87	↓	↓	↓		TB203	8	32	B05	6	29,30	
88					A26	48	29,30	TB203	9	32	
89	11	20	4		TB203	10	32	B26	48	29,30	
90	12	24	4		A3TB204	1	22	J204	44	14	
91	↑	↑	↑		J204	49	13 ㉜	IJ202	V	14	
92					IIJ202	V	14	J204	49	㉜	
93					J204	50	13 ㉝	IJ202	W	14	
94	↓	↓	↓		IIJ202	W	14	J204	50	㉝	
95	12	24	4		J204	59	14	A4TB204	1	22	

FORM AA1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

WL

DOCUMENT NO. 70715000

REV. K

SHEET 7 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
96	12	24	4		A3TP201	–	22	J204	67	14	
97	↑	↑	↑		J204	70	14	A4TP201	–	22	
98					A3J205	39	20	A8	1	23,24	
99					A7	13	23,24	A3J205	23	20	
100					J204	4	14	B7	37	16,17	
101					B8	45	16,17	J204	5	14	
102					J204	7	14	A8	45	16,17	
103					A7	37	16,17	J204	8	14	
104					J204	10	14	J206	Z	20	
105					J206	CC	20	J204	22	14	
106					J204	15	14	A4J205	22	20	
107					J206	H	20	J204	25	14	
108					J204	27	14	A3J205	22	20	
109					A3J205	26	20	A8	2	16,17	
110					A8	1	16,17	A3J205	27	20	
111					A3J205	28	20	A3TB204	2	22	
112	↓	↓	↓		A11	30	16,17	A3J205	37	20	
113					A3J205	38	20	A11	45	16,17	
114	12	24	4		A14	1	16,17	A3J205	47	20	

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

WL

DOCUMENT NO. 70715000

REV. K

SHEET 8 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
115	12	24	4		A3J205	50	20	A14	8	16,17	
116					A17	16	16,17	A3J205	51	20	
117	↑	↑	↑		A3J205	52	20	A14	20	16,17	
118					A14	42	16,17	A3J205	53	20	
119					A3J205	54	20	A14	37	16,17	
120					A14	36	16,17	A3J205	55	20	
121					A3J205	56	20	A15	42	16,17	
122					A15	45	16,17	A3J205	57	20	
123					A3J205	58	20	A15	9	16,17	
124					A15	29	16,17	A3J205	59	20	
125					A3J205	60	20	A15	24	16,17	
126					A15	13	16,17	A3J205	62	20	
127					A3J205	63	20	A15	22	16,17	
128					A15	40	16,17	A3J205	64	20	
129					A3J205	65	20	A15	33	16,17	
130					A15	14	16,17	A3J205	66	20	
131	↓	↓	↓		A3J205	67	20	A15	28	16,17	
132					A15	34	16,17	A3J205	70	20	
133	12	24	4		A3J205	71	20	A15	12	16,17	

FORM AA1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

WL
DOCUMENT NO. 70715000
REV. K
SHEET 9 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
134	12	24	4		A15	21	16,17	A3J205	72	20	
135					A3J205	73	20	A15	20	16,17	
136					A15	38	16,17	A3J205	74	20	
137					A3J205	75	20	A15	36	16,17	
138					A15	16	16,17	A3J205	76	20	
139					A3J205	77	20	A15	17	16,17	
140					A15	25	16,17	A3J205	78	20	
141					A4J205	39	20	B8	1	16,17	
142					B7	13	16,17	A4J205	23	20	
143					A4J205	24	20	J206	$\overline{d}$	20	
144					A4J205	26	20	B8	2	16,17	
145					B8	1	16,17	A4J205	27	20	
146					A4J205	28	20	A4TB204	2	22	
147					B11	30	16,17	A4J205	37	20	
148					A4J205	38	20	B11	45	16,17	
149					B14	1	16,17	A4J205	47	20	
150					A4J205	50	20	B14	8	16,17	
151					B17	16	16,17	A4J205	51	20	
152	12	24	4		A4J205	52	20	B14	20	16,17	

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

WL
DOCUMENT NO. 70715000
REV. K
SHEET 10 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
153	12	24	4		B14	42	16,17	A4J205	53	20	
154					A4J205	54	20	B14	37	16,17	
155					B14	36	16,17	A4J205	55	20	
156					A4J205	56	20	B15	42	16,17	
157					B15	45	16,17	A4J205	57	20	
158					A4J205	58	20	B15	9	16,17	
159					B15	29	16,17	A4J205	59	20	
160					A4J205	60	20	B15	24	16,17	
161					B15	13	16,17	A4J205	62	20	
162					A4J205	63	20	B15	22	16,17	
163					B15	40	16,17	A4J205	64	20	
164					A4J205	65	20	B15	33	16,17	
165					B15	14	16,17	A4J205	66	20	
166					A4J205	67	20	B15	28	16,17	
167					B15	34	16,17	A4J205	70	20	
168					A4J205	71	20	B15	12	16,17	
169					B15	21	16,17	A4J205	72	20	
170					A4J205	73	20	B15	20	16,17	
171	12	24	4		B15	38	16,17	A4J205	74	20	

FORM AA1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL
DOCUMENT NO. 70715000
REV. K
SHEET 11 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
172	12	24	4		A4J205	75	20	B15	36	16,17	
173	↑	↑	↑		B15	16	16,17	A4J205	76	20	
174					A4J205	77	20	B15	17	16,17	
175					B15	25	16,17	A4J205	78	20	
176					J206	B	20	A17	34	16,17	
177					A17	08	16,17	J206	D	20	
178					J206	C	20	TB203	3	32 ㉞	
179					TB203	1	32 ㉟	J206	U	20	
180					J206	V	20	A19	1	16,17	
181					A19	20	16,17	J206	W	20	
182					J206	X	20	A19	33	16,17	
183					A19	45	16,17	J206	Y	20	
184					J206	P	20	A3TB204	3	22	
185					A4TB204	3	22	J206	$\overline{t}$	20	
186					J206	$\overline{h}$	20	B17	08	16,17	
187					B17	34	16,17	J206	$\overline{e}$	20	
188	↓	↓	↓		J206	$\overline{f}$	20	TB203	4	32 ㊱	
189					TB203	2	32 ㊲	J206	$\overline{x}$	20	
190	12	24	4		J206	$\overline{y}$	20	B19	1	16,17	

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL
DOCUMENT NO. 70715000
REV. K
SHEET 12 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
191	12	24	4		B19	20	16,17	J206	$\overline{z}$	20	
192	↑	↑	↑		J206	AA	20	B19	33	16,17	
193					B19	45	16,17	J206	BB	20	
194					A3TB202	7	21, ㊽	A3TB202	2	27	
195					A3TB202	5	21 ㊳	A3TB202	1	27	
196					A3TB202	30	27	A3TB202	31	27	
197					A3TB202	24	27	A3TB202	25	27	
198					A3TB202	18	27	A3TB202	19	27	
199					A3TB202	12	27	A3TB202	13	27	
200					A3TB202	34	27	A3TB202	31	27	
201					A3TB202	28	27	A3TB202	25	27	
202					A3TB202	22	27	A3TB202	19	27	
203					A3TB202	16	27	A3TB202	14	27	
204					A3TB202	5	㊳	A3TB202	8	27	
205					A3TB202	7	㊽	A3TB202	10	27	
206					A4TB202	7	21, ㊾	A4TB202	2	27	
207	↓	↓	↓		A4TB202	5	21 ㊴	A4TB202	1	27	
208					A4TB202	30	27	A4TB202	31	27	
209	12	24	4		A4TB202	24	27	A4TB202	25	27	

FORM AA1669

CONTROL DATA

MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

WL

DOCUMENT NO. 70715000

REV. K

SHEET 13 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
210	12	24	4		A4TB202	18	27	A4TB202	19	27	
211	↑	↑	↑		A4TB202	12	27	A4TB202	13	27	
212					A4TB202	34	27	A4TB202	31	27	
213					A4TB202	28	27	A4TB202	25	27	
214					A4TB202	22	27	A4TB202	19	27	
215					A4TB202	16	27	A4TB202	14	27	
216					A4TB202	5	39	A4TB202	8	27	
217					A4TB202	7	49	A4TB202	10	27	
218					TB203	1	5	A3TP200	—	22	
219					A3TP203	—	22	TB203	3	34	
220					TB203	2	6	A4TP200	—	22	
221					A4TP203	—	22	TB203	4	36	
222					TB203	7	20	A3TP204	—	22	
223					A3TP202	—	22	TB203	9	23	
224					TB203	8	22	A4TP204	—	22	
225					A4TP202	—	22	TB203	10	25	
226	↓	↓	↓		TB203	13	15 27	IJ202	N	14	
227					IJ200	80	20	TB203	13	32 40	
228	12	24	4		TB203	13	40	IJ201	80	20	

CONTROL DATA

MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

WL

DOCUMENT NO. 70715000

REV. K

SHEET 14 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
229	12	24	4		A30	2	16,17	TB203	13	32 41	
230	↑	↑	↑		TB203	13	41	A30	50	16,17	
231					IIJ202	N	14	TB203	16	28	
232					TB203	16	32 42	IIJ200	80	20	
233					IIJ201	80	20	TB203	16	42	
234					TB203	16	32 43	B30	2	16,17	
235					B30	50	16,17	TB203	16	43	
236					TB203	1	35	A3TB204	7	22	
237					A3TB204	4	22	A14	45	16,17	
238					B14	45	16,17	A4TB204	4	22	
239					A4TB204	7	22	TB203	2	37	
240					A3TB202	36	27	A3TB202	37	27	
241					A4TB202	36	27	A4TB202	37	27	
242					A22	25	16,17	A3J205	40	20	
243					A3J205	41	20	A22	18	6,17	
244					B22	25	16,17	A4J205	40	20	
245	↓	↓	↓		A4J205	41	20	B22	18	16,17	
246					A3J205	24	20	J206	A	20	
247	12	24	4		A4S202	3	22	B17	9	16,17	

FORM AA1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

WL

DOCUMENT NO. 70715000

REV. K

SHEET 15 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
248	12	24	4		A3S202	2	22	A17	33	16,17	
249	↑	↑	↑		A3S202	3	↑	A17	9	↑	
250					A3S202	4		A17	26		
251					A3S202	5		A17	5		
252					A4S202	C		B17	32		
253	↓	↓	↓		A4S202	1	↓	B17	44	↓	
254	12	24	4		A4S202	2	22	B17	33	16,17	
255	10	16	4		A3J205	1	18	TB203	3	15	
256	↑	↑	↑		TB203	7	15	A3J205	2	18	
257					A3J205	3	18	J204	21	9	
258					A3J205	20	18	TB203	1	34,50	
259					TB203	1	50	J204	1	9	
260					J204	2	9	TB203	1	15	
261					TB203	2	15	J204	3	9	
262					J204	11	9	TB203	6	15	
263					TB203	5	15	J204	12	9	
264	↓	↓	↓		J204	13	9	TB203	9	15	
265					TB203	10	15	J204	14	9	
266	10	16	4		J204	17	9	A3TB202	35	21	

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

WL

DOCUMENT NO. 70715000

REV. K

SHEET 16 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
267	10	16	4		TB203	3	15	J204	18	9	
268					J204	20	9	TB203	4	15	
269	↑	↑	↑		TB203	7	15	J204	28	9	
270					J204	29	9	TB203	8	15	
271					A4J205	3	18	J204	30	9	
272					J204	35	9	A4TB202	35	21	
273					TB203	4	15	A4J205	1	18	
274					A4J205	20	18	TB203	2	15	
275					TB203	1	15	TOP BUSS BAR	—	23,24	
276	↓	↓	↓		MIDDLE BUSS BAR	—	23,24	TB203	2	52 34	
277					TB203	2	52	BOTTOM BUSS BAR	—	23,24	
278	10	16	4		TB203	8	15	A4J205	2	18	
279	12	24	4		A3S201	1	16	A17	41	16,17	
280	↑	↑	↑		A4S201	1	16	B17	41	↑	
281					A3DS200	B	27	A17	42		
282					A4DS200	B	27	B17	42		
283	↓	↓	↓		A3S202	C	22	A17	32	↓	
284	12	24	4		A3S202	1	22	A17	44	16,17	

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL
DOCUMENT NO. 70715000
REV. K
SHEET 17 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
285	25	24									
285A			0		A3J205	4	20	A3TB202	35	⟨7⟩	
285B			4		A3J205	8	20	A3TB202	37	27	
286	25	24									
286A			0		A3TB202	9	27	A3J205	5	20	
286B			4		A3TB202	7	27	A3J205	10	20	
287	25	24									
287A			0		A3J205	7	20	A3TB202	15	27	
287B			4		A3J205	11	20	A3TB202	11	27	
288	25	24									
288A			0		A3TB202	21	27	A3J205	12	20	
288B			4		A3TB202	17	27	A3J205	15	20	
289	25	24									
289A			0		A3J205	13	20	A3TB202	27	27	
289B			4		A3J205	16	20	A3TB202	23	27	
290	25	24									
290A			0		A3TB202	33	27	A3J205	14	20	
290B			4		A3TB202	29	27	A3J205	17	20	

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL
DOCUMENT NO. 70715000
REV. K
SHEET 18 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
291	25	24									
291A			0		A3J205	31	20	A11	25	16,17	
291B			4		A3J205	34	20	A11	24	16,17	
292	25	24									
292A			0		IJ202	K	14	A3J205	45	20	
292B			4		IJ202	M	14	A3J205	46	20	
293	25	24									
293A			0		A3J205	48	20	IIJ202	K	14	
293B			4		A3J205	49	20	IIJ202	M	14	
294	25	24									
294A			0		A4J205	4	20	A4TB202	35	⟨12⟩	
294B			4		A4J205	8	20	A4TB202	37	27	
295	25	24									
295A			0		A4TB202	9	27	A4J205	5	20	
295B			4		A4TB202	7	27	A4J205	10	20	
296	25	24									
296A			0		A4J205	7	20	A4TB202	15	27	
296B			4		A4J205	11	20	A4TB202	11	27	

FORM AA1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL
DOCUMENT NO. 70715000
REV. K
SHEET 20 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
303	25	24									
303A			0		A7	1	16,17	A3TB202	20	27	
303B			4		A7	5	16,17	A3TB202	18	27	
304	25	24									
304A			0		A3TB202	14	27	A7	18	16,17	
304B			4		A3TB202	12	27	A7	17	16,17	
305	25	24									
305A			0		A7	28	16,17	A3TB202	32	27	
305B			4		A7	29	16,17	A3TB202	30	27	
306	25	24									
306A			0		A3TB202	26	27	A7	44	16,17	
306B			4		A3TB202	24	27	A7	45	16,17	
307	25	24									
307A			0		B7	1	16,17	A4TB202	20	27	
307B			4		B7	5	16,17	A4TB202	18	27	
308	25	24									
308A			0		A4TB202	14	27	B7	18	16,17	
308B			4		A4TB202	12	27	B7	17	16,17	

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL
DOCUMENT NO. 70715000
REV. K
SHEET 19 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
297	25	24									
297A			0		A4TB202	21	27	A4J205	12	20	
297B			4		A4TB202	17	27	A4J205	15	20	
298	25	24									
298A			0		A4J205	13	20	A4TB202	27	27	
298B			4		A4J205	16	20	A4TB202	23	27	
299	25	24									
299A			0		A4TB202	33	27	A4J205	14	20	
299B			4		A4TB202	29	27	A4J205	17	20	
300	25	24									
300A			0		A4J205	31	20	B11	25	16,17	
300B			4		A4J205	34	20	B11	24	16,17	
301	25	24									
301A			0		IJ202	KK	14	A4J205	45	20	
301B			4		IJ202	MM	14	A4J205	46	20	
302	25	24									
302A			0		A4J205	48	20	IIJ202	KK	14	
302B			4		A4J205	49	20	IIJ202	MM	14	

FORM AA1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL DOCUMENT NO. 70715000 REV. K

SHEET 21 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
309	25	24									
309A			0		B7	28	16,17	A4TB202	32	27	
309B			4		B7	29	16,17	A4TB202	30	27	
310	25	24									
310A			0		A4TB202	26	27	B7	44	16,17	
310B			4		A4TB202	24	27	B7	45	16,17	
311	12	24	4		A4S202	4	22	B17	26	16,17	
312	12	24	4		J206	$\overline{b}$	20	A18	42	16,17	
313	12	24	4		J206	EE	20	B18	42	16,17	
315	28	20									
315A			SHIELD		A3J205	29	19	A11	28	29,31	
315B			0		A3J205	30	19	A11	26	29,30	
315C			2		A3J205	33	19	A11	18	29,30	
316	28	20									
316A			SHIELD		A4J205	29	19	B11	28	29,31	
316B			0		A4J205	30	19	B11	26	29,30	
316C			2		A4J205	33	19	B11	18	29,30	

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL DOCUMENT NO. 70715000 REV. K

SHEET 22 OF 23

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
320	33	24									
320A			SHIELD		A3J205	79	36,37 19 44	A22	10	36,37 16,17	
320B			9		A3J205	80	12,20	A22	5	12 16,17	
321	33	24									
321A			SHIELD		A22	8	36,37 16,17	A3J205	79	36,37 44	
321B			9		A22	9	12 16,17	A3J205	82	20,12	
322	33	24									
322A			SHIELD		A4J205	79	36,37 19 45	B22	10	36,37 16,17	
322B			9		A4J205	80	12,20	B22	5	12 16,17	
323	33	24									
323A			SHIELD		B22	8	36,37 16,17	A4J205	79	36,37 45	
323B			9		B22	9	12 16,17	A4J205	82	20,12	
324	11	20	4		A29	48	29,30	TB203	9	32	
325	11	20	4		TB203	10	32	B29	48	29,30	
326	12	24	4		A3J205	42	20	TB203	2	47	
327	↕	↕	↕		A4J205	42	↕	TB203	2	47 35	
328					A3J205	43		J206	$\overline{a}$	20	
329					A4J205	43	20	J206	DD	20	
330	12	24	4		A4S202	05	22	B17	5	16,17	

FORM AA1669

CONTROL DATA	NORMANDALE OPERATIONS	CODE IDENT 19333	SHEET 23 OF 23	WL	DOCUMENT NO. [illegible]	REV. K

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
331	12	24	4		A3TB202	39	21 ⟨53⟩	A3S200	A1	22	
332	↑	↑	↑		A3TB202	39	⟨53⟩	A18	28	16,17	
333					A3TB202	38	27	A25	26	16,17	
334					A3TB202	40	27	B25	26	16,17	
335					A4TB202	39	21 ⟨54⟩	A4S200	A1	22	
336					A4TB202	39	⟨54⟩	B18	28	16,17	
337	↓	↓	↓		A4TB202	38	27	A25	34	16,17	
338	12	24	4		A4TB202	40	27	B25	34	16,17	

CORPORATION	WIRING (Corrections)	CODE IDENT	SHEET	WL	DOCUMENT NO.	REV.

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE WIRE LIST - LOGIC CHASSIS HARNESS ASSY	WL	DOCUMENT NO. 72971100	REV. N
PRODUCT MULTIPLE DISK DRIVE		SHEET 1 OF 23	

REVISION STATUS OF SHEETS

REVISIONS

REV.	ECO	DESCRIPTION	DRFT.	DATE	CHKD.	APPD.
A		RELEASED		11-27-61		
B	PM4660	SEE CO	DB	2-18-69	97	2-21-69
C	PM5578	SEE CO	GV	7-10-69	DCH	7-18
D	PM5578A	SEE CO	GV	7-10-69	DCH	7-18
E	PE 11118	SEE CO	DS	9-17-69	97	9-18-9
F	11118 A	DWG NO WAS 40017600	DC	12-17-69	97 12/18	I-R
G	PE11451	ADDED NOTE 3 & CHG WL	DC	3/31/70	97	II
H	PE11444	CHG WL 320A & 322A	DC	3/31/70	97	II
J	PE11290	ADDED 331 - 338	DC	3/31/70	97	I-R
K	PE11451A	CHG NOTE 3 & WL	DC	3/31/70	97	II
L	PE21296	DWG No. WAS 70715000	KC	6/26/70	97	I-R
M	PE21253	CHG COND IDENT.'S 52,55,66-69	EW	10-12-70	97	INR
N	PE21594	CHG WIRE GAUGE SHT 23	EW	10-12-70	97	II

NOTES:

1. A HEXAGON IN THE ACCESS FIND NO. COLUMN INDICATES THAT THE CONDUCTOR IS ONE OF SEVERAL (ALL WITH THE SAME NUMBER IN THE HEXAGON) GOING INTO THE SAME TERMINAL. THE NUMBER IN FRONT OF A HEXAGON IS THE TERMINAL FIND NO.
2. FOR MECH ASSY AND PL SEE 70821200.
3. CRIMP FIND NO 12 TO THE CONDUCTOR AND FIND NO 37 TO THE SHIELD USING FIND NO 36. THEN TERMINATE BOTH JUMPERS USING FIND NO'S INDICATED IN ACCESS FIND NO. COLUMN.

△ FIND NO'S & ACCESS F/N'S SHALL BE FOUND ON FILTER BOARD PL 70616100 FOR COND INDENT 340 THRU 349.

DN 72971100
DETACHED LISTS

COPIES TO				BY	SD	DATE 10-10	CHKD.	C.M.	DATE 11/11/68	ENGR	7/06

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE WIRE LISTING	WL	DOCUMENT NO. 72971100	REV. N
		SHEET 2 OF	

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
1	11	20	4		J204	42	13	J206	M	19	
2	↑	↑	↑		J206	N	19	J204	43	13	
3					J204	45	13	J206	R	19	
4					J206	S	19	J204	46	13	
5					J204	48	9 ①	IJ202	U	13	
6					IIJ202	U	13	J204	48	①	
7					J204	51	13	J206	$\overline{J}$	19	
8					J206	$\overline{k}$	19	J204	52	13	
9					J204	53	13	J206	HH	19	
10					J206	$\overline{m}$	19	J204	54	13	
11					J204	55	13	J206	$\overline{n}$	19	
12					J206	$\overline{P}$	19	J204	56	13	
13					J204	57	13	J206	$\overline{r}$	19	
14					J206	$\overline{s}$	19	J204	58	13	
15					J204	60	13	J206	$\overline{u}$	19	
16					J206	$\overline{v}$	19	J204	62	13	
17	↓	↓	↓		J204	64	9 ②	IJ202	X	13	
18					IIJ202	X	13	J204	64	②	
19	11	20	4		J204	65	9 ③	IJ202	Y	13	

FORM 6A ICCP

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL
DOCUMENT NO. 72971100
REV. N
SHEET 3 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
20	11	20	4		IIJ202	Y	13	J204	65	③	
21	↑	↑	↑		J204	66	9 ④	IJ202	Z	13	
22					IIJ202	Z	13	J204	66	④	
23					J204	16	13	A4J205	21	19	
24					A3J205	18	19	J204	24	13	
25					J204	26	13	A3J205	21	19	
26					A4J205	18	19	J204	33	13	
27					J204	36	13	J206	E	19	
28					J206	F	19	J204	37	13	
29					J204	39	13	J206	J	19	
30					J206	K	19	J204	40	13	
31					J204	41	13	J206	L	19	
32					J206	T	19	A3J205	25	19	
33					A3J205	32	19	TB203	1	32 ⑤	
34					TB203	3	32	A3J205	35	19	
35					A3J205	36	19	TB203	7	15 ㊻	
36	↓	↓	↓		TB203	8	32	A4J205	36	19	
37					A4J205	35	19	TB203	4	32	
38	11	20	4		TB203	2	32 ⑥	A4J205	32	19	

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING

WL
DOCUMENT NO. 72971100
REV. N
SHEET 4 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
39	11	20	4		A4J205	25	19	J206	W	19	
40	↑	↑	↑		A3TB202	35	21 ⑦	A3TB202	33	21 ⑧	
41					A3TB202	33	⑧	A3TB202	27	21 ⑨	
42					A3TB202	27	⑨	A3TB202	21	21 ⑩	
43					A3TB202	21	⑩	A3TB202	15	21 ⑪	
44					A3TB202	15	⑪	A3TB202	9	27	
45					A4TB202	35	21 ⑫	A4TB202	33	21 ⑬	
46					A4TB202	33	⑬	A4TB202	27	21 ⑭	
47					A4TB202	27	⑭	A4TB202	21	21 ⑮	
48					A4TB202	21	⑮	A4TB202	15	21 ⑯	
49					A4TB202	15	⑯	A4TB202	9	27	
50					TB203	3	15 ⑰	A23	46	29,30	
51					A17	46	29,30	TB203	3	⑰	
52					TB203	3	15 ⑱	A10	46	29,30	
53					B23	46	29,30	TB203	4	15 ⑲	
54					TB203	4	⑲	B17	46	29,30	
55	↓	↓	↓		B10	46	29,30	TB203	4	15 (51)	
56					TB203	5	32	A29	46	29,30	
57	11	20	4		B29	46	29,30	TB203	5	32	

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CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX.)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
58	11	20	4		TB203	5	32	A26	46	29,30	
59					B26	46	29,30	TB203	5	32	
60	↑	↑	↑		TB203	6	32	A29	6	29,30	
61					B29	6	29,30	TB203	6	32	
62					TB203	6	32	A26	6	29,30	
63					B26	6	29,30	TB203	6	32	
64					TB203	7	15 ⑳	A23	6	29,30	
65					A17	6	29,30	TB203	7	15 ㉑	
66					TB203	7	㉑	A10	6	29,30	
67					B23	6	29,30	TB203	8	34 ㉒	
68					TB203	8	15,㊾	B17	6	29,30	
69					B10	6	29,30	TB203	8	㊾	
70					TB203	9	15 ㉓	A23	48	29,30	
71					A17	48	29,30	TB203	9	32	
72					TB203	9	15 ㉔	A10	48	29,30	
73					B23	48	29,30	TB203	10	15 ㉕	
74	↓	↓	↓		TB203	10	15 ㉖	B17	48	29,30	
75					B10	48	29,30	TB203	10	32	
76	11	20	4		TB203	13	15 ㉗	IJ202	R	13	

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CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX.)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
77	11	20	4		IIJ202	R	13	TB203	16	15 ㉘	
78	↑	↑	↑		A3TB202	36	27	A3TB202	6	21 ㉙	
79					A3TB202	6	㉙	TB203	1	15 ㉚	
80					TB203	1	㉚	A4TB202	6	21 ㉛	
81					A4TB202	6	㉛	A4TB202	36	27	
82					TB203	4	(51)	B05	46	29,30	
83					B05	48	29,30	TB203	10	㉖	
84					TB203	3	⑱	A05	46	29,30	
85					A05	48	29,30	TB203	9	㉔	
86					A05	6	29,30	TB203	7	㊻	
87	↓	↓	↓		TB203	8	㉒	B05	6	29,30	
88					A26	48	29,30	TB203	9	㉓	
89	11	20	4		TB203	10	㉕	B26	48	29,30	
90	12	24	4		A3TB204	1	22	J204	44	14	
91	↑	↑	↑		J204	49	13 ㉜	IJ202	V	14	
92					IIJ202	V	14	J204	49	㉜	
93					J204	50	13 ㉝	IJ202	W	14	
94	↓	↓	↓		IIJ202	W	14	J204	50	㉝	
95	12	24	4		J204	59	14	A4TB204	1	22	

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CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
96	12	24	4		A3TP201	–	22	J204	67	14	
97	↑	↑	↑		J204	70	14	A4TP201	–	22	
98					A3J205	39	20	A8	1	23,24	
99					A7	13	23,24	A3J205	23	20	
100					J204	4	14	B7	37	16,17	
101					B8	45	16,17	J204	5	14	
102					J204	7	14	A8	45	16,17	
103					A7	37	16,17	J204	8	14	
104					J204	10	14	J206	Z	20	
105					J206	CC	20	J204	22	14	
106					J204	15	14	A4J205	22	20	
107					J206	H	20	J204	25	14	
108					J204	27	14	A3J205	22	20	
109					A3J205	26	20	A8	2	16,17	
110					A8	1	16,17	A3J205	27	20	
111					A3J205	28	20	A3TB204	2	22	
112	↓	↓	↓		A11	30	16,17	A3J205	37	20	
113					A3J205	38	20	A11	45	16,17	
114	12	24	4		A14	1	16,17	A3J205	47	20	

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CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
115	12	24	4		A3J205	50	20	A14	8	16,17	
116	↑	↑	↑		A17	16	16,17	A3J205	51	20	
117					A3J205	52	20	A14	20	16,17	
118					A14	42	16,17	A3J205	53	20	
119					A3J205	54	20	A14	37	16,17	
120					A14	36	16,17	A3J205	55	20	
121					A3J205	56	20	A15	42	16,17	
122					A15	45	16,17	A3J205	57	20	
123					A3J205	58	20	A15	9	16,17	
124					A15	29	16,17	A3J205	59	20	
125					A3J205	60	20	A15	24	16,17	
126					A15	13	16,17	A3J205	62	20	
127					A3J205	63	20	A15	22	16,17	
128					A15	40	16,17	A3J205	64	20	
129					A3J205	65	20	A15	33	16,17	
130					A15	14	16,17	A3J205	66	20	
131	↓	↓	↓		A3J205	67	20	A15	28	16,17	
132					A15	34	16,17	A3J205	70	20	
133	12	24	4		A3J205	71	20	A15	12	16,17	

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CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
134	12	24	4		A15	21	16,17	A3J205	72	20	
135	↑	↑	↑		A3J205	73	20	A15	20	16,17	
136					A15	38	16,17	A3J205	74	20	
137					A3J205	75	20	A15	36	16,17	
138					A15	16	16,17	A3J205	76	20	
139					A3J205	77	20	A15	17	16,17	
140					A15	25	16,17	A3J205	78	20	
141					A4J205	39	20	B8	1	16,17	
142					B7	13	16,17	A4J205	23	20	
143					A4J205	24	20	J206	d	20	
144					A4J205	26	20	B8	2	16,17	
145					B8	1	16,17	A4J205	27	20	
146					A4J205	28	20	A4TB204	2	22	
147					B11	30	16,17	A4J205	37	20	
148					A4J205	38	20	B11	45	16,17	
149					B14	1	16,17	A4J205	47	20	
150	↓	↓	↓		A4J205	50	20	B14	8	16,17	
151					B17	16	16,17	A4J205	51	20	
152	12	24	4		A4J205	52	20	B14	20	16,17	

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CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
153	12	24	4		B14	42	16,17	A4J205	53	20	
154	↑	↑	↑		A4J205	54	20	B14	37	16,17	
155					B14	36	16,17	A4J205	55	20	
156					A4J205	56	20	B15	42	16,17	
157					B15	45	16,17	A4J205	57	20	
158					A4J205	58	20	B15	9	16,17	
159					B15	29	16,17	A4J205	59	20	
160					A4J205	60	20	B15	24	16,17	
161					B15	13	16,17	A4J205	62	20	
162					A4J205	63	20	B15	22	16,17	
163					B15	40	16,17	A4J205	64	20	
164					A4J205	65	20	B15	33	16,17	
165					B15	14	16,17	A4J205	66	20	
166					A4J205	67	20	B15	28	16,17	
167					B15	34	16,17	A4J205	70	20	
168					A4J205	71	20	B15	12	16,17	
169	↓	↓	↓		B15	21	16,17	A4J205	72	20	
170					A4J205	73	20	B15	20	16,17	
171	12	24	4		B15	38	16,17	A4J205	74	20	

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CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
172	12	24	4		A4J205	75	20	B15	36	16,17	
173	↑	↑	↑		B15	16	16,17	A4J205	76	20	
174					A4J205	77	20	B15	17	16,17	
175					B15	25	16,17	A4J205	78	20	
176					J206	B	20	A17	34	16,17	
177					A17	08	16,17	J206	D	20	
178					J206	C	20	TB203	3	34 ㉞	
179					TB203	1	32 ㉟	J206	U	20	
180					J206	V	20	A19	1	16,17	
181					A19	20	16,17	J206	W	20	
182					J206	X	20	A19	33	16,17	
183					A19	45	16,17	J206	Y	20	
184					J206	P	20	A3TB204	3	22	
185					A4TB204	3	22	J206	$\overline{t}$	20	
186					J206	$\overline{h}$	20	B17	08	16,17	
187					B17	34	16,17	J206	$\overline{e}$	20	
188					J206	$\overline{f}$	20	TB203	4	34 ㊱	
189	↓	↓	↓		TB203	2	34 ㊲	J206	$\overline{x}$	20	
190	12	24	4		J206	$\overline{y}$	20	B19	1	16,17	

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CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
191	12	24	4		B19	20	16,17	J206	$\overline{z}$	20	
192					J206	AA	20	B19	33	16,17	
193	↑	↑	↑		B19	45	16,17	J206	BB	20	
194					A3TB202	7	21,㊽	A3TB202	2	27	
195					A3TB202	5	21 ㊳	A3TB202	1	27	
196					A3TB202	30	27	A3TB202	31	27	
197					A3TB202	24	27	A3TB202	25	27	
198					A3TB202	18	27	A3TB202	19	27	
199					A3TB202	12	27	A3TB202	13	27	
200					A3TB202	34	27	A3TB202	31	27	
201					A3TB202	28	27	A3TB202	25	27	
202					A3TB202	22	27	A3TB202	19	27	
203					A3TB202	16	27	A3TB202	14	27	
204					A3TB202	5	㊳	A3TB202	8	27	
205					A3TB202	7	㊽	A3TB202	10	27	
206					A4TB202	7	21,㊾	A4TB202	2	27	
207					A4TB202	5	21 ㊴	A4TB202	1	27	
208	↓	↓	↓		A4TB202	30	27	A4TB202	31	27	
209	12	24	4		A4TB202	24	27	A4TB202	25	27	

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CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
210	12	24	4		A4TB202	18	27	A4TB202	19	27	
211	↑	↑	↑		A4TB202	12	27	A4TB202	13	27	
212					A4TB202	34	27	A4TB202	31	27	
213					A4TB202	28	27	A4TB202	25	27	
214					A4TB202	22	27	A4TB202	19	27	
215					A4TB202	16	27	A4TB202	14	27	
216					A4TB202	5	39	A4TB202	8	27	
217					A4TB202	7	49	A4TB202	10	27	
218					TB203	1	5	A3TP200	—	22	
219					A3TP203	—	22	A11	46	16,17	
220					TB203	2	6	A4TP200	—	22	
221					A4TP203	—	22	B11	46	16,17	
222					A11	6	16,17	A3TP204	—	22	
223					A3TP202	—	22	A11	48	16,17	
224					B11	6	16,17	A4TP204	—	22	
225					A4TP202	—	22	B11	48	16,17	
226			↓		TB203	13	15 27	IJ202	N	14	
227	↓	↓			IJ200	80	20	TB203	13	32 40	
228	12	24	4		TB203	13	40	IJ201	80	20	

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CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
229	12	24	4		A30	2	16,17	TB203	13	32 41	
230	↑	↑	↑		TB203	13	41	A30	50	16,17	
231					IIJ202	N	14	TB203	16	28	
232					TB203	16	32 42	IIJ200	80	20	
233					IIJ201	80	20	TB203	16	43	
234					TB203	16	32 43	B30	2	16,17	
235					B30	50	16,17	TB203	16	43	
236					TB203	1	35	A3TB204	7	22	
237					A3TB204	4	22	A14	45	16,17	
238					B14	45	16,17	A4TB204	4	22	
239					A4TB204	7	22	TB203	2	37	
240					A3TB202	36	27	A3TB202	37	27	
241					A4TB202	36	27	A4TB202	37	27	
242					A22	25	16,17	A3J205	40	20	
243					A3J205	41	20	A22	18	6,17	
244					B22	25	16,17	A4J205	40	20	
245	↓	↓	↓		A4J205	41	20	B22	18	16,17	
246					A3J205	24	20	J206	A	20	
247	12	24	4		A4S202	3	22	B17	9	16,17	

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CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
248	12	24	4		A3S202	2	22	A17	33	16,17	
249	↑	↑	↑		A3S202	3	↑	A17	9	↑	
250					A3S202	4		A17	26		
251					A3S202	5		A17	5		
252					A4S202	C		B17	32		
253	↓	↓	↓		A4S202	1	↓	B17	44	↓	
254	12	24	4		A4S202	2	22	B17	33	16,17	
255	10	16	4		A3J205	1	18	TB203	3	15	
256					TB203	7	15	A3J205	2	18	
257	↑	↑	↑		A3J205	3	18	J204	21	9	
258					A3J205	20	18	TB203	1	34,(50)	
259					TB203	1	(50)	J204	1	9	
260					J204	2	9	TB203	1	~~34~~,(52)	
261					TB203	2	15	J204	3	9	
262					J204	11	9	TB203	6	15	
263					TB203	5	15	J204	12	9	
264	↓	↓	↓		J204	13	9	TB203	9	15	
265					TB203	10	15	J204	14	9	
266	10	16	4		J204	17	9	A3TB202	35	21	

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CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
267	10	16	4		TB203	3	(34)	J204	18	9	
268	↑	↑	↑		J204	20	9	TB203	4	(36)	
269					TB203	7	15	J204	28	9	
270					J204	29	9	TB203	8	15	
271					A4J205	3	18	J204	30	9	
272					J204	35	9	A4TB202	35	21	
273					TB203	4	15	A4J205	1	18	
274					A4J205	20	18	TB203	2	(37)	
275					TB203	1	(52)	TOP BUSS BAR	—	23,24	
276	↓	↓	↓		MIDDLE BUSS BAR	—	23,24	TB203	2	(52) 34	
277					TB203	2	(52)	BOTTOM BUSS BAR	—	23,24	
278	10	16	4		TB203	8	15	A4J205	2	18	
279	12	24	4		A3S201	1	16	A17	41	16,17	
280	↑	↑			A4S201	1	16	B17	41	↑	
281			↑		A3DS200	B	27	A17	42		
282			↓		A4DS200	B	27	B17	42		
283	↓	↓			A3S202	C	22	A17	32	↓	
284	12	24	4		A3S202	1	22	A17	44	16,17	

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CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
285	25	24									
285A			0		A3J205	4	20	A3TB202	35	⑦	
285B			4		A3J205	8	20	A3TB202	37	27	
286	25	24									
286A			0		A3TB202	9	27	A3J205	5	20	
286B			4		A3TB202	7	27	A3J205	10	20	
287	25	24									
287A			0		A3J205	7	20	A3TB202	15	27	
287B			4		A3J205	11	20	A3TB202	11	27	
288	25	24									
288A			0		A3TB202	21	27	A3J205	12	20	
288B			4		A3TB202	17	27	A3J205	15	20	
289	25	24									
289A			0		A3J205	13	20	A3TB202	27	27	
289B			4		A3J205	16	20	A3TB202	23	27	
290	25	24									
290A			0		A3TB202	33	27	A3J205	14	20	
290B			4		A3TB202	29	27	A3J205	17	20	

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CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
291	25	24									
291A			0		A3J205	31	20	A11	25	16,17	
291B			4		A3J205	34	20	A11	24	16,17	
292	25	24									
292A			0		IJ202	K	14	A3J205	45	20	
292B			4		IJ202	M	14	A3J205	46	20	
293	25	24									
293A			0		A3J205	48	20	IIJ202	K	14	
293B			4		A3J205	49	20	IIJ202	M	14	
294	25	24									
294A			0		A4J205	4	20	A4TB202	35	⑫	
294B			4		A4J205	8	20	A4TB202	37	27	
295	25	24									
295A			0		A4TB202	9	27	A4J205	5	20	
295B			4		A4TB202	7	27	A4J205	10	20	
296	25	24									
296A			0		A4J205	7	20	A4TB202	15	27	
296B			4		A4J205	11	20	A4TB202	11	27	

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REV. N

SHEET 19 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
297	25	24									
297A			0		A4TB202	21	27	A4J205	12	20	
297B			4		A4TB202	17	27	A4J205	15	20	
298	25	24									
298A			0		A4J205	13	20	A4TB202	27	27	
298B			4		A4J205	16	20	A4TB202	23	27	
299	25	24									
299A			0		A4TB202	33	27	A4J205	14	20	
299B			4		A4TB202	29	27	A4J205	17	20	
300	25	24									
300A			0		A4J205	31	20	B11	25	16,17	
300B			4		A4J205	34	20	B11	24	16,17	
301	25	24									
301A			0		IJ202	KK	14	A4J205	45	20	
301B			4		IJ202	MM	14	A4J205	46	20	
302	25	24									
302A			0		A4J205	48	20	IIJ202	KK	14	
302B			4		A4J205	49	20	IIJ202	MM	14	

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

WL

DOCUMENT NO. 72971100

REV. N

SHEET 20 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
303	25	24									
303A			0		A7	1	16,17	A3TB202	20	27	
303B			4		A7	5	16,17	A3TB202	18	27	
304	25	24									
304A			0		A3TB202	14	27	A7	18	16,17	
304B			4		A3TB202	12	27	A7	17	16,17	
305	25	24									
305A			0		A7	28	16,17	A3TB202	32	27	
305B			4		A7	29	16,17	A3TB202	30	27	
306	25	24									
306A			0		A3TB202	26	27	A7	44	16,17	
306B			4		A3TB202	24	27	A7	45	16,17	
307	25	24									
307A			0		B7	1	16,17	A4TB202	20	27	
307B			4		B7	5	16,17	A4TB202	18	27	
308	25	24									
308A			0		A4TB202	14	27	B7	18	16,17	
308B			4		A4TB202	12	27	B7	17	16,17	

FORM AA1669

CONTROL DATA MINNEAPOLIS, MINNESOTA	TITLE WIRE LISTING	WL	DOCUMENT NO. 72971100 REV. N SHEET 21 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
309	25	24									
309A			0		B7	28	16,17	A4TB202	32	27	
309B			4		B7	29	16,17	A4TB202	30	27	
310	25	24									
310A			0		A4TB202	26	27	B7	44	16,17	
310B			4		A4TB202	24	27	B7	45	16,17	
311	12	24	4		A4S202	4	22	B17	26	16,17	
312	12	24	4		J206	$\bar{b}$	20	A18	42	16,17	
313	12	24	4		J206	EE	20	B18	42	16,17	
315	28	20									
315A			SHIELD		A3J205	29	19	A11	28	29,31	
315B			0		A3J205	30	19	A11	26	29,30	
315C			2		A3J205	33	19	A11	18	29,30	
316	28	20									
316A			SHIELD		A4J205	29	19	B11	28	29,31	
316B			0		A4J205	30	19	B11	26	29,30	
316C			2		A4J205	33	19	B11	18	29,30	

CONTROL DATA MINNEAPOLIS, MINNESOTA	TITLE WIRE LISTING	WL	DOCUMENT NO. 72971100 REV. N SHEET 22 OF 23

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
320	33	24									
320A			SHIELD		A3J205	79	36,37 19 ㊹	A22	10	36,37 16,17	
320B			9		A3J205	80	12,20	A22	5	12 16,17	
321	33	24									
321A			SHIELD		A22	8	36,37 16,17	A3J205	79	36,37 ㊹	
321B			9		A22	9	12 16,17	A3J205	82	20,12	
322	33	24									
322A			SHIELD		A4J205	79	36,37 19 ㊺	B22	10	36,37 16,17	
322B			9		A4J205	80	12,20	B22	5	12 16,17	
323	33	24									
323A			SHIELD		B22	8	36,37 16,17	A4J205	79	36 ㊺ 37	
323B			9		B22	9	12 16,17	A4J205	82	20,12	
324	11	20	4		A29	48	29,30	TB203	9	32	
325	11	20	4		TB203	10	32	B29	48	29,30	
326	12	24	4		A3J205	42	20	TB203	2	㊼	
327	↑	↑	↑		A4J205	42	↑	TB203	2	㊼ 35	
328	↕	↕	↕		A3J205	43	↓	J206	$\bar{a}$	20	
329	↓	↓	↓		A4J205	43	20	J206	DD	20	
330	12	24	4		A4S202	05	22	B17	5	16,17	

FORM AA 1669

CONTROL DATA	NORMANDALE OPERATIONS	CODE IDENT 19333	SHEET 23 OF 23	WL	DOCUMENT NO. 72971100	REV. N

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS FIND NO	REMARKS
331	12	24	4		A3TB202	39	21 ⟨53⟩	A3S200	A1	22	
332	↑	↑	↑		A3TB202	39	⟨53⟩	A18	28	16,17	
333					A3TB202	38	27	A25	26	16,17	
334					A3TB202	40	27	B25	26	16,17	
335					A4TB202	39	21 ⟨54⟩	A4S200	A1	22	
336					A4TB202	39	⟨54⟩	B18	28	16,17	
337	↓	↓	↓		A4TB202	38	27	A25	34	16,17	
338	12	24	4		A4TB202	40	27	B25	34	16,17	
339											
340	7 △4	20	4	7	TB205	1	5 △4	TB203	10	8 △4	
341	↑	↑	↑	7	↑	2	↑	↑	9	↑	
342				7		3			8		
343				7		4			7		
344				9		5			6		
345				9		6			5		
346				9		7			4		
347				9		8			3		
348	↓	↓	↓	12	↓	9	↓	↓	2	↓	
349	7 △4	20	4	12	TB205	10	5 △4	TB203	1	8 △4	

CONTROL DATA	WIRING (Corrections)	CODE IDENT	SHEET	WL	DOCUMENT NO.	REV.

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS FIND NO	REMARKS

AA3183

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE WIRE LIST -DECK ASSY
PRODUCT MULTIPLE DISK DRIVE

WL DOCUMENT NO. 40064000 REV. B
SHEET 1 OF 10

REVISION STATUS OF SHEETS

REVISIONS

REV	ECO	DESCRIPTION	DRFT.	DATE	CHKD.	APPD.
A		RELEASED		1.14.69		MH
B	PM4733	INACTIVE - SERVICE USE ONLY	CC	3-21-69	SCH	
		SUPERSEDED BY 40099000				

NOTES:

DN 40064000
DETACHED LISTS

COPIES TO

BY D M DATE 11-22-68 CHKD. C.M. DATE 11/22/68 ENGR FWL DATE 11-22-68

FORM AA 1672

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE WIRE LISTING
DECK ASSY

WL DOCUMENT NO. 40064000 REV. B
SHEET 2 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
1	8	24	4		P205	21	5	S301	C	30,26	
2	↑	↑	↑		S301	NO	30,26	P205	23	5	
3					P205	22	5	S301	NC	30,26	
4					P305	1	19	TB300	3	18	
5					TB300	3	18	P303	6	19	
6					P303	5	19	TB300	4	18	
7					TB300	4	18	P304	2	19	
8					P304	1	19	TB300	3	18	
9					TB300	4	18	P305	2	19	
10					S300B	NO	30,26	P205	24	5	
11					P205	26	5	S300A	C	30,26	
12					S300A	NC	30,26	P205	27	5	
13					P205	28	5	S300B	C	30,26	
14					C1	33	17,20	D1	9	17,20	
15					TB300	5	18	P303	4	19	
16					P303	3	19	P205	37	5	
17	↓	↓	↓		P205	38	5	P304	4	19	
18	8	24	4		P304	3	19	TB300	5	18	
19											

FORM AA 1609

TITLE

WIRE LISTING

DECK ASSY

WL

DOCUMENT NO. 40064000

REV. B

SHEET 3 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
20	8	24	4		P306	1	15	P205	39	5	
21	↑	↑	↑		P205	47	5	C2	41	17,20	
22					C2	24	17,20	P205	50	5	
23					P205	51	5	C2	45	17,20	
24					C2	9	17,20	P205	52	5	
25					P205	54	5	C1	32	17,20	
26					C1	44	17,20	P205	57	5	
27					P205	58	5	C1	42	17,20	
28					C1	40	17,20	P205	62	5	
29					P205	63	5	C1	38	17,20	
30					C1	37	17,20	P205	66	5	
31					P205	67	5	C1	13	17,20	
32					C1	14	17,20	P205	72	5	
33					P205	73	5	C1	12	17,20	
34					C1	9	17,20	P205	76	5	
35					P205	77	5	C1	10	17,20	
36					D2	44	17,20	P205	78	5	
37	↓	↓	↓		P205	75	5	D2	42	17,20	
38	8	24	4		D2	40	17,20	P205	74	5	

FORM AA1669

CONTROL DATA

MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

DECK ASSY

WL

DOCUMENT NO. 40064000

REV. B

SHEET 4 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS. FIND NO.	REMARKS
39	8	24	4		P205	71	5	D2	38	17,20	
40	↑	↑	↑		D2	37	17,20	P205	70	5	
41					P205	65	5	D2	13	17,20	
42					D2	14	17,20	P205	64	5	
43					P205	60	5	D2	12	17,20	
44					D2	9	17,20	P205	59	5	
45					P205	56	5	D2	10	17,20	
46					D2	32	17,20	P205	55	5	
47	↓	↓			P205	53	5	D2	44	17,20	
48	8	24			C2	12	17,20	D2	41	17,20	
49	9	20			P205	18	6	S303	NO	18	
50	↑	↑			S303	C	18	S302	NC	18	
51					S302	C	18	P205	25	6	
52					P205	32	6	TB300	3	18	
53					TB300	4	18	P205	35	6	
54					P205	36	6	TB300	5	18	
55					C2	46	21,22	D2	46	21,22	
56	↓	↓	↓		D2	48	21,22	C2	48	21,22	
57	9	20	4		C2	6	21,22	D2	6	21,22	

FORM AA1669

CONTROL DATA MINNEAPOLIS, MINNESOTA	TITLE WIRE LISTING DECK ASSY	WL	DOCUMENT NO. 40064000
		SHEET 5 OF	REV. B

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS. FIND NO.	REMARKS
58	10	16	4		C	GRD	13	D	GRD	13	
59	↑	↑	↑		P205	1	7	D1	48	24,25	
60					D1	46	24,25	P205	3	7	
61	↓	↓	↓		P205	2	7	D1	6	24,25	
62	10	16	4		D	GRD	13	P205	20	7	
63	11	24									
63A			0		P306	2	15	P205	4	5	
63B			4		P306	3	15	P205	8	5	
64	11	24									
64A			0		P205	5	5	J310	8	16,29	
64B			4		P205	10	5	J310	5	16,29	
65	11	24									
65A			0		J310	7	16,29	P205	12	5	
65B			4		J310	4	16,29	P205	15	5	
66	11	24									
66A			0		P205	7	5	J310	6	16,29	
66B			4		P205	11	5	J310	1	16,29	

FORM AA1668

[illegible]	TITLE WIRE LISTING DECK ASSY	WL	DOCUMENT NO. 40064000
		SHEET 6 OF	REV. B

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS. FIND NO	REMARKS
67	11	24									
67A			0		J310	10	16,29	P205	14	5	
67B			4		J310	2	16,29	P205	17	5	
68	11	24									
68A			0		P205	13	5	J310	9	16,29	
68B			4		P205	16	5	J310	3	16,29	
69	11	24									
69A			0		P205	48	5	C2	13	17,20	
69B			4		P205	49	5	C2	16	17,20	
70	11	24									
70A			0		C2	1	17,20	P205	45	5	
70B			4		C2	10	17,20	P205	46	5	
71	11	24									
71A			0		P205	31	5	P305	3	19	
71B			4		P205	34	5	P305	4	19	
72	11	24									
72A			0		P305	5	19	TB300	1	18	
72B			4		P305	6	19	TB300	2	18	

FORM AA1668

MINNEAPOLIS, MINNESOTA	TITLE WIRE LISTING DECK ASSY	WL	DOCUMENT NO 40064000 SHEET 7 OF
			REV. B

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS FIND NO	REMARKS
73	11	24									
73A			0		TB300	1	18	P304	5	19	
73B			4		TB300	2	18	P304	6	19	
74	11	24									
74A			0		P303	2	19	TB300	1	18	
74B			4		P303	1	19	TB300	2	18	
75	12	20									
75A			SHIELD		△4			P205	29	6	
75B			0		TB300	1	18	P205	30	6	
75C			2		TB300	2	18	P205	33	6	
76	31	24									
76A			SHIELD		P205	79	6 ⬡1	△4			
76B			9		P205	80	5	D1	36	17,20	
77	31	24									
77A			SHIELD		△4			P205	79	⬡1	
77B			9		D1	37	17,20	P205	82	5	
78	31	24									
78A			SHIELD		△4			C1	22	17,20	
78B			9		D1	12	17,20	C1	21	17,20	

FORM AA1559

MINNEAPOLIS, MINNESOTA	TITLE WIRE LISTING DECK ASSY	WL	DOCUMENT NO. 40064000 SHEET 8 OF
			REV. B

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS FIND NO	REMARKS
79	31	24									
79A			SHIELD		C1	26	17,20	△4			
79B			9		C1	24	17,20	D1	13	17,20	
80	31	24									
80A			SHIELD		D2	20	17,20	C1	20	17,20	
80B			9		D2	18	17,20	C1	18	17,20	
81	31	24									
81A			SHIELD		C1	17	17,20	D2	17	17,20	
81B			9		C1	16	17,20	D2	16	17,20	
82	31	24									
82A			SHIELD		D2	34	17,20	C1	34	17,20	
82B			9		D2	36	17,20	C1	36	17,20	
83	8	24	4		P205	40	5	C2	5	17,20	
84	8	24	4		P205	41	5	C2	17	17,20	
85	8	24	4		P205	42	5	S305	C	34	
86	8	24	4		P205	43	5	S305	NO	34	
87											
88											
89											

FORM AA1559

CONTROL DATA	WIRE LISTING DECK ASSY	CODE IDENT	SHEET 9	WL	DOCUMENT NO. 40064000	REV B

CONDUCTOR IDENT	FIND NO	GAUGE (REF)	COLOR (REF)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS FIND NO	REMARKS
90											
91											
92											
93											
94											
95											
96											
97											
100	26	24	4	3	C2	40	27,28	R300	2	29	
101	43	20	4	5	C2	37	41,42	TB301	4	25	
102	26	24	4	3	C2	32	27,28	R303	2	29	
103	38	24	94		C1	41	-	C2	14	-	
104	43	20	4	5	C2	25	41, 42	TB301	2	25	
105	26	24	4	2	C2	28	27,28	R302	2	29	
106	26	24	4	2	C2	36	27,28	TB301	1	25	
107	26	24	4	5	C1	16	27,28	R302	1	29,39	
108	26	24	4	5	C1	18	27,28	R303	1	29,39	
109	26	24	4	5	C1	36	27,28	R300	1	29,39	
110	26	24	4	2	TB301	1	25	TB301	3	25	

AA3181

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CONTROL DATA	WIRE LISTING DECK ASSY	CODE IDENT	SHEET 10 OF 10	WL	DOCUMENT NO 40064000	REV B

CONDUCTOR IDENT	FIND NO	GAUGE (REF)	COLOR (REF)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS FIND NO	REMARKS
111	31	18	2		C2	48	-	C1	48	-	
112	32	18	6		C2	6	-	C1	6	-	
113	31	18	2		C2	46	-	C1	46	-	
114	33	16	0	8	C2	50	34,35	GRD		36	
115	33	16	0	8	C1	50	34,35	GRD		36	
116	33	16	0	2	C2	2	34,35	GRD		36	
117	33	16	0	2	C1	2	34,35	GRD		36	
118											
119											
120	23	24	93		D2	24	-	D1	8	-	
121	23	24	93		D2	21	-	D1	5	-	
122	24	24	94		D2	33	-	D1	1	-	
123	17	18	2		D2	48	-	D1	48	-	
124	18	18	6		D2	6	-	D1	6	-	
125	17	18	2		D2	46	-	D1	46	-	
126	19	16	0	2	D2	50	20,21	GRD		22	
127	19	16	0	2	D1	50	20,21	GRD		22	
128	19	16	0	8	D2	2	20,21	GRD		22	
129	19	16	0	8	D1	2	20,21	GRD		22	

CONTROL DATA	CODE IDENT	SHEET	WL	DOCUMENT NO.
			WL	40064000

1. FOR FIND NO. REFERENCED IN CONDUCTORS 1 THRU 86 SEE PL 40017000, DECK CABLE ASSY.

2. FOR FIND NO. REFERENCED IN CONDUCTORS 100 THRU 117 SEE PL 40015400, RIGHT PRE-AMP CHASSIS ASSY.

3. FOR FIND NO. REFERENCED IN CONDUCTORS 120 THRU 129 SEE PL 40015300, LEFT PRE-AMP CHASSIS ASSY.

4△ INDICATES END OF SHIELD IS FLOATING.

5. A HEXAGON IN THE ACCESS FIND NO. COLUMN INDICATES THAT THE CONDUCTOR IS ONE OF SEVERAL (ALL WITH THE SAME NUMBER IN THE HEXAGON) GOING INTO THE SAME TERMINAL. THE NUMBER IN FRONT OF A HEXAGON IS THE TERMINAL FIND NO.

AA3185 PRINTED IN USA

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE: WIRE LIST -DECK ASSY
PRODUCT: MULTIPLE DISK DRIVE
WL DOCUMENT NO. 40099000 REV. J
SHEET 1 OF 12

REVISION STATUS OF SHEETS

REVISIONS

REV.	ECO	DESCRIPTION	DRFT.	DATE	CHKD.	APPD.
A		RELEASED		1.14.69		MH
B	PM4733	DWG. NO. WAS 40064000	CC	3-21-69	DCH	
C	PM4834	DN CHANGE ONLY	SS	4-14-69	DCH	
D	PM5578	SEE CO	GV	7-15-69	DCH	
E	PE11067	NO CHG	GV	7-31-69	DCH	
F	PE11067A	CANCELLED ECO	GV	8-1-69	DCH	
G	PM5578D	SEE CO	DS	9.22.69	97	9-22-9
H	PE11451	CHG WL 76A TO 82B	DC	3/31/70	97	II
J	PE11451A	CHG WL 76B, 77B, 78B, 79B, 80B, 81B & 82B	DC	3/31/70	97	II

NOTES:

DN 40099000
DETACHED LISTS

COPIES TO

BY	DATE	CHKD.	DATE	ENGR	DATE
D M	11-22-68	C.M.	11/22/68	TWE	11-22-68

FORM AA 1672

CONTROL DATA MINNEAPOLIS, MINNESOTA	TITLE WIRE LISTING DECK ASSY	WL DOCUMENT NO. 40099000 REV. G SHEET 2 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
1	8	24	4		P205	21	5	TB306	3	38	
2	↑	↑	↑		TB306	2	38	P205	23	5	
3					P205	22	5	TB306	4	38	
4					P305	1	19	TB300	3	18	
5					TB300	3	18	P303	6	19	
6					P303	5	19	TB300	4	18	
7					TB300	4	18	P304	2	19	
8					P304	1	19	TB300	3	18	
9					TB300	4	18	P305	2	19	
10					TB302	1	38	P205	24	5	
11					P205	26	5	TB303	2	38	
12					TB303	3	38	P205	27	5	
13					P205	28	5	TB302	4	38	
14					C1	33	17,20	D1	9	17,20	
15					TB300	5	18	P303	4	19	
16					P303	3	19	P205	37	5	
17	↓	↓	↓		P205	38	5	P304	4	19	
18	8	24	4		P304	3	19	TB300	5	18	
19											

FORM AA 1309

CONTROL DATA MINNEAPOLIS, MINNESOTA	TITLE WIRE LISTING DECK ASSY	WL DOCUMENT NO. 40099000 REV. G SHEET 3 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
20	8	24	4		P306	1	15	P205	39	5	
21	↑	↑	↑		P205	47	5	C2	41	17,20	
22					C2	24	17,20	P205	50	5	
23					P205	51	5	C2	45	17,20	
24					C2	9	17,20	P205	52	5	
25					P205	54	5	C1	32	17,20	
26					C1	44	17,20	P205	57	5	
27					P205	58	5	C1	42	17,20	
28					C1	40	17,20	P205	62	5	
29					P205	63	5	C1	38	17,20	
30					C1	37	17,20	P205	66	5	
31					P205	67	5	C1	13	17,20	
32					C1	14	17,20	P205	72	5	
33					P205	73	5	C1	12	17,20	
34					C1	9	17,20	P205	76	5	
35					P205	77	5	C1	10	17,20	
36					D2	44	17,20	P205	78	5	
37	↓	↓	↓		P205	75	5	D2	42	17,20	
38	8	24	4		D2	40	17,20	P205	74	5	

FORM AA 1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE-LISTING
DECK ASSY

WL | DOCUMENT NO. 40099000 | REV. G
SHEET 4 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
39	8	24	4		P205	71	5	D2	38	17,20	
40	↑	↑	↑		D2	37	17,20	P205	70	5	
41					P205	65	5	D2	13	17,20	
42					D2	14	17,20	P205	64	5	
43					P205	60	5	D2	12	17,20	
44					D2	9	17,20	P205	59	5	
45					P205	56	5	D2	10	17,20	
46					D2	32	17,20	P205	55	5	
47	↓	↓			P205	53	5	D2	44	17,20	
48	8	24			C2	12	17,20	D2	41	17,20	
49	9	20			P205	18	6	S303	NO	18	
50	↑	↑			S303	C	18	S302	NC	18	
51					S302	C	18	P205	25	6	
52					P205	32	6	TB300	3	18	
53					TB300	4	18	P205	35	6	
54					P205	36	6	TB300	5	18	
55					C2	46	21,22	D2	46	21,22	
56	↓	↓	↓		D2	48	21,22	C2	48	21,22	
57	9	20	4		C2	6	21,22	D2	6	21,22	

FORM AA 1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING
DECK ASSY

WL | DOCUMENT NO. 40099000 | REV. G
SHEET 5 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
58	10	16	4		C	GRD	13	D	GRD	13	
59	↑	↑	↑		P205	1	7	D1	48	24,25	
60					D1	46	24,25	P205	3	7	
61	↓	↓	↓		P205	2	7	D1	6	24,25	
62	10	16	4		D	GRD	13	P205	20	7	
63	11	24									
63A			0		P306	2	15	P205	4	5	
63B			4		P306	3	15	P205	8	5	
64	11	24									
64A			0		P205	5	5	J310	8	16,29	
64B			4		P205	10	5	J310	5	16,29	
65	11	24									
65A			0		J310	7	16,29	P205	12	5	
65B			4		J310	4	16,29	P205	15	5	
66	11	24									
66A			0		P205	7	5	J310	6	16,29	
66B			4		P205	11	5	J310	1	16,29	

FORM AA 1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING
DECK ASSY

WL DOCUMENT NO. 40099000 REV. J

SHEET 6 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
67	11	24									
67A			0		J310	10	16,29	P205	14	5	
67B			4		J310	2	16,29	P205	17	5	
68	11	24									
68A			0		P205	13	5	J310	9	16,29	
68B			4		P205	16	5	J310	3	16,29	
69	11	24									
69A			0		P205	48	5	C2	13	17,20	
69B			4		P205	49	5	C2	16	17,20	
70	11	24									
70A			0		C2	1	17,20	P205	45	5	
70B			4		C2	10	17,20	P205	46	5	
71	11	24									
71A			0		P205	31	5	P305	3	19	
71B			4		P205	34	5	P305	4	19	
72	11	24									
72A			0		P305	5	19	TB300	1	18	
72B			4		P305	6	19	TB300	2	18	

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING
DECK ASSY

WL DOCUMENT NO. 40099000 REV. J

SHEET 7 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
73	11	24									
73A			0		TB300	1	18	P304	5	19	
73B			4		TB300	2	18	P304	6	19	
74	11	24									
74A			0		P303	2	19	TB300	1	18	
74B			4		P303	1	19	TB300	2	18	
75	12	20									
75A			SHIELD		△4			P205	29	6	
75B			0		TB300	1	18	P205	30	6	
75C			2		TB300	2	18	P205	33	6	
76	31	24									
76A			SHIELD		P205	79	39,40 6 ⬡1	△4			
76B			9		P205	80	5,8	D1	36	17,20	
77	31	24									
77A			SHIELD		△4			P205	79	39,40 ⬡1	
77B			9		D1	37	17,20	P205	82	5,8	
78	31	24									
78A			SHIELD		△4			C1	22	39,40 17,20	
78B			9		D1	12	17,20	C1	21	8 17,20	

FORM AA1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING
DECK ASSY

WL | DOCUMENT NO. 40099000 | REV. J
SHEET 8 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
79	31	24									
79A			SHIELD		C1	26	39,40 17,20	4			
79B			9		C1	24	8 17,20	D1	13	17,20	
80	31	24									
80A			SHIELD		D2	20	39,40 17,20	C1	20	39,40 17,20	
80B			9		D2	18	8 17,20	C1	18	8 17,20	
81	31	24									
81A			SHIELD		C1	17	39,40 17,20	D2	17	39,40 17,20	
81B			9		C1	16	8 17,20	D2	16	8 17,20	
82	31	24									
82A			SHIELD		D2	34	39,40 17,20	C1	34	39,40 17,20	
82B			9		D2	36	8 17,20	C1	36	8 17,20	
83	8	24	4		P205	40	5	C2	5	17,20	
84	8	24	4		P205	41	5	C2	17	17,20	
85	9	20	4		P205	42	5	TB305	3	38	
86	9	20	4		P205	43	5	TB305	2	38	
87											
88											
89											

FORM AA1669

CONTROL DATA | WIRE LISTING DECK ASSY | CODE IDENT | SHEET 9 | WL | DOCUMENT NO. 40099000 | REV. J

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS FIND NO	REMARKS
90											
91											
92											
93											
94											
95											
96											
97											
100	26	24	4	3	C2	40	27,28	R300	2	29	
101	43	20	4	5	C2	37	41,42	TB301	4	25	
102	26	24	4	3	C2	32	27,28	R303	2	29	
103	38	24	94		C1	41	-	C2	14	-	
104	43	20	4	5	C2	25	41, 42	TB301	2	25	
105	26	24	4	2	C2	28	27,28	R302	2	29	
106	26	24	4	2	C2	36	27,28	TB301	1	25	
107	26	24	4	5	C1	16	27,28	R302	1	29,39	
108	26	24	4	5	C1	18	27,28	R303	1	29,39	
109	26	24	4	5	C1	36	27,28	R300	1	29,39	
110	26	24	4	2	TB301	1	25	TB301	3	25	

AA3183

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CONTROL DATA	WIRE LISTING DECK ASSY	CODE IDENT	SHEET 10	WL	DOCUMENT NO. 40099000	REV G

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
111	31	18	2		C2	48	-	C1	48	-	
112	32	18	6		C2	6	-	C1	6	-	
113	31	18	2		C2	46	-	C1	46	-	
114	33	16	0	8	C2	50	34,35	GRD		36	
115	33	16	0	8	C1	50	34,35	GRD		36	
116	33	16	0	2	C2	2	34,35	GRD		36	
117	33	16	C	2	C1	2	34,35	GRD		36	
118											
119											
120	23	24	93		D2	24	-	D1	8	-	
121	23	24	93		D2	21	-	D1	5	-	
122	24	24	94		D2	33	-	D1	1	-	
123	17	18	2		D2	48	-	D1	48	-	
124	18	18	6		D2	6	-	D1	6	-	
125	17	18	2		D2	46	-	D1	46	-	
126	19	16	0	2	D2	50	20,21	GRD		22	
127	19	16	0	2	D1	50	20,21	GRD		22	
128	19	16	0	8	D2	2	20,21	GRD		22	
129	19	16	0	8	D1	2	20,21	GRD		22	
130											

AA3183 PRINTED IN U.S.A.

WIRE LISTING DECK ASSY

CONTROL DATA	NORMANDALE OPERATION	CODE IDENT 19333	SHEET 11	WL	DOCUMENT NO. 40099000	REV. G

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
131											
132											
133											
134	4	20	4	15"	TB305	3	7	S305	C	5,6	
135	4	20	4	15"	TB305	1	7	S305	NO	5,6	
136	4	24	4	4"	TB306	1	7	S301	NO	5,6	
137	4	24	4	4"	TB306	3	7	S301	C	5,6	
138	4	24	4	4"	TB306	4	7	S301	NC	5,6	
139											
140	4	24	4	1"	TB302	3	4	S300B	NO	5,6	
141	4	24	4	1"	TB302	4	4	S300B	C	5,6	
142	4	24	4	1"	TB303	1	4	S300A	NC	5,6	
143	4	24	4	1"	TB303	2	4	S300A	C	5,6	
144											
145											
146											
147	2										
147A			5		J306	1	4	TB304	1	6	
147B			2		J306	2	4	L300		13,6	
147C			6		J306	3	⟨3⟩ 4	L300		13,6	

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WIRE LISTING DECK ASSY

CONTROL DATA	NORMANDALE OPERATIONS	CODE IDENT 19333	SHEET 12 OF 12	WL	DOCUMENT NO. 40099000	REV. G

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
147D			9		J306	3	⬡3	GRD		7	
148											
149											
150											
151											
152											
153	42	24	4	2"	TB304	3	51	S304	NO	39,40	
154	42	24	4	2"	S304	C	39,40	TB304	4	51	
155	42	24	4	8"	TB304	4	51	GRD		41	

AA3103

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CONTROL DATA		CODE IDENT	SHEET 1 OF 1	DN	DOCUMENT NO. 40099000	REV.

1. FOR FIND NO. REFERENCED IN CONDUCTORS 1 THRU 86 SEE PL 40098900, DECK CABLE ASSY.

2. FOR FIND NO. REFERENCED IN CONDUCTORS 100 THRU 117 SEE PL 40C99800. RIGHT PRE-AMP CHASSIS ASSY.

3. FOR FIND NO. REFERENCED IN CONDUCTORS 120 THRU 129 SEE PL 40099900 LEFT PRE-AMP CHASSIS ASSY.

⚠4 INDICATES END OF SHIELD IS FLOATING.

5. A HEXAGON IN THE ACCESS FIND NO. COLUMN INDICATES THAT THE CONDUCTOR IS ONE OF SEVERAL (ALL WITH THE SAME NUMBER IN THE HEXAGON) GOING INTO THE SAME TERMINAL. THE NUMBER IN FRONT OF A HEXAGON IS THE TERMINAL FIND NO.

6. FOR FIND NO. REFERENCED IN CONDUCTORS 134 THRU 135 SEE PL 70804600, SWITCH SUPPRESSION ASSY; FOR FIND NO. 136 THRU 138 SEE PL 70804601, SWITCH SUPPRESSION ASSY.

7. FOR FIND NO. REFERENCED IN CONDUCTORS 140 THRU 141 SEE PL 70959501, COMPONENT ASSY; FOR FIND NO. 142 THRU 143 SEE PL 70959502, COMPONENT ASSY.

8. FOR FIND NO. REFERENCED IN CONDUCTORS 147,A,B,C,D SEE PL 41279400 MAGNET ASSY.

9. FOR FIND NO. REFERENCED IN CONDUCTORS 153 THRU 155 SEE PL 40014100 HEAD CARRIAGE ASSY.

10. CRIMP FIND NO 8 TO THE CONDUCTOR AND FIND NO 40 TO THE SHIELD USING FIND NO 39. THEN TERMINATE BOTH JUMPERS USING FIND NO'S INDICATED IN ACCESS. FIND NO. COLUMN.

AA3103

CONTROL DATA MINNEAPOLIS, MINNESOTA	TITLE WIRE LIST - 2X FINAL ASSEMBLY PRODUCT MULTIPLE DISK DRIVE	WL	DOCUMENT NO. 40064500	REV. B
		SHEET 1 OF 3		

REVISION STATUS OF SHEETS

REVISIONS

REV.	ECO	DESCRIPTION	DRFT.	DATE	CHKD.	APPD.
A		RELEASED		1-14-69		mh
B	PM5197	SEE CO.	BL	5-5-69	JCU	5-7

NOTES:

△1. FOR FIND NO. REFERENCED IN CONDUCTORS 1 THRU 6 SEE PL 40016900, CABLE ASS W9.

△2. FOR FIND NO. REFERENCED IN CONDUCTORS 10 THRU 12 SEE PL 40017400, CABLE ASSY W16.

△3. INDICATES END OF SHIELD IS FLOATING.

COPIES TO				BY	D.M.	DATE 10-29-68	CHKD.	C.M.	DATE 11/15/68	ENGR	WE	DATE [illegible]

		CODE IDENT	SHEET 2	WL	DOCUMENT NO. 40064500	REV. B

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
1	1	12	4		FL01	L	2	CB02	AT	2	△1 Ø A
2	1	12	4		FL02	L	2	CB02	BT	2	Ø B
3	1	12	4		FL03	L	2	CB02	CT	2	Ø C
4	1	12	4		FL04	L	2	TB01	1	3	NEUTRAL
5	1	12	4		FILTER BOX	FRAME	2	TB01	4	3	A C GRD
6	4	20	4		FILTERBOX	FRAME	5	SHIELD	-	6	△1
7											
8											
9											
10	3	20									
10A			SHIELD		P05	3	5,2	△3			△2
10B			0		P05	1	5	B200	1	6,7	
10C			2		P05	2	5	B200	2	6,7	
11	3	20									
11A			SHIELD		P05	6	5,2	△3			
11B			0		P05	4	5	B201	1	6,7	
11C			2		P05	5	5	B201	2	6,7	
12	3	20									
12A			SHIELD		P05	9	5,2	△3			△2

AA3103

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	WIRE LISTING 2X FINAL ASSEMBLY	CODE IDENT	SHEET 3 OF 3	WL	DOCUMENT NO. 40064500	REV. B

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
12B			0		P05	7	5	B202	1	6,7	△2
12C			2		P05	8	5	B202	2	6,7	△2

CONTROL DATA	WIRING (Corrections)	CODE IDENT	SHEET	WL	DOCUMENT NO.	REV.

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS

AA3183

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CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE WIRE LIST - CONTROL PANEL

PRODUCT RL50B

WL **DOCUMENT NO.** 40065200 **REV.** B

SHEET 1 **OF** 3

REVISION STATUS OF SHEETS

REVISIONS

REV.	ECO	DESCRIPTION	DRFT.	DATE	CHKD.	APPD.
A		RELEASED				
B	PM4506	SEE CO	TM	2-12-69	DCH	2-13-69

NOTES:

1. FOR MECHANICAL ASSY AND PARTS LIST SEE 40011500.

COPIES TO

BY	DATE	CHKD.	DATE	APPD.	DATE
	7-16-68		7-16-68	FWE	7/23/68

FORM 4866A

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE WIRE LISTING

WL **DOCUMENT NO.** 40065200 **REV.** B

SHEET 2 **OF** 3

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
1	21	24	4	11	J600	A	24	XDS504	4	14	
2	↑	↑	↑	9	J600	B	↑	S503	NO	↑	
3				7	J600	C	↓	XDS503	1		
4				6	J600	D	24	XDS503	3	↓	
5				7	XDS501	2	14	S503	C	14	
6				10	XDS504	1	14	XDS502	2	14,26	
7				8	J600	P	24	XDS500	1	14	
8				7	J600	U	↑	XDS502	3	14,26	
9				7	J600	V		XDS502	7	↑	
10				7	J600	W		XDS502	8		
11				7	J600	X		XDS502	9	↓	
12				7	J600	Y	↓	XDS502	10	14,26	
13				10	J600	Z	24	XDS501	4	14	
14	↓	↓		6	XDS503	2	14	XDS504	2	14	
15	21	24		7	J600	b	24	XDS502	1	14,26	
16	22	20		10	J600	E	23	XDS501	1	14	
17	↑	↑		7	J600	F	↑	XDS500	3	14	
18	↓	↓	↓	11	J600	H	↓	S501B	C	14	
19	22	20	4	11	J600	J	23	S501C	C	14	

FORM AA1660

CONTROL DATA	NORMANDALE OPERATIONS	CODE IDENT	SHEET 3 OF 3	WL	DOCUMENT NO. 40065200	REV. B

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
20	22	20	4	11	J600	K	23	S501C	NC	14	
21	↑	↑	↑	11	J600	L	↑	S501C	NO	↑	
22				11	J600	M		S501B	NO		
23				11	J600	N		S501B	NC		
24				11	J600	R		S501A	NC		
25	↓	↓	↓	11	J600	S	↓	S501A	NO	↓	
26	22	20	4	11	J600	T	23	S501A	C	14	
27	24	24	4	11	J600	a	24	XDS504	3	14	

DWN	D. MEYER	4/8/67	CONTROL DATA	TITLE WIRE LIST - CONTROL PANEL	PREFIX WL	DOCUMENT NO. 70957900	REV B
CHKD	[illegible]	5-16-67	NORMANDALE DIVISION				
ENG	[illegible]	5-15-67					
MFG			CODE IDENT 19333	FIRST USED ON MULT. DISK DRIVE		SHEET 1 OF 3	
APPR							

SHEET REVISION STATUS

REVISION RECORD

REV	ECO	DESCRIPTION	DRFT	DATE	APP
A		RELEASED		5-23-69	[illegible]
B	PE21362				
C	PE21886				

NOTES:

1. FOR MECHANICAL ASSY AND PARTS LIST SEE 70957600
2. A HEXAGON IN THE ACCESS FIND NO. COLUMN INDICATES THAT THE CONDUCTOR IS ONE OF SEVERAL (ALL WITH THE SAME NUMBER IN THE HEXAGON) GOING INTO THE SAME TERMINAL.

△3 OPPOSITE MOUNTING END.

△4 MOUNTING END.

DETACHED LISTS

CONTROL DATA	NORMANDALE	CODE IDENT 19333	SHEET 2	WL	DOCUMENT NO. 70957900	REV. B

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO	REMARKS
1	35	24	4	11	J600	A	28	XDS504	4	13	
2	↑	↑	↑	10	J600	B	28	S503	NO	13	
3				10	J600	C	28	XDS503	1	13	
4				9	J600	D	28	XDS503	3	13	
5				7	XDS501	2	13	S503	C	13	
6	↓	↓		12	XDS503	2	13	XDS502	2	13, 30	
7	35	24		12	J600	P	28	XDS500	1	13	
8	36	20		7	XDS501-3	C	13	C505	OME	13	△3
9	35	24		12	J600	V	28	S510	N.0	48, 30	
10	↑	↑		12	J600	W	28	S511	N.0	48, 30	
11				7	J600	X	28	S512	N.0	48, 30	
12				7	J600	Y	28	S513	N.0	48, 30	
13				12	J600	Z	28	XDS501	4	13	
14	↓	↓		6	XDS500	4	13	XDS504	2	13	
15	35	24		7	J600	b̄	28	XDS502	1	13, 29	
16	36	20		14	J600	E	27	XDS501	1	13	
17	↑	↑		11	J600	F	27	XDS500	3	13	
18		↓	↓	15	J600	H	27	S501B	C	13	
19	↓	20	4	15	J600	J	27	S501C	C	13	
20	36	20	4	15	J600	K	27	S501C	NC	13	

CONTROL DATA	NORMANDALE	CODE IDENT 19333	SHEET 3	WL	DOCUMENT NO. 70957900	REV. B

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
21	36	20	4	15	J600	L	27	S501C	NO	13	
22	↑	↑	↑	15	J600	M	27	S501B	NO	13	
23				15	J600	N	27	S501B	NC	13	
24				20	J600	R	27	TB501	8	13	
25	↓	↓		20	J600	S	27	TB501	4	13	
26	36	20		21	J600	T	27	C505	ME	13	△4
27	35	24		12	J600	ā	28	XDS504	3	13	
28	↑	↑		3	S514	NO	31, 30	TB500	1	13	
29				3	S510	C	①	S511	C	② 30, 31	
30				3	S511	C	②	S512	C	③ 30, 31	
31				2	S512	C	③	S513	C	30, 31	
32				3	S510	C	① 30,31	TB500	4	13	
33	↓	↓		10	J600	U	28	S514	C	④ 30, 31	
34	35	24		2	S514	C	④	TB500	2	13	
35	36	20		2	S501A	NO	13	TB501	3	13	
36	35	24	↓	3	XDS501	1	13	TB501	1	13	
37	36	20	4	4	S501A	NC	13	TB501	7	13	

AA3183

PRINTED IN USA

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE WIRE LIST-FILTER BOX ASSY	**WL**	**DOCUMENT NO.** 40065300	**REV.** B
PRODUCT MULT DISK DRIVE	**SHEET** 1 OF 2		

REVISION STATUS OF SHEETS

REVISIONS

REV.	ECO	DESCRIPTION	DRFT.	DATE	CHKD.	APPD
A		RELEASED		1.16.69		
B	PM5548	NOTE 1. NO. CHG. ONLY	GV	6-25-69	DCH	6-26

NOTES:

1. FOR MECH ASSY AND FL SEE 70806500.

COPIES TO				BY	C.M.	DATE 11/18/68	CHKD.	C.M.	DATE 11/22/68	ENGR	FWE	DATE 11-22-68

FORM AA 1672

CONTROL DATA WIRE LIST-FILTER BOX ASSY | CODE IDENT | SHEET 2 OF 2 | **WL** | DOCUMENT NO. 40065300 | REV B

CONDUCTOR IDENT.	FIND NO	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS FIND NO.	REMARKS
1	23	12	0	6	CB01	AB	19	FL01	R	19	
2	24	12	2	6	CB01	BB	19	FL02	R	19	
3	25	12	3	6	CB01	CB	19	FL03	R	19	

AA 3103

PRINTED IN USA

CONTROL DATA MINNEAPOLIS, MINNESOTA	TITLE WIRE LIST - POWER SUPPLY ASSY PRODUCT MULTIPLE DISK DRIVE	WL	DOCUMENT NO. 40019800 SHEET 1 OF 25	REV. K

REVISION STATUS OF SHEETS

REVISIONS

REV	ECO	DESCRIPTION	DRFT.	DATE	CHKD.	APPD
A		RELEASED		1-17-69		
B	PM4734	SEE CO	TEM	3-10-69	DCH	3-13-9
C	PM5243	SEE CO	GV	6-8-69	97	6-12-69
D	PM5578	SEE CO	GV	7-15-69	DCH	7-21
E	PE11066	SEE CO	GV	7-18-69	DCH	7-21
F	PE11088	SEE CO	GV	8-14-69	DCH	8-18
G	PM5578C	SEE CO S/N 311	GV	8-14-69	DCH	8-18
H	PE11148	INACTIVE, SERVICE USE ONLY,				
	S/N 575	SUPERSEDED BY 70821700	DS	9-18-69	97	9-24-9
J	11148 A	REACTIVATED		1/13/70	97	I
K	PE 11099	INACTIVE, SERVICE USE ONLY,		2/2/70	97	I
		SUPERCEDED BY 70716700				

NOTES:

DN 40019800
DETACHED LISTS

COPIES TO				BY	D.M.	DATE 11-14-69	CHKD.	C.M.	DATE 12/3/68	ENGR	FWE	DATE 12-9-68

CONTROL DATA MINNEAPOLIS, MINNESOTA	TITLE WIRE LISTING POWER SUPPLY ASSY	WL	DOCUMENT NO. 40019800 SHEET 2 OF	REV. K

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
1	3	16	4		C14	L	4	T01	3	7 ①	
2	▲	▲	▲		T01	3	①	CR04	4	4,15	
3					CR04	3	4,15	C05	N	9 ②	
4					C05	N	②	C09	N	11 ③	
5					C09	N	③	TB02	4	4	
6					TB02	2	4	C06	N	11 ④	
7					C06	N	④	R02	R	4,15	
8					R02	L	4,15	C06	P	9 ⑤	
9					C06	P	⑤	CR05	1	4,15	
10					CR05	4	4,15	T01	9	1	
11					T01	10	1	CR05	2	4,15	
12					CR05	3	4,15	C06	N	④	
13					C08	N	6	R04	L	10	
14					R04	R	10	C04	P	6	
15					T08	1	4,15	T05	3	4	
16					T05	1	4	T01	8	7 ⑥	
17					T01	8	⑥	T03	1	4	
18	▼	▼	▼		T03	3	4	T09	1	4	
19	3	16	4		T09	2	4	T01	6	1	

FORM AA1969

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING
POWER SUPPLY ASSY

WL
DOCUMENT NO. 40019800
REV. K
SHEET 3 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
20	3	16	4		T01	4	1	T09	3	4	
21	↑	↑	↑		T09	4	4	CR04	2	4,15	
22					CR04	1	4,15	C05	P	9⟨7⟩	
23					C05	P	⟨7⟩	C09	P	9⟨8⟩	
24					C09	P	⟨8⟩	R03	T	5, 12	
25					R03	B	5,15	C09	N	⟨3⟩	
26					C02	N	6	R01	B	5,12	
27					R01	T	5,12	C02	P	6	
28					T05	4	4	T01	5	7⟨9⟩	
29					T01	5	⟨9⟩	T03	4	4	
30					T02	1	4	T01	8	7⟨10⟩	
31					T01	8	⟨10⟩	T04	1	4	
32					T04	3	4	T07	1	4	
33					T07	2	4	T01	7	7⟨11⟩	
34					T01	7	⟨11⟩	T08	2	4,15	
35					T08	3	4	TB08	3	4	
36					TB07	2	4	T07	3	4,15	
37	↓	↓	↓		T07	4	4	C07	N	6	
38	3	16	4		T07	5	4	TB08	2	4	

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING
POWER SUPPLY ASSY

WL
DOCUMENT NO. 40019800
REV. K
SHEET 4 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
39	3	16	4		TB07	3	4	T08	6	4	
40	↑	↑	↑		C14	R	4	T01	8	1	
41	↓	↓			T01	5	7⟨12⟩	T02	4	4	
42	3	16			T04	4	4	T01	5	⟨12⟩	
43	2	14			TB07	1	8	T01	13	7	
44	↑	↑			T01	12	7	C07	P	9	
45					C07	P	9	C03	N	9	
46					C03	P	9	T08	5	8	
47					TB08	1	8	T01	11	7	
48					T01	15	7	C01	N	9	
49					C01	N	9	C02	N	9	
50					C02	P	9	L01	2	8	
51					L01	1	8	C01	P	9	
52					C04	N	9	C08	P	9	
53					C08	P	9	C07	P	9	
54	↓	↓	↓		C08	P	9	TB02	3	8	
55	2	14	4		TB02	1	8	C02	N	9	
56											
57											

FORM AA 1669

CONTROL DATA MINNEAPOLIS, MINNESOTA	TITLE WIRE LISTING POWER SUPPLY ASSY	WL	DOCUMENT NO. 40019800	REV. K
			SHEET 5 OF	

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
58											
59											
60											
61											
62											
63											
64											
65											
66											
67											
68											
69											
70											
71											
72											
73											
74											
75											
76											

CONTROL DATA MINNEAPOLIS, MINNESOTA	TITLE WIRE LISTING POWER SUPPLY ASSY	WL	DOCUMENT NO. 40019800	REV. K
			SHEET 6 OF	

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
77	4	16	4		CB03	AT	8	CB02	AT	9 (1)	
78	↑	↑	↑		CB02	AT	(1)	CB103	AT	8	
79					CB03	AB	8	C21	ME	5	△13
80					TB11	1	5	J03	1	13	
81					J03	2	13	FL12	CAP-B	5	
82					C22	ME	5	CB03	BB	8	△13
83					CB103	BT	8	CB02	BT	9 (3)	
84					CB02	BT	(3)	CB03	BT	8	
85					CB02	AB	8	J02	1	13	
86					J02	2	13	CB02	BB	8	
87					CB03	CT	8	CB02	CT	12 (4)	
88					CB02	CT	(4)	CB103	CT	8	
89					CB03	CB	8	C23	ME	5	△13
90					FL13	CAP-B	5	J03	3	13	
91					J02	3	13	CB02	CB	8	
92	↓	↓	↓		CB02	AT	9 (5)	XF03	T	10	
93	4	16	4		XF03	B	10	TB11	2	5	
94											
95	4	16	4		C123	ME	5	CB103	CB	8	△13

FORM AA1669

CONTROL DATA MINNEAPOLIS, MINNESOTA	TITLE WIRE LISTING POWER SUPPLY ASSY	WL	DOCUMENT NO. 40019800	REV. K
		SHEET 7 OF		

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
96	4	16	4		CB103	BB	8	C122	ME	5	△13
97	↑	↑	↑		FL113	CAP-T	5	J103	3	13	
98					J103	2	13	FL112	CAP-T	5	
99					TB111	1	5	J103	1	13	
100					C121	ME	5	CB103	AB	8	△13
101					XF04	B	10	FL05	L	8	
102					FL06	L	8	XF05	B	10	
103	↓	↓			XF05	T	10	CB02	CT	(4)	
104	4	16			CB02	BT	9 (9)	XF04	T	10	
105	3	20			TB03	11	10	TB03	9	10	
106	↑	↑			TB03	9	10	TB03	7	10	
107					TB03	1	10	CB02	AT	(5)	
108					CB02	BT	(9)	TB03	3	10	
109					TB03	5	10	CB02	CT	8 (10)	
110					CB02	CT	(10)	DS04	B	10	
111					DS04	T	10	TB01	1	11	
112					TB01	1	11	P106	2	14	
113	↓	↓	↓		P106	1	14	TB111	1	5	
114	3	20	4		FL114	CAP-T	5	J103	6	14	

FORM AA166

ROL DATA .NEAPOLIS, MINNESOTA	TITLE WIRE LISTING POWER SUPPLY ASSY	WL	DOCUMENT NO. 40019800	REV. K
		SHEET 8 OF		

ONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
115	3	20	4		J103	7	14	TB01	2	11	
116	↑	↑	↑		TB01	2	11	J03	7	14	
117					J03	6	14	FL14	CAP-B	5	
118					TB11	2	5	J05	1	14	
119					J05	2	14	TB01	1	11	
120					TB01	1	11	TB03	7	10	
121					J03	8	14	TB01	4	11	
122					TB01	4	11	J103	8	14	
123					J103	5	14	TB01	3	11	
124					TB01	3	11	J05	3	14	
125					J05	4	14	TB111	2	5	
126					TB111	2	5	J05	7	14	
127					J05	8	14	TB01	2	11	
128					TB01	2	11	J05	5	14	
129					J05	6	14	TB01	4	11	
130					TB01	4	11	J05	9	14	
131					J103	4	14	TB01	3	11	
132	↓	↓	↓		TB01	3	11	J03	5	14	
133	3	20	4		J03	4	14	TB01	3	11	

FORM AA1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

POWER SUPPLY ASSY

WL

DOCUMENT NO. 40019800

REV. K

SHEET 9 OF

CONDUCTOR	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
134	3	20	4		TB01	1	11	MB06	2	14	
135	↑	↑	↑		P06	1	14	TB11	1	5	
136					J02	4	14	TB01	3	11	
137					TB01	4	11	J02	5	14	
138					TB03	2	10	TB03	8	10	
139					TB03	10	10	TB03	4	10	
140					TB03	6	10	TB03	12	10	
141					B01	L	17,18	TB11	2	5	
142					TB111	2	5	B02	L	17,18	
143	↓	↓	↓		B02	R	17,18	TB01	2	11	
144	3	20	4		TB01	2	11	B01	R	17,18	
145											
146											
147											
148											
149											
150											
151											
152											

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

POWER SUPPLY ASSY

WL

DOCUMENT NO. 40019800

REV. K

SHEET 10 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
153	10	16	4		CB07	T	2	C02	P	7⟨1⟩	
154	↑	↑	↑		C02	P	⟨1⟩	CB107	T	2	
155					CB106	T	2	C09	P	7⟨2⟩	
156					C09	P	⟨2⟩	CB06	T	2	
157					CB06	B	2	C32	ME	5	△13
158					FL15	ME	5	TB02	11	12	△13
159					TB02	11	12	J04	21	3	
160					J04	20	3	K102	1A	23	
161					K102	1C	12,25	CB04	B	13⟨4⟩	
162					CB04	B	⟨4⟩	K02	1C	12,25	
163					K02	1A	23	J04	18	3	
164					J04	17	3	TB02	13	12	
165					FL16	ME	5	TB02	13	12	△13
166					C33	ME	5	XF02	B	16	△13
167					XF02	T	16	C06	P	7⟨6⟩	
168					C06	P	⟨6⟩	XF102	T	16	
169					XF102	B	16	C133	ME	5	△13
170	↓	↓	↓		FL116	ME	5	TB02	14	12	△13
171	10	16	4		TB02	14	12	J04	35	3	

FORM AA 1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING
POWER SUPPLY ASSY

WL
DOCUMENT NO. 40019800
REV. K
SHEET 11 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
172	10	16	4		J04	29	3	K102	3A	23	
173	↑	↑	↑		K102	3C	12,25	CB05	B	13 (8)	
174					CB05	B	(8)	K02	3C	12,25	
175					K02	3A	23	J04	28	3	
176					J04	30	3	TB02	12	12	
177					FL115	ME	5	TB02	12	12	13
178					C132	ME	5,	CB106	B	2	13
179					CB107	B	2	K102	2C	12,25	
180					K102	2A	23	J04	14	3	
181					J04	13	3	K02	2A	23	
182					K02	2C	12,25	CB07	B	2	
183					CB04	T	2	C04	P	2	
184					C08	N	2	CB05	T	2	
185					CB05	B	(8)	J04	11	3	
186					J04	3	3	TB02	5	12	
187					TB02	5	12	J04	2	3	
188					J04	1	3	TB02	6	12	
189	↓	↓	↓		TB02	7	12	XF01	B	16	
190	10	16	4		XF01	T	16	C03	P	2	

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING
POWER SUPPLY ASSY

WL
DOCUMENT NO. 40019800
REV. K
SHEET 12 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
191	10	16	4		TB02	3	12	TB04	2	16	
192	10	16	↑		CB04	B	(4)	J04	12	3	
193	21	20			J04	33	4	K101	B3	15,24	
194	↑	↑			TB02	7	14 (12)	J04	48	4	
195					J04	46	4	TB09	11	5	
196					TB09	5	5	J04	45	4	
197					J04	43	4	S07	B1	11,25	
198					S07	B3	11,25	J04	42	4	
199					J04	41	4	S07	C1	11,25	
200					S07	C3	11,25	J04	40	4	
201					J04	39	4	K05	L8	15,24	
202					K05	R2	15,24	TB02	2	11	
203					TB02	2	11	K105	R2	15,24	
204					K105	L8	15,24	J04	54	4	
205					J04	55	4	S107	C3	11,25	
206					S107	C1	11,25	J04	56	4	
207					J04	57	4	S107	B3	11,25	
208	↓	↓	↓		S107	B1	11,25	J04	58	4	
209	21	20	4		J04	65	4	S107	C2	12 (47) 25	

FORM AA 1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

POWER SUPPLY ASSY

WL

DOCUMENT NO. 40019800

REV. K

SHEET 13 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
210	21	20	4		S107	B2	25 12 48	S107	C2	47	
211	↑	↑	↑		S107	B2	48	K101	L3	15,24	
212					K101	L2	15,24	J04	64	4	
213					J04	62	4	TB109	.11	5	
214					TB109	.5	5	J04	60	4	
215					J04	52	4	TB02	7	12	
216					TB02	7	14	J04	37	4	
217					J04	53	4	J04	66	3 14	
218					J04	66	14	K105	L9	15,24	
219					J04	51	4	TB02	5	11	
220					TB02	5	11	J04	36	4	
221					J04	26	4	TB02	3	11	
222					TB02	3	11	J04	16	4	
223					J04	24	4	K01	R3	15,24	
224					K01	R2	15,24	S02	B2	25,11	
225					S02	B3	25,11	TB02	9	11	
226											
227	↓	↓	↓		K03	1	15,24	TB02	9	11	
228	21	20	4		TB02	9	11	K05	1	15,24	

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

POWER SUPPLY ASSY

WL

DOCUMENT NO. 40019800

REV. K

SHEET 14 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
229	21	20	4		K05	R3	15,24	K02	L2	14 15	
230	↑	↑	↑		K02	L2	15	TB04	8	16	
231					TB04	8	16	K01	L6	15,24	
232					K01	L5	15,24	TB02	2	14 16	
233					TB02	2	16	K101	L5	15,24	
234					K101	L6	15,24	K102	L2	14 17	
235					K102	L2	17	TB04	22	16	
236					TB04	22	16	K105	R3	15,24	
237					K105	R5	15,24	TB02	4	14 18	
238					TB02	4	18	SSW104	4	11	
239					SSW103	4	14 19	SSW102	4	14 20	
240					SSW102	4	20	SSW101	4	11	
241					SSW103	4	19	TB02	4	11	
242					TB02	4	11	SSW04	4	11	
243					SSW04	3	11	K04	L3	15,24	
244					K04	L2	15,24	TB02	9	11	
245					TB02	10	11	S102	B3	11,25	
246	↓	↓	↓		S102	A2	25 12 50	TB04	21	16	
247	21	20	4		TB04	7	16	S02	A2	12 25 46	

FORM AA1669.

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

POWER SUPPLY ASSY

WL | DOCUMENT NO. 40019800 | REV. K

SHEET 15 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
248	21	20	4		S02	A3	11,25	CB07	3D	5	
249	↑	↑	↑		S02	A2	㊻	K02	L1	11	
250	↓	↓	↓		K102	L1	11	S102	A2	㊿	
251	21	20	4		S102	A3	11,25	CB107	3D	5	
252											
253	21	20	4		TB02	7	12 ㉑	CB02	5B	5	
254	↑	↑	↑		CB02	3D	5	CB04	5B	5	
255					CB04	3D	5	CB05	5B	5	
256					CB05	3D	5	CB107	5B	5	
257					DS109	B	8	TB02	12	11	
258					TB02	14	11	DS106	B	8	
259					DS06	B	8	TB02	13	11	
260					TB02	11	11	DS09	B	8	
261					CB07	5B	5	CB05	3D	5	
262					TB02	4	11	SSW03	4	14 ㉒	
263					SSW03	4	㉒	SSW02	4	14 ㉓	
264					SSW02	4	㉓	SSW01	4	11	
265	↓	↓	↓		SSW01	3	14 ㉔	SSW02	3	14 ㉕	
266	21	20	4		SSW02	3	㉕	SSW03	3	14 ㉖	

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE

WIRE LISTING

POWER SUPPLY ASSY

WL | DOCUMENT NO. 40019800 | REV. K

SHEET 16 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
267	21	20	4		SSW03	3	㉔	K03	L2	15 24	
268					K04	1	15,24	SSW01	3	㉔	
269					SSW101	3	14 ㉗	SSW102	3	14 ㉘	
270					SSW102	3	㉘	SSW103	3	14 ㉙	
271					SSW103	3	㉙	K103	L3	15 24	
272					K103	L2	15 24	TB02	10	11	
273					TB02	10	11	K103	1	15,24	
274					K105	1	15,24	TB02	10	11	
275					TB02	10	11	K104	L2	15,24	
276					K104	1	15,24	SSW101	3	㉗	
277	↓	↓	↓		SSW104	3	11	K104	L3	15,24	
278	21	20	4		K101	B2	15,24	S102	B2	11,25	
279											
280	21	20	4		S07	B2	25 12 ⑮	K01	L3	15,24	
281	17	24			K02	2A	11	DS05	B	8	
282	↑	↑			DS05	T	8	TB02	6	11 ㉚	
283					TB02	6	㉚	DS105	T	8	
284	↓	↓	↓		DS105	B	8	K102	2A	11	
285	17	24	4		K102	1A	11	DS107	B	8	

FORM AA1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING
POWER SUPPLY ASSY

WL
DOCUMENT NO. 40019800
REV. K
SHEET 17 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
286	17	24	4		DS107	T	8	TB02	1	11 (31)	
287					TB02	1	(31)	DS07	T	8	
288					DS07	B	8	K02	1A	11	
289					K02	3A	11	DS08	B	8	
290					DS08	T	8	TB02	6	11 (32)	
291					TB02	6	(32)	DS108	T	8	
292					DS108	B	8	K102	3A	11	
293					K102	4C	11,25	TB02	8	11 (33)	
294					TB02	8	(33)	K05	L9	9,24	
295					K05	R1	9,24	K04	2	24,15 (34)	
296					K04	2	(34)	J04	27	6	
297					J04	25	6	TB02	8	11 (35)	
298					TB02	8	(35)	K101	1	9,24	
299					K101	2	24,9	TB02	4	11	
300					TB02	1	11 (36)	DS10	T	8	
301					DS10	B	8	TB02	7	(21)	
302					TB02	7	11 (40)	S01	A3	11,25	
303					S01	B2	11,25	TB02	2	11 (37)	
304	17	24	4		TB02	2	(37)	K05	R5	9,24	

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING
POWER SUPPLY ASSY

WL
DOCUMENT NO. 40019800
REV. K
SHEET 18 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
305	17	24	4		K05	R6	9,24	K03	L5	9,24	
306					K03	L6	9,24	J04	8	6	
307					J04	7	6	K05	2	9,24	
308					K01	2	9,24	TB02	1	(36)	
309					TB02	1	11 (38)	S102	C2	11,25	
310					S102	C1	11,25	TB04	20	8	
311					TB04	20	8	J04	59	6	
312					J04	49	6	S01	A2	11, 25 (43)	
313					S01	A2	(43)	K02	4C	25 11 (39)	
314					K02	4C	(39)	K01	1	9,24	
315					K01	L2	9,24	TB02	7	(40)	
316					TB02	6	11	K03	2	9,24	
317					J04	50	6	K02	4A	11	
318					K102	4A	11	S07	C2	25 11 (44)	
319					S07	C2	(44)	S07	B2	(45)	
320					S02	C1	11,25	TB04	6	8	
321					TB04	6	8	J04	44	6	
322					J04	22	6	DS111	B	8	
323	17	24	4		DS111	T	8	TB02	3	11 (41)	

FORM AA1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING
POWER SUPPLY ASSY

WL
DOCUMENT NO. 40019800
REV. K
SHEET 19 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
324	17	24	4		TB02	3	⟨41⟩	DS11	T	8	
325	↑	↑	↑		DS11	B	8	J04	10	6	
326					J04	15	6	K104	2	24,15 ⟨42⟩	
327					K104	2	⟨42⟩	K105	R1	9,24	
328					K105	2	9,24	J04	5	6	
329					J04	4	6	K103	L8	9,24	
330					K103	L5	9,24	K105	R6	9,24	
331					K103	2	9,24	TB02	3	11	
332					TB02	1	⟨38⟩	S02	C2	11,25	
333					DS09	T	8	TB04	1	8	
334					TB04	15	8	DS109	T	8	
335					S01	B3	11,25	TB04	5	8	
336					TB04	5	8	TB04	19	8	
337					TB04	17	8	DS106	T	8	
338					DS06	T	8	TB04	3	8	
339	↓	↓	↓		TB02	11	11	J04	67	6	
340	17	24	4		J04	70	6	TB02	12	11	
341	21	20	4		TB04	2	16	TB04	4	16	
342	21	20	4		TB04	4	16	TB04	16	16	

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING
POWER SUPPLY ASSY

WL
DOCUMENT NO. 40019800
REV. K
SHEET 20 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
343	21	20	4		TB04	16	16	TB04	18	16	
344	21	20	4		TB09	21	5	S07	A3	25,11	
345	21	20	4		TB09	25	5	S07	A1	25,11	
346											
347	21	20	4		C25	OME	5	CB07	3D	5	△14
348	21	20	4		TB09	13	5	S07	A2	25,11	
349	21	20	4		TB109	21	5	S107	A3	25,11	
350	21	20	4		TB109	25	5	S107	A1	25,11	
351											
352	21	20	4		TB109	13	5	S107	A2	25,11	
353	21	20	4		C125	OME	5	CB107	3D	5	△14
354											
355											
356											
357											
358											
359											
360											
361											

FORM AA1669

CONTROL DATA
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING
POWER SUPPLY ASSY

WL | DOCUMENT NO. 40019800 | REV. K

SHEET 21 OF

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
362	△1	16		12	T06	1		T01	6	57	
363	↑	12		12	T06	2		T01	14	56	
364		12		11	T06	3		TB06	3	53	
365		16		10	T06	4		T02	3	51	
366		12		11	T06	5		TB06	2	53	
367		12		12	T06	6		T01	16	56	
368		16		6	L02	1		C03	P	50	
369		16		6	L02	2		C04	P	50	
370	↓	16		5	L03	1		C07	N	50	
371	△1	16		5	L03	2		C08	N	50	
372	52	16	4	12	C01	P	50	TB06	1	51	
373	54	14	4	4	T08	5	58	T08	4	53	
374											
375											
376											
377											
378											
379											
380											

CONTROL DATA NORMANDALE DIVISION | CODE IDENT 19333 | SHEET 22 | WL | DOCUMENT NO. 40019800 | REV K

CONDUCTOR IDENT.	FIND NO	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS FIND NO	REMARKS
381	67	16	4	10	FL05	R	68	T01	1	68	
382	67	16	4	10	FL06	R	68	T01	2	68	
383	67	16	4	10	PANEL BASE	GRD	68	FRONT PANEL	GRD	68	△15
384	5	24	4	11	TB09	24	7	FRONT PANEL	GRD	6	△15
385	5	24	4	11	TB109	24	7	FRONT PANEL	GRD	6	△15
386											
387											
388											
389											
390											
391											
392											
393											
394											
395											
396											
397											
398											
399											
400	11	20	4	7	TB09	13	12	C25	ME	12	△15

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CONTROL DATA	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 23	WL	DOCUMENT NO. 40019800	REV K

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO	REMARKS
401	11	20	4	4	TB109	13	12	C125	ME	12	△15
402											
403											
404											
405											
406											
407											
408											
409											
410											
411											
412											
413											
414											
415	22	16	4	3	C21	OME	18	SSW01	1	19	△15 △14
416	22	16	4	3	C22	OME	18	SSW02	1	19	△15 △14
417	22	16	4	3	C23	OME	18	SSW03	1	19	△15 △14
418	22	16	4	3	C24	OME	18	SSW04		19	△15 △14
419	22	16	4	4	SSW01	2	19	FL11	COIL-B	18	△15
420	22	16	4	4	SSW02	2	19	FL12	COIL-B	18	△15

CONTROL DATA	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 24	WL	DOCUMENT NO. 40019800	REV. K

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO	REMARKS
421	22	16	4	4	SSW03	2	19	FL13	COIL-B	18	△15
422	21	20	4	4	SSW04	2	20	FL14	COIL-B	18	△15
423	22	16	4	6	TB11	2	18	C24	ME	18	△15 △13
424	22	16	4	5	FL11	CAP-B	18	TB11	1	18	△15
425	22	16	4	3	TB11	2	18	TB111	2	18	△15
426	22	16	4	4	TB111	2	18	C124	ME	18	△15 △13
427	22	16	4	4	C121	OME	18	SSW101	1	19	△15 △14
428	22	16	4	4	C122	OME	18	SSW102	1	19	△15 △14
429	22	16	4	4	C123	OME	18	SSW103	1	19	△15 △14
430	22	16	4	4	C124	OME	18	SSW104	1	19	△15 △14
431	22	16	4	6	SSW101	2	19	FL111	COIL-T	18	△15
432	22	16	4	6	SSW102	2	19	FL112	COIL-T	18	△15
433	22	16	4	6	SSW103	2	19	FL113	COIL-T	18	△15
434	21	20	4	6	SSW104	2	19	FL114	COIL-T	18	△15
435	22	16	4	6	FL111	CAP-T	18	TB111	1	18	△15
436											
437											
438											
439											
440	15	16	4	5	C32	OME	13	K05	12	14,12	△15 △14

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CONTROL DATA	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 25 OF 25	WL	DOCUMENT NO. 40019800	REV. K

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO	REMARKS
441	15	16	4	7	K05	L3	14,12	TB10	10	13	△15
442	15	16	4	4	TB10	9	13	FL15	OME	13	△15 △14
443	15	16	4	5	C33	OME	13	K05	L5	14,12	△15 △14
444	15	16	4	7	TB10	12	13	K05	L6	14,12	△15
445	15	16	4	4	TB10	11	13	FL16	OME	13	△15 △14
446	15	16	4	5	C132	OME	13	K105	L2	14,12	△15 △14
447	15	16	4	7	TB110	10	13	K105	L3	14,12	
448	15	16	4	4	TB110	9	13	FL115	OME	13	△15 △13
449	15	16	4	5	C133	OME	13	K105	L5	14,12	△15 △14
450	15	16	4	7	K105	L6	14,12	TB110	12	13	△15
451	15	16	4	4	TB110	11	13	FL116	OME	13	△15 △14
452	9	24	4	2	TB10	4	6	GRD		8	△15
453	9	24	4	2	TB110	4	6	GRD		8	△15

CONTROL DATA	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 1 OF 1	DN	DOCUMENT NO. 40019800	REV. K

△1. COMPONENTS T06, L02 & L03 USE EXISTING LEADS.

2. FOR FIND NO. REFERENCED IN CONDUCTORS 1 THRU 55 SEE PL 40017800; D.C. PANEL HARNESS.

3. FOR FIND NO. REFERENCED IN CONDUCTORS 77 THRU 144 SEE PL 41296100; A.C. HARNESS.

4. FOR FIND NO. REFERENCED IN CONDUCTORS 153 THRU 353 SEE PL 41294000; D.C. HARNESS.

5. FOR FIND NO. REFERENCED IN CONDUCTORS 362 THRU 373 SEE PL 40011800, 01; MISC. D.C. PANEL WIRING.

6. FOR FIND NO. REFERENCED IN CONDUCTORS 381 AND 383 SEE PL 40018600, 01; MISC POWER SUPPLY WIRING.

7. A HEXAGON IN THE ACCESS FIND NO. COLUMN INDICATES THAT THE CONDUCTOR IS ONE OF SEVERAL (ALL WITH THE SAME NUMBER IN THE HEXAGON) GOING INTO THE SAME TERMINAL. THE NUMBER IN FRONT OF A HEXAGON IS THE TERMINAL FIND NO.

8. FOR FIND NO. REFERENCED IN CONDUCTORS 384 AND 385 SEE PL 70805100; D.C. AND START TERMINAL BOARD ASSY.

9. FOR FIND NO. REFERENCED IN CONDUCTORS 400AND 401 SEE PL 70807500; SWITCH - SUPPRESSION, POWER SUPPLY.

10. FOR FIND NO. REFERENCED IN CONDUCTORS 415 THRU 435 SEE PL 41286300; A.C. PANEL ASSY.

11. FOR FIND NO. REFERENCED IN CONDUCTORS 440 THRU 451 SEE PL 70807900; D.C. RELAY PANEL ASSY.

12. FOR FIND NO. REFERENCED IN CONDUCTORS 452 THRU 453 SEE PL 70805400-01; D.C. RELAY TERMINAL BOARD ASSY.

△13 ME STANDS FOR CONNECTION NEAREST THE MOUNTED END.

△14 OME STANDS FOR CONNECTION OPPOSITE THE MOUNTED END.

△15 NOT IN HARNESS.

AA3189

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DWN	DM	12-66	CONTROL DATA NORMANDALE DIVISION	TITLE WIRE LIST-POWER SUPPLY ASSY	PREFIX WL	DOCUMENT NO. 72994100	REV A
CHKD	CM	12-66				
ENG	FWE	12-66				
MFG			CODE IDENT 19333	FIRST USED ON MULTIPLE DISK DRIVE		SHEET 1 OF 27
APPR						

SHEET REVISION STATUS

REVISION RECORD

REV	ECO	DESCRIPTION	DRFT	DATE	APP
A	PE21717	DWG NO WAS 70713400	BR	11/10/70	TR

NOTES:

DN 72994100
DETACHED LISTS

CONTROL DATA

CODE IDENT	SHEET		DOCUMENT NO.	REV
19333	2	WL	72994100	A

CONDUCTOR IDENT.	FIND NO	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
1	3	16	4		C14	L	4	T01	3	7 ⟨1⟩	
2					T01	3	⟨1⟩	CR04	4	4, 15	
3					CR04	3	4,15	C05	N	9, ⟨2⟩	
4					C05	N	⟨2⟩	C09	N	11 ⟨3⟩	
5					C09	N	⟨3⟩	TB02	4	4	
6					TB02	2	4	C06	N	11 ⟨4⟩	
7					C06	N	⟨4⟩	R02	R	4, 15	
8					R02	L	4, 15	C06	P	9 ⟨5⟩	
9					C06	P	⟨5⟩	CR05	1	4, 15	
10					CR05	4	4, 15	T01	9	1	
11					T01	10	1	CR05	2	4, 15	
12					CR05	3	4, 15	C06	N	⟨4⟩	
13					C08	N	6	R04	L	10	
14					R04	R	10	C04	P	6	
15					T08	1	4, 15	T05	3	4	
16					T05	1	4	T01	8	7 ⟨6⟩	
17					T01	8	⟨6⟩	T03	1	4	
18					T03	3	4	T09	1	4	
19					T09	2	4	T01	6	1	
20	3	16	4		T01	4	1	T09	3	4	

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CONTROL DATA

CODE IDENT 19333 | SHEET 3 | WL | DOCUMENT NO. 72994100 | REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
21	3	16	4		T09	4	4	CR04	2	4, 15	
22	↑	↑	↑		CR04	1	4, 15	C05	P	9 ⟨7⟩	
23					C05	P	⟨7⟩	C09	P	9 ⟨8⟩	
24					C09	P	⟨8⟩	R03	T	5, 12	
25					R03	B	5, 15	C09	N	⟨3⟩	
26					C02	N	6	R01	B	5, 12	
27					R01	T	5, 12	C02	P	6	
28					T05	4	4	T01	5	7 ⟨9⟩	
29					T01	5	⟨9⟩	T03	4	4	
30					T02	1	4	T01	8	7 ⟨10⟩	
31					T01	8	⟨10⟩	T04	1	4	
32					T04	3	4	T07	1	4	
33					T07	2	4	T01	7	7 ⟨11⟩	
34					T01	7	⟨11⟩	T08	2	4, 15	
35					T08	3	4	TB08	3	4	
36					TB07	2	4	T07	3	4, 15	
37					T07	4	4	C07	N	6	
38					T07	5	4	TB08	2	4	
39	↓	↓	↓		TB07	3	4	T08	6	4	
40	3	16	4		C14	R	4	T01	8	1	

CONTROL DATA

CODE IDENT 19333 | SHEET 4 | WL | DOCUMENT NO. 72994100 | REV A

CONDUCTOR IDENT	FIND NO	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS FIND NO.	REMARKS
41	3	16	4		T01	5	7 ⟨12⟩	T02	4	4	
42	3	16	↑		T04	4	4	T01	5	⟨12⟩	
43	2	14			TB07	1	8	T01	13	7	
44	↑	↑			T01	12	7	C07	P	9	
45					C07	P	9	C03	N	9	
46					C03	P	9	T08	5	8	
47					TB08	1	8	T01	11	7	
48					T01	15	7	C01	N	9	
49					C01	N	9	C02	N	9	
50					C02	P	9	L01	2	8	
51					L01	1	8	C01	P	9	
52					C04	N	9	C08	P	9	
53					C08	P	9	C07	P	9	
54	↓	↓	↓		C08	P	9	TB02	3	B	
55	2	14	4		TB02	1	8	C02	N	9	
56											
57											
58											
59											
60											

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CONTROL DATA
CODE IDENT 19333
SHEET 5
WL
DOCUMENT NO. 72994100
REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
61											
62											
63											
64											
65											
66											
67											
68											
69											
70											
71											
72											
73											
74											
75											
76											
77	4	16	4		CB03	AT	8	CB02	AT	9 ⟨1⟩	
78	↑	↑	↑		CB02	AT	⟨1⟩	CB103	AT	8	
79	↓	↓	↓		CB03	AB	8	C21	ME	5	△13
80	4	16	4		TB11	1	15	J03	1	13	

CONTROL DATA
CODE IDENT 19333
SHEET 6
WL
DOCUMENT NO. 72994100
REV A

CONDUCTOR IDENT	FIND NO	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS FIND NO.	REMARKS
81	4	16	4		J03	2	13	FL12	CAP B	5	
82	↑	↑	↑		C22	ME	5	CB03	BB	8	△13
83					CB103	BT	8	CB02	BT	9 ⟨3⟩	
84					CB02	BT	⟨3⟩	CB03	BT	8	
85					CB02	AB	8	J02	1	13	
86					J02	2	13	CB02	BB	8	
87					CB03	CT	8	CB02	CT	12 ⟨4⟩	
88					CB02	CT	⟨4⟩	CB103	CT	8	
89					CB03	CB	8	C23	ME	5	△13
90					FL13	CAP B'	5	J03	3	13	
91					J02	3	13	CB02	CB	8	
92	↓	↓	↓		CB02	AT	9 ⟨5⟩	XF03	T	10	
93	4	16	4		XF03	B	10	TB11	2	15	
94											
95	4	16	4		C123	ME	5	CB103	CB	8	△13
96	↑	↑	↑		CB103	BB	8	C122	ME	5	△13
97					FL113	CAP T	5	J103	3	13	
98					J103	2	13	FL112	CAP T	5	
99	↓	↓	↓		TB11	4	15	J103	1	13	
100	4	16	4		C121	ME	5	CB103	AB	8	△13

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CONTROL DATA		CODE IDENT 19333	SHEET 7	WL	DOCUMENT NO. 72994100	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
101	4	16	4		XF04	B	10	T01	1	22	
102	↑	↑	↑		T01	2	22	XF05	B	10	
103	↓	↓			XF05	T	10	CB02	CT	⟨4⟩	
104	4	16			CB02	BT	9 ⟨9⟩	XF04	T	10	
105	3	20			TB03	11	23	TB03	9	10 ⟨56⟩	
106	↑	↑			TB03	9	10 ⟨56⟩	TB03	7	10 ⟨57⟩	
107					TB03	1	23	CB02	AT	⟨5⟩	
108					CB02	BT	⟨9⟩	TB03	3	23	
109					TB03	5	23	CB02	CT	8 ⟨10⟩	
110					CB02	CT	⟨10⟩	DS04	B	23	
111					DS04	T	23	TB01	1	11	
112					TB01	1	11	P106	2	14	
113					P106	1	14	TB11	4	15	
114					FL114	CAP T	5	J103	6	14	
115					J103	7	14	TB01	2	11	
116					TB01	2	11	J03	7	14	
117					J03	6	14	FL14	CAP B	5	
118					TB11	2	15	J05	1	14	
119	↓	↓	↓		J05	2	14	TB01	1	11	
120	3	20	4		TB01	1	11	TB03	7	23 ⟨57⟩	

CONTROL DATA		CODE IDENT 19333	SHEET 8	WL	DOCUMENT NO. 72994100	REV. A

CONDUCTOR IDENT.	FIND NO	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
121	3	20	4		J03	8	14	TB01	4	11	
122	↑	↑	↑		TB01	4	11	J103	8	14	
123					J103	5	14	TB01	3	11	
124					TB01	3	11	J05	3	14	
125					J05	4	14	TB11	3	15	
126					TB11	3	15	J05	7	14	
127					J05	8	14	TB01	2	11	
128					TB01	2	11	J05	5	14	
129					J05	6	14	TB01	4	11	
130					TB01	4	11	J05	9	14	
131					J103	4	14	TB01	3	11	
132					TB01	3	11	J03	5	14	
133					J03	4	14	TB01	3	11	
134					TB01	1	11	P06	2	14	
135					P06	1	14	TB11	1	15	
136					J02	4	14	TB01	3	11	
137					TB01	4	11	J02	5	14	
138					TB03	2	23	TB03	8	23	
139	↓	↓	↓		TB03	10	23	TB03	4	23	
140	3	20	4		TB03	6	23	TB03	12	23	

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CONTROL DATA

CODE IDENT 19333 | SHEET 9 | WL | DOCUMENT NO. 72994100 | REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS FIND NO.	REMARKS
141	3	20	4		B01	L	17, 18	TB11	2	15	
142	↑	↑	↑		TB11	3	15	B02	L	17, 18	
143	↓	↓	↓		B02	R	17, 18	TB01	2	11	
144	3	20	4		TB01	2	11	B01	R	17, 18	
145	4	16	4		TB11	2	15	C24	ME	5	△13
146	↑	↑	↑		FL11	CAP B	5	TB11	1	15	
147	↓	↓	↓		TB11	3	15	C124	ME	5	△13
148	4	16	4		FL111	CAP T	5	TB11	4	15	
149											
150											
151											
152											
153	10	16	4		CB07	T	2	C02	P	7 ⬡1	
154	↑	↑	↑		C02	P	⬡1	CB107	T	2	
155					CB106	T	2	C09	P	7 ⬡2	
156					C09	P	⬡2	CB06	T	2	
157					CB06	B	2	C32	ME	5	△13
158					FL15	ME	5	TB02	11	12	△13
159	↓	↓	↓		TB02	11	12	J04	21	3	
160	10	16	4		J04	20	3	K102-1	OUT	23	

CONTROL DATA

CODE IDENT 19333 | SHEET 10 | WL | DOCUMENT NO. 72994100 | REV. A

CONDUCTOR IDENT.	FIND NO	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
161											
162											
163	10	16	4		K02-1	OUT	23	J04	18	3	
164	↑	↑	↑		J04	17	3	TB02	13	12	
165					FL16	ME	5	TB02	13	12	△13
166					C33	ME	5	XF02	B	16	△13
167					XF02	T	16	K06	6	5 ⬡6	
168					K06	6	⬡6	XF102	T	16	
169					XF102	B	16	C133	ME	5	△13
170					FL116	ME	5	TB02	14	12	△13
171	↓	↓	↓		TB02	14	12	J04	35	3	
172	10	16	4		J04	29	3	K102-3	OUT	23	
173											
174											
175	10	16	4		K02-3	OUT	23	J04	28	3	
176	↑	↑	↑		J04	30	3	TB02	12	12	
177					FL115	ME	5	TB02	12	12	△13
178					C132	ME	5	CB106	B	2	△13
179	↓	↓	↓		CB107	B	2	K102-2	IN	14, 25	
180	10	16	4		K102-2	OUT	23	J04	14	3	

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CONTROL DATA

CODE IDENT	SHEET	WL	DOCUMENT NO.	REV
19333	11	WL	72994100	A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
181	10	16	4		J04	13	3	K02-2	OUT	23	
182	▲	▲	▲		K02-2	IN	14,25	CB07	B	2	
183	▼	▼	▼		CB04	T	2	C04	P	2	
184	10	16	4		C08	N	2	CB05	T	2	
185											
186	10	16	4		J04	3	3	TB02	5	12	
187	▲	▲	▲		TB02	5	12	J04	2	3	
188					J04	1	3	TB02	6	12	
189					TB02	7	12	XF01	B	16	
190	▼	▼	▼		XF01	T	16	C03	P	2	
191	10	16	4		TB02	3	12	TB04	2	16	
192											
193	21	20	4		J04	33	4	K101	R3	15, 24	
194	▲	▲	▲		TB02	7	14 ⟨12⟩	J04	48	4	
195					J04	46	4	TB09	8	8	
196					TB09	9	8	J04	45	4	
197					J04	43	4	S07	B1	11, 25	
198					S07	B3	11, 25	J04	42	4	
199	▼	▼	▼		J04	41	4	S07	C1	11, 25	
200	21	20	4		S07	C3	11, 25	J04	40	4	

CONTROL DATA

CODE IDENT	SHEET	WL	DOCUMENT NO.	REV
19333	12	WL	72994100	A

CONDUCTOR IDENT	FIND NO	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS FIND NO.	REMARKS
201	21	20	4		J04	39	4	K05	L8	15,24	
202	▲	▲	▲		K05	R2	15, 24	TB02	2	11	
203					TB02	2	11	K105	R2	15, 24	
204					K105	L8	15, 24	J04	54	4	
205					J04	55	4	S107	C3	11, 25	
206					S107	C1	11, 25	J04	56	4	
207					J04	57	4	S107	B3	11, 25	
208					S107	B1	11, 25	J04	58	4	
209					J04	65	4	S107	C2	12 ⟨47⟩ 25	
210					S107	B2	12 25 ⟨48⟩	S107	C2	⟨47⟩	
211					S107	B2	⟨48⟩	K101	L3	15, 24	
212					K101	L2	15, 24	J04	64	4	
213					J04	62	4	TB09	6	8	
214					TB09	7	8	J04	60	4	
215					J04	52	4	TB02	7	⟨12⟩	
216					TB02	7	14	J04	37	4	
217					J04	53	4	J04	66	3 ⟨14⟩	
218					J04	66	⟨14⟩	K105	L9	15, 24	
219	▼	▼	▼		J04	51	4	TB02	5	11	
220	21	20	4		TB02	5	11	J04	36	4	

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CONTROL DATA	CODE IDENT 19333	SHEET 13	WL	DOCUMENT NO. 72994100	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
221	21	20	4		J04	26	4	TB02	3	11	
222	↑	↑	↑		TB02	3	11	J04	16	4	
223					J04	24	4	K01	R3	15, 24	
224	↓	↓	↓		K01	R2	15, 24	S02	B2	11,25	
225	21	20	4		S02	B3	11, 25	TB02	9	11	
226											
227	21	20	4		K03	1	15, 24	TB02	9	11	
228	↑	↑	↑		TB02	9	11	K05	1	15, 24	
229					K05	R3	15, 24	K02-4	COIL B	25 14 ⟨15⟩	
230					K02-4	COIL B	⟨15⟩	TB04	8	8	
231					TB04	8	8	K01	L6	15, 24	
232					K01	L5	15, 24	TB02	2	14 ⟨16⟩	
233					TB02	2	⟨16⟩	K101	L6	15, 24	
234					K101	L6	15, 24	K102-4	COIL B	25 14 ⟨17⟩	
235					K102-4	COIL B	⟨17⟩	TB04	22	8	
236					TB04	22	8	K105	R3	15, 24	
237					K105	R5	15, 24	TB02	4	14 ⟨18⟩	
238					TB02	4	⟨18⟩	SSW104	4	11	
239	↓	↓	↓		SSW103	4	14 ⟨19⟩	SSW102	4	14 ⟨20⟩	
240	21	20	4		SSW102	4	⟨20⟩	SSW101	4	11	

CONTROL DATA	CODE IDENT 19333	SHEET 14	WL	DOCUMENT NO. 72994100	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
241	21	20	4		SSW103	4	⟨19⟩	TB02	4	11	
242	↑	↑	↑		TB02	4	11	SSW04	4	11	
243					SSW04	3	11	K04	L3	15, 24	
244					K04	L2	15,24	TB02	9	11	
245					TB02	10	11	S102	B3	11, 25	
246	↓	↓	↓		TB04	21	8	TB09	10	8	
247	21	20	4		TB04	7	⟨46⟩, 16	TB09	18	8	
248											
249	21	20	4		TB04	7	16, ⟨46⟩	K02-1	COIL T	25,11	
250	21	20	4		K102-1	COIL T	25,11	TB04	21	⟨50⟩ 46	
251											
252											
253	21	20	4		TB02	7	12 ⟨21⟩	CB02	58	5	
254	↑	↑	↑		CB02	3D	5	CB04	58	5	
255					CB04	3D	5	CB05	58	5	
256					CB05	3D	5	CB107	58	5	
257					DS109	B	8	TB02	12	11	
258					TB02	14	11	DS106	B	8	
259	↓	↓	↓		DS06	B	8	TB02	13	11	
260	21	20	4		TB02	11	11	DS09	B	8	

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CONTROL DATA		CODE IDENT 19333	SHEET 15	WL	DOCUMENT NO. 72994100	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
261	21	20	4		CB07	5B	5	CB05	3D	5	
262	↑	↑	↑		TB02	4	11	SSW03	4	14 ⟨22⟩	
263					SSW03	4	⟨22⟩	SSW02	4	14 ⟨23⟩	
264					SSW02	4	⟨23⟩	SSW01	4	11	
265	↓	↓	↓		SSW01	3	14 ⟨24⟩	SSW02	3	14 ⟨25⟩	
266	21	20	4		SSW02	3	⟨25⟩	SSW03	3	14 ⟨26⟩	
267											
268	21	20	4		K04	1	15, 24	SSW01	3	⟨24⟩	
269	↑	↑	↑		SSW101	3	14 ⟨27⟩	SSW102	3	14 ⟨28⟩	
270					SSW102	3	⟨28⟩	SSW103	3	14 ⟨29⟩	
271					SSW03	3	⟨26⟩	TB02	9	11	
272					SSW103	3	⟨29⟩	TB02	10	11	
273					TB02	10	11	K103	1	15, 24	
274					K105	1	15, 24	TB02	10	11	
275					TB02	10	11	K104	L2	15, 24	
276					K104	1	15, 24	SSW101	3	⟨27⟩	
277	↓	↓	↓		SSW104	3	11	K104	L3	15, 24	
278	21	20	4		K101	R2	15, 24	S102	B2	11, 25	
279											
280	21	20	4		S07	B2	12 25 ⟨45⟩	K01	L3	15, 24	

CONTROL DATA		CODE IDENT 19333	SHEET 16	WL	DOCUMENT NO 72994100	REV. A

CONDUCTOR IDENT.	FIND NO	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
281	17	24	4		K02-2	OUT	25,11	DS05	B	8	
282	↑	↑	↑		DS05	T	8	TB02	6	11 ⟨30⟩	
283					TB02	6	⟨30⟩	DS105	T	8	
284					DS105	B	8	K102-2	OUT	25,11	
285					K102-1	OUT	25,11	DS107	B	8	
286					DS107	T	8	TB02	1	11 ⟨31⟩	
287					TB02	1	⟨31⟩	DS07	T	8	
288					DS07	B	8	K02-1	OUT	25,11	
289					K02-3	OUT	25,11	DS08	B	8	
290					DS08	T	8	TB02	6	11 ⟨32⟩	
291					TB02	6	⟨32⟩	DS108	T	8	
292					DS108	B	8	K102-3	OUT	25,11	
293					K102-4	IN	11, 25	TB02	8	11 ⟨33⟩	
294					TB02	8	⟨33⟩	K05	L9	9, 24	
295					K05	R1	9, 24	K04	2	15 24 ⟨34⟩	
296					K04	2	⟨34⟩	J04	27	6	
297					J04	25	6	TB02	8	11 ⟨35⟩	
298					TB02	8	⟨35⟩	K101	1	9, 24	
299	↓	↓	↓		K101	2	24, 9	TB02	4	11	
300	17	24	4		TB02	1	11 ⟨36⟩	DS10	T	8	

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CONTROL DATA		CODE IDENT 19333	SHEET 17	WL	DOCUMENT NO. 72994100	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS FIND NO.	REMARKS
301	17	24	4		DS10	B	8	TB02	7	(21)	
302	↑	↑	↑		TB02	7	11 (40)	S01	A3	11, 25	
303					S01	B2	11, 25	TB02	2	11 (37)	
304					TB02	2	(37)	K05	R5	9, 24	
305					K05	R6	9, 24	K03	L5	9, 24	
306					K03	L6	9,24	J04	8	6	
307					J04	7	6	K05	2	9, 24	
308					K01	2	9, 24	TB02	1	(36)	
309					TB02	1	11 (38)	S102	C2	11, 25	
310					TB04	20	8	TB09	17	8	
311					TB04	20	8	J04	59	6	
312					J04	49	6	S01	A2	11 25 (43)	
313					S01	A2	(43)	K02-4	IN	11 25 (39)	
314					K02-4	IN	(39)	K01	1	9, 24	
315					K01	L2	9, 24	TB02	7	(40)	
316					TB02	6	11	K03	2	9, 24	
317					J04	50	6	K02-4	OUT	25,11	
318					K102-4	OUT	25,11	S07	C2	11 25 (44)	
319	↓	↓	↓		S07	C2	(44)	S07	B2	(45)	
320	17	24	4		TB04	6	8	TB09	16	8	

CONTROL DATA		CODE IDENT 19333	SHEET 18	WL	DOCUMENT NO. 72994100	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
321	17	24	4		TB04	6	8	J04	44	6	
322	↑	↑	↑		J04	22	6	DS111	B	8	
323					DS111	T	8	TB02	3	11 (41)	
324					TB02	3	(41)	DS11	T	8	
325					DS11	B	8	J04	10	6	
326					J04	15	6	K104	2	15 24 (42)	
327					K104	2	(42)	K105	R1	9, 24	
328					K105	2	9, 24	J04	5	6	
329					J04	4	6	K103	L6	9, 24	
330					K103	L5	9, 24	K105	R6	9, 24	
331					K103	2	9, 24	TB02	3	11	
332					TB02	1	(38)	S02	C2	11, 25	
333					DS09	T	8	TB04	1	8	
334					TB04	15	8	DS109	T	8	
335					TB04	5	8	TB09	15	8	
336					TB04	5	8	TB04	19	8	
337					TB04	17	8	DS106	T	8	
338					DS06	T	8	TB04	3	8	
339	↓	↓	↓		TB02	11	11	J04	67	6	
340	17	24	4		J04	70	6	TB02	12	11	

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CONTROL DATA	CODE IDENT 19333	SHEET 19	WL	DOCUMENT NO. 72994100	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
341	21	20	4		TB04	2	8	TB04	4	8	
342	21	20	4		TB04	4	8	TB04	16	8	
343	21	20	4		TB04	16	8	TB04	18	8	
344											
345											
346											
347	21	20	4		C31	ME	5	CB07	3D	5	△14
348											
349											
350											
351											
352											
353	21	20	4		C131	ME	5	CB107	3D	5	△14
354	10	16	4		J04	12	3	FL19	OME	5	
355	10	16	4		J04	11	3	FL119	OME	5	
356											
357											
358											
359											
360											

CONTROL DATA	CODE IDENT 19333	SHEET 20	WL	DOCUMENT NO. 72994100	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
361											
362	△1	16		12	T06	1		T01	6	57	
363	↑	12		12	T06	2	1	T01	14	56	
364		12		11	T06	3		TB06	3	53	
365		16		10	T06	4		T02	3	51	
366		12		11	T06	5		TB06	2	53	
367		12		12	T06	6		T01	16	56	
368		16		6	L02	1		C03	P	50	
369		16		6	L02	2		C04	P	50	
370	↓	16		5	L03	1		C07	N	50	
371	△1	16		5	L03	2		C08	N	50	
372	52	16	4	12	C01	P	50	TB06	1	51	
373	54	14	4	4	T08	5	58	T08	4	53	
374											
375											
376											
377											
378											
379											
380											

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CONTROL DATA		CODE IDENT	SHEET	WL	DOCUMENT NO.	REV
		19333	21	WL	72994100	A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO	REMARKS
381											
382											
383	67	16	4	10	PANEL BASE	GRD	68	FRONT PANEL	GRD	68	△15
384	73	20	4	16	T01	1	90	K06	7	75	△15
385	73	20	4	16	T01	2	90	K06	2	75	△15
386	67	16	4	12	C06	P	89	K06	1	75	△15
387											
388											
389											
390											
391											
392											
393											
394											
395											
396											
397											
398											
399											
400	40	20	4	7	TB09	19	42	C31	OME	75	△14 △15

CONTROL DATA		CODE IDENT	SHEET	WL	DOCUMENT NO.	REV
		19333	22	WL	72994100	A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
401	40	20	4	6	TB09	11	42	C131	OME		△14 △15
402	40	20	4	2	TB09	14	42	TB09	13	⬡53 39	△15
403	40	20	4	2	TB09	12	⬡54 39	TB09	13	⬡53	△15
404	40	20	4	3	TB09	24	42	TB09	4	42	△15
405	40	20	4	2	TB09	4	42	TB09	12	⬡54	△15
406	40	20	4	2.5	TB09	11	42	TB09	26	42	△15
407	40	20	4	3.5	TB09	19	42	TB09	27	42	△15
408	41	24	4	2.5	TB09	1	42	S01	B3	43,44	
409											
410											
411											
412											
413											
414											
415	22	16	4	2	C21	OME	18	SSW01	1	19	△15 △14
416	↑	↑	↑	2	C22	OME	18	SSW02	1	19	△15 △14
417				2	C23	OME	18	SSW03	1	19	△15 △14
418				2	C24	OME	18	SSW04	1	19	△15 △14
419	↓	↓	↓	3	SSW01	2	19	FL11	COIL B	18	△15
420	22	16	4	3	SSW02	2	19	FL12	COIL B	18	△15

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CONTROL DATA	CODE IDENT	SHEET	WL	DOCUMENT NO.	REV
	19333	23	WL	72994100	A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS FIND NO	REMARKS
421	22	16	4	3	SSW03	2	19	FL13	COIL B	18	△15
422	21	20	4	3	SSW04	2	20	FL14	COIL B	18	△15
423											
424											
425											
426											
427	22	16	4	2	C121	OME	18	SSW101	1	19	△15 △14
428	↑	↑	↑	2	C122	OME	18	SSW102	1	19	△15 △14
429				2	C123	OME	18	SSW103	1	19	△15 △14
430				2	C124	OME	18	SSW104	1	19	△15 △14
431				8	SSW101	2	19	FL111	COIL T	18	△15
432	↓	↓	↓	8	SSW102	2	19	FL112	COIL T	18	△15
433	22	16	4	8	SSW103	2	19	FL113	COIL T	18	△15
434	21	20	4	8	SSW104	2	19	FL114	COIL T	18	△15
435											
436											
437											
438											
439											
440	15	16	4	5	C32	OME	13	K05	L2	14, 12	△15 △14

CONTROL DATA	CODE IDENT	SHEET	WL	DOCUMENT NO.	REV
	19333	24	WL	72994100	A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS FIND NO	REMARKS
441	15	16	4	7	K05	L3	14, 12	TB10	10	13	△15
442	↑	↑	↑	4	TB10	9	13	FL15	OME	13	△15 △14
443				5	C33	OME	13	K05	L5	14, 12	△15 △14
444				7	TB10	12	13	K05	L6	14, 12	△15
445				4	TB10	11	13	FL16	OME	13	△15 △14
446				5	C132	OME	13	K105	L2	14, 12	△15 △14
447				7	TB110	10	13	K105	L3	14, 12	
448				4	TB110	9	13	FL115	OME	13	△15 △13
449				5	C133	OME	13	K105	L5	14, 12	△15 △14
450	↓	↓	↓	7	K105	L6	14, 12	TB110	12	13	△15
451	15	16	4	4	TB110	11	13	FL116	OME	13	△15 △14
452	9	24	4	2	TB10	4	6	GRD		8	△15
453	9	24	4	2	TB110	4	6	GRD		8	△15

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CONTROL DATA | NORMANDALE DIVISION | CODE IDENT 19333 | SHEET 25 | WL | DOCUMENT NO. 72994100 | REV A

CONDUCTOR IDENT.	FIND NO	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
500	1	20	4		TB09	23	6	S07	A3	3	
501	↑	↑	↑		TB09	27	(51) 2	S07	A2	↑	
502					TB09	22	6	S07	A1		
503					TB09	21	6	S107	A3		
504					TB09	26	(52) 2	S107	A2	↓	
505					TB09	20	6	S107	A1	3	
506					TB09	13	6	FRONT PANEL	GRD	4	
507	↓	↓	↓		S02	A3	3	TB09	27	(51)	
508	1	20	4		S102	A3	3	TB09	26	(52)	
510	1	20	4		TB09	2	6	S02	C1	3	
511	1	20	4		TB09	3	6	S102	C1	3	
512	1	20	4		TB09	25	6	S02	A2	3	
513	1	20	4		TB09	5	6	S102	A2	3	

CONTROL DATA | NORMANDALE DIVISION | CODE IDENT 19333 | SHEET 26 | WL | DOCUMENT NO. 72994100 | REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS FIND NO	REMARKS
600											
601	13	16	4	3.5	K02-1	GND	2,3	GND		4 (1)	
↑ ↑ 2	↑	↑	↑	4	K02-2	↑	↑	↑		(2) 4	
3				4.5	K02-3					(3) 4	
4				5	K02-4					(3)	
5				6.5	K102-1					(1)	
6				7	K102-2					(2)	
7				7.5	K102-3	↓	↓			(1)	
↓ 8				8	K102-4	GND	2,3	↓		(2)	
0 9				3	TB 13	5		GND		(3)	
10				5	↑	1		FL20	ME		
11				↑		2		FL 18	↑		
12				↓	↓	3		FL118	↓		
13				5	TB13	4		FL120	ME		
14				3	FL20	OME		K02-1	IN	2,3	
15				6	FL120	↑		K102-1	↑	↑	
16				4.5	FL18	↓		K02-3	↓	↓	
17				7.5	FL 118	OME		K102-3	IN	2,3	
↓ 18	↓	↓	↓	2	K02-1	COIL T	17	K02-2	COIL T	20 22 (4)	△15
619	13	16	4	2	K02-2	COIL T	(4)	K02-3	COIL T	20 22 (5)	△15

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CONTROL DATA	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 27	WL	DOCUMENT NO. 72994100	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO	DESTINATION		ACCESS FIND NO	REMARKS
620	13	16	4	2	K02-3	COIL T	⬡5	K02-4	COIL T	15,22	△15
↑21	↑	↑	↑	2	K102-1	COIL T	17	K102-2	COIL T	20,22 ⬡6	△15
22				2	K102-2	COIL T	⬡6	K102-3	COIL T	20,22 ⬡7	△15
23				2	K102-3	COIL T	⬡7	K102-4	COIL T	15,22	△15
24				2	K02-1	COIL B	15, 22	K02-2	COIL B	20,22 ⬡8	△15
25				2	K02-2	COIL B	⬡8	K02-3	COIL B	20,22 ⬡9	△15
26				2	K02-3	COIL B	⬡9	K02-4	COIL B	17	△15
27				2	K102-1	COIL B	15, 22	K102-2	COIL B	20, 22 ⬡10	△15
28				2	K102-2	COIL B	⬡10	K102-3	COIL B	20, 22 ⬡11	△15
29				2	K102-3	COIL B	⬡11	K102-4	COIL B	17	△15
30				24	TB13	1		CB04	B	5 ⬡12	
31				24	TB13	4		CB04	B	⬡12	
32				24	FL19	ME		CB04	B	⬡12	
33				24	TB13	2		CB05	B	5 ⬡13	
↓34	↓	↓	↓	24	TB13	3		CB05	B	⬡13	
635	13	16	4	24	FL119	ME		CB05	B	⬡13	

CONTROL DATA	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 1 of 1	DN	DOCUMENT NO. 72994100	REV. A

NOTES:

△1. COMPONENTS TO6, LO2 & LO3 USE EXISTING LEADS.

2. FOR FIND NO. REFERENCED IN CONDUCTORS 1 THRU 55 SEE PL 40017800; D.C. PANEL HARNESS.

3. FOR FIND NO. REFERENCED IN CONDUCTORS 77 THRU 148 SEE PL 70820900; A.C. HARNESS.

4. FOR FIND NO. REFERENCED IN CONDUCTORS 153 THRU 355 SEE PL 72954700; D.C. HARNESS.

5. FOR FIND NO. REFERENCED IN CONDUCTORS 362 THRU 373 SEE PL 72954700 & 01; MISC. D.C. PANEL WIRING.

6. FOR FIND NO. REFERENCED IN CONDUCTORS 383 THRU 386, SEE PL 40018600; MISC. POWER SUPPLY WIRING.

7. A HEXAGON IN THE ACCESS FIND NO. COLUMN INDICATES THAT THE CONDUCTOR IS ONE OF SEVERAL {ALL WITH THE SAME NUMBER IN THE HEXAGON} GOING INTO THE SAME TERMINAL. THE NUMBER IN FRONT OF A HEXAGON IS THE TERMINAL FIND NO.

8. FOR FIND NO. REFERENCED IN CONDUCTORS 400 THRU 408 SEE PL 70820800-01, FRONT PANEL ASSY.

9.

10. FOR FIND NO. REFERENCED IN CONDUCTORS 415 THRU 434 SEE PL 70820100; A.C. PANEL ASSY.

11. FOR FIND NO. REFERENCED IN CONDUCTORS 440 THRU 451 SEE PL 70807900; D.C. RELAY PANEL ASSY.

12. FOR FIND NO. REFERENCED IN CONDUCTORS 452 THRU 453, SEE PL 70805400; D.C. RELAY TERMINAL BOARD ASSY.

13. ME STANDS FOR CONNECTION NEAREST MOUNTED END.

△14. OME STANDS FOR CONNECTION OPPOSITE MOUNTED END.

△15. NOT IN HARNESS.

16. FOR FIND NO'S REFERENCED IN CONDUCTORS 500 THRU 513 SEE PL 72954600; FRONT PANEL HARNESS

17. FOR FIND NO'S REFERENCED IN CONDUCTORS 618 THRU 629 SEE PL 70710101; COMPONENT MTG.ASSY.

18. FOR FIND NO'S REFERENCED IN CONDUCTORS 601 THRU 617 & 630 THRU 635 SEE PL 70724800; HG RELAY HARNESS ASSY.

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DWN	DM	12-68	CONTROL DATA	TITLE WIRE LIST-POWER SUPPLY ASSY	PREFIX WL	DOCUMENT NO. 73118700	REV A
CHKD	CM	12-68	NORMANDALE DIVISION				
ENG	FWE	12-68					
MFG			CODE IDENT 19333	FIRST USED ON MULTIPLE DISK DRIVE		SHEET 1 OF 27	
APPR							

SHEET REVISION STATUS

REVISION RECORD

REV	ECO	DESCRIPTION	DRFT	DATE	APP
A	PE21933	DWG NO WAS 72994100	SB	1/26/71	I-NR

NOTES:

DN 73118700

DETACHED LISTS

CONTROL DATA		CODE IDENT 19333	SHEET 2	WL	DOCUMENT NO. 73118700	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
1	3	16	4		C14	L	4	T01	3	7 ⟨1⟩	
2	↑	↑	↑		T01	3	⟨1⟩	CR04	4	4, 15	
3					CR04	3	4,15	C05	N	9, ⟨2⟩	
4					C05	N	⟨2⟩	C09	N	11 ⟨3⟩	
5					C09	N	⟨3⟩	TB02	4	4	
6					TB02	2	4	C06	N	11 ⟨4⟩	
7					C06	N	⟨4⟩	R02	R	4, 15	
8					R02	L	4, 15	C06	P	9 ⟨5⟩	
9					C06	P	⟨5⟩	CR05	1	4, 15	
10					CR05	4	4, 15	T01	9	1	
11					T01	10	1	CR05	2	4, 15	
12					CR05	3	4, 15	C06	N	⟨4⟩	
13					C08	N	6	R04	L	10	
14					R04	R	10	C04	P	6	
15					T08	1	4, 15	T05	3	4	
16					T05	1	4	T01	8	7 ⟨6⟩	
17					T01	8	⟨6⟩	T03	1	4	
18					T03	3	4	T09	1	4	
19	↓	↓	↓		T09	2	4	T01	6	1	
20	3	16	4		T01	4	1	T09	3	4	

CONTROL DATA		CODE IDENT	SHEET	WL	DOCUMENT NO.	REV.
		19333	3	WL	73118700	A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
21	3	16	4		T09	4	4	CR04	2	4, 15	
22	↑	↑	↑		CR04	1	4, 15	C05	P	9 ⟨7⟩	
23					C05	P	⟨7⟩	C09	P	9 ⟨8⟩	
24					C09	P	⟨8⟩	R03	T	5, 12	
25					R03	B	5, 15	C09	N	⟨3⟩	
26					C02	N	6	R01	B	5, 12	
27					R01	T	5, 12	C02	P	6	
28					T05	4	4	T01	5	7 ⟨9⟩	
29					T01	5	⟨9⟩	T03	4	4	
30					T02	1	4	T01	8	7 ⟨10⟩	
31					T01	8	⟨10⟩	T04	1	4	
32					T04	3	4	T07	1	4	
33					T07	2	4	T01	7	7 ⟨11⟩	
34					T01	7	⟨11⟩	T08	2	4, 15	
35					T08	3	4	TB08	3	4	
36					TB07	2	4	T07	3	4, 15	
37					T07	4	41	C07	N	6	
38					T07	5	4	TB08	2	4	
39	↓	↓	↓		TB07	3	4	T08	6	4	
40	3	16	4		C14	R	4	T01	8	1	

CONTROL DATA		CODE IDENT	SHEET	WL	DOCUMENT NO.	REV.
		19333	4	WL	73118700	A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
41	3	16	4		T01	5	7 ⟨12⟩	T02	4	4	
42	3	16	↑		T04	4	4	T01	5	⟨12⟩	
43	2	14			TB07	1	8	T01	13	7	
44	↑	↑			T01	12	7	C07	P	9	
45					C07	P	9	C03	N	9	
46					C03	P	9	T08	5	8	
47					TB08	1	8	T01	11	7	
48					T01	15	7	C01	N	9	
49					C01	N	9	C02	N	9	
50					C02	P	9	L01	2	8	
51					L01	1	8	C01	P	9	
52					C04	N	9	C08	P	9	
53					C08	P	9	C07	P	9	
54	↓	↓	↓		C08	P	9	TB02	3	B	
55	2	14	4		TB02	1	8	C02	N	9	
56											
57											
58											
59											
60											

CONTROL DATA		CODE IDENT 19333	SHEET 5	WL	DOCUMENT NO. 73118700	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
61											
62											
63											
64											
65											
66											
67											
68											
69											
70											
71											
72											
73											
74											
75											
76											
77	4	16	4		CB03	AT	8	CB02	AT	9 ⟨1⟩	
78	↑	↑	↑		CB02	AT	⟨1⟩	CB103	AT	8	
79	↓	↓	↓		CB03	AB	8	C21	ME	5	△13
80	4	16	4		TB11	1	15	J03	1	13	

CONTROL DATA		CODE IDENT 19333	SHEET 6	WL	DOCUMENT NO. 73118700	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
81	4	16	4		J03	2	13	FL12	CAP B	5	
82	↑	↑	↑		C22	ME	5	CB03	BB	8	△13
83	│	│	│		CB103	BT	8	CB02	BT	9 ⟨3⟩	
84	│	│	│		CB02	BT	⟨3⟩	CB03	BT	8	
85	│	│	│		CB02	AB	8	J02	1	13	
86	│	│	│		J02	2	13	CB02	BB	8	
87	│	│	│		CB03	CT	8	CB02	CT	12 ⟨4⟩	
88	│	│	│		CB02	CT	⟨4⟩	CB103	CT	8	
89	│	│	│		CB03	CB	8	C23	ME	5	△13
90	│	│	│		FL13	CAP B'	5	J03	3	13	
91	│	│	│		J02	3	13	CB02	CB	8	
92	↓	↓	↓		CB02	AT	9 ⟨5⟩	XF03	T	10	
93	4	16	4		XF03	B	10	TB11	2	15	
94											
95	4	16	4		C123	ME	5	CB103	CB	8	△13
96	↑	↑	↑		CB103	BB	8	C122	ME	5	△13
97	│	│	│		FL113	CAP T	5	J103	3	13	
98	│	│	│		J103	2	13	FL112	CAP T	5	
99	↓	↓	↓		TB11	4	15	J103	1	13	
100	4	16	4		C121	ME	5	CB103	AB	8	△13

CONTROL DATA		CODE IDENT 19333	SHEET 7	WL	DOCUMENT NO. 73118700	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
101	4	16	4		XF04	B	10	T01	1	22	
102	↑	↑	↑		T01	2	22	XF05	B	10	
103	↓	↓			XF05	T	10	CB02	CT	(4)	
104	4	16			CB02	BT	9 (9)	XF04	T	10	
105	3	20			TB03	11	23	TB03	9	10 (56)	
106	↑	↑			TB03	9	10 (56)	TB03	7	10 (57)	
107					TB03	1	23	CB02	AT	(5)	
108					CB02	BT	(9)	TB03	3	23	
109					TB03	5	23	CB02	CT	8 (10)	
110					CB02	CT	(10)	DS04	B	23	
111					DS04	T	23	TB01	1	11	
112					TB01	1	11	P106	2	14	
113					P106	1	14	TB11	4	15	
114					FL114	CAP T	5	J103	6	14	
115					J103	7	14	TB01	2	11	
116					TB01	2	11	J03	7	14	
117					J03	6	14	FL14	CAP B	5	
118					TB11	2	15	J05	1	14	
119	↓	↓	↓		J05	2	14	TB01	1	11	
120	3	20	4		TB01	1	11	TB03	7	23 (57)	

CONTROL DATA		CODE IDENT 19333	SHEET 8	WL	DOCUMENT NO. 73118700	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
121	3	20	4		J03	8	14	TB01	4	11	
122	↑	↑	↑		TB01	4	11	J103	8	14	
123					J103	5	14	TB01	3	11	
124					TB01	3	11	J05	3	14	
125					J05	4	14	TB11	3	15	
126					TB11	3	15	J05	7	14	
127					J05	8	14	TB01	2	11	
128					TB01	2	11	J05	5	14	
129					J05	6	14	TB01	4	11	
130					TB01	4	11	J05	9	14	
131					J103	4	14	TB01	3	11	
132					TB01	3	11	J03	5	14	
133					J03	4	14	TB01	3	11	
134					TB01	1	11	P06	2	14	
135					P06	1	14	TB11	1	15	
136					J02	4	14	TB01	3	11	
137					TB01	4	11	J02	5	14	
138					TB03	2	23	TB03	8	23	
139	↓	↓	↓		TB03	10	23	TB03	4	23	
140	3	20	4		TB03	6	23	TB03	12	23	

CONTROL DATA		CODE IDENT 19333	SHEET 9	WL	DOCUMENT NO. 73118700	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
141	3	20	4		B01	L	17, 18	TB11	2	15	
142	↑	↑	↑		TB11	3	15	B02	L	17, 18	
143	↓	↓	↓		B02	R	17, 18	TB01	2	11	
144	3	20	4		TB01	2	11	B01	R	17, 18	
145	4	16	4		TB11	2	15	C24	ME	5	△13
146	↑	↑	↑		FL11	CAP B	5	TB11	1	15	
147	↓	↓	↓		TB11	3	15	C124	ME	5	△13
148	4	16	4		FL111	CAP T	5	TB11	4	15	
149											
150											
151											
152											
153	10	16	4		CB07	T	2	C02	P	7 ⬡1	
154	↑	↑	↑		C02	P	⬡1	CB107	T	2	
155					CB106	T	2	C09	P	7 ⬡2	
156					C09	P	⬡2	CB06	T	2	
157					CB06	B	2	C32	ME	5	△13
158					FL15	ME	5	TB02	11	12	△13
159	↓	↓	↓		TB02	11	12	J04	21	3	
160	10	16	4		J04	20	3	K102-1	OUT	23	

CONTROL DATA		CODE IDENT 19333	SHEET 10	WL	DOCUMENT NO. 73118700	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
161											
162											
163	10	16	4		K02-1	OUT	23	J04	18	3	
164	↑	↑	↑		J04	17	3	TB02	13	12	
165					FL16	ME	5	TB02	13	12	△13
166					C33	ME	5	XF02	B	16	△13
167					XF02	T	16	K06	6	5 ⬡6	
168					K06	6	⬡6	XF102	T	16	
169					XF102	B	16	C133	ME	5	△13
170					FL116	ME	5	TB02	14	12	△13
171	↓	↓	↓		TB02	14	12	J04	35	3	
172	10	16	4		J04	29	3	K102-3	OUT	23	
173											
174											
175	10	16	4		K02-3	OUT	23	J04	28	3	
176	↑	↑	↑		J04	30	3	TB02	12	12	
177					FL115	ME	5	TB02	12	12	△13
178					C132	ME	5	CB106	B	2	△13
179	↓	↓	↓		CB107	B	2	K102-2	IN	14,25	
180	10	16	4		K102-2	OUT	23,	J04	14	3	

CONTROL DATA | CODE IDENT 19333 | SHEET 11 | WL | DOCUMENT NO. 73118700 | REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
181	10	16	4		J04	13	3	K02-2	OUT	23	
182	↑	↑	↑		K02-2	IN	14, 25	CB07	B	2	
183	↓	↓	↓		CB04	T	2	C04	P	2	
184	10	16	4		C08	N	2	CB05	T	2	
185											
186	10	16	4		J04	3	3	TB02	5	12	
187	↑	↑	↑		TB02	5	12	J04	2	3	
188					J04	1	3	TB02	6	12	
189					TB02	7	12	XF01	B	16	
190	↓	↓	↓		XF01	T	16	C03	P	2	
191	10	16	4		TB02	3	12	TB04	2	16	
192											
193	21	20	4		J04	33	4	K101	R3	15, 24	
194	↑	↑	↑		TB02	7	14 ⟨12⟩	J04	48	4	
195					J04	46	4	TB09	8	8	
196					TB09	9	8	J04	45	4	
197					J04	43	4	S07	B1	11, 25	
198					S07	B3	11, 25	J04	42	4	
199	↓	↓	↓		J04	41	4	S07	C1	11, 25	
200	21	20	4		S07	C3	11, 25	J04	40	4	

CONTROL DATA | CODE IDENT 19333 | SHEET 12 | WL | DOCUMENT NO. 73118700 | REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
201	21	20	4		J04	39	4	K05	L8	15,24	
202	↑	↑	↑		K05	R2	15, 24	TB02	2	11	
203					TB02	2	11	K105	R2	15, 24	
204					K105	L8	15, 24	J04	54	4	
205					J04	55	4	S107	C3	11, 25	
206					S107	C1	11, 25	J04	56	4	
207					J04	57	4	S107	B3	11, 25	
208					S107	B1	11, 25	J04	58	4	
209					J04	65	4	S107	C2	12 ⟨47⟩ 25	
210					S107	B2	12 25 ⟨48⟩	S107	C2	⟨47⟩	
211					S107	B2	⟨48⟩	K101	L3	15, 24	
212					K101	L2	15, 24	J04	64	4	
213					J04	62	4	TB09	6	8	
214					TB09	7	8	J04	60	4	
215					J04	52	4	TB02	7	⟨12⟩	
216					TB02	7	14	J04	37	4	
217					J04	53	4	J04	66	3 ⟨14⟩	
218					J04	66	⟨14⟩	K105	L9	15, 24	
219	↓	↓	↓		J04	51	4	TB02	5	11	
220	21	20	4		TB02	5	11	J04	36	4	

CONTROL DATA		CODE IDENT 19333	SHEET 13	WL	DOCUMENT NO. 73118700	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
221	21	20	4		J04	26	4	TB02	3	11	
222	↑	↑	↑		TB02	3	11	J04	16	4	
223					J04	24	4	K01	R3	15, 24	
224	↓	↓	↓		K01	R2	15, 24	S02	B2	11,25	
225	21	20	4		S02	B3	11, 25	TB02	9	11	
226											
227											
228	21	20	4		TB02	9	11	K05	1	15, 24	
229	↑	↑	↑		K05	R3	15, 24	K02-4	COIL B	25 14 ⟨15⟩	
230					K02-4	COIL B	⟨15⟩	TB04	8	8	
231					TB04	8	8	K01	L6	15, 24	
232					K01	L5	15, 24	TB02	2	14 ⟨16⟩	
233					TB02	2	⟨16⟩	K101	L6	15, 24	
234					K101	L6	15, 24	K102-4	COIL B	25 14 ⟨17⟩	
235					K102-4	COIL B	⟨17⟩	TB04	22	8	
236	↓	↓	↓		TB04	22	8	K105	R3	15, 24	
237	21	20	4		K105	R5	15, 24	TB02	4	11	
238	17	24	4		R105	R1	⟨42⟩	SSW104	4	11	
239	21	20	4		SSW103	4	14 ⟨19⟩	SSW102	4	14 ⟨20⟩	
240	21	20	4		SSW102	4	⟨20⟩	SSW101	4	11	

CONTROL DATA		CODE IDENT 19333	SHEET 14	WL	DOCUMENT NO 73118700	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
241	21	20	4		SSW103	4	⟨19⟩	TB02	4	11	
242	17	24	4		K05	R1	15 24 ⟨34⟩	SSW04	4	11	
243											
244											
245	21	20	4		TB02	10	11	S102	B3	11, 25	
246	21	20	4		TB04	21	8	TB09	10	8	
247	21	20	4		TB04	7	⟨46⟩, 16	TB09	18	8	
248											
249	21	20	4		TB04	7	16, ⟨46⟩	K02-1	COIL T	25,11	
250	21	20	4		K102-1	COIL T	25,11	TB04	21	⟨50⟩ +6	
251											
252											
253	21	20	4		TB02	7	12 ⟨21⟩	CB02	58	5	
254	↑	↑	↑		CB02	3D	5	CB04	58	5	
255					CB04	3D	5	CB05	58	5	
256					CB05	3D	5	CB107	58	5	
257					DS109	B	8	TB02	12	11	
258					TB02	14	11	DS106	B	8	
259	↓	↓	↓		DS06	B	8	TB02	13	11	
260	21	20	4		TB02	11	11	DS09	B	8	

CONTROL DATA		CODE IDENT 19333	SHEET 15	WL	DOCUMENT NO. 73118700	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
261	21	20	4		CB07	5B	5	CB05	3D	5	
262	↑	↑	↑		TB02	4	11	SSW03	4	14 ⟨22⟩	
263					SSW03	4	⟨22⟩	SSW02	4	14 ⟨23⟩	
264					SSW02	4	⟨23⟩	SSW01	4	11	
265	↓	↓	↓		SSW01	3	14 ⟨24⟩	SSW02	3	14 ⟨25⟩	
266	21	20	4		SSW02	3	⟨25⟩	SSW03	3	14 ⟨26⟩	
267											
268	21	20	4		TB02	9	11	SSW01	3	⟨24⟩	
269	↑	↑	↑		SSW101	3	14 ⟨27⟩	SSW102	3	14 ⟨28⟩	
270					SSW102	3	⟨28⟩	SSW103	3	14 ⟨29⟩	
271	↓	↓	↓		SSW03	3	⟨26⟩	SSW04	3	11	
272	21	20	4		SSW103	3	⟨29⟩	SSW104	3	11	
273											
274	21	20	4		K105	1	15, 24	TB02	10	11	
275	↑	↑	↑								
276					TB02	10	11	SSW101	3	⟨27⟩	
277	↓	↓	↓								
278	21	20	4		K101	R2	15, 24	S102	B2	11, 25	
279											
280	21	20	4		S07	B2	12 25 ⟨45⟩	K01	L3	15, 24	

CONTROL DATA		CODE IDENT 19333	SHEET 16	WL	DOCUMENT NO. 73118700	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
281	17	24	4		K02-2	OUT	25,11	DS05	B	8	
282	↑	↑	↑		DS05	T	8	TB02	6	11 ⟨30⟩	
283					TB02	6	⟨30⟩	DS105	T	8	
284					DS105	B	8	K102-2	OUT	25,11	
285					K102-1	OUT	25,11	DS107	B	8	
286					DS107	T	8	TB02	1	11 ⟨31⟩	
287					TB02	1	⟨31⟩	DS07	T	8	
288					DS07	B	8	K02-1	OUT	25,11	
289					K02-3	OUT	25,11	DS08	B	8	
290					DS08	T	8	TB02	6	11 ⟨32⟩	
291					TB02	6	⟨32⟩	DS108	T	8	
292					DS108	B	8	K102-3	OUT	25,11	
293	↓	↓	↓		K102-4	IN	11, 25	TB02	6	11 ⟨33⟩	
294	17	24	4		TB02	8	⟨33⟩	K05	L9	9, 24	
295											
296	17	24	4		K05	R1	⟨34⟩	J04	27	6	
297	↑	↑	↑		J04	25	6	TB02	8	11 ⟨35⟩	
298					TB02	8	⟨35⟩	K101	1	9, 24	
299	↓	↓	↓		K101	2	24, 9	TB02	4	11	
300	17	24	4		TB02	1	11 ⟨36⟩	DS10	T	8	

CONTROL DATA		CODE IDENT 19333	SHEET 17	WL	DOCUMENT NO. 73118700	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
301	17	24	4		DS10	B	8	TB02	7	⟨21⟩	
302	↑	↑	↑		TB02	7	11 ⟨40⟩	S01	A3	11, 25	
303	↓	↓	↓		S01	B2	11, 25	TB02	2	11 ⟨37⟩	
304	17	24	4		TB02	2	⟨37⟩	K05	R5	9, 24	
305											
306	17	24	4		K05	R6	9,24	J04	8	6	
307	↑	↑	↑		J04	7	6	K05	2	9, 24	
308					K01	2	9, 24	TB02	1	⟨36⟩	
309					TB02	1	11 ⟨38⟩	S102	C2	11, 25	
310					TB04	20	8	TB09	17	8	
311					TB04	20	8	J04	59	6	
312					J04	49	6	S01	A2	11 25 ⟨43⟩	
313					S01	A2	⟨43⟩	K02-4	IN	11 25 ⟨39⟩	
314	↓	↓	↓		K02-4	IN	⟨39⟩	K01	1	9, 24	
315	17	24	4		K01	L2	9, 24	TB02	7	⟨40⟩	
316											
317	17	24	4		J04	50	6	K02-4	OUT	25,11	
318	↑	↑	↑		K102-4	OUT	25,11	S07	C2	11 25 ⟨44⟩	
319	↓	↓	↓		S07	C2	⟨44⟩	S07	B2	⟨45⟩	
320	17	24	4		TB04	6	8	TB09	16	8	

CONTROL DATA		CODE IDENT 19333	SHEET 18	WL	DOCUMENT NO. 73118700	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
321	17	24	4		TB04	6	8	J04	44	6	
322	↑	↑	↑		J04	22	6	DS111	B	8	
323					DS111	T	8	TB02	3	11 ⟨41⟩	
324					TB02	3	⟨41⟩	DS11	T	8	
325	↓	↓	↓		DS11	B	8	J04	10	6	
326	17	24	4		J04	15	6	K105	R1	15 24 ⟨42⟩	
327											
328	17	24	4		K105	2	9, 24	J04	5	6	
329	17	24	4		J04	4	6	K103	L6	9, 24	
330											
331											
332	17	24	4		TB02	1	⟨38⟩	S02	C2	11, 25	
333	↑	↑	↑		DS09	T	8	TB04	1	8	
334					TB04	15	8	DS109	T	8	
335					TB04	5	8	TB08	15	8	
336					TB04	5	8	TB04	19	8	
337					TB04	17	8	DS106	T	8	
338					DS06	T	8	TB04	3	8	
339	↓	↓	↓		TB02	11	11	J04	67	6	
340	17	24	4		J04	70	6	TB02	12	11	

CONTROL DATA	CODE IDENT 19333	SHEET 19	WL	DOCUMENT NO. 73118700	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
341	21	20	4		TB04	2	8	TB04	4	8	
342	21	20	4		TB04	4	8	TB04	16	8	
343	21	20	4		TB04	16	8	TB04	18	8	
344											
345											
346											
347	21	20	4		C31	ME	5	CB07	3D	5	△14
348											
349											
350											
351											
352											
353	21	20	4		C131	ME	5	CB107	3D	5	△14
354	10	16	4		J04	12	3	FL19	OME	5	
355	10	16	4		J04	11	3	FL119	OME	5	
356											
357											
358											
359											
360											

CONTROL DATA	CODE IDENT 19333	SHEET 20	WL	DOCUMENT NO. 73118700	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
361											
362	△1	16		12	T06	1		T01	6	57	
363	↑	12		12	T06	2	1	T01	14	56	
364		12		11	T06	3		TB06	3	53	
365		16		10	T06	4		T02	3	51	
366		12		11	T06	5		TB06	2	53	
367		12		12	T06	6		T01	16	56	
368		16		6	L02	1		C03	P	50	
369		16		6	L02	2		C04	P	50	
370	↓	16		5	L03	1		C07	N	50	
371	△1	16		5	L03	2		C08	N	50	
372	52	16	4	12	C01	P	50	TB06	1	51	
373	54	14	4	4	T08	5	58	T08	4	53	
374											
375											
376											
377											
378											
379											
380											

CONTROL DATA		CODE IDENT 19333	SHEET 21	WL	DOCUMENT NO. 73118700	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
381											
382											
383	67	16	4	10	PANEL BASE	GRD	68	FRONT PANEL	GRD	68	△15
384	73	20	4	16	T01	1	90	K06	7	75	△15
385	73	20	4	16	T01	2	90	K06	2	75	△15
386	67	16	4	12	C06	P	89	K06	1	75	△15
387											
388											
389											
390											
391											
392											
393											
394											
395											
396											
397											
398											
399											
400	40	20	4	7	TB09	19	42	C31	OME	75	△14 △15

CONTROL DATA		CODE IDENT 19333	SHEET 22	WL	DOCUMENT NO. 73118700	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
401	40	20	4	6	TB09	11	42	C131	OME		△14 △15
402	40	20	4	2	TB09	14	42	TB09	13	⬡53 39	△15
403	40	20	4	2	TB09	12	⬡54 39	TB09	13	⬡53	△15
404	40	20	4	3	TB09	24	42	TB09	4	42	△15
405	40	20	4	2	TB09	4	42	TB09	12	⬡54	△15
406	40	20	4	2.5	TB09	11	42	TB09	26	42	△15
407	40	20	4	3.5	TB09	19	42	TB09	27	42	△15
408	41	24	4	2.5	TB09	1	42	S01	83	43,44	
409											
410											
411											
412											
413											
414											
415	22	16	4	2	C21	OME	18	SSW01	1	19	△15 △14
416	↑	↑	↑	2	C22	OME	18	SSW02	1	19	△15 △14
417				2	C23	OME	18	SSW03	1	19	△15 △14
418				2	C24	OME	18	SSW04	1	19	△15 △14
419	↓	↓	↓	3	SSW01	2	19	FL11	COIL B	18	△15
420	22	16	4	3	SSW02	2	19	FL12	COIL B	18	△15

CONTROL DATA		CODE IDENT 19333	SHEET 23	WL	DOCUMENT NO. 73118700	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
421	22	16	4	3	SSW03	2	19	FL13	COIL B	18	△15
422	21	20	4	3	SSW04	2	20	FL14	COIL B	18	△15
423											
424											
425											
426											
427	22	16	4	2	C121	OME	18	SSW101	1	19	△15 △14
428	↑	↑	↑	2	C122	OME	18	SSW102	1	19	△15 △14
429	│	│	│	2	C123	OME	18	SSW103	1	19	△15 △14
430	│	│	│	2	C124	OME	18	SSW104	1	19	△15 △14
431	│	│	│	8	SSW101	2	19	FL111	COIL T	18	△15
432	↓	↓	↓	8	SSW102	2	19	FL112	COIL T	18	△15
433	22	16	4	8	SSW103	2	19	FL113	COIL T	18	△15
434	21	20	4	8	SSW104	2	19	FL114	COIL T	18	△15
435											
436											
437											
438											
439											
440	15	16	4	5	C32	OME	13	K05	L2	14, 12	△15 △14

CONTROL DATA		CODE IDENT 19333	SHEET 24	WL	DOCUMENT NO. 73118700	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
441	15	16	4	7	K05	L3	14, 12	TB10	10	13	△15
442	↑	↑	↑	4	TB10	9	13	FL15	OME	13	△15 △14
443	│	│	│	5	C33	OME	13	K05	L5	14, 12	△15 △14
444	│	│	│	7	TB10	12	13	K05	L6	14, 12	△15
445	│	│	│	4	TB10	11	13	FL16	OME	13	△15 △14
446	│	│	│	5	C132	OME	13	K105	L2	14, 12	△15 △14
447	│	│	│	7	TB110	10	13	K105	L3	14, 12	
448	│	│	│	4	TB110	9	13	FL115	OME	13	△15 △13
449	│	│	│	5	C133	OME	13	K105	L5	14, 12	△15 △14
450	↓	↓	↓	7	K105	L6	14, 12	TB110	12	13	△15
451	15	16	4	4	TB110	11	13	FL116	OME	13	△15 △14
452	9	24	4	2	TB10	4	6	GRD		8	△15
453	9	24	4	2	TB110	4	6	GRD		8	△15

CONTROL DATA	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 25	WL	DOCUMENT NO. 73118700	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
500	1	20	4		TB09	23	6	S07	A3	3	
501	↑	↑	↑		TB09	27	(51) 2	S07	A2	↑	
502					TB09	22	6	S07	A1		
503					TB09	21	6	S107	A3		
504					TB09	26	(52) 2	S107	A2	↓	
505					TB09	20	6	S107	A1	3	
506					TB09	13	6	FRONT PANEL	GRD	4	
507	↓	↓	↓		S02	A3	3	TB09	27	(51)	
508	1	20	4		S102	A3	3	TB09	26	(52)	
510	1	20	4		TB09	2	6	S02	C1	3	
511	1	20	4		TB09	3	6	S102	C1	3	
512	1	20	4		TB09	25	6	S02	A2	3	
513	1	20	4		TB09	5	6	S102	A2	3	

CONTROL DATA	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 26	WL	DOCUMENT NO. 73118700	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
600											
601	13	16	4	3.5	K02-1	GND	2,3	GND		4 (1)	
↑↑ 2	↑	↑	↑	4	K02-2	↑	↑	↑		(2) 4	
3				4.5	K02-3					(3) 4	
4				5	K02-4					(3)	
5				6.5	K102-1					(1)	
6				7	K102-2					(2)	
7				7.5	K102-3	↓	↓			(1)	
↓ 8				8	K102-4	GND	2,3	↓		(2)	
09				3	TB 13	5		GND		(3)	
10				5	↑	1		FL 20	ME		
11				↑		2		FL 18	↑		
12				↓	↓	3		FL118	↓		
13				5	TB13	4		FL120	ME		
14				3	FL20	OME		K02-1	IN	2,3	
15				6	FL120	↑		K102-1	↑	↑	
16				4.5	FL18	↓		K02-3	↓	↓	
17				7.5	FL 118	OME		K102-3	IN	2,3	
↓ 18	↓	↓	↓	2	K02-1	COIL T	17	K02-2	COIL T	20 22 (4)	△15
619	13	16	4	2	K02-2	COIL T	(4)	K02-3	COIL T	20 22 (5)	△15

CONTROL DATA	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 27	WL	DOCUMENT NO. 73118700	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO	REMARKS
620	13	16	4	2	K02-3	COIL T	⬡5	K02-4	COIL T	15,22	△15
21	↑	↑	↑	2	K102-1	COIL T	17	K102-2	COIL T	20,22 ⬡6	△15
22				2	K102-2	COIL T	⬡6	K102-3	COIL T	20,22 ⬡7	△15
23				2	K102-3	COIL T	⬡7	K102-4	COIL T	15,22	△15
24				2	K02-1	COIL B	15, 22	K02-2	COIL B	20,22 ⬡8	△15
25				2	K02-2	COIL B	⬡8	K02-3	COIL B	20,22 ⬡9	△15
26				2	K02-3	COIL B	⬡9	K02-4	COIL B	17	△15
27				2	K102-1	COIL B	15, 22	K102-2	COIL B	20, 22 ⬡10	△15
28				2	K102-2	COIL B	⬡10	K102-3	COIL B	20, 22 ⬡11	△15
29				2	K102-3	COIL B	⬡11	K102-4	COIL B	17	△15
30				24	TB13	1		CB04	B	5 ⬡12	
31				24	TB13	4		CB04	B	⬡12	
32				24	FL19	ME		CB04	B	⬡12	
33				24	TB13	2		CB05	B	5 ⬡13	
34	↓	↓	↓	24	TB13	3		CB05	B	⬡13	
635	13	16	4	24	FL119	ME		CB05	B	⬡13	

CONTROL DATA	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 1 of 1	DN	DOCUMENT NO. 73118700	REV. A

NOTES:

△1. COMPONENTS T06, L02 & L03 USE EXISTING LEADS.

2. FOR FIND NO. REFERENCED IN CONDUCTORS 1 THRU 55 SEE PL 40017800; D.C. PANEL HARNESS.

3. FOR FIND NO. REFERENCED IN CONDUCTORS 77 THRU 148 SEE PL 70820900; A.C. HARNESS.

4. FOR FIND NO. REFERENCED IN CONDUCTORS 153 THRU 355 SEE PL 72954700; D.C. HARNESS.

5. FOR FIND NO. REFERENCED IN CONDUCTORS 362 THRU 373 SEE PL 72954700 & 01; MISC. D.C. PANEL WIRING.

6. FOR FIND NO. REFERENCED IN CONDUCTORS 383 THRU 386, SEE PL 40018600; MISC. POWER SUPPLY WIRING.

7. A HEXAGON IN THE ACCESS FIND NO. COLUMN INDICATES THAT THE CONDUCTOR IS ONE OF SEVERAL {ALL WITH THE SAME NUMBER IN THE HEXAGON} GOING INTO THE SAME TERMINAL. THE NUMBER IN FRONT OF A HEXAGON IS THE TERMINAL FIND NO.

8. FOR FIND NO. REFERENCED IN CONDUCTORS 400 THRU 408 SEE PL 70820800-01, FRONT PANEL ASSY.

9.

10. FOR FIND NO. REFERENCED IN CONDUCTORS 415 THRU 434 SEE PL 70820100; A.C. PANEL ASSY.

11. FOR FIND NO. REFERENCED IN CONDUCTORS 440 THRU 451 SEE PL 70807900; D.C. RELAY PANEL ASSY.

12. FOR FIND NO. REFERENCED IN CONDUCTORS 452 THRU 453, SEE PL 70805400; D.C. RELAY TERMINAL BOARD ASSY.

13. ME STANDS FOR CONNECTION NEAREST MOUNTED END.

△14. OME STANDS FOR CONNECTION OPPOSITE MOUNTED END.

△15. NOT IN HARNESS.

16. FOR FIND NO'S REFERENCED IN CONDUCTORS 500 THRU 513 SEE PL 72954600; FRONT PANEL HARNESS

17. FOR FIND NO'S REFERENCED IN CONDUCTORS 618 THRU 629 SEE PL 70710101; COMPONENT MTG.ASSY.

18. FOR FIND NO'S REFERENCED IN CONDUCTORS 601 THRU 617 & 630 THRU 635 SEE PL 70724800; HG RELAY HARNESS ASSY.

DWN	D.Moore	3/2/7	**CONTROL DATA** CORPORATION	TITLE WIRE LIST - POWER SUPPLY ASSEMBLY
CHKD		3-2-7	NORMANDALE DIVISION	PREFIX WL
ENG	a.C	3-2-7		DOCUMENT NO. 73129100
MFG			CODE IDENT 19333	FIRST USED ON MULTIPLE DISK DRIVE
APPR				SHEET 1 OF 29

A

SHEET REVISION STATUS

REVISION RECORD

REV	ECO	DESCRIPTION	DRFT	DATE	APP
A	PE 24 SE	DWG WAS 73118300	ENP	9/12/77	IR

NOTES:

DN 73129100

DETACHED LISTS

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 2	WL	DOCUMENT NO. 73129100	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
1	3	16	4		C14	L	4	T01	3	7 ⟨1⟩	
2	↑	↑	↑		T01	3	⟨1⟩	CR04	4	4,15	
3					CR04	3	4,15	C05	N	9 ⟨2⟩	
4					C05	N	⟨2⟩	C09	N	11 ⟨3⟩	
5					C09	N	⟨3⟩	TB02	4	4	
6					TB02	2	4	C06	N	11 ⟨4⟩	
7					C06	N	⟨4⟩	R02	R	4	
8					R02	L	4	C06	P	9 ⟨5⟩	
9					C06	P	⟨5⟩	CR05	1	1	
10					CR05	4	1	T01	9	1	
11					T01	10	1	CR05	2	1	
12					CR05	3	1	C06	N	4	
13					C08	N	6	R04	L	10	
14					R04	R	10	C04	P	6	
15					T08	1	4,15	T05	3	⟨4⟩	
16					T05	1	4	T01	8	7 ⟨6⟩	
17					T01	8	⟨6⟩	T03	1	4	
18					T03	3	4	T09	1	4	
19	↓	↓	↓		T09	2	4	T01	6	1	
20	3	16	4		T01	4	1	T09	3	4	

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 3	WL	DOCUMENT NO. 73129100	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
21	3	16	4		T09	4	4	CR04	2	4,15	
22	↑	↑	↑		CR04	1	4,15	C05	P	9 ⟨7⟩	
23					C05	P	⟨7⟩	C09	P	9 ⟨8⟩	
24					C09	P	⟨8⟩	R03	T	5,15	
25					R03	B	5,15	C09	N	⟨3⟩	
26					C02	N	6	R01	B	5,15	
27					R01	T	5,15	C02	P	6	
28					T05	4	4	T01	5	7 ⟨9⟩	
29					T01	5	⟨9⟩	T03	4	4	
30					T02	1	4	T01	8	7 ⟨10⟩	
31					T01	8	⟨10⟩	T04	1	4	
32					T04	3	4	T07	1	4	
33					T07	2	4	T01	7	7 ⟨11⟩	
34					T01	7	⟨11⟩	T08	2	4,15	
35					T08	3	4	TB08	3	4	
36					TB07	2	4	T07	3	4,15	
37					T07	4	4	C07	N	6	
38					T07	5	4	TB08	2	4	
39	↓	↓	↓		TB07	3	4	T08	6	4	
40	3	16	4		C14	R	4	T01		1	

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 4	WL	DOCUMENT NO. 73129100	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
41	3	16	4		T01	5	7 ⟨12⟩	T02	4	4	
42	3	16	↑		T04	4	4	T01	5	⟨12⟩	
43	2	14			TB07	1	8	T01	13	7	
44	↑	↑			T01	12	7	C07	P	9	
45					C07	P	9	C03	N	9	
46					C03	P	9	T08	5	8	
47					TB08	1	8	T01	11	7	
48					T01	15	7	C01	N	9	
49					C01	N	9	C02	N	9	
50					C02	P	9	L01	2	8	
51					L01	1	8	C01	P	9	
52					C04	N	9	C08	P	9	
53					C08	P	9	C07	P	9	
54	↓	↓	↓		C08	P	9	TB02	3	8	
55	2	14	4		TB02	1	8	C02	N	9	
56											
57											
58											
59											
60											

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 5	WL	DOCUMENT NO. 73129100	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
61											
62											
63											
64											
65											
66											
67											
68											
69											
70											
71											
72											
73											
74											
75											
76											
77	4	16	4		CB03	AT	8	CB02	AT	9 ⟨1⟩	
78	4	16	4		CB02	AT	⟨1⟩	CB103	AT	8	
79	4	16	4		CB03	AB	8	C21	ME	5	△12
80	4	16	4		TB11	1	5	J03	1	13	

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 6	WL	DOCUMENT NO. 73129100	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
81	4	16	4		J03	2	13	FL12	CAP B	5	
82	↑	↑	↑		C22	ME	5	CB03	BB	8	
83					CB103	BT	8	CB02	BT	9 ⟨3⟩	
84					CB02	BT	⟨3⟩	CB03	BT	8	
85					CB02	AB	8	J02	1	13	
86					J02	2	13	CB02	BB	8	
87					CB03	CT	8	CB02	CT	12 ⟨4⟩	
88					CB02	CT	⟨4⟩	CB103	CT	8	
89					CB03	CB	8	C23	ME	5	
90					FL13	CAPB	5	J03	3	13	
91					J02	3	13	CB02	CB	8	
92	↓	↓	↓		CB02	AT	9 ⟨5⟩	XF03	T1	10	
93	4	16	4		XF03	B	10	TB11	2	5	
94											
95	4	16	4		C123	ME	5	CB103	CB	8	
96	↑	↑	↑		CB103	BB	8	C122	ME	5	
97					FL113	CAPT	5	J103	3	13	
98					J103	2	13	FL112	CAPT	5	
99	↓	↓	↓		TB111	1	5	J103	1	13	
100	4	16	4		C121	ME	5	CB103	AB	8	

CONTROL DATA CORPORATION | NORMANDALE DIVISION | CODE IDENT 19333 | SHEET 7 | WL | DOCUMENT NO. 73129100 | REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
101	4	16	4		XF04	B	10	FL05	L	8	
102	4	16	↑		FL06	L	8	XF05	B	10	
103	4	16			XF05	T	10	CB02	CT	④	
104	4	16			CB02	BT	9 ⑨	XF04	T	10	
105	3	20			TB03	11	23	TB03	9	10	
106	↑	↑			TB03	9	10	TB03	7	10	
107					TB03	1	23	CB02	AT	⑤	
108					CB02	BT	⑨	TB03	3	23	
109					TB03	5	23	CB02	CT	8 ⑩	
110					CB02	CT	⑩	DS04	B	23	
111					DS04	T	23	TB01	1	11	
112					TB01	1	11	P106	2	14	
113					P106	1	14	TB111	1	5	
114					FL114	CAPT	5	J103	6	14	
115					J103	7	14	TB01	2	11	
116					TB01	2	11	J03	7	14	
117					J03	6	14	FL14	CAPB	5	
118					TB11	2	5	J05	1	14	
119	↓	↓	↓		J05	2	14	TB01	1	11	
120	3	20	4		TB01	1	11	TB03	7	23	

CONTROL DATA CORPORATION | NORMANDALE DIVISION | CODE IDENT 19333 | SHEET 8 | WL | DOCUMENT NO. 73129100 | REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
121	3	20	4		J03	8	14	TB01	4	11	
122	↑	↑	↑		TB01	4	11	J103	8	14	
123					J103	5	14	TB01	3	11	
124					TB01	3	11	J05	3	14	
125					J05	4	14	TB111	2	5	
126					TB111	2	5	J05	7	14	
127					J05	8	14	TB01	2	11	
128					TB01	2	11	J05	5	14	
129					J05	6	14	TB01	4	11	
130					TB01	4	11	J05	9	14	
131					J103	4	14	TB01	3	11	
132					TB01	3	11	J03	5	14	
133					J03	4	14	TB01	3	11	
134					TB01	1	11	P06	2	14	
135					P06	1	14	TB11	1	5	
136					J02	4	14	TB01	3	11	
137					TB01	4	11	J02	5	14	
138					TB03	2	23	TB03	8	23	
139	↓	↓	↓		TB03	10	23	TB03	4	23	
140	3	20	4		TB03	6	23	TB03	12	23	

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 9	WL	DOCUMENT NO. 73129100	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
141	3	20	4		B01	L	17,18	TB11	2	5	
142	↑	↑	↑		TB111	2	5	B02	L	17,18	
143	↓	↓	↓		B02	R	17,18	TB01	2	11	
144	3	20	4		TB01	2	11	B01	R	17,18	
145	4	16	4		TB11	2	15	C24	ME	5	△12
146	↑	↑	↑		FL11	CAP B	5	TB11	1	15	
147	↓	↓	↓		TB11	3	15	C124	ME	5	
148	4	16	4		FL11	CAP T	5	TB11	4	15	
149											
150											
151											
152											
153	10	16	4		CB07	T	2	C02	P	7 ⟨1⟩	
154	↑	↑	↑		C02	P	⟨1⟩	CB107	T	2	
155					CB106	T	2	C09	P	7 ⟨2⟩	
156					C09	P	⟨2⟩	CB06	T	2	
157					CB06	B	2	C32	ME	5	
158					FL15	ME	5	TB02	11	12	
159	↓	↓	↓		TB02	11	12	J04	21	3	
160	10	16	4		J04	20	3	K102-1	OUT	23	

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 10	WL	DOCUMENT NO. 73129100	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
161	10	16	4								
162	↑	↑	↑								
163					K02-1	OUT	23	J04	18	3	
164					J04	17	3	TB02	13	12	
165					FL16	ME	5	TB02	13	12	
166					C33	ME	5	XF02	B	16	
167					XF02	T	16	K06	6	5 ⟨6⟩	
168					K06	6	⟨6⟩	XF102	T	16	
169					XF102	B	16	C133	ME	5	
170					FL116	ME	5	TB02	14	12	
171					TB02	14	12	J04	35	3	
172					J04	29	3	K102-3	OUT	23	
173											
174											
175					K02-3	OUT	23	J04	28	3	
176					J04	30	3	TB02	12	12	
177					FL115	ME	5	TB02	12	12	
178					C132	ME	5	CB106	B	2	
179	↓	↓	↓		CB107	B	2	K102-2	IN	12,30	
180	10	16	4		K102-2	OUT	23	J04	14	3	

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 11	WL	DOCUMENT NO. 73129100	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
181	10	16	4		J04	13	3	K02-2	OUT	23	
182	↑	↑	↑		K02-2	IN	12,30	CB07	B	2	
183					CB04	T	2	C04	P	2	
184					C08	N	2	CB05	T	2	
185					FL119	OME	5	J04	11	3	
186					J04	3	3	TB02	5	12	
187					TB02	5	12	J04	2	3	
188					J04	1	3	TB02	6	12	
189					TB02	7	12	XF01	B	16	
190					XF01	T	16	C03	P	2	
191	↓	↓			TB02	3	12	TB04	2	16	
192	10	16	↓		FL19	OME	5	J04	12	3	
193	21	20	4		J04	33	4	S102	B2	11	
194											
195	21	20	4		J04	46	4	FL17	ME	5	
196	↑	↑	↑		TB15	4	5	TB02	7	12	
197					J04	43	4	TB09	23	8	
198					J04	56	4	S08	2	26, 27 (52)	
199	↓	↓	↓								
200	21	20	4		K01	2	15,24	C25	ME	5	

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 12	WL	DOCUMENT NO. 73129100	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
201	21	20	4		TB09	22	14 (*1)	J04	45	4	
202	↑	↑	↑		K05	R2	15,24	TB02	2	11	
203					TB02	2	11	K105	R2	15,24	
204					K01	1	15,24	TB04	7	8	
205					K101	1	15,24	TB04	21	8	
206					TB09	16	14 (46)	J04	34	4	
207					J04	23	4	TB09	15	14	(50)
208					TB09	21	8	J04	58	4	
209					J04	57	4	S108	2	26, 27 (53)	
210											
211					K101	2	15,24	C125	ME	5	
212					TB09	20	16 (*2)	J04	60	4	
213					J04	62	4	FL117	ME	5	
214					TB115	4	5	TB02	7	12	
215	↓	↓	↓		J04	52	4	TB02	7	14	
216	21	20	4		TB02	7	14	J04	37	4	
217	21	20	4		S07	1	28,29	TB02	1	14 (14)	
218	↑	↑	↑		TB02	1	(14)	S107	1	28,29	
219	↓	↓	↓		J04	51	4	TB02	5	11	
220	21	20	4		TB02	5	11	J04	36	4	

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 13	WL	DOCUMENT NO. 73129100	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
221	21	20	4		J04	26	4	TB02	3	11	
222	21	20	4		TB02	3	11	J04	16	4	
223	21	20	4		J04	24	4	S02	B2	11	
224											
225	21	20	4		S02	B3	11	TB02	9	11	
226											
227											
228	21	20	4		TB02	9	11	K05	1	15,24	
229	↑	↑	↑		K02-4COIL	B	30 14, 15	TB02	2	14 16	
230	↓	↓	↓		K02-4COIL	B	15	TB04	8	8	
231	21	20	4		K102-4COIL	B	30 14 17	TB02	2	16	
232											
233											
234											
235	21	20	4		K102- 4-COIL	B	17	TB04	22	8	
236											
237	21	20	4		K105	R5	15,24	TB02	4	11	
238	17	24	4		K105	R1	42	SSW104	4	11	
239											
240											

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 14	WL	DOCUMENT NO. 73129100	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
241	21	20	4		TB11	5	11	TB02	4	11	
242	17	24	4		K05	R1	15 24 34	SSW04	4	11	
243											
244											
245	17	24	4		TB02	10	11	S102	B3	11	
246	↑	↑	↑		TB09	16	46	TB04	21	8	
247	│	│	│		TB04	7	8	TB09	15	8	
248	│	│	│		C31	OME	5	CB07	3D	5	
249	│	│	│		TB09	15	50	K02-1COIL	T	11,30	
250	↓	↓	↓		K102-1COIL	T	11,30	TB09	16	8	
251	21	20	4		C131	OME	5	CB107	3D	5	
252											
253	21	20	4		TB02	7	12 21	CB02	5B	5	
254	↑	↑	↑		CB02	3D	5	CB04	5B	5	
255	│	│	│		CB04	3D	5	CB05	5B	5	
256	│	│	│		CB05	3D	5	CB107	5B	5	
257	│	│	│		DS109	B	8	TB02	12	11	
258	│	│	│		TB02	14	11	DS106	B	8	
259	↓	↓	↓		DS06	B	8	TB02	13	11	
260	21	20	4		TB02	11	11	DS09	B	8	

		CODE IDENT	SHEET		DOCUMENT NO.	REV
CONTROL DATA CORPORATION	NORMANDALE DIVISION	19333	15	WL	73129100	A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
261	21	20	4		CB07	5B	5	CB05	3D	5	
262											
263											
264											
265											
266											
267											
268	21	20	4		TB02	9	11	TB11	6	11	
269											
270											
271	21	20	4		TB11	6	11	SSW04	3	11	
272	21	20	4		TB11	7	11	SSW104	3	11	
273											
274	21	20	4		K105	1	15,24	TB02	10	11	
275											
276	21	20	4		TB02	10	11	TB11	7	11	
277											
278											
279											
280											

		CODE IDENT	SHEET		DOCUMENT NO.	REV
CONTROL DATA CORPORATION	NORMANDALE DIVISION	19333	16	WL	73129100	A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
281	17	24	4		K02-2	OUT	11,30	DS05	B	8	
282	↑	↑	↑		DS05	T	8	TB02	6	11 30	
283					TB02	6	30	DS105	T	8	
284					DS105	B	8	K102-2	OUT	11,30	
285					K102-1	OUT	11,30	DS107	B	8	
286					DS107	T	8	TB02	1	11 31	
287y					TB02	1	31	DS07	T	8	
288					DS07	B	8	K02-1	OUT	11,30	
289					K02-3	OUT	11,30	DS08	B	8	
290					DS08	T	8	TB02	6	11 32	
2911	↓	↓	↓		TB02	6	32	DS108	T	8	
292	17	24	4		DS108	B	8	K102-3	OUT	11,30	
293											
294											
295											
296	17	24	4		K05	R1	34	J04	27	6	
297	10	16	4		CB04	B	4	TB13	1	5	
298	10	16	4		CB05	B	8	TB13	3	5	
299											
300	17	24	4		TB02	1	11	DS10	T	8	

CONTROL DATA | NORMANDALE DIVISION | CODE IDENT 19333 | SHEET 17 | WL | DOCUMENT NO. 73129100 | REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
301	17	24	4		DS10	B	8	TB02	7	21	
302											
303											
304	17	24	4		TB02	2	11	K05	R5	9,24	
205											
306	17	24	4		K05	R6	9,24	J04	8	6	
307	17	24	4		J04	7	6	K05	2	9,24	
208											
209	17	24	4		TB02	1	11 38	S102	C2	11	
310	17	24	4		TB09	18	11	J04	59	6	
311											
312											
313											
314											
315											
316											
317											
318											
319											
320	17	24	4		TB09	19	11	J04	44	6	

CONTROL DATA | NORMANDALE DIVISION | CODE IDENT 19333 | SHEET 18 | WL | DOCUMENT NO. 73129100 | REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
321											
322	21	20	4		J04	22	6	K101	R1	15,24	
323	↑	↑	↑		K101	R2	15,24	TB02	1	15	
324	↓	↓			K01	R2	15,24	TB02	1	15	
325	21	20	↓		K01	R1	15,24	J04	10	6	
326	17	24	4		J04	15	6	K104	2	24,15	42
327											
328	17	24	4		K105	2	9,24	J04	5	6	
329	17	24	4		J04	4	6	K103	L6	9,24	
330											
331											
332	17	24	4		TB02	1	38	S02	C2	11	
333	17	24	4		DS09	T	8	TB04	1	8	
334	17	24	4		TB04	15	8	DS109	T	8	
335											
336											
337	17	24	4		TB04	17	8	DS106	T	8	
338	17	24	4		DS06	T	8	TB04	3	8	
339	17	24	4		TB02	11	11	J04	67	6	
340	17	24	4		J04	70	6	TB02	12	11	

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 19	WL	DOCUMENT NO. 73129100	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
341	21	20	4		TB04	2	16	TB04	4	16	
342	21	20	4		TB04	4	16	TB04	16	16	
343	21	20	4		TB04	16	16	TB04	18	16	
344	21	20	4		S08	2	(52)	TB09	28	11	
345	↑	↑	↑		S108	2	(53)	TB09	29	11	
346					S07	3	28,29	TB09	22	(*1)	
347					S107	3	28,29	TB09	20	(*2)	
348					TB09	13	11	FRONT PNL	GRD	25	
349					TB09	26	11	TB02	2	23(*3)	
350					TB09	27	11	TB02	2	(*3)	
351					S08	4	28,29	TB09	9	11	
352					S108	4	28,29	TB09	7	11	
353	↓	↓	↓		TB09	17	11 (54)	C31	ME	5	
354	21	20	4		TB09	24	11 (55)	C131	ME	5	
355	21	20	4		TB09	17	11 (54)	S02	A3	11	
356	21	20	4		TB09	24	11 (55)	S102	A3	11	
357											
358											
359											
360											

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 20	WL	DOCUMENT NO. 73129100	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
361											
362	1	16		12	T06	1		T01	6	57	
363	↑	12		12	T06	2		T01	14	56	
364		12		11	T06	3		TB06	3	53	
365		16		10	T06	4		T02	3	51	
366		12		11	T06	5		TB06	2	53	
367		12		12	T06	6		T01	16	56	
368		16		6	L02	1		C03	P	50	
369		16		6	L02	2		C04	P	50	
370	↓	16		5	L03	1		C07	N	50	
371	1	16		5	L03	2		C08	N	50	
372	52	16	4	12	C01	P	50	TB06	1	51	
373	54	14	4	4	T08	5	58	T08	4	53	
374											
375											
376	75	20	4	16	T01	1	68	K 06	7	71	△15
377	75	20	4	16	T01	2	68	K06	2	71	△15
378	67	16	4	12	C06	P	92	K06	1	71	△15
379	77				K04	L3	71,78	K04	L2	71,78	C52 + TO L3
380	77				K104	L3	71,78	K104	L2	71,78	C152 + TO L3

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 21	WL	DOCUMENT NO. 73129100	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
381											
382											
383	93			12	PANEL BASE	GRD		FRONT PANEL	GRD		
384	77				K01	1	71,78	K01	2	71,78	C50 + TO K01-1
385	77				K101	1	71,78	K101	2	71,78	C150 + TO K101-1
386	27	20	4	3	J04	53	43	TB09	8	41	
387	27	20	4	5	TB09	12	41	TB09	26	42 *6	
388	27	20	4	6	TB09	26	*6	TB09	30	42 *7	
389											
390	27	20	4	6	TB09	30	*7	TB09	27	42 *8	
391	27	20	4	3	J04	54	43	TB09	6	41	
392	27	20	4	5	TB09	27	*8	TB09	14	41	
393	27	20	4	4	TB09	30	41	TB09	25	42 51	
394	27	20	4	4	TB09	25	51	TB09	31	41	
395	27	20	4	6	TB09	25	41	TB09	13	41	
396	27	20	4	3	TB09	1	41	TB09	3	41	
397	27	20	4	3	TB09	2	41	TB09	4	41	
398	27	20	4		TB09	1	41	S02	A2	41	
399	27	20	4		TB09	2	41	S102	A2	41	
400	27	20	4		TB09	10	41	S02	C1	41	

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 22	WL	DOCUMENT NO. 73129100	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
401	27	20	4		TB09	5	41	S102	C1	41	
402	27	20	4		C25	OME	25	J04	41	43	△13
403	27	20	4		C125	OME	25	J04	42	43	
404											
405											
406											
407											
408											
409											
410											
411											
412											
413											
414											
415	22	16	4	2	C21	OME	18	SSW01	L1	19	
416	↑	↑	↑	2	C22	OME	18	SSW02	L1	19	
417	│	│	│	2	C23	OME	18	SSW03	L1	19	
418	│	│	│	2	C24	OME	18	SSW04	1	19	
419	↓	↓	↓	3	SSW01	LD	19	FL11	COIL B	18	
420	22	16	4	3	SSW02	LD	19	FL12	COIL B	18	

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 23	WL	DOCUMENT NO. 73129100	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
421	22	16	4	3	SSW03	LD	19	FL13	COIL B	18	
422	21	20	4	3	SSW04	2	20	FL14	COIL B	18	
423											
424											
425											
426											
427	22	16	4	2	C121	OME	18	SSW101	L1	19	
428	↑	↑	↑	2	C122	OME	18	SSW102	L1	19	
429				2	C123	OME	18	SSW103	L1	19	
430				2	C124	OME	18	SSW104	1	19	
431				8	SSW101	LD	19	FL111	COIL T	18	
432	↓	↓		8	SSW102	LD	19	FL112	COIL T	18	
433	22	16	↓	8	SSW103	LD	19	FL113	COIL T	18	
434	21	20	4	8	SSW104	2	19	FL114	COIL T	18	
435											
436											
437											
438											
439											
440	15	16	4	5	C32	OME	13	K05	L2	14,12	

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 24	WL	DOCUMENT NO. 73129100	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
441	15	16	4	7	K05	L3	14,12	TB10	10	13	
442	↑	↑	↑	4	TB10	9	13	FL15	OME	13	
443				5	C33	OME	13	K05	L5	14,12	
444				7	TB10	12	13	K05	L6	14,12	
445				4	TB10	11	13	FL16	OME	13	
4461				5	C132	OME	13	K105	L2	14,12	
447				7	TB110	10	13	K105	L3	14,12	
448				4	TB110	9	13	FL115	OME	13	
449				5	C133	OME	13	K105	L5	14,12	
450	↓	↓		7	K105	L6	14,12	TB110	12	13	
451	15	16		4	TB110	11	13	FL116	OME	13	
452	7	20	↓		TB10	4	6		GRD	8	
453	7	20	4		TB110	4	6		GRD	8	
454											
455											
456	75	20	4	4	TB15	4	71	K01	L2	76	
457	↑	↑	↑	4	TB15	2	↑	K01	L3	↑	
458				4	TB115	4		K101	L2		
459	↓	↓	↓	4	TB115	2	↓	K101	L3	↓	
460	75	20	4	5	TB15	1	71	FL17	OME	76	

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 25	WL	DOCUMENT NO. 73129100	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
461	75	20	4	5	TB115	1	71	FL117	OME	76	
462											
463											
464											
465	13	16	4	3.5	K02-1	GND	2,3	GND		4 ⟨1⟩	
466	↑	↑	↑	4	K02-1	GND	2,3	GND		⟨2⟩ 4	
467				4.5	K02-3	GND	2,3	GND		⟨3⟩ 4	
468				5	K02-4	GND	2,3	GND		⟨3⟩	
469				6.5	K102-1	GND	2,3	GND		⟨1⟩	
470				7	K102-2	GND	2,3	GND		⟨2⟩	
471				7.5	K102-3	GND	2,3	GND		⟨1⟩	
472				8	K102-4	GND	2,3	GND		⟨2⟩	
473				3	TB13	5		GND		⟨3⟩	
474				5	TB13	1		FL20	ME		
475				5	TB13	2		FL18	ME		
476				5	TB13	3		FL118	ME		
477				5	TB13	4		FL120	ME		
478				3	FL20	OME		K02-1	IN	2,3	
479	↓	↓	↓	6	FL120	OME		K102-1	IN	2,3	
480	13	16	4	4.5	FL18	OME		K02-3	IN	2,3	

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 26	WL	DOCUMENT NO. 73129100	REV A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
481	13	16	4	7.5	FL118	OME		K102-3	IN	2,3	
482	↑	↑	↑	24	TB13	1		CB04	B	5 ⟨12⟩	
483				24	TB13	4		CB04	B	⟨12⟩	
484				24	FL19	ME		CB04	B	⟨12⟩	
485				24	TB13	2		CB05	B	5 ⟨13⟩	
486	↓	↓	↓	24	TB13	3		CB05	B	⟨13⟩	
487	13	16	4	24	FL119	ME		CB05	B	⟨13⟩	
488											
489											
490											
491											
492	13	16	4	2	K02-1	COIL T	17	K02-2	COIL T	20,22	⟨4⟩ △15
493	↑	↑	↑	2	K02-2	COIL T	⟨4⟩	K02-3	COIL T	20,22	⟨5⟩ ↑
494				2	K02-3	COIL T	⟨5⟩	K02-4	COIL T	15,22	
495				2	K102-1	COIL T	17	K102-2	COIL T	20,22	⟨6⟩
496				2	K102-2	COIL T	⟨6⟩	K102-3	COIL T	20,22	⟨7⟩
497				2	K102-3	COIL T	⟨7⟩	K102-4	COIL T	15,22	
498				2	K02-1	COIL B	15,22	K02-2	COIL B	20,22	⟨8⟩
499	↓	↓	↓	2	K02-2	COIL B	⟨8⟩	K02-3	COIL B	20,22	⟨9⟩ ↓
500	13	16	4	2	K02-3	COIL B	⟨9⟩	K02-4	COIL B	17	△15

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT	SHEET	WL	DOCUMENT NO.	REV
		19333	27		73129100	A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
501	13	16	4	2	K102-1	COIL B	15,22	K102-2	COIL B	20,22	10 15
502	13	16	4	2	K102-2	COIL B	10	K102-3	COIL B	20,22	11 15
503	13	16	4	2	K102-3	COIL B	11	K102-4	COIL B	17	15
504											
505											
506											
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520											

CONTROL DATA CORPORATION	NORMANDALE DIVISION	CODE IDENT	SHEET	WL	DOCUMENT NO.	REV.
		19333	28		73129100	A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
521											
522											
523											
524											
525	1	20	4	15	P07	1	3	SSW01	1	2	
526	↑	↑	↑	15	↑	2	↑	SSW01	3	↑	
527				15		3		SSW01	2		
528				14		4		SSW02	1		
529				14		5		SSW02	3		
530				14		6		SSW02	2		
531				10		7		SSW03	1		
532				10		8		SSW03	3		
533				10		9		SSW03	2		
534				10	↓	10		TB11	5		
535				10	P07	12		TB11	6		
536				15	P107	1		SSW101	1		
537				15	↑	2		SSW101	3		
538				15		3		SSW101	2		
539	↓	↓	↓	14	↓	4	↓	SSW102	1	↓	
540	1	20	4	14	P107	5	3	SSW102	3	2	

CONTROL DATA	NORMANDALE DIVISION	CODE IDENT 19333	SHEET 29 OF 29	WL	DOCUMENT NO. 73129100	REV. A

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX)	ORIGIN		ACCESS FIND NO.	DESTINATION		ACCESS FIND NO.	REMARKS
541	1	20	4	14	P107	6	3	SSW102	2	2	
542	↑	↑	↑	10	↑	7	↑	SSW103	1	↑	
543				10		8		SSW103	3		
544				10		9		SSW103	2		
545	↓	↓	↓	6	↓	10	↓	TB11	5	↓	
546	1	20	4	6	P107	12	3	TB11	7	2	

CONTROL DATA
CORPORATION
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LIST - MAINTENANCE PANEL ASSEMBLY

PRODUCT
MULT. DISK DRIVE

WL DOCUMENT NO. 40016700 REV. C

SHEET 1 OF 2

REVISION STATUS OF SHEETS

REVISIONS

REV.	ECO	DESCRIPTION	DRFT.	DATE	CHKD.	APPD.
A		RELEASED		11.13.68		MK
B	PM5578	SEE CO	GV	7-10-69	DCH	7-17
C	PM5578A	SEE CO	GV	7-10-69	DCH	7-17

NOTES:

1. FOR MECH ASSY AND PL SEE 40066300.

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CONTROL DATA
CORPORATION
MINNEAPOLIS, MINNESOTA

TITLE
WIRE LISTING
MAINTENANCE PANEL ASSEMBLY

WL DOCUMENT NO. 40016700 REV. C

SHEET 2 OF 2

CONDUCTOR IDENT.	FIND NO.	GAUGE (REF.)	COLOR (REF.)	LENGTH (APPROX.)	ORIGIN		ACCESS. FIND NO.	DESTINATION		ACCESS. FIND NO.	REMARKS
1	6	20	-	1	A3S200	A2	7	A3S200	B2	7	
2	11	24	4	3	A3S200	A2	7	A3S201	3	13,14	
3	11	24	4	4	A3DS200	T	12	A3TP203	-	7	
4	6	20	-	1	A4S200	A2	7	A4S200	B2	7	
5	11	24	4	3	A4S200	A2	7	A4S201	3	13,14	
6	11	24	4	4	A4DS200	T	12	A4TP203	-	7	
7	11	24	4	3	A3TB204	5	7	A3S200	B1	7	
8	11	24	4	3	A4TB204	5	7	A4S200	B1	7	
9	11	24	4	3	A3TB204	7	7	A3S200	B2	7	
10	11	24	4	3	A4TB204	7	7	A4S200	B2	7	
11	11	24	4	3	A3TB204	8	7	A3S200	A3	7	
12	11	24	4	3	A4TB204	8	7	A4S200	A3	7	
13	11	24	4	3	A3TB204	6	7	A3S200	B3	7	
14	11	24	4	3	A4TB204	6	7	A4S200	B3	7	

COMMENT SHEET

MANUAL TITLE CONTROL DATA BM1A5 MULTIPLE DISK DRIVE

Customer Engineering Manual, Diagrams, Wire Lists

PUBLICATION NO. 70602500 **REVISION** E

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