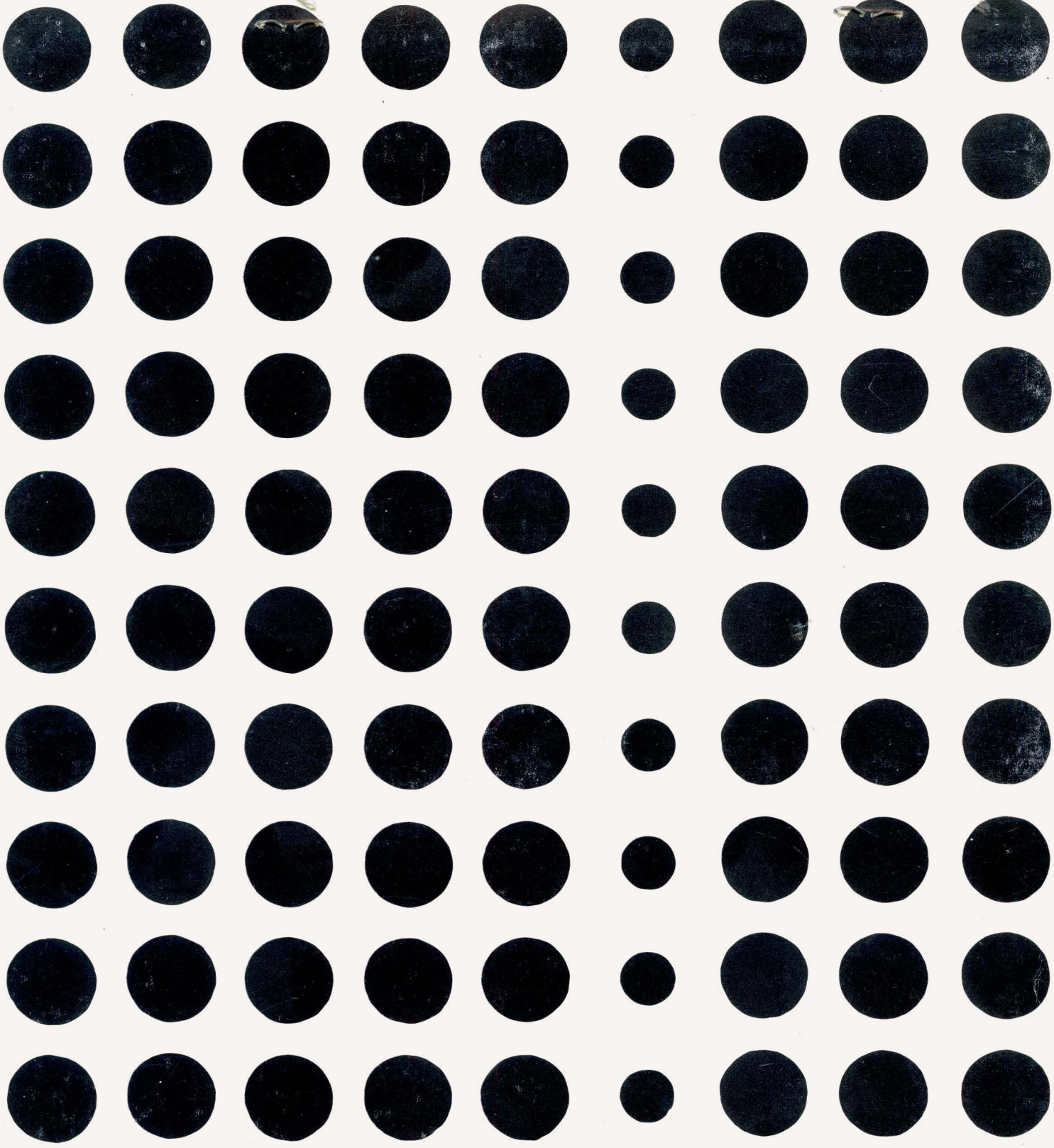
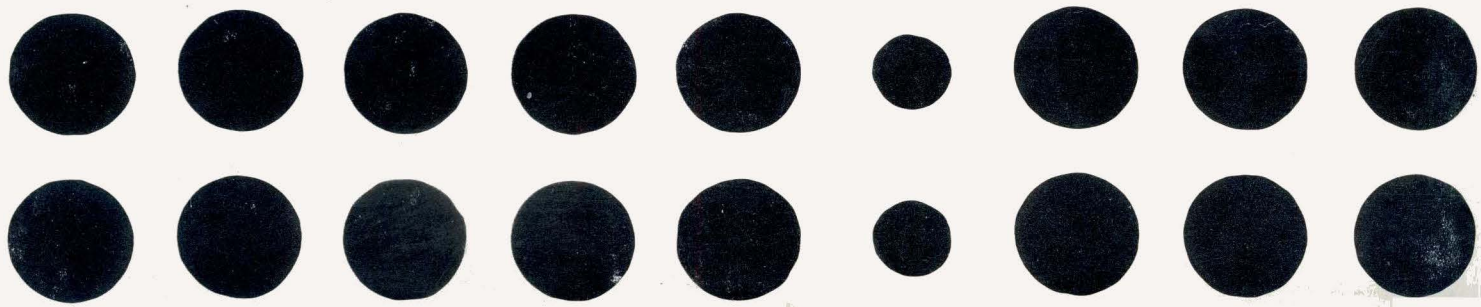


DIGITRONICS PERFORATED TAPE HANDLER

WHERE EVERY BIT COUNTS



MODELS 4566A, B4566A, 4566ALCR, B4566ALCR

PERFORATED TAPE HANDLER

OPERATION & MAINTENANCE MANUAL

RETURN AUTHORIZATION REQUIRED
IN THE EVENT THAT
FACTORY SERVICE IS NEEDED
PLEASE REQUEST RETURN
AUTHORIZATION BEFORE SHIPMENT.

Serial Number 2674

July, 1965

Revision "A" September, 1965

DIGITRONICS CORPORATION
ALBERTSON, LONG ISLAND, NEW YORK
TEL: (516) 484-1000

REVISION	DESCRIPTION
A.	DC4248 . . . . . Revised

Address comments regarding this publication to Digitronics Publications Dept., Albertson, L.I., New York

TABLE OF CONTENTS

SECTION I INTRODUCTION

SECTION II INSTALLATION

SECTION III OPERATING PROCEDURES

SECTION IV THEORY OF OPERATION

TABLE OF CONTENTS (Cont'd.)

SECTION V MAINTENANCE

SECTION VI B4566A (B4566ALCR) DIFFERENCE DATA

SECTION VII REFERENCE DRAWINGS AND IPB

TABLE OF CONTENTS (Cont'd.)

SECTION VII REFERENCE DRAWINGS AND IPB (Cont'd)

LIST OF ILLUSTRATIONS

LIST OF TABLES

PREFACE

This manual contains all the operating and maintenance information pertaining to the Digitronics Perforated Tape Handler Models 4566A, 4566ALCR, B4566A, and B4566ALCR. Models 4566A and 4566ALCR have uni-directional tape rewind, and Models B4566A and B4566ALCR have bi-directional tape rewind.

Sections I through V contain all the specifications, installation instructions, operating procedures, theory of operation, and maintenance information pertaining to Models 4566A and 4566ALCR. Section VI contains additional information covering the differences of the bi-directional rewind Models B4566A and B4566ALCR. Sections I through V are also applicable to the bi-directional rewind models.

Section VII contains the necessary drawings and illustrated parts breakdown for all of the Tape Handler Models.

SECTION I
INTRODUCTION

1.1 GENERAL

The Digitronics Models 4566A and 4566ALCR (Figure 1-1) are bi-directional perforated tape handlers which feed tape to a perforated tape reader at the proper speed and tension, and collect it after it has been read. The two units are identical with the exception of control relays and their associated circuit components. The difference is the required relay operating voltage. The relays in the 4566A require -30 volts dc and the relays in the 4566ALCR require -15 volts dc.

1.2 APPLICATIONS

The Model 4566A (4566ALCR) is compatible with perforated tape readers of comparable motion characteristics. It is used in the assembly of digital computers, machine tool controls, or other instrumentation systems.

1.3 READER COMPATIBILITY

The 4566A (4566ALCR) has a maximum operating speed of 40 inches per second (400 characters per second if tape is perforated at 10 characters per inch) unless limited by the reader. The 4566A (4566ALCR) is compatible with the Digitronics Perforated Tape Readers shown in Table 1-1, or other readers with similar characteristics.

1.4 SPECIFICATIONS

Unless otherwise specified, the specifications for the Models 4566A and 4566ALCR are the same.

1.4.1 Power Requirements and Environmental Limits

Line Voltage . . . . . .115 $\{\pm$ 10 volts, 60 cycle, single phase ac @ 3 amperes rms. maximum.

Relay Voltage

(Model 4566A) . . . . . -30 volts dc @ 200 milliamperes maximum (available from phono-jack on Digitronics Reader Models 3000 and B3000).

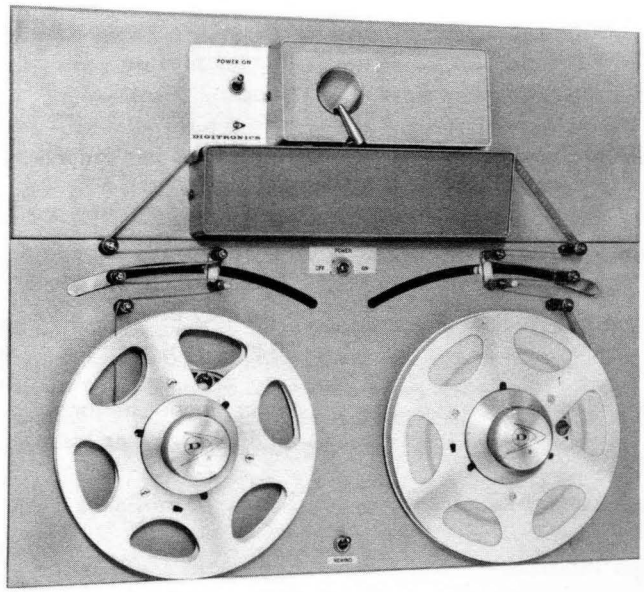


Figure 1-1. Model 4566ALCR Shown With Model B2500 Reader

Table 1-1 Reader Compatibility

TAPE HANDLER MODEL	READER MODEL	SPEED
4566A	3000 (uni-directional) B3000 (bi-directional)	400 400
4566ALCR	2500 (uni-directional) B2500 (bi-directional)	300 300

(Model 4566ALCR). . . . .15 volts dc @ 450 milliamperes maximum (available from reader output connector pins "Z" and "AA" on Digitronics Reader Models 2500 and B2500).

Temperature . . . . . 0° to 50° C.

1.4.2 Tape Handling Characteristics

Tape Movement . . . . . .Bi-directional

Tape Speed	40 inches per second (400 characters per second if tape is perforated with 10 characters per inch).
Tape Rewind	Incremental uni-directional
Rewind Speed	100 inches per second maximum.
Tape Width	11/16" to 1". Standard 5, 6, 7, and 8 level tape may be used interchangeably.
Tape Composition	Paper, paper mylar laminated, or mylar.
Tape Leader Required	30 inches minimum
Tape Interlock	Reel motors will automatically be de-energized if no tape or broken tape condition should occur.

1.4.3 Reel Characteristics

Hubs	Reel hubs are one piece, expandable outer diameter which locks reel in position. Reel hubs are designed to accept standard NAB reels.
Reel Size	8" outside diameter
Reel Capacity	650 feet of 4.5 mil tape.

1.4.4 Reel Motor Characteristics

Type	Constant Torque Induction.
Excitation	115 $\left\{ \begin{matrix} + \\ - \end{matrix} \right.$ 10 volts, 60 cycle, single phase ac
No Load Speed	860 rpm.
Locked Torque	75 inch/ounces
Duty Cycle	50%

1.5 PHYSICAL DESCRIPTION

The tape handler may be mounted horizontally or vertically (not position sensitive). It is designed to fit a standard 19" rack. The physical characteristics of the tape handler are:

Width	19"
Height	10 1/2"
Depth	10"
Weight	35 lbs.

1.6 CONTROLS

1.6.1 Power On/Off

Alternate position toggle switch mounted on front panel. Used to apply ac power to Tape Handler.

1.6.2 Rewind

Momentary toggle switch mounted on front panel. Used to initiate the rewind of tape.

SECTION II
INSTALLATION

2.1 GENERAL

This section describes the procedures for the proper installation of the equipment. Initial installation checks are also given in this section.

2.2 UNPACKING

The unit is shipped in a reinforced packing case designed to provide maximum protection during handling and transportation. These cases are reusable and should be retained if reshipment is anticipated. Care should be exercised in unpacking to insure no damage occurs during the process. All parts of the equipment should be compared against the shipping list to insure that none are missing and a visual inspection of all the parts should be performed to verify that they sustained no damage in transit. This check may avoid excessive down time after installation. Should this inspection result in the discovery of an incomplete shipment or damage, the carrier and Digitronics Corporation should be notified immediately.

2.3 MECHANICAL INSTALLATION

The unit is designed to fit a standard 19 inch RETMA relay rack. Natural cooling is sufficient to ventilate the unit when mounted in an open rack; however, mounting in a closed cabinet requires that forced air or other methods of cooling be provided. (See Figure 2-1.)

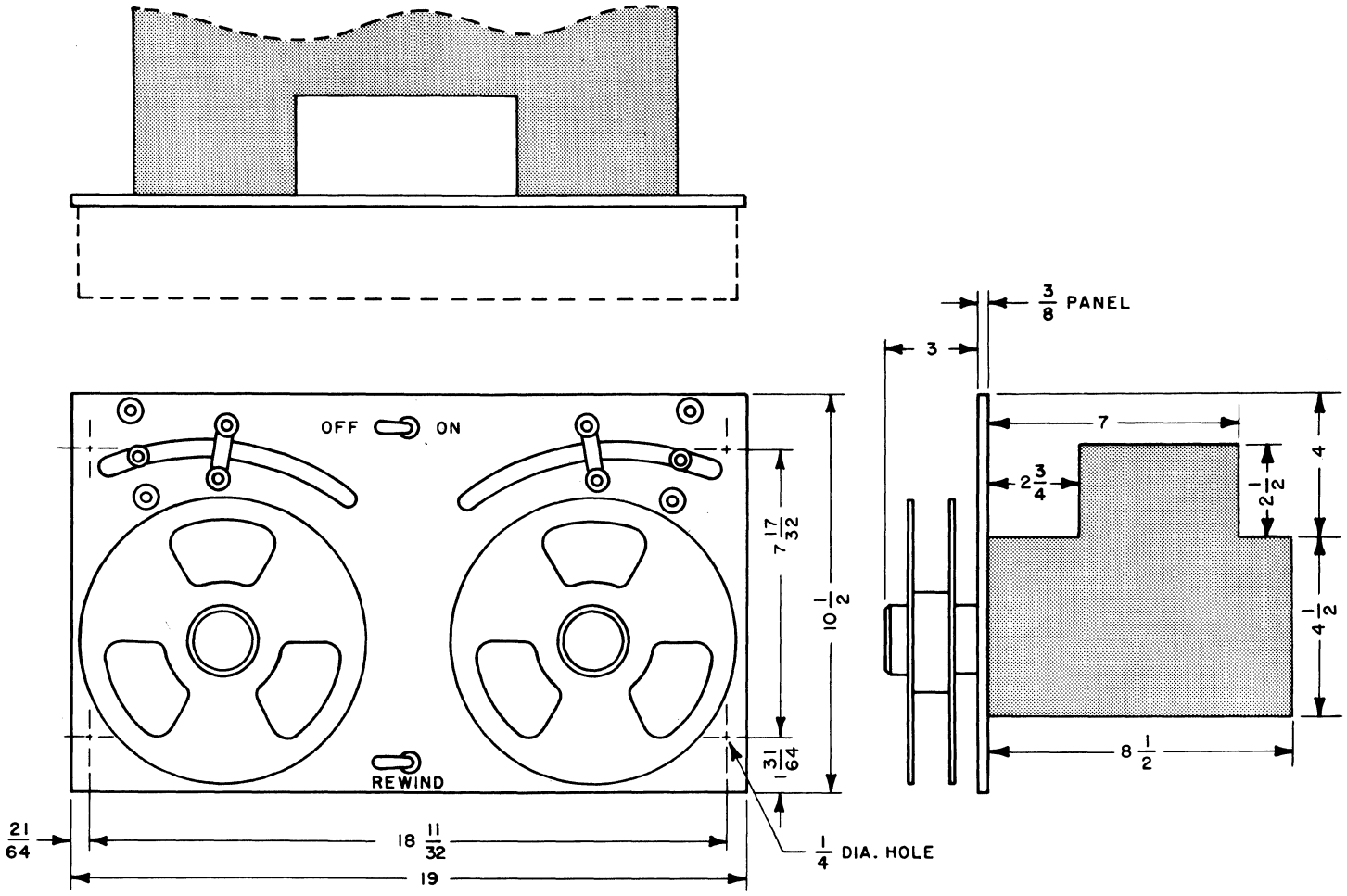
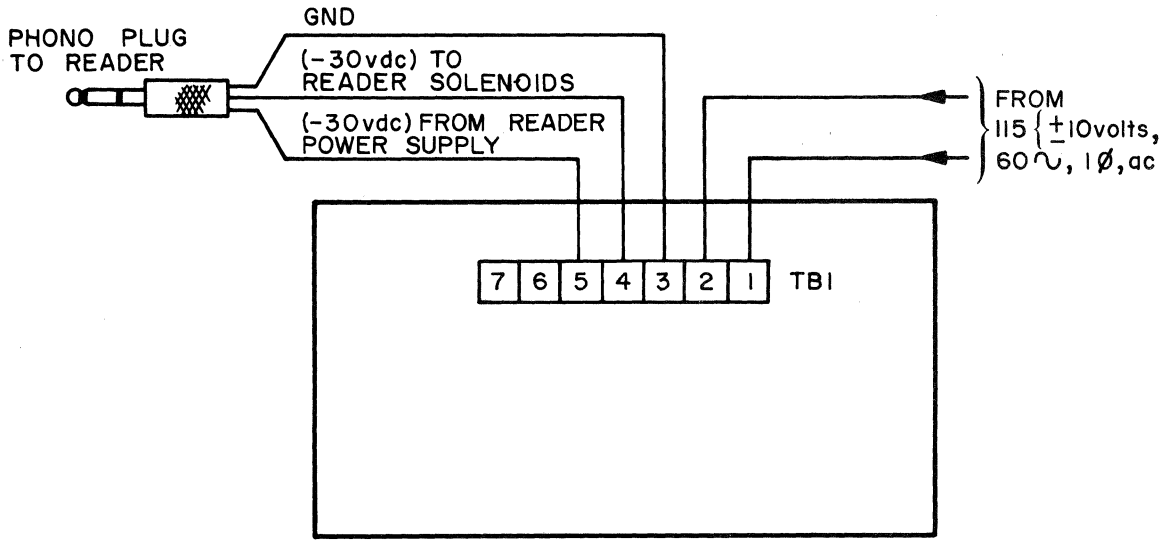
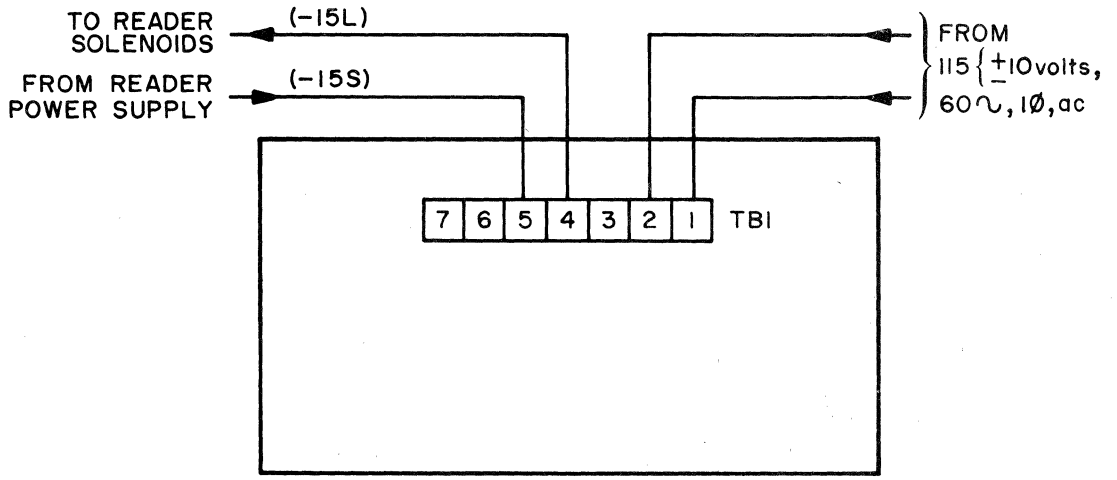


Figure 2-1. Outline Drawing



a) 4566A



b) 4566ALCR

Figure 2-2. Electrical Installation

2.4 ELECTRICAL INSTALLATION (Figure 2-2)

1. Connect 115 $\left\{ \pm \right.$ 10 volts ac from the ac power source as follows:

   (a) Connect AC1 to TB1-1
   (b) Connect AC2 to TB1-2

2. Connect the dc voltage for the tape handler relays as follows:

Model 4566A — Connect the phonoplug (J6) from the tape handler to the phonojack on the tape reader (if Digitronics Model 3000 or B3000 Reader is used).

Model 4566ALCR — Connect -15L from reader output connector pin AA to tape handler TB1-4 and -15S from reader output connector pin Z to tape handler TB1-5 (if Digitronics Model 2500 or B2500 reader is used).

Note

If the reader used does not supply -30 vdc (-15 vdc if Model 4566ALCR), the necessary voltage may be wired from some other source to TB1-5.

3. External Rewind — For external control of rewind, an externally located switch or relay may be used to apply a ground to TB1-6.

2.5 INITIAL INSTALLATION CHECK

It is recommended that the Tape Handler Performance Checkout as outlined in Table 2-1 be conducted following installation of the equipment. Figure 2-3 shows the tension arm positions and gives reference points as an aid in performing the checkout.

Table 2-1 Tape Handler Performance Checkout*

STEP	POSITION OF TENSION ARM	RESULT
1	Both arms touching inner end of guide slots.	No reel rotation.
2	Left tension arm from just off inner end of guide slot to 5 3/4 $\left\{ \begin{matrix} +\ 1/16 \\ -\ 0 \end{matrix} \right.$ inches from left edge of front panel.	Left reel should rotate counterclockwise.
3	Left tension arm from 5 3/4 $\left\{ \begin{matrix} +\ 1/16 \\ -\ 0 \end{matrix} \right.$ to 4 3/4 $\left\{ \begin{matrix} +\ 0 \\ -\ 1/16 \end{matrix} \right.$ inches from left edge of front panel.	Left reel rotation stops.
4	Left tension arm between 4 1/4 $\left\{ \begin{matrix} +\ 1/16 \\ -\ 0 \end{matrix} \right.$ inches from left edge of front panel.	Left reel should rotate clockwise.
5	Perform steps 2 through 4 for the right tension arm using the right edge of the front panel for reference.	a) In step 2, right reel rotates clockwise. b) In step 4, right reel rotates counterclockwise.

*All references are as viewed from front of Tape Handler.

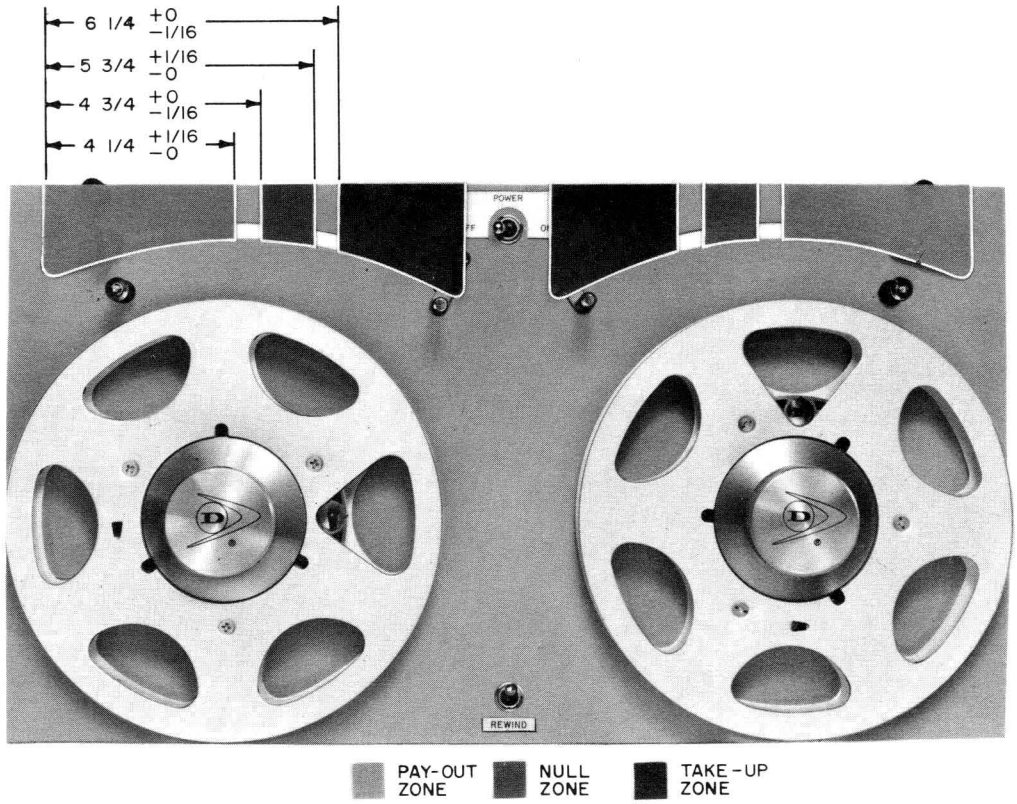


Figure 2-3. Tension Arm Zones

SECTION III
OPERATING PROCEDURES

3.1 GENERAL

This section describes the operating controls, the preparation for operation, and the operating procedures for the equipment. It is assumed that the equipment has been properly installed and that the initial installation check has been performed as specified in Section II.

3.2 OPERATING CONTROLS

The functions of the operating controls (Figure 3-1) are given in Table 3-1.

Table 3-1 Operating Controls

CONTROL	REF. DES.	FUNCTION
POWER ON/OFF	SW5	This switch applies ac power to the tape handler.
REWIND	SW6	This switch initiates the rewind cycle.

3.3 OPERATING PROCEDURES

(a) Before loading tape, check that the POWER ON/OFF switch is in the OFF position.

(b) Install the full reel of tape (supply reel) on the right-hand reel hub and the empty reel (take-up reel) on the left-hand reel hub.

(c) Pull approximately 30 inches of tape leader off the supply reel.

(d) Thread the tape through the right-hand rollers, through the tape reader, and through the left-hand rollers as illustrated in Figure 3-2 and Figure 3-3.

(e) Insert end of tape in slot on take-up reel and rotate reel by hand approximately two or three turns.

(f) Turn the POWER ON/OFF switch to the ON position. The tape handler will servo, moving the tension arms to the proper positions. The tape handler is now ready for operation.

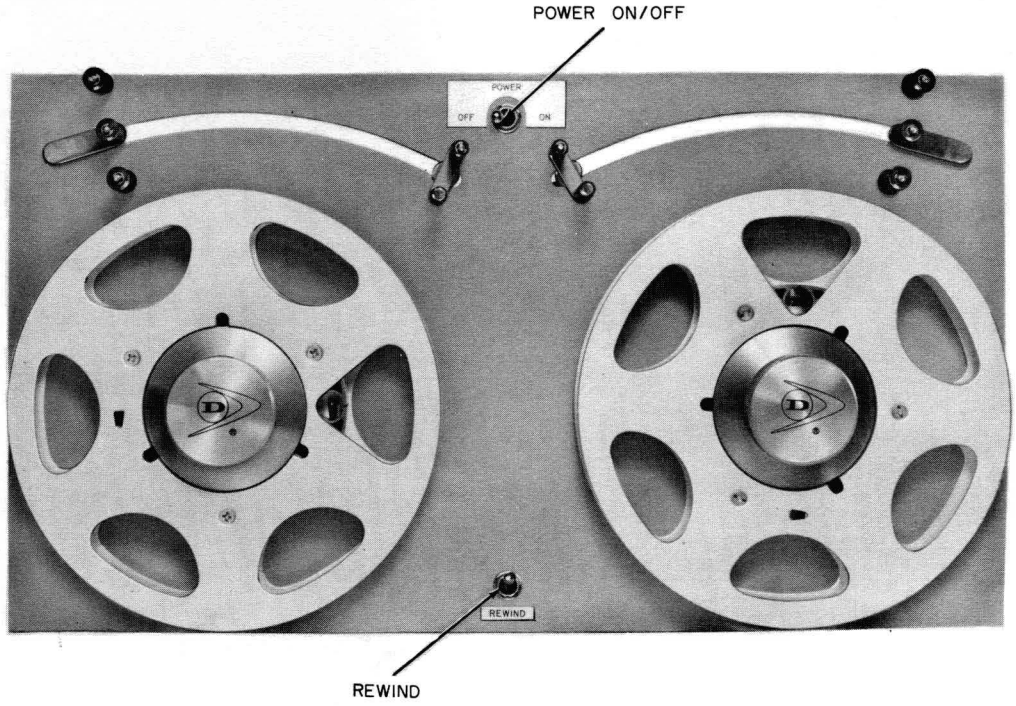


Figure 3-1. Operating Controls

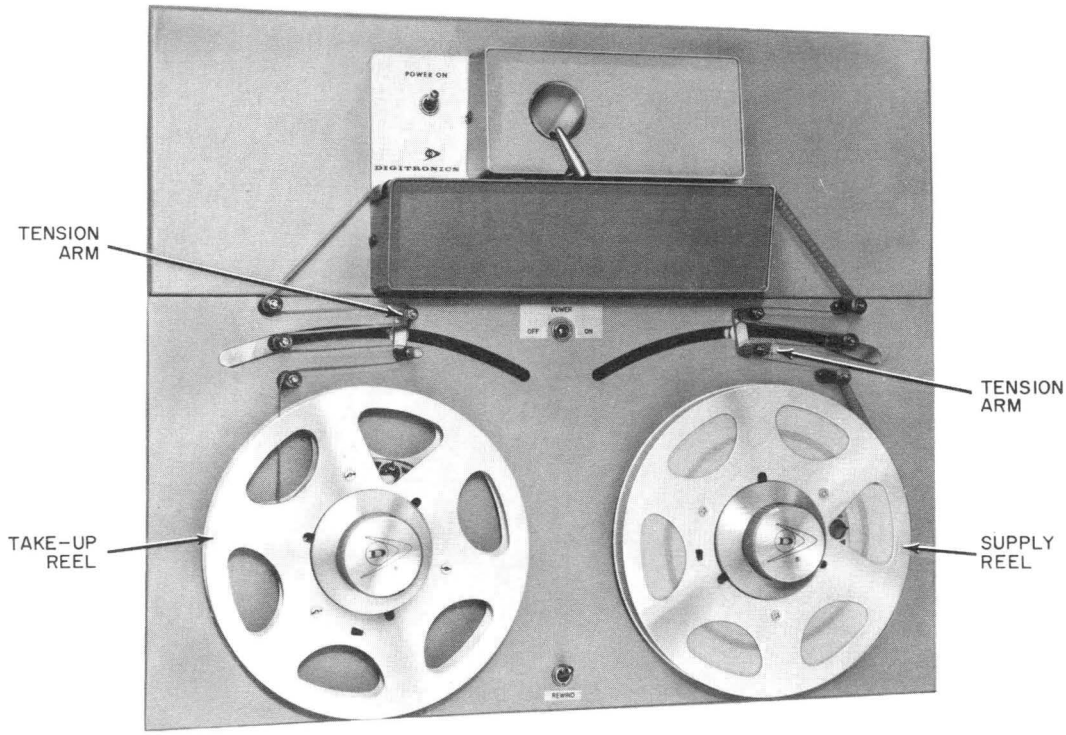


Figure 3-2. Threading Tape Handler

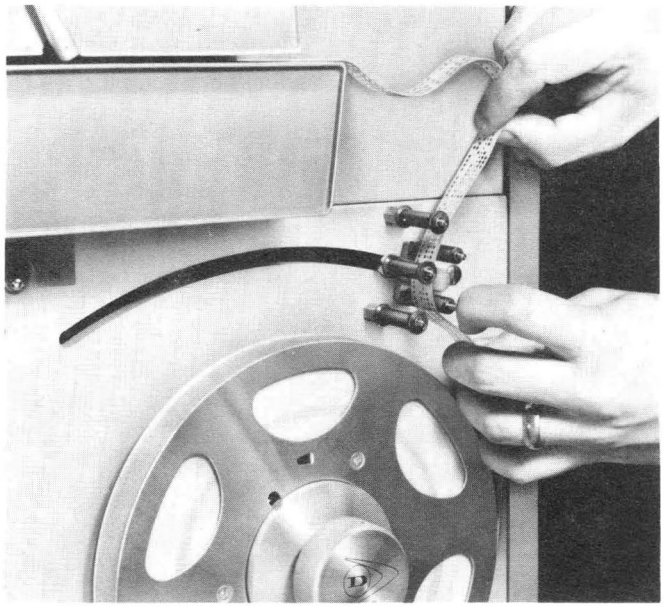


Figure 3-3. Tape Insertion Between Tension Arm and Fixed Guide

SECTION IV
THEORY OF OPERATION

4.1 GENERAL

This section describes the electro-mechanical operation of the tape servo and rewind modes of the Models 4566A and 4566ALCR Tape Handlers. Schematics which may be used in conjunction with this section are located in Section VII. All references to tape direction and motor and reel rotation in this section are as viewed from the front of the tape handler.

4.2 SIMPLIFIED ANALYSIS

As the tape is read (by a reader), the function of the tape handler is to feed tape to the reader and collect it after it has been read. The tension arms of the tape handler serve to sense the amount of slack in the tape, and control the rotation of the reel motors so that the proper tape slack and tension is maintained. The tape handler also provides high speed rewind of tape.

4.3 ANALYSIS OF TAPE SERVO OPERATION

The tape servo is completely bi-directional, permitting tape pay-out and take-up in either direction depending on the direction of the tape reader.

4.3.1 Tape Servo Operation with Forward Reader Direction (Right-to-Left)

As the reader moves the tape from right to left, it will take up the tape slack provided by the right tension arm, moving the tension arm to the right. When the tension arm enters the tape pay-out zone (Reference Figure 4-1), switch SW1 is energized by the cam at the base of the tension arm. Ac power is now applied through contacts NO3 and NO4 of switch SW1, and the 11 and 12 contacts of relays K1A and K2A to the control winding of the right reel motor M1.

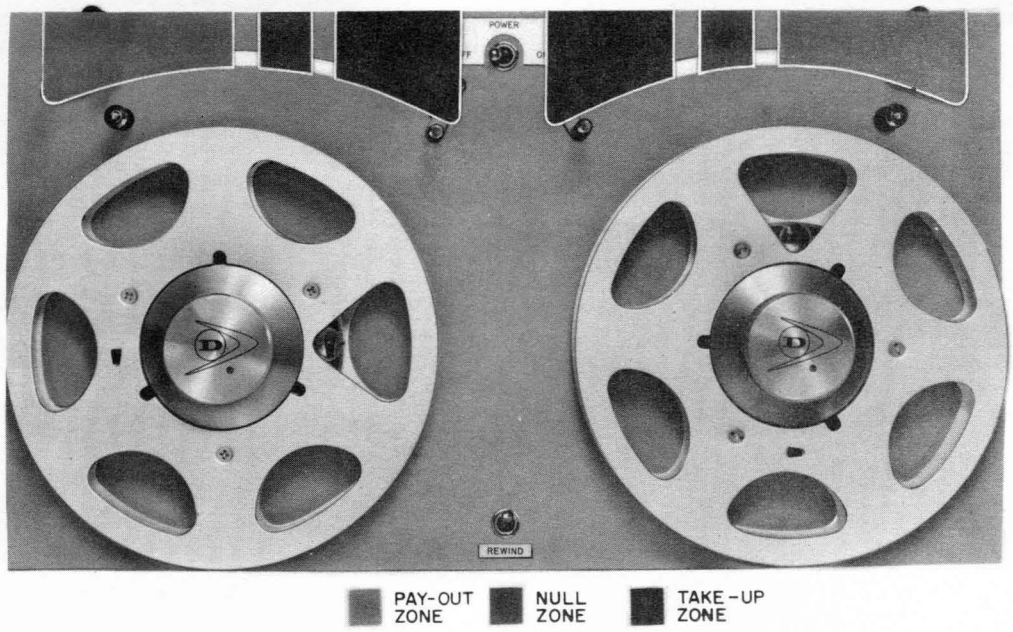


Figure 4-1. Tension Arm Zones

Applying ac power in this manner produces counterclockwise rotation of the right reel. Counterclockwise rotation of the right reel will pay out tape causing the right tension arm to move to the left. The reel will continue tape pay-out until the tension arm moves into the null zone, de-energizing switch SW1, which in turn removes ac power from the control winding of motor M1. Motor M1 will be stopped by the drag brake within 1/2 second after ac power is removed, stopping the counterclockwise reel rotation and tape pay-out.

With tape pay-out stopped, the reader will start taking up the slack again, moving the tension arm to the right and into the tape pay-out zone. This sequence is repeated for the duration of the tape movement by the reader.

As the tape comes out of the reader, it will increase the tape slack provided by the left tension arm. This will cause the left tension arm to move to the right until it enters the tape take-up zone. When the tension arm moves into the tape take-up zone, the cam-operated switch SW3 is energized. Ac power is now applied through contacts 11 and 12 of relay K3B, the NO3 and NO4 contacts of switch SW3, and contacts 5 and 6 of relay K5A to the control winding of the left reel motor M2.

Applying ac power in this manner produces counterclockwise rotation of the left reel. Counterclockwise rotation of the left reel will take up tape slack causing the tension arm to move to the left. The left reel will continue taking up tape until the tension arm moves into the null zone. When the tension arm moves into the null zone, switch SW3 is de-energized removing ac power from motor M2. Moior M2 will be stopped by the drag brake within 1/2 second after ac power is removed, stopping the counterclockwise reel rotation and tape take-up.

With tape take-up stopped, the reader will again increase the tape slack until the tension arm moves into the tape take-up zone. This sequence is repeated for the duration of tape movement by the reader.

4.3.2 Tape Servo Operation with Reverse Reader Direction (Left-to-Right)

As the reader moves the tape from left to right, it will take up the tape slack provided by the left tension arm, moving the tension arm to the left. When the tension arm enters the tape pay-out zone (Reference Figure 4-1), the cam-operated switch SW4 is energized. Ac power is now applied through contacts 5 and 6 of relay K1B, the NO3 and NO4 contacts of switch SW4, and contacts 8 and 9 of relay K5B to the control winding of the left reel motor M2.

Applying ac power in this manner produces clockwise rotation of the left reel. Clockwise rotation of the left reel will pay out tape causing the left tension arm to move to the right. The reel will continue tape pay-out until the tension arm moves into the null zone, de-energizing switch SW4, which in turn removes ac power from the control winding of motor M2. Motor M2 will be stopped by the drag brake within 1/2 second after ac power is removed, stopping the clockwise reel rotation and tape pay-out.

With tape pay-out stopped, the reader will start taking up the slack again, moving the tension arm to the left and into the tape pay-out zone. This sequence is repeated for the duration of tape movement by the reader.

As the tape comes out of the reader, it will increase the slack provided by the right tension arm. This will cause the right tension arm to move to the left until it enters the tape take-up zone. When the tension arm moves into the tape take-up zone, the cam-operated switch SW2 is energized. Ac power is now applied through the NO3 and NO4 contacts of switch SW2 and contacts 5 and 6 of relay K2B to the control winding of the right reel motor M1.

Ac power applied in this manner produces clockwise rotation of the right reel. Clockwise rotation of the right reel will take up tape slack causing the tension arm to move to the right. The right reel will continue taking up tape until the tension arm moves into the null zone. When the tension arm moves into the null zone, switch SW2 is de-energized removing ac power from motor M1. Motor M1 will be stopped by the drag brake within 1/2 second after ac power is removed, stopping the clockwise reel rotation and tape take-up.

With tape take-up stopped, the reader will again increase the tape slack until the tension arm moves into the tape take-up zone. This sequence is repeated for the duration of tape movement by the reader.

4.4 BROKEN TAPE OR NO TAPE INTERLOCK

When both tension arms swing to the innermost position of the guide slots due to a broken tape or no tape condition, switches SW7 and SW8 are activated, removing ac power from the unit.

4.5 ANALYSIS OF REWIND

The rewind mode is incremental uni-directional permit-

ting high speed rewind of tape from the left reel to the right reel.

4.5.1 Description of Rewind Circuit Operation

Moving the rewind switch SW6 to the REWIND position energizes relays K2 and K5 and also causes relay K4 to pulse on and off due to the pulsing network of transistor Q1. When relay K2 energizes, the reader pinch roller and brake solenoids are de-energized by removing -30 vdc (-15 vdc with Model 4566ALCR) to the reader from contact 8 of relay K2C and applying it to contact 10. This energizes relay K1 opening contact 9 and 8 of K1C. With K1 energized, contacts 11 and 12 of K1A and 5 and 6 of K1B are opened, disabling the tape servo circuit.

Ac power being pulsed by contacts 9 and 10 of relay K4B is applied to the control winding of motor M1 through contacts 12 and 13 of relay K2A and contacts 6 and 7 of relay K2B. Ac power is also applied to the control winding of motor M2 through contacts 6 and 7 of relay K5A and contacts 9 and 10 of relay K5B. Pulsed ac power, applied in this manner, will cause motor M1 to rotate slowly clockwise and motor M2 to rotate slowly counterclockwise. This will continue until the tape slack is taken up and the tension arms reach the outside ends of the guide slots, activating switches SW9 and SW10.

Switches SW9 and SW10 will energize relay K3, de-energize relay K5, and inhibit the pulsing network holding relay K4 energized. With relay K5 de-energized, ac power is removed from motor M2. Stepped-up ac power from transformer T1 is applied through contacts 9 and 10 of relays K3C and K4B to the control winding of motor M1.

Applying stepped-up ac power to motor M1 in this manner causes the motor to rotate clockwise at high speed. De-energizing K5 also returns M2 to servo control with half of SW3 disabled by K3B. This permits M2 to pay out tape (clockwise) at high speed. High speed rewind will continue as long as rewind switch SW6 is held in the REWIND position.

When the rewind switch SW6 is released, relays K2, K3, and K4 are de-energized removing ac power from motor M1 stopping tape rewind. The time delay network of resistor R13 and capacitor C15 across the coil of relay K1 will hold relay K1 energized for 500 microseconds after switch SW6 is released. This delays applying ac power to M1 through servo switch SW1 and dc power to the reader pinch roller and brake solenoids until motor M1 has had a chance to slow down after rewind. K1B also removes power from the pay-out zone of M2 and applies power to the take-up zone through K3B. This allows M2 to slow down. When relay K1 de-energizes, contacts 5 and 6 of relay K1B and contacts 11 and 12 of relay K1A are closed enabling the tape servo circuit and the -30 vdc (-15 vdc with Model 4566ALCR) solenoid voltage is applied to the reader through contacts 8 and 9 of relay K1C.

4.5.2 External Rewind

Applying ground externally to Terminal Board TB1-6 will initiate tape rewind in the same manner as moving switch SW6 to the REWIND position.

4.5.3 Description of Pulsing Network

When the rewind switch SW6 is moved to the REWIND position, ground is applied to one side of the coil of relay K4, and the positive side of capacitor C20. The -30 vdc (-15 vdc on 4566ALCR) applied through contacts 5 and 6 of K4A will now begin charging C20. As C20 is being charged, the voltage present at the base of transistor Q1 will become more and more negative. Due to Q1 being an emitter follower, the voltage of the emitter will follow the base voltage. When the emitter voltage reaches the pull-in voltage of the relay coil, the relay will start pulling in, opening contacts 5 and 6 of K4A.

As soon as contacts 5 and 6 of K4A open, C20 will begin discharging through the emitter of Q1 which would cause the emitter voltage to drop below the pull-in voltage of the relay coil. This would case the relay to drop out before it had a chance to pull in completely. In order to prevent this from happening, resistor R25 is utilized so that when contacts 5 and 6 open, capacitor C21 will act instantaneously as a direct short to resistor R25, and the resulting instantaneous voltage across R25 is applied to the base of Q1 through CR21, driving the base further negative. This additional negative spike is of sufficient duration to permit K4 to pull in completely, closing contacts 6 and 7 of K4A. C21 is used in the circuit instead of a permanent direct short to R25 because with a permanent direct short, the base of Q1 would always be negative holding R4 permanently energized.

With contacts 6 and 7 closed, C20 will begin discharging through resistor R24, driving the base voltage toward ground. When the emitter voltage drops below the drop-out voltage of the relay coil, the relay will de-energize, opening contacts 6 and 7, and closing contacts 5 and 6 of K4A. At this point, C20 will begin charging up again, repeating the cycle.

This sequence will continue, pulsing K4 on and off, until the tension arms reach the outer ends of the guide slots, activating switches SW9 and SW10. With SW9 and

SW10 activated, -30 vdc is applied directly to the base of Q1 through diode CR22 which will in turn hold K4 energized until the rewind switch SW6 is released.

Potentiometer R21 is used to regulate the time it takes the tension arms to reach the outer ends of the guide slots, by varying the charge time of C20. (For adjustment, see Section 5 paragraph 5.5.6).

Diode CR21 is used to protect transistor Q1, by preventing the base voltage from going positive. Diode CR22 is used to prevent the pulsing circuit from energizing relay K3.

4.6 CIRCUIT FILTERS

4.6.1 Filters

The filtering of the ac supply and the suppression of the transients are provided by a choke inductor in series with each leg of the supply, and by series connected bypass capacitors shunted across the supply and grounded at their junction. The value of each inductor L1 and L2 is 160 microhenries. Capacitors C1 and C2 are 0.25 microfarads.

4.6.2 Dampers

The reversal or removal of excitation to the control windings of the reel motors results in the collapse of surrounding flux and the generation of unwanted voltage spikes. The function of the 1.0 microfarad capacitors C4 and C10, shunted across the control windings of the motors is to dampen this inductive kick.

4.6.3 Spark Suppression

Four series networks of 100 ohm resistors and 0.1 microfarad capacitors are shunted across the alternate positions of switches SW1 and SW2, and four across the alternate positions of switches SW3 and SW4. These networks serve to suppress the transients generated by the opening and closing of the switches and relay contacts.

SECTION V
MAINTENANCE

5.1 GENERAL

This section describes the preventive maintenance, corrective maintenance, and adjustment procedures required to maintain the equipment in good operating condition. All information in this section is applicable to the Digitronics Models 4566A and 4566ALCR Tape Handlers. Use drawings and illustrated parts breakdown, located in Section VII, in conjunction with this section.

5.2 PREVENTIVE MAINTENANCE

It is essential for trouble-free operation, that certain vital points be inspected at periodic intervals and that necessary replacements and adjustments be made when trouble is discovered. If detected and corrected at an early stage, troubles can be minimized.

5.2.1 Periodic Inspections

An overall inspection of the equipment is recommended as a precautionary measure immediately before being put into service, and at intervals not to exceed 9 months depending upon the amount of use thereafter.

5.2.2 Routine Maintenance

No parts of the equipment require lubrication at any time. All bearings are permanently lubricated and require no further lubrication. Double-shielded ball bearings are used throughout the tape transport system to prevent the entry of dust.

5.3 CORRECTIVE MAINTENANCE

If the equipment has been properly installed, and if preventive maintenance has been carried out, any irregularities in performance may be attributed to the failure of some component part. Since the unit has been factory adjusted, the adjustment procedures should not be undertaken until after corrective maintenance has been proven ineffective or has resulted in the replacement of parts.

When it becomes necessary to trouble shoot the unit, locate the defective component or circuit using conventional trouble shooting techniques.

5.4 COMPONENT REMOVAL (See Figure 5-1)

After locating the defective component, use this section as a guide for removal and replacement. The procedures outlined in this paragraph are included to aid service personnel in the removal and replacement of the Reel Motor and Reel Hub, Servo and Limit Switches, Tension Arm Spring, and Drag Brake Assembly. The remaining replaceable components of the Model 4566A (4566ALCR) require no subsequent adjustments, extraordinary precautions, or other special attention beyond normal good practice. Unless otherwise indicated, replacement procedures are the reverse of removal procedures.

5.4.1 Reel Motor Removal and Replacement Procedures

1. Remove reel by rotating reel knob counterclockwise until reel is loose on reel hub.

2. Note the distance between the surface of the tape handler panel and the rear edge of the reel hub. This distance should be 7/16". To remove reel hub, loosen set screw in reel knob, and unscrew from coupling shaft by turning counterclockwise; remove thrust bearing, pressure plate, rubber "O" rings, and metal ring from hub; loosen set screw in reel hub and remove from coupling shaft. (Reference Drawing B-C2045.)

3. Study the dressing and running of the four color-coded leads of the motor to be replaced. Tag the points to which they are connected and disconnect the leads. Remove and retain the sleeving. (Reference Schematic Drawing CH918 or CH919.)

4. Loosen set screw in the hub of the drag brake assembly located at the rear of the reel motor and remove the assembly. (Reference Drawing BC4247.)

5. Study the position of the motor before removing, to insure proper installation of the replacement motor. Remove motor from panel by removing the four socket head mounting bolts; remove coupling shaft from motor shaft and remount on replacement motor.

6. Mount the replacement motor securely.

7. Thread the leads of the replacement motor through the sleeving, breaking out the yellow-white lead at sleeve perforation, and threading the remaining leads throughout. Run, dress and connect the leads as directed by the tags.

8. Remount and secure the reel hub carefully to restore the 7/16" distance referred to in step 2 by adjusting the coupling shaft on the motor.

9. Remount and secure the drag brake assembly to the motor shaft. Then adjust the assembly as outlined in paragraph 5.5.3.

5.4.2 Servo and Limit Switches

The servo switch assemblies consist of a mounting plate and two actuator subassemblies mounted to the switch by two slot head screws. The limit switches each consist of a mounting plate and a switch mounted to the plate by two flat head screws. When a tape handler malfunction has been traced to the switch of one of these assemblies or subassemblies, only the switch itself need be replaced. With the exception of step 3 which applies to servo switches only, this procedure is applicable to both limit and servo switches.

Every precaution should be taken not to disturb the bend, if any, of the switch actuator arm. This bend affects the timing of the operation and thereby affects the proper functioning of the tape handler. Adjustment of the actuator arm is not required and should not be attempted.

1. Remove and tag the three leads from the switch lugs. (Reference Schematic Drawing CH918 or CH919.)

2. Study the position of the switch actuator subassembly on the mounting plate and on the switch. Remove the switch by removing the two flat head screws. Perform this step carefully; removal of the second screw on the servo switch also frees the switch actuator.

3. Solder a jumper between lugs of the replacement switch using the old switch as a guide.

4. Carefully mount the switch actuator to the servo switch (step not needed for limit switch). Mount switch to mounting plate.

5. Resolder the tagged leads to the lugs of the replacement switch.

6. Check the switch adjustment, and if necessary, adjust the switch position as outlined in paragraph 5.5.2 or 5.5.4.

5.4.3 Tension Arm Spring Removal and Replacement

The execution of both limit and servo switch functions requires the proper operation of the tension arm spring. If this spring should prove defective as evidenced by the tension arm failing to return to the inner end of the guide slot, the spring should be replaced at once.

1. To facilitate alignment when reassembling, study and mark with a pencil line the axial position of the cam on the tension arm shaft. Loosen the set screw on the cam hub and remove the cam from the shaft.

2. Remove the two screws that mount the switch plate assembly to the mounting block and remove the assembly. Perform this step carefully to avoid loss of the associated bearings.

3. Study the position of the ends of the spring under tension. Grip the spring ends firmly to avoid loss upon disengagement and remove the spring.

4. Install replacement spring.

5. Remount switch plate assembly including shoulder bearing.

6. Remount cam on tension arm shaft and adjust in accordance with paragraph 5.5.5.

5.4.4 Drag Brake Assembly Removal

The drag brake assembly is secured to the motor shaft by a single set screw in the drag brake shoe hub. The assembly is removed by loosening the set screw and pulling the assembly off the motor shaft.

5.5 ADJUSTMENT PROCEDURES (See Figure 5-1)

The adjustment procedures should be performed only after corrective maintenance has proven ineffective or has resulted in the replacement of parts. Adjust only those parts which have been effected by the trouble. The procedures outlined in this paragraph are included to aid service personnel in the adjustment of the tension arms, limit switches, drag brakes, cams, and servo switches.

5.5.1 Tension Arm Play

This adjustment is done to insure that the tension arm moves in its guide slot without rubbing against the panel.

1. Loosen but do not remove the two screws which hold the servo switch assembly and adjust the position of the assembly so that the tension arm does not rub against the guide slot. Secure the assembly.

2. Move the tension arm through its full excursion to

insure that it does not rub against any section of the guide slot.

3. Check the adjustment after final tightening of the mounting screws.

4. Check the servo switch and cam for proper adjustment and adjust if necessary in accordance with paragraphs 5.5.4 or 5.5.5.

5.5.2 Limit Switches

The slot mounted limit switch is positioned so that as the tension arm returns to the inner end of the guide slot, the limit switch is actuated without an impact on the switch itself.

5.5.3 Drag Brake Adjustment

The drag brake is factory adjusted so that 28 to 32 inch/ounces of torque is necessary to overcome the static friction between the friction plate and the drag brake shoe. This pressure will halt the motor within 1/2 second after it is de-energized. Steps 1 and 2 may be used when the reel motor halt time exceeds 1/2 second.

1. Adjust the drag brake shoe until the tension arm oscillations stop within 1 to 3 oscillations.

2. Allow the unit to servo for 15 to 30 minutes and recheck. Readjust as required until the tension arm stops within 1 to 3 oscillations.

5.5.4 Servo Switch Adjustment

Within a limited range, the servo switches are independently adjustable, and replacement of a switch does not normally effect the cam relationship with the other switch. This switch adjustment is more easily performed than the cam adjustment, therefore, the cam adjustment should not be attempted until after the switch adjustment has proven inadequate. For adjusting servo switches SW2 or SW3, omit steps 4 and 5 of this procedure and perform only steps 1, 2, 3, and 6. For adjusting servo switches SW1 or SW4, omit steps 2 and 3 and perform only steps 1, 4, 5, and 6.

1. Check to see that the servo switch plate is securely mounted. Loosen screws mounting the affected switch.

2. Move the tension arm to 6 1/4 $\begin{cases} +\ 0 \\ -\ 1/16 \end{cases}$ inches from the edge of the panel.

3. Move switch SW2 or SW3 (depending on tension arm) until switch actuator arm depresses the plunger and a click is heard. Tighten mounting screws securely.

4. Move the tension arm to 4 1/4 $\begin{cases} +\ 1/16 \\ -\ 0 \end{cases}$ inches from the edge of the panel.

5. Move switch SW1 or SW4 until the switch plunger is depressed. Tighten mounting screws securely.

6. Check the overall tape servo operation following the Tape Handler Performance Checkout procedure in Section II (Table 2-1). If necessary, perform the cam adjustment as outlined in paragraph 5.5.5.

5.5.5 Cam Adjustment

The proper overall operation of the tape servo system requires that the take-up, pay-out, and null zone limits of the tension arms be adjusted so that the clockwise and counterclockwise reel rotation begin at the proper position of the tension arm in the guide slot. This adjustment consists of positioning the detent in the cam so that the servo switches (SW1, SW2, SW3, and SW4) are actuated and de-actuated within the specified range of tension arm travel in the guide slot.

CAUTION: Do not disturb the bend of the actuator arms of the servo switches. This angle is factory adjusted and is critical.

NOTE: Repositioning of the cam should be undertaken only if the procedures in paragraph 5.5.4 prove inadequate.

1. Check to see that the servo switch plate assembly is secured to the mounting block and that the servo switches are mounted securely.

2. Move the tension arm to 6 1/4 $\begin{cases} +\ 0 \\ -\ 1/16 \end{cases}$ inches from the edge of the panel.

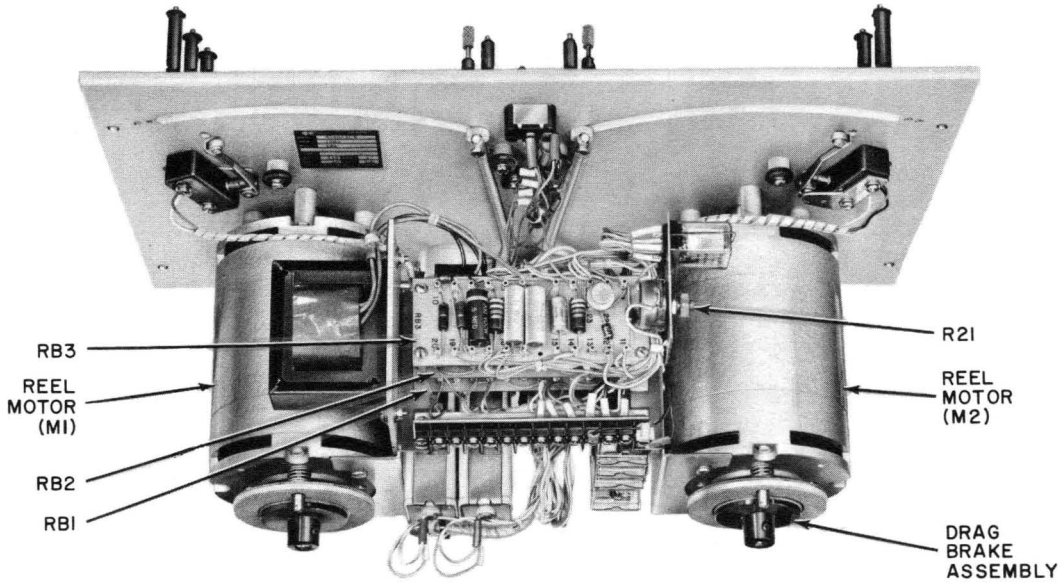
3. Loosen the set screw in the shaft of the cam and rotate the cam until the actuator arm of switch SW2 or SW3 (depending on tension arm) just actuates the switch. This will be accompanied by an audible "click" from the switch.

4. With the cam at the point where the switch is just actuated, tighten set screw securely. Recheck adjustment after tightening set screw.

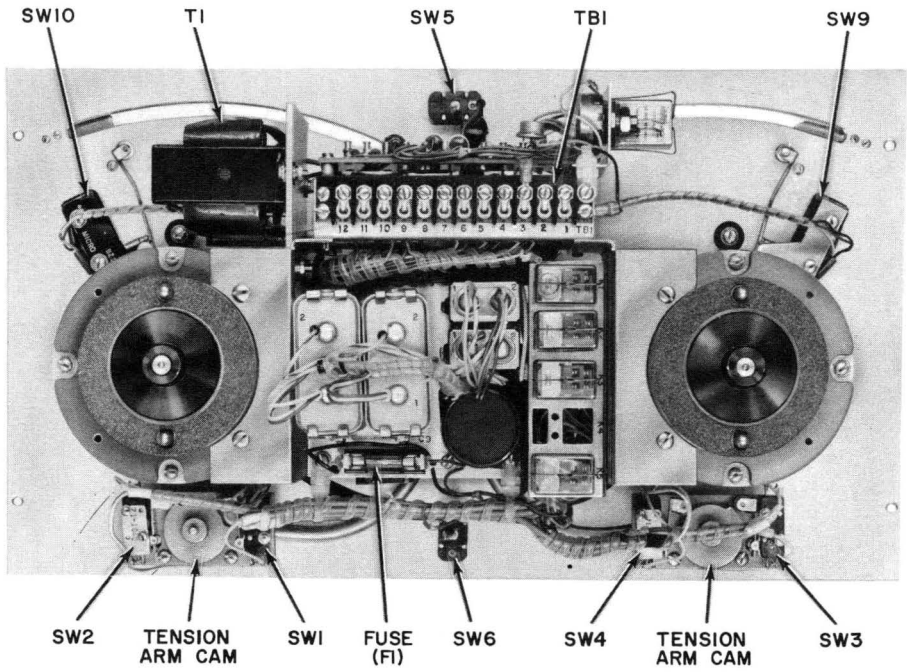
5. Check overall operation of the tape servo and if necessary, readjust the servo switches.

5.5.6 Rewind Adjustment

Adjust the potentionmeter (R21) mounted on Resistor Board (RB3) so that the tension arm takes 2 to 4 seconds to reach the outer edge of the guide slots after rewind is initiated.



a) Top View



b) Rear View

Figure 5-1. Component Locations

COMPONENT REPLACEMENT SCHEDULE

To assure maximum time between failures and to prolong trouble free operation, it is recommended that the following Component Replacement Schedule be followed. Reference the Illustrated Parts Breakdown for location of components and part numbers.

ITEM	REPLACE AFTER	APPROXIMATE REPLACEMENT TIME
1. Motor, Torque (C-A1817)	25,000 hrs.	45 min.
2. Shim, Friction (AA4721)	3,000 hrs.	12 min.
3. Rollers	6,000 hrs.	5 min.
4. Tension Arm Spring	4,000 hrs.	25 min.
5. Tension Arm Bearings	10,000 hrs.	25 min.
6. Servo and Limit Switches	4,000 hrs.	15 min.
7. Relays	400,000 operations	2 min.
8. Pulser Relay	5,000 rewind operations	2 min.
9. Reel Mount "0" Rings	6,000 hrs.	5 min.
10. Reel Mount Thrust Bearing	6,000 hrs.	5 min.

SECTION VI
B4566A (B4566ALCR) DIFFERENCE DATA

6.1 GENERAL

This section covers all the pertinent information pertaining to the bi-directional rewind Tape Handler Models B4566A and B4566ALCR.

6.2 APPLICATIONS

The Models B4566A and B4566ALCR Tape Handlers are compatible with readers of comparable motion characteristics in the assembly of digital computers, machine tool controls, or other instrumentation systems requiring bi-directional high speed tape rewind.

6.3 SPECIFICATIONS

The specifications of the Models B4566A and B4566ALCR are the same as those of the Models 4566A and 4566ALCR respectively, except that the rewind is incremental bi-directional capable of rewinding tape at 100 inches per second in either forward or reverse direction.

6.4 TAPE SERVO OPERATION

The tape servo operation is identical to that of the Models 4566A and 4566ALCR (Reference paragraph 4.3, ANALYSIS OF TAPE SERVO OPERATION.)

6.5 REWIND OPERATION

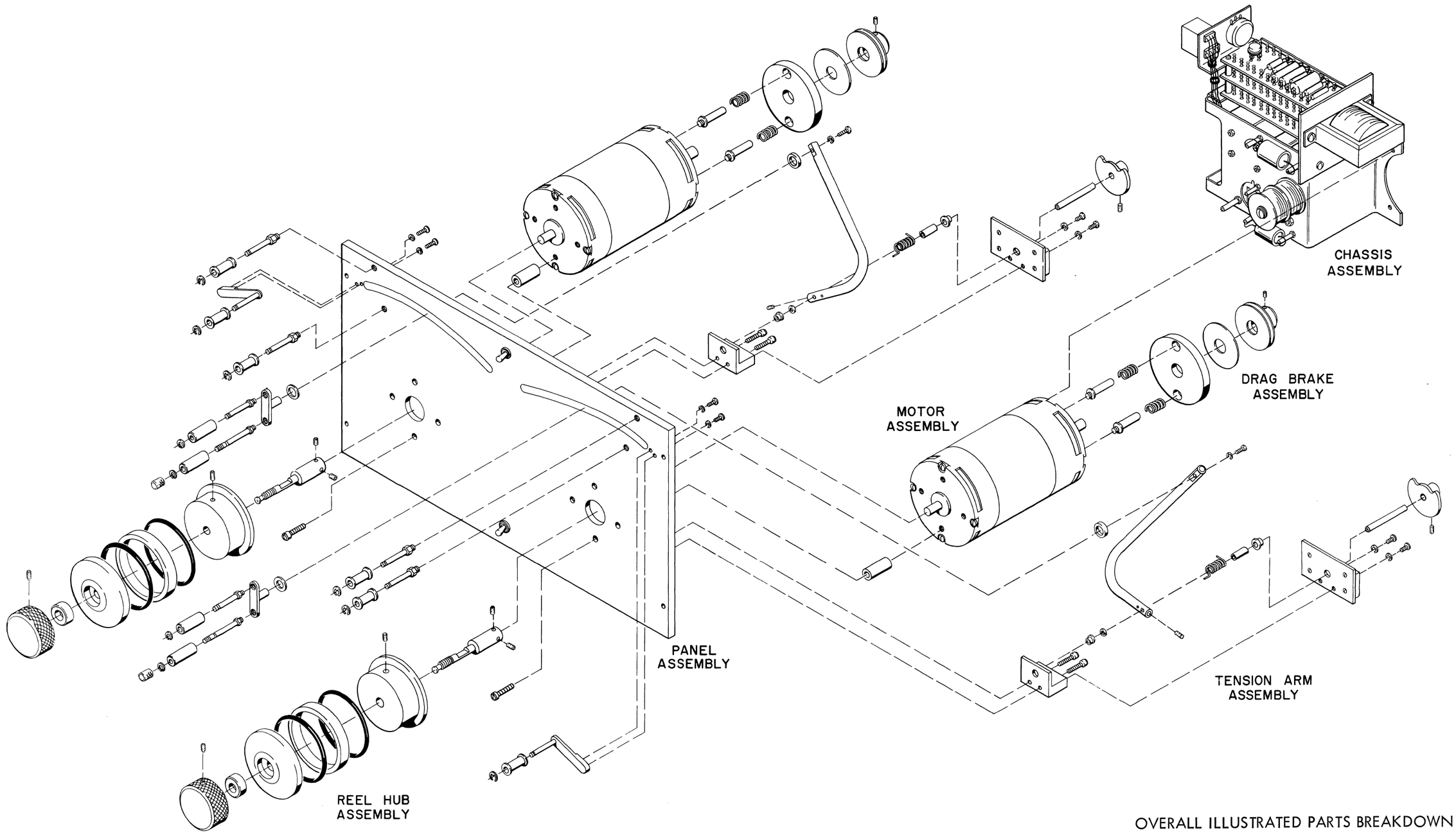
The rewind circuit is similar to that of the Models 4566A and 4566ALCR, however, additional relay circuitry has been added to enable bi-directional rewind.

6.5.1 Description of Bi-Directional Rewind
(Reference paragraph 4.5.1)

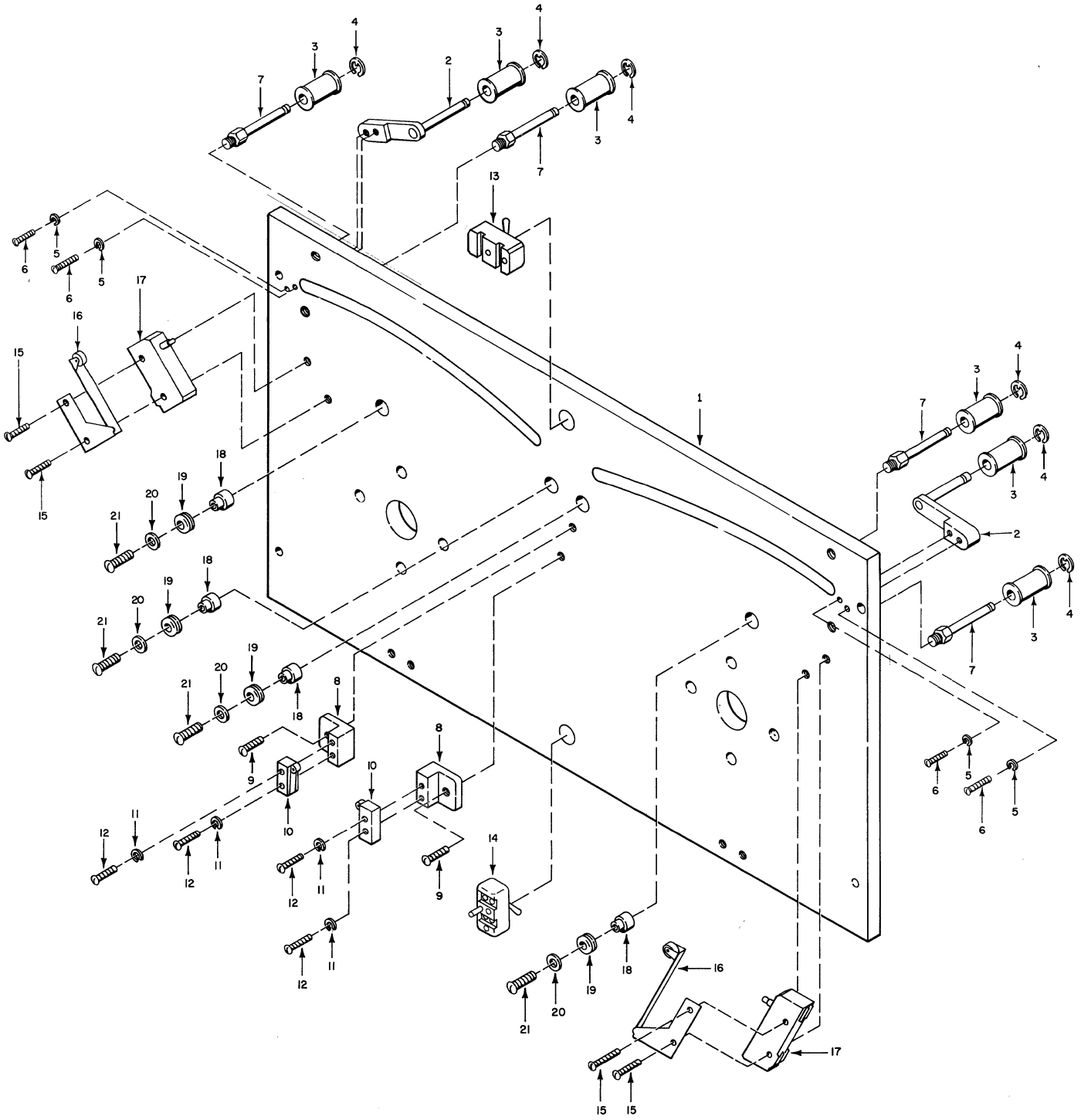
The rewind switch SW6 in the forward position energizes relays K2, K4, and K5, and causes the pulser relay K▲4 to be pulsed by the pulser circuit of transistor Q1. With relays K2 and K4 energized, ac power (being pulsed by contacts 9 and 10 of the pulser relay K▲4B) is applied to motors M1 and M2. Ac power applied in this manner causes motor M1 to rotate clockwise and motor M2 to rotate counterclockwise, taking up the tape slack created by the tension arms. When the tape slack is taken up, the tension arms will be at the end of the guide slots activating switches SW9 and SW10. With switches SW9 and SW10 activated, relay K3 is energized which in turn de-energizes relay K2 returning motor M1 to servo operation. Relay K3D also applies stepped-up ac power from transformer T1 to contact 9 of the pulser relay K▲4B. With switches SW9 and SW10 activated, -30 vdc (-15 vdc with Model B4566 ALCR) is applied to the base of transistor Q1, blocking the pulser network and holding the pulser relay K▲4 energized, applying continuous ac power to motor M2. At this point, motor M2 will begin high-speed forward rewind and continue until the rewind switch SW6 is released. When switch SW6 is released, the time delay across the coil of relay K5 will hold the relay energized for 500 microseconds.

The reverse rewind operation is similar to the forward rewind operation except that when switch SW6 is moved to the reverse position, relays K1, K2, and K4 are energized, and when the tension arms activate switches SW9 and SW10, stepped-up ac power is applied to motor M1 instead of motor M2.

SECTION VII
REFERENCE DRAWINGS AND IPB



OVERALL ILLUSTRATED PARTS BREAKDOWN

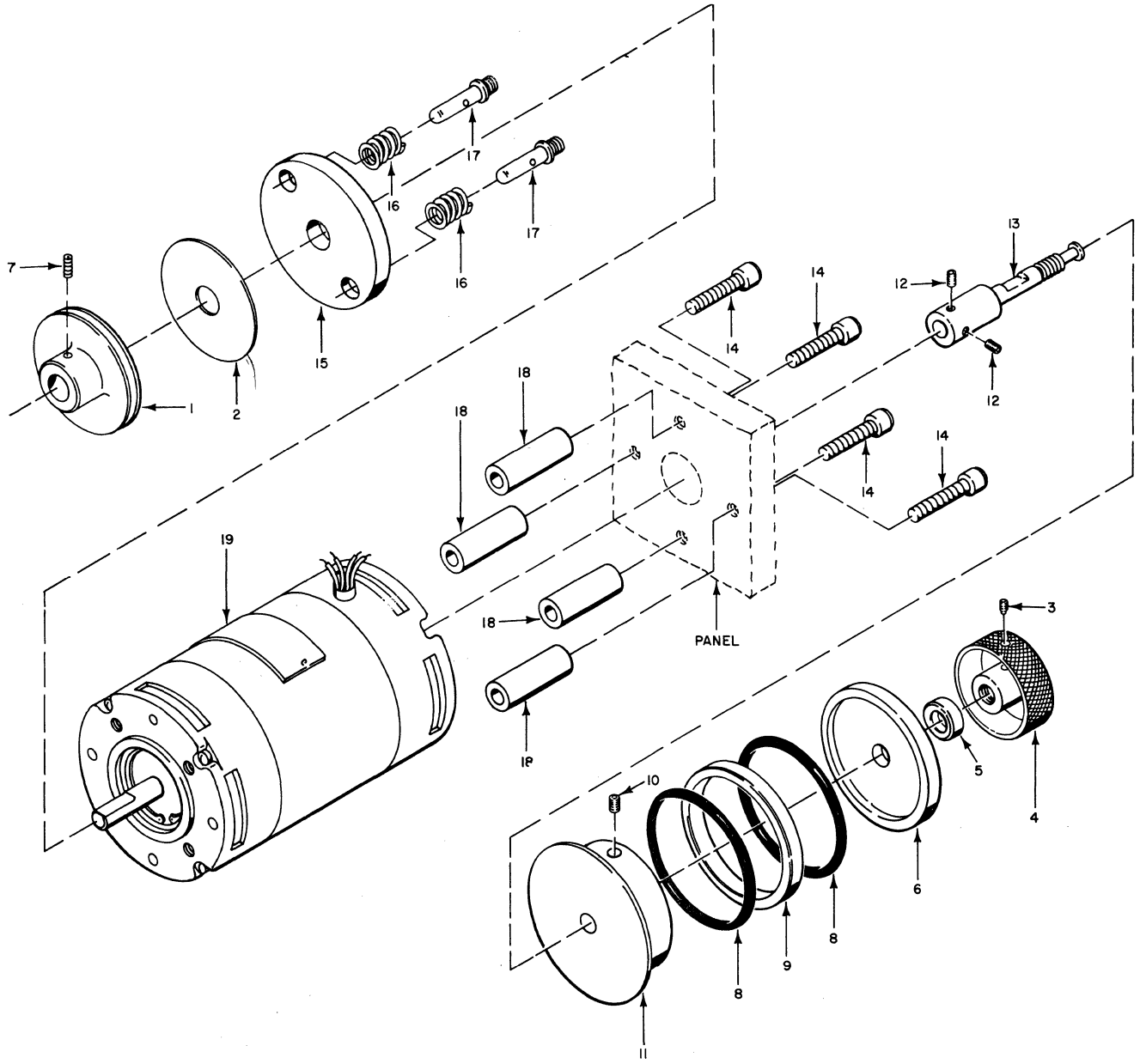


PANEL ASSEMBLY PARTS BREAKDOWN

MOTOR, REEL MOUNT, AND DRAG BRAKE ASSEMBLIES

(2 ASSEMBLIES PER UNIT)

ITEM NO.	DESCRIPTION	DIGITRONICS PART NO.	QTY. PER ASSY.
1	Drag Brake Shoe Assembly	BC4027	1
2	Shim Friction	AA4721	1
3	Screw, Set (Modified)	AA1500	1
4	Knob, Reel (Engraved) Knob, Reel (Plain)	BA1501 AA2512	1 1
5	Bearing, Thrust	TB-GA0001	1
6	Pressure Plate	BA3123	1
7	Screw, Set, Socket Head, #10 - 32 x 1/4, Cup Pt., Nylock	TH-XC1703	1
8	"O" Ring	TGRPRO909	2
9	Ring	BA3124	1
10	Screw, Set	TH-XC2105	1
11	Hub	BA3125	1
12	Screw, Set, #10 - 32 x 1/4, Cup Pt., Nylock	TH-XC1703	2
13	Shaft, Coupling (Spooler Reel Motor)	A-A1672	1
14	Screw, Socket Head, 1/4 - 28 x 1 3/4 SHC	THSL2115	4
15	Friction Plate	AA4722	1
16	Spring	TSPAE0005	2
17	Stud, Brake	A-A2612	2
18	Spacer, Block-Motor	AA3058	4
19	Motor, Torque	C-A1817	1



MOTOR, REEL MOUNT, AND DRAG BRAKE ASSEMBLY PARTS BREAKDOWN

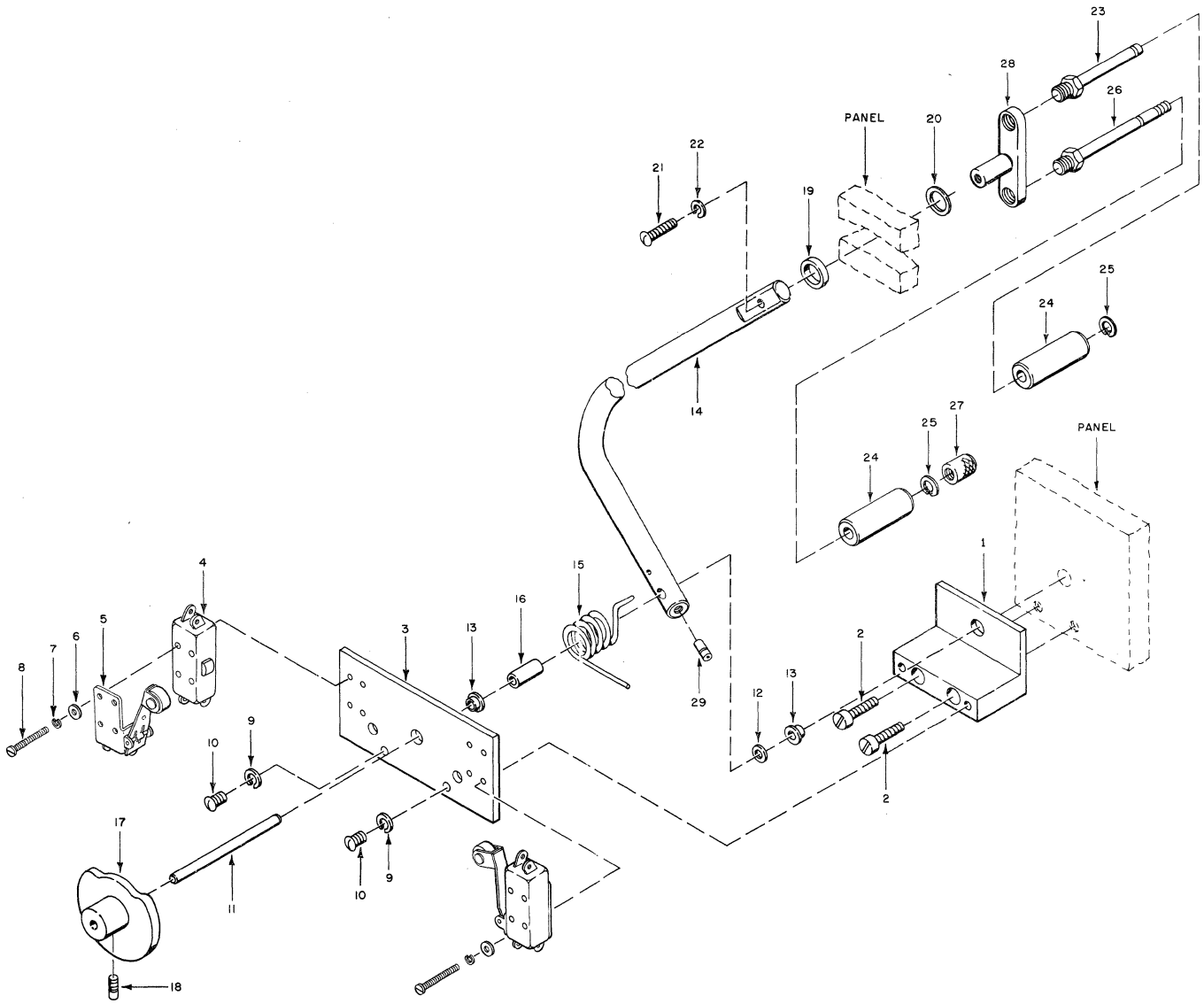
TENSION ARM ASSEMBLY

(2 ASSEMBLIES PER UNIT)

ITEM NO.	DESCRIPTION	DIGITRONICS PART NO.	QTY. PER ASSY.
1	Bearing Block	AA1664	1
2	Screw, #6 - 32 x 3/4 Socket, H.M.S., St. St.	TH-SL1209	2
	Switch Plate Assembly (Left Side)	BC764	1
	(Right Side)	BC712	1
3	Switch Plate	AA1666	1
4	Switch, Licon Type 11-104	TDP02DS19	2
5	Actuator, Licon 70-104	TASPD0004	2
6	Washer, #2 Flat	TH-WA0206	4
7	Lockwasher, #2 Split	TH-WB0201	4
8	Screw, #2-56 x 3/4 B.H.M.	TH-SI0309	4
9	Lockwasher, #6 Split	TH-WB0605	2
10	Screw, #6 - 32 x 1/4, B.H.M.	TH-S11203	2
11	Shaft, Tension Arm	AA1663	1
12	Spacer	AA1763-1	1
13	Bearing, Flanged	A1072-3	1
14	Tension Arm	BA4912	1
15	Spring, Tension Arm (Left Arm)	AA2029-2	1
	(Right Arm)	AA2029-1	1
16	Spacer	AA1763-3	1
17	Cam, Tension	AA1765	1
18	Screw, Set #8 - 32 x 3/16, Socket Head, Cup Pt., Nylock	TH-XC1402	1
19	Washer, Teflon	AA4919-2	1
20	Washer, Teflon	AA4919-1	1
21	Screw, #8 - 32 x 5/8, B.H.M.	TH-S11408	1

TENSION ARM ASSEMBLY (Cont'd)

ITEM NO.	DESCRIPTION	DIGITRONICS PART NO.	QTY. PER ASSY.
22	Lockwasher, #8 Split	TH-WB0708	1
23	Shaft, Stud Assembly	BC4245	1
24	Roller, Straight	AA4917	2
25	Retaining Ring	TTRFM1206	2
26	Shaft, Stud Assembly	BC4259-1	1
27	Knob	AA4939-5	1
28	Roller, Mount	BA4921	1
29	Screw, Set, Socket Head, #10 32 x 3/16, Cup Pt., Nylock	TH-XC1702	1

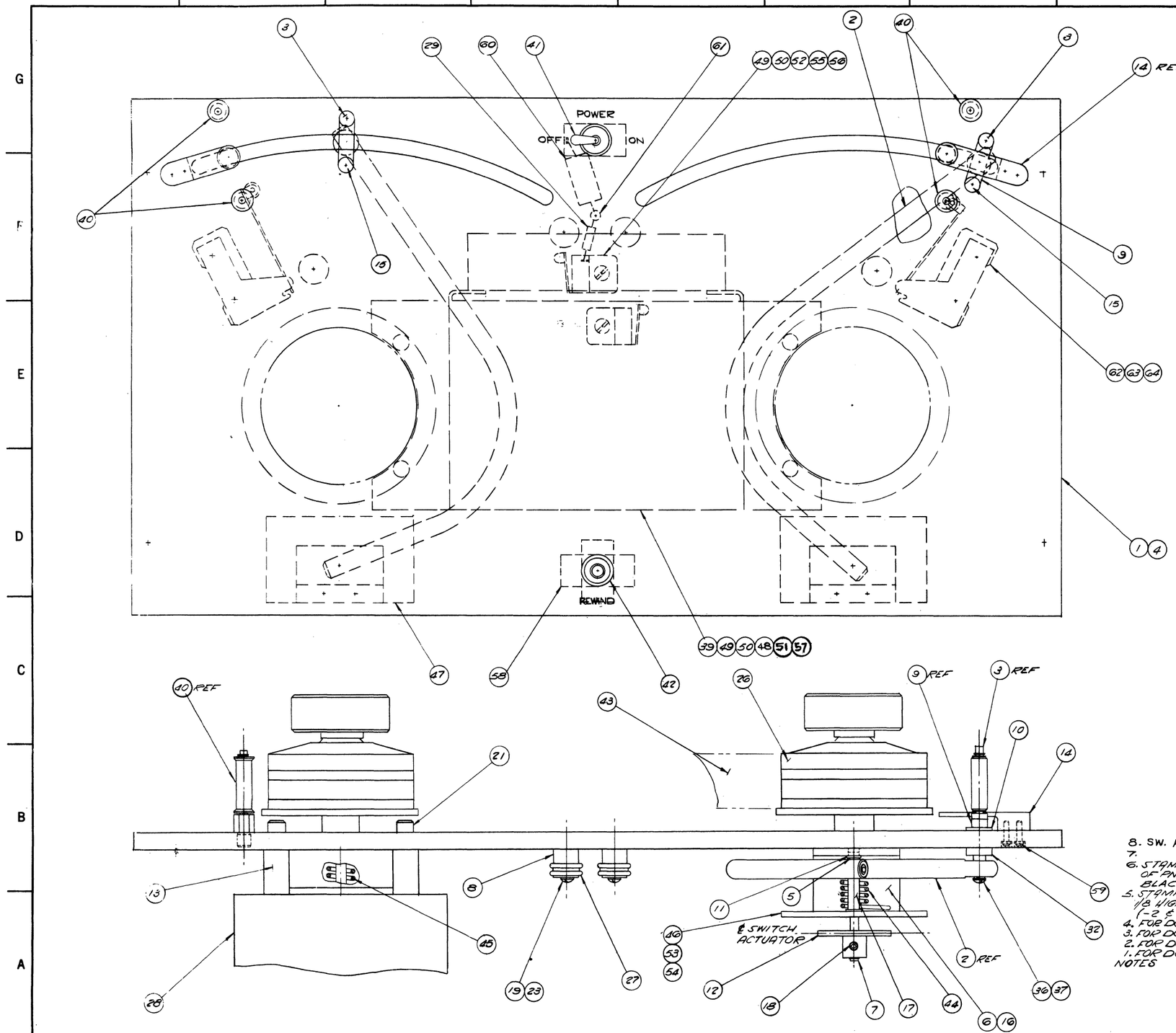


TENSION ARM ASSEMBLY PARTS BREAKDOWN

DRWG. NO. DC4748F

DRWG. NO. DC4748 — DESCRIPTION: SPOOLER ASSEMBLY

-4 QTY	-3 QTY	-2 QTY	-1 QTY	ITEM	DRWG. NO.	DESCRIPTION
—	1	—	1	001	DE678-1	PANEL ENGRAVED
2	2	2	2	002	BH4912	TENSION ARM
2	2	2	2	003	BC4246-1	ROLLER ASSY
1	—	1	—	004	DE678-2	PANEL ENGRAVED
2	2	2	2	005	AH1763-1	SPACER
2	2	2	2	006	AH1664	BEARING BLOCK
2	2	2	2	007	AH1663	SHAFT TENSION ARM
4	4	4	4	008	AH1665	BUMPER POST
2	2	2	2	009	BH4921	ROLLER MOUNT
2	2	2	2	010	AH1919-1	TEFLON WASHER
4	4	4	4	011	A1072-3	BEARING, FLANGED
2	2	2	2	012	AH1765	CAM TENSION ARM
5	5	5	5	013	AH2305B	SPACER BLOCK MOTOR
2	2	2	2	014	BC4244-1	OVERHEAD ROLLER ASSY
2	2	2	2	015	BC4258-1	ROLLER ASSY
4	4	4	4	016	TH-SL1209	SCR 2-32 x 3/16 SH.M
2	2	2	2	017	AH1763-3	SPACER
2	2	2	2	018	TH-XC1402	SCR 5-32 x 3/16 SH.PS
4	4	4	4	019	TH-SL1223	SCR 6-32 x 11/16 B-M
				020		
8	8	8	8	021	TH-SL2115	SCR 1/4-28 x 1 3/4 SHC
				022		
4	4	4	4	023	TH-WA04W2	WASHER #6 FLAT
				024		
				025		
2	2	2	2	026	BC4245-0	REEL MOUNT ASSY
4	4	4	4	027	GRPD1030	GROMMET H.SMITH 2174
2	2	2	2	028	BC4247-1	MOTOR SUB ASSY
1	1	1	1	029	RCB101C	RES 1/2 W 100 Ω 5%
				030		
				031		
2	2	2	2	032	AH1919-2	TEFLON WASHER
				033		
				034		
				035		
2	2	2	2	036	TH-ST1403	SCR 3-32 x 5/16 B.H.M
2	2	2	2	037	TH-WB0703	LOCK WASHER #8 SPLIT
				038		
—	—	—	1	039	CC4652-1	CHASSIS ASSEMBLY
4	4	4	4	040	BC4061-2	ROLLER ASSEMBLY
1	1	1	1	041	TOTO1A5091	TOGGLE SW. C.H. 7501K3
—	—	1	1	042	TOTO1A5 1	TOGGLE SW. CH 7583K3
2	2	2	2	043	TAPO82EJ	REEL 3 INCH S2-3
1	1	1	1	044	AH2029-1	SPRING TENSION ARM
1	1	1	1	045	AH2029-2	SPRING TENSION ARM
1	1	1	1	046	BC712	SWITCH PLATE ASSY
1	1	1	1	047	BC764	SWITCH PLATE ASSY
1	—	—	—	048	CC4652-2	CHASSIS ASSY
4	4	4	4	049	TH-ST1402	SCR 8-32 x 5/16 B.H.M.S
4	4	4	4	050	TH-WB0708	WASHER SPLIT #8
—	—	1	—	051	CC4652-2	CHASSIS ASSY
2	2	2	2	052	AH1920	BLOCK SWITCH MTG
4	4	4	4	053	TH-SL1203	SCR 6-32 x 1/4 B.H.M.S
4	4	4	4	054	TH-WB0006	WASHER SPLIT #6
2	2	2	2	055	ZA01B503	SW. MICRO U.S.A. 5W 5 AMP
4	4	4	4	056	TH-ST1307	SCR 2-56 x 1/2 B.H.M.S
—	1	—	—	057	CC4652-1	CHASSIS ASSY
1	1	—	—	058	TOTO2B51	TOGGLE SWITCH C.H.
4	4	4	4	059	TH-SE0806	SCR 4-40 x 7/16 F.H.M.S.
1	1	1	1	060	TC-IC104E	CAP. 1μF 400 V POLYESTER
1	1	1	1	061	TSPAD060	STD OFF LERCO 3045-B
2	2	2	2	062	TDPO1B51	SWITCH MICRO #E2ER5
2	2	2	2	063	TASPA000	ACTUATOR F/P MICRO
4	4	4	4	064	TH-ST1238	SCR 6-32 x 1 3/16 B.H.M.S
—	—	1	1	065	DX400-13	WIRE AS PER DX400-147
1	1	—	—	066	DX400-133	WIRE AS PER DX400-146



NOTES
1. FOR DC4248-4 SCHEMATIC, SEE CH921
2. FOR DC4248-3 SCHEMATIC, SEE CH920
3. FOR DC4248-2 SCHEMATIC, SEE CH919
4. FOR DC4248-1 SCHEMATIC, SEE CH918
5. STAMP DESIGNATIONS ON REAR OF PNL 1/8 HIGH GOTHIC STYLE IN WHITE (-2 & -4) ONLY
6. STAMP DESIGNATIONS ON REAR OF PNL 1/8 HIGH GOTHIC STYLE IN BLACK (-1 & -3 ONLY)
7.
8. SW. ADJUSTMENTS AS PER ED191

DIGITRONICS, ALBERTSON, NEW YORK

MATERIAL — SCALE: 1/1

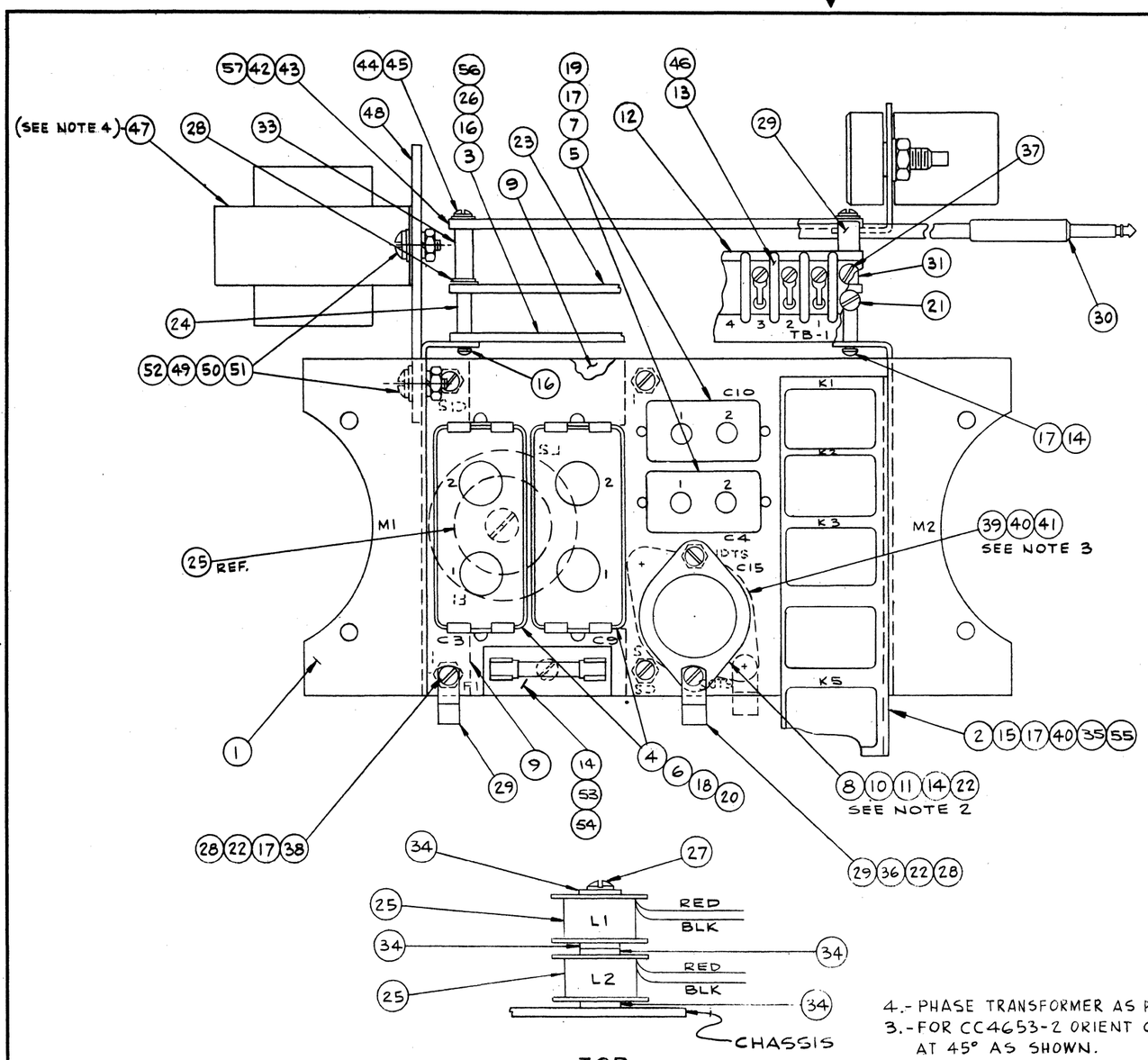
FINISH —

TOLERANCES UNLESS OTHERWISE NOTED: DEC. ± .005 | FRAC. ± 1/64 | ANGLE ± 1/2°

TITLE: SPOOLER ASSEMBLY 2 LOOP

SHEET 1 OF 1 — DRAWING NO. DC4248

DRWG. NO. C C 4653C



TOP
FILTER CHOKE ASS'Y

-3	-2	-1	DRWG. NO. CC4653	DESCRIPTION CHASSIS ASS'Y	
QTY	QTY	QTY	ITEM	DRWG. NO.	DESCRIPTION
1	1	1	001	CA1759	CHASSIS, SPOOLER
–	–	1	002	BC853-2	RELAY BKT ASS'Y
–	–	1	003	BC4233-1	RES. BD. ASS'Y RB-1
2	2	2	004	A1124-2	CAP. 6 MFD 220V.
2	2	2	005	A1121-1	CAP. 1 MFD 600V.
4	4	4	006	A1261-2	CAP. BRACKET
2	2	2	007	A1121-1	CAP. BRACKET
–	–	1	008	TC-AC257F	CAP. 250 MFD 50V.
2	2	2	009	TC-ZF254E	CAP. 25 MFD 600 V.
–	–	1	010	TTUEPC003	INSULATING SLEEVE
–	–	1	011	TMBFB0001	CAP. MTG. WASHER
1	1	1	012	AA1813	BRACKET, BARRIER STRIP
1	1	1	013	TTBAA0312	TERM. BD. KULKA 600Y-12
7	7	7	014	TH-SI1203	SCR. #6-32 x 1/4 LG. BHMS
4	4	4	015	TH-SI1202	SCR. #6-32 x 3/16 LG. BHMS
4	4	4	016	TH-SI0804	SCR. #4-40 x 5/16 LG. BHMS
18	18	18	017	TH-WB0605	WASHER SPLIT #6
4	4	4	018	TH-WB0810	WASHER SPLIT #10
4	4	4	019	TH-NA1106	NUT HEX. #6-32
4	4	4	020	TH-NA1608	NUT HEX. #10-32
3	3	3	021	TH-SI1205	SCR. #6-32 x 3/8 LG. BHMS
6	6	6	022	TSPAA0602	STDOFF GARDE 3449-14E
1	1	1	023	BC780	RESISTOR BD. ASS'Y
4	4	4	024	AA1824	SPACER
2	2	2	025	AA1892	FILTER CHOKE
–	1	-	026	BC2074	RES. BD. ASS'Y
1	1	1	027	TH-SI1416	SCR. #8-32 x 1 7/8 LG. BHMS
5	5	5	028	TH-WA0612	WASHER FLAT #6
2	2	3	029	THRPB0001	CABLE CLAMP
–	–	1	030	AL25	CABLE ASS'Y
2	2	2	031	BA2495-46	SPACER
			032		
2	2	2	033	BA2495-45	SPACER
4	4	4	034	TH-YA0712	WASHER, FIBER
–	1	–	035	BC853-3	RELAY BKT. ASS'Y
1	1	1	036	TH-SI1206	SCR. #6-32 x 7/16 LG. BHMS
1	1	1	037	TH-SI1235	SCR. #6-32 x 9/16 LG. BHMS
1	1	1	038	TH-SI1204	SCR. #6-32 x 5/16 LG. BHMS
–	1	–	039	TC-AH108F	CAP. 1000 MFD 25 V.
–	1	–	040	TTUEP2005	INSULATING SLEEVE
–	1	–	041	TMBFB0001	CAP. MTG. WASHER
–	–	1	042	BC4015-1	INCREMENTAL RWD. ASS'Y
–	1	–	043	BC4015-2	INCREMENTAL RWD. ASS'Y
4	4	4	044	TH-SI0811	SCR. #4-40 x 1" LG. BHMS
4	4	4	045	TH-WA0409	WASHER, FLAT #4
1	1	1	046	TMSAA0312	MARKER STRIP MS600Y-12
1	1	1	047	TT-C00001	TRANSFORMER, TRIAD F-41X
1	1	1	048	AA5550	BRACKET, TRANSFORMER
4	4	4	049	TH-SI1407	SCR. #8-32 x 1/2 LG. BHMS
4	4	4	050	TH-WB0708	WASHER SPLIT #8
4	4	4	051	TH-NA1307	NUT HEX. #8-32
4	4	4	052	TH-WA0712	WASHER, FLAT #8
1	1	1	053	TF-AA0300	FUSE 3A 3AG
1	1	1	054	TXBBS0119	FUSE BLOCK L.F. 099062
1	–	–	055	BC863-6	RELAY BKT ASS'Y.
1	–	–	056	BC2074-1	RES. BD. ASS'Y.
1	–	–	057	BC4015-3	INCREMENTAL RWD. ASS'Y.

4.- PHASE TRANSFORMER AS PER ED 193
3.- FOR CC4653-2 ORIENT CAPACITOR AT 45° AS SHOWN.
2.- FOR CC4653-1 ORIENT CAPACITOR VERTICAL AS SHOWN.
1.- RUBBER STAMP CHARACTER 1/8 HIGH IN BLACK.

NOTES;

REV.	E.C.O. NO.	DWN.	CHKD.	APP'D.	NO. DAY YR.
C	ECO 4830	G	[illegible]	AM	4-30-65
B	4700	R.	[illegible]	AM	11/28/64
A	ECO 4626	G	[illegible]	LB	2-25-64
ORIGINAL ISSUE		FB	HSK	A	10-26-64

DIGITRONICS
ALBERTSON, NEW YORK

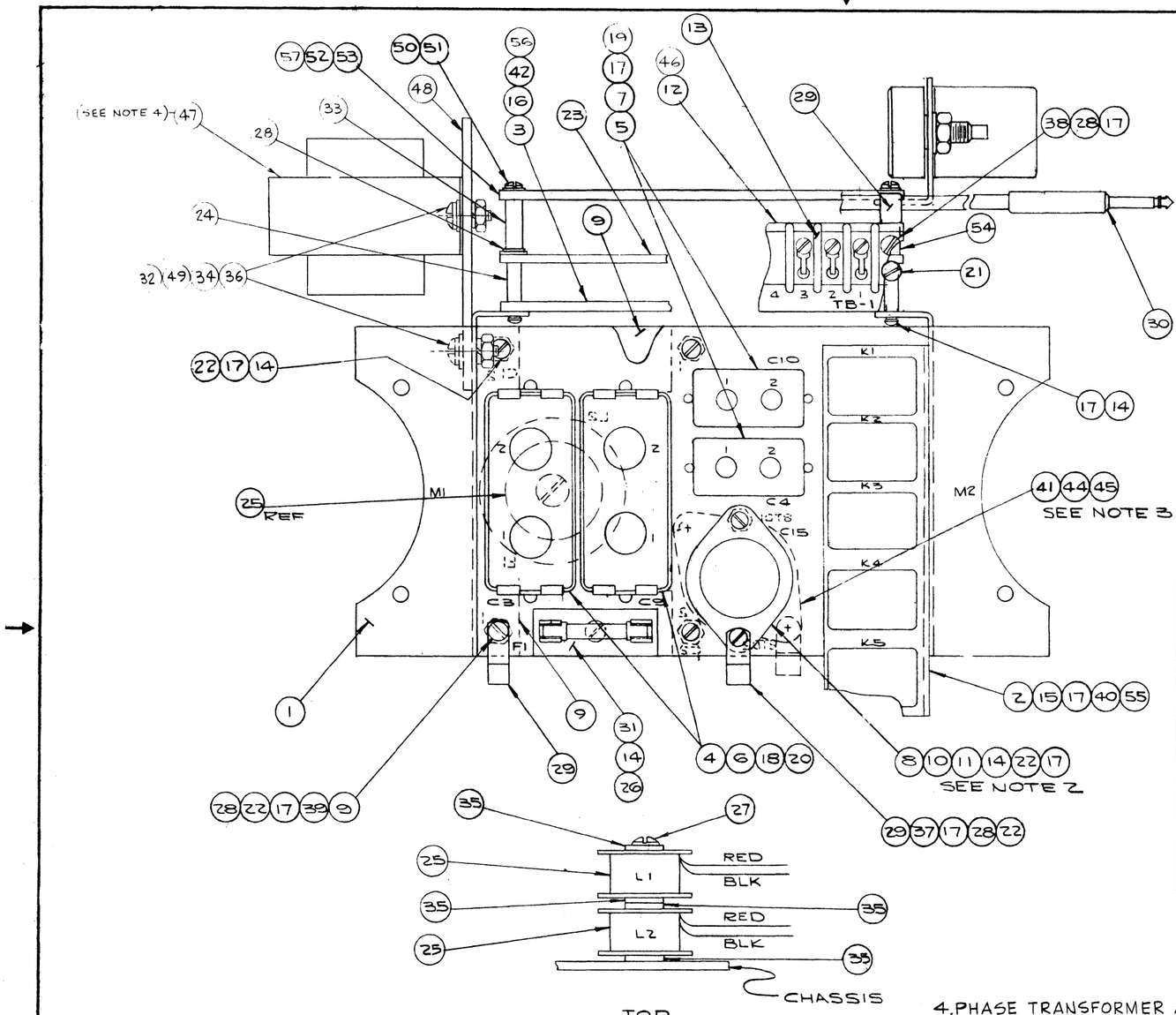
MATERIAL	SCALE: 1:1
FINISH	
TOLERANCES UNLESS OTHERWISE NOTED: DEC. ± .005 / FRAC. ± 1/64 / ANGLE ± 1/2°	

TITLE: CHASSIS ASSEMBLY

SHEET 1 OF 1 — DRAWING NO. CC4653

OGILVIE PRESS, INC., BROOKLYN 17, N. Y. STOCK NO. 10-5136 10502

DRWG NO CC4652A



TOP

FILTER CHOKE ASSY

-3	-2	-1	DRWG. NO	DESCRIPTION
			CC4652	CHASSIS ASSY
QTY	QTY	QTY	ITEM	DRWG. NO.	DESCRIPTION
1	1	1	001	CA1759	CHASSIS, SPOOLER
–	–	1	002	BC853	RELAY BKT ASSY
–	–	1	003	BC855	RES. BD ASSY RB-1
2	2	2	004	A1124-2	CAP. 6 MFD 220 V.
2	2	2	005	A1121-1	CAP. .1 MFD 600 V W/BKT.
4	4	4	006	A1261-2	CAP. BRACKET
2	2	2	007	A1121-1	CAP BRACKET
–	–	1	008	TC-AQ257F	CAP 250 MFD 50V.
2	2	2	009	TC-BF254E	CAP .25 MFD 600V.
–	–	1	010	TTUEPC003	INSULATING SLEEVE
–	–	1	011	TMBFB0001	CAP MTG WASHER
1	1	1	012	AA1813	BRACKET, BARRIER STR
1	1	1	013	TTBAA0312	TERM. BD KULKA 600Y-12
7	7	7	014	TH-SI1205	SCR 6-32×1/4 LG BHMS
4	4	4	015	TH-SI1202	SCR 6-32×3/16 LG BHMS
4	4	4	016	TH-SI0804	SCR 4-40×5/16 LG BHMS
18	18	18	017	TH-WB0605	WASHER SPLIT #6
4	4	4	018	TH-WB0810	WASHER SPLIT #10
4	4	4	019	TH-NA1106	NUT HEX 6-32
4	4	4	020	TH-NA1608	NUT HEX 10-32
3	3	3	021	TH-SI1205	SCR 6-32×3/8 BHMS
6	6	6	022	TSFAA0602	STOOFF GARDE 3449-14E
1	1	1	023	BC4848	RESISTOR BD ASSY
4	4	4	024	AA1924	SPACER
2	2	2	025	AA1892	FILTER CHOKE
1	1	1	026	TF-AA0300	FUSE 3A 3AG
1	1	1	027	TH-SI1416	SCR #8-32×1 7/8 LG BHM
4	4	4	028	TH-WA0612	WASHER FLAT #6
2	2	3	029	THRPB0001	CABLE CLAMP
–	–	1	030	AL25	CABLE ASSY
1	1	1	031	TXBBS0119	FUSE BLK-L.F 099062
4	4	4	032	TH-SI1407	SCR. 8-32×1/2 LG. B.H.M.
2	2	2	033	BA2495-45	SPACER
4	4	4	034	TH-WB0708	WASHER, SPLIT #8
4	4	4	035	TH-YA0712	WASHER, FIBER
4	4	4	036	TH-NA1307	NUT, HEX. #8-32
1	1	1	037	TH-SI1206	SCR 6-32×7/16 B.H.M.
1	1	1	038	TH-SI1235	SCR 6-32×9/16 B.H.M
1	1	1	039	TH-SI1204	SCR 6-32×5/16 B.H.M.
–	1	–	040	BC853-1	RELAY BKT ASSY
–	1	–	041	TC-AH108F	CAP 1000 MFD 25V
–	1	–	042	BC2075	RES BOARD ASSY
			043		
–	1	–	044	TMBFB0001	CAP. MTG WASHER
–	1	–	045	TTUEPE005	INSULATING SLEEVE
1	1	1	046	TMSAA0212	MARKER STRIP MS600Y-12
1	1	1	047	TT-C00001	TRANSFORMER, TRIAD F-41X
1	1	1	048	AA5550	BRACKET, TRANSFORMER
4	4	4	049	TH-WA0712	WASHER, FLAT #8
4	4	4	050	TH-SI0811	SCR 4-40×1 LG BHM
4	4	4	051	TH-WA0409	WASHER FLAT #4
–	–	1	052	BC4015-1	INCREMENTAL RWD. ASSY
–	1	–	053	BC4015-2	INCREMENTAL RWD ASSY
2	2	2	054	BA2495-46	SPACER
1	–	–	055	BC853-4	RELAY BKT ASSY
1	–	–	056	BC2075-1	RES. BD ASSY
1	–	–	057	BC4015-3	INCREMENTAL RWD ASSY

4. PHASE TRANSFORMER AS PER ED193

3. FOR CC4652-2 ORIENT CAPACITOR AT 45° AS SHOWN

2. FOR CC4652-1 ORIENT CAPACITOR VERTICAL AS SHOWN

1. RUBBER STAMP CHAR. 1/8 HIGH IN BLACK

NOTES:

REV	E.C.O. NO.	DWN	CHKD	APP'D	MO DAY YR
B	ECO 4830	G		PM	4-30-66
A	ECO 4626	G		PM	11 17 65
ORIGINAL ISSUE		F.B.	HSK	PM	10-23-64

DIGITRONICS
ALBERTSON, NEW YORK

MATERIAL — SCALE: 1/1

FINISH

TOLERANCES UNLESS OTHERWISE NOTED: DEC. ± .005 | FRAC. ± 1/64 | ANGLE ± 1/2°

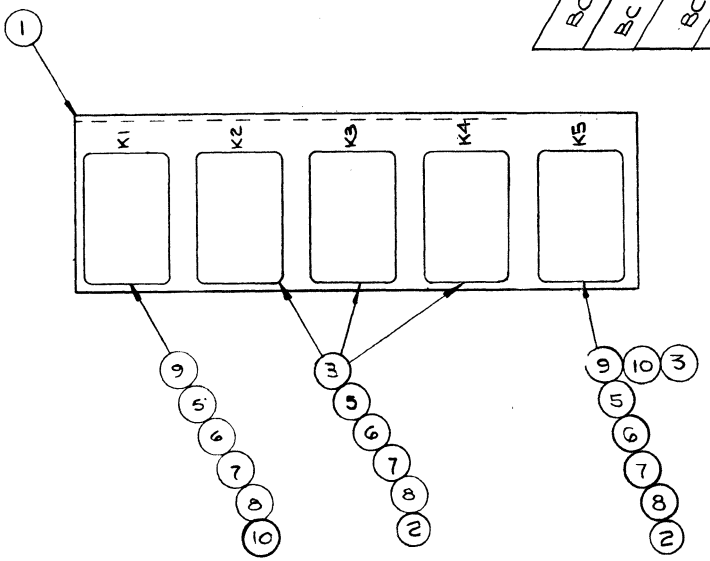
TITLE: CHASSIS ASSEMBLY

SHEET 1 OF 1 — DRAWING NO CC4652

BC853 H

QTY	QTY	QTY	QTY	QTY	QTY	DESCRIPTION	PART NO.	ITEM
1	1	1	1	1	1	BRACKET, RELAY	A-A2038	1
—	—	3	—	3	—	RELAY-CONT 5A, ALLIED TF154-4C-12V	TKRVDCC06	2
—	—	—	3	—	3	RELAY- CONT 5A, ALLIED TF154-4C-24V	TKTVDCC06	3
								4
4	5	4	4	5	5	SCREW #3-56 x 1/4 LG. B.H.M.S.	TH-SI0603	5
4	5	4	4	5	5	LOCKWASHER #3 SPLIT	TH-WS0302	6
4	5	4.	4	5	5	HEX NUT #3-56	TH-NA0603	7
4	5	4	4	5	5	SOCKET, RELAY ALLIED #30054-8	TSKA1G003	8
—	—	—	1	—	2	RELAY, CONT. 2A ALLIED T154-4C24VT	TKTVDCB06	9
—	—	1	—	2	—	RELAY, CONT 2A T154-4C-12V	TKRVDCB06	10

BC853-5 | BC853-4 | BC853-3 | BC853-2 | B-C853-1 | B-C853



NOTE:
1. RUBBER STAMP CHARACTERS 1/8 HIGH IN BLACK INK.
2. ON -2 AND -3, DELETE K4

REV	E.C.O.	DWN.	CHKD.	APP'D.	MO. DAY YR.
C	3037	SR			7-7-62
B	E.C.O # 2799	LD.			5-4-62
A	ECO 2013	DFK			8-18-61
MATERIAL		ID			3-10-61
FINISH		SCALE: 1/1			

TOLERANCES UNLESS OTHERWISE NOTED: DEC. ± .005 | FRAC. ± 1/64 | ANGLE ± 1/2°

REV				
H	ECO 4830	G		4-30-65
G	4700			1/28/65
F	ECO 4626	G		12-23-64
E	U.D. P/L ECO 4521		X	8-28-64
D	UPDATING P/L	E	X	5-6-63

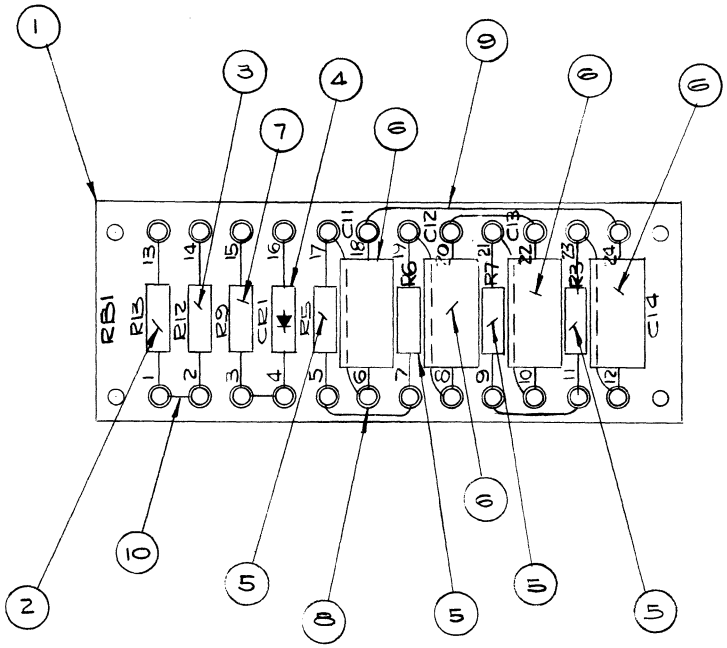
DIGITRONICS
ALBERTSON, NEW YORK

TITLE: RELAY BRACKET ASSEMBLY

USED ON:

DRAWING NO. B-C 853

DRWG. NO. BC4233



-1	DRWG. NO. BC4233	DESCRIPTION RESISTOR BD. ASSY

QTY	ITEM	DRWG. NO.	DESCRIPTION
1	001	A1042-2	RESISTOR BD.
1	002	TR-CC102C	RES. 1K 1W 5%
1	003	TR-CC301C	RES. 300Ω 1W 5%
1	004	TCRS206-A	DIODE IN2069A
4	005	TR-CB101C	RES. 100Ω 1/2W 5%
4	006	TC-EC104E	CAP. .1 mf 600V
1	007	TR-CC101C	RES. 100Ω 1W 5%
4	008	TH-LBG101	TERM LUG
A/R	009	TW-A22JOC	WIRE 22 GA SOLD SL
A/R	010	TW-S22JUU	WIRE 22 GA BARE

2. COVER ALL MARKING WITH CLEAR LAC.
1. STAMP CHAR. 1/8 HIGH GOTHIC STYLE IN WHITE LOCATED AS SHOWN (STAMP BEFORE ASSY COMPONENTS)

NOTES:

REV.	E.C.O. NO.	DWN.	CHKD.	APP'D.	MO. DAY YR.
A					
ORIGINAL ISSUE		[illegible]	[illegible]	[illegible]	5-7-64

DIGITRONICS
ALBERTSON, NEW YORK

MATERIAL	SCALE: 1/1
FINISH	
TOLERANCES UNLESS OTHERWISE NOTED: DEC. ± .005 / FRAC. ± 1/64 / ANGLE ± 1/2°	

TITLE: RESISTOR BD. ASSEMBLY "RB1"

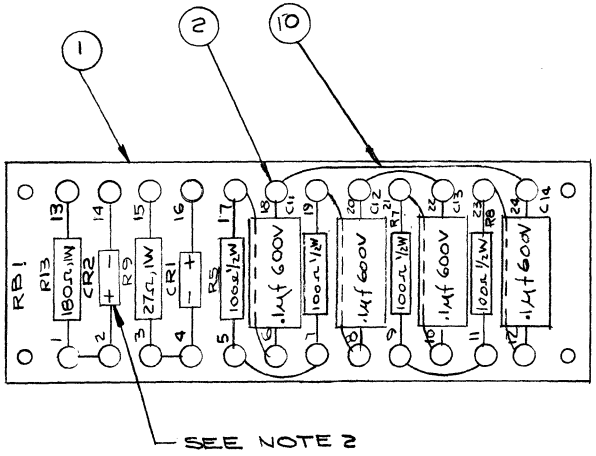
SHEET 1 OF 1 — DRAWING NO. BC4233

OGILVIE PRESS, INC., BROOKLYN 17, N. Y. STOCK NO. 185M 13391

B-C 2074 D

QUAN	QUAN	DESCRIPTION	REF STD	DWG. NO	ITEM
1	1	RESISTOR BOARD (2 SECTION		A-1042-2	1
4	4	TERMINAL LUG CS21-10		TH-BE101	2
4	4	CAPACITOR, .1 MF, 200 V, AEROVOX P83923N2E		TC-ZC104E	3
1	2	DIODE IN 2069A		TCRS200PA	4
—	1	RESISTOR, FIXED COMP, 180 Ω, 1W, 5%		TR-CC181C	5
—	1	" " " 27 Ω, 1W, 5%		TR-CC270C	6
4	4	" " " 100 Ω, 1/2 W, 5%		TR-CB101C	7
					8
					9
AS REQ'D	AS REQ'D	JUMPER #20 GA (INSULATE AS REQ'D)		TW-S20UUU	10

BC2074-1 BC2074



NOTES:
1. STAMP CHARACTERS 1/8 HIGH IN BLACK INK
2. CR2 NOT USED ON BC2074-1 ASSY.

REV	E.C.O.	DWN.	CHKD.	APP'D.	NO. DAY YR.
D	ECO 4830	GT		RH	4-30-65
C	ECO 4281 (P/L	GT		G	3-9-64
B	ECO 3998	LD		G	8-28-63
A	UPDATED				4-30-63
MATERIAL					
					7-7-62
		SCALE: 1/1			
FINISH					
TOLERANCES UNLESS OTHERWISE NOTED	DEC. ± .005	FRAC. ± 1/64	ANGLE ± 1/2°		

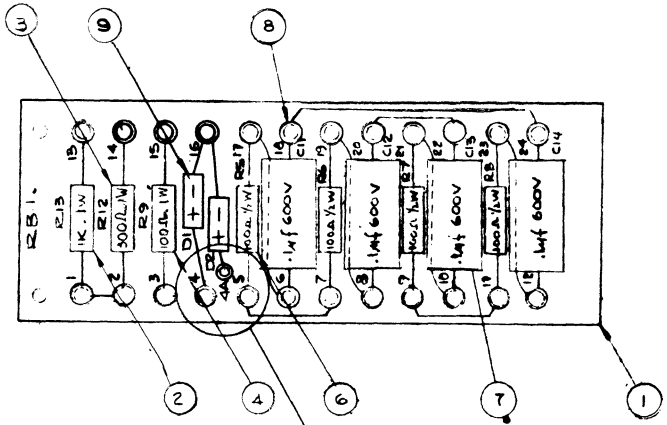
DIGITRONICS
ALBERTSON, NEW YORK

TITLE:
RESISTOR BOARD ASSEMBLY
"RB1"

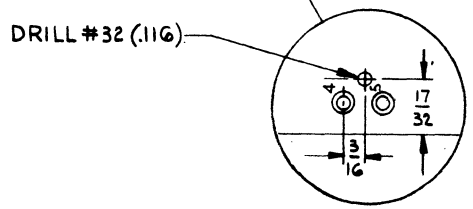
USED ON:

DRAWING NO.
B-C2074

QTY	DESCRIPTION	DWG. NO.	ITEM
1	RESISTOR BOARD (2 SECTION)	A-1042-2	1
1	RESISTOR, FIXED COMP 1K-1W	TR-CC102C	2
1	" " " 300Ω 1W- 5%	TR-CC501C	3
1	" " " 100Ω-1W-5%	TR-CC101C	4
			5
4	" " " 100Ω-1/2W-5%	TR-CB101C	6
4	CAP. .1μf 600V AEROVOX # PX2922N2B	TC-2C104E	7
5	TERMINAL LUG	TH-LBE101	8
2	DIODE GT230	TCRSU0125	9



NOTE:
STAMP CHARACTERS 1/8 HIGH
IN BLACK INK.



DETAIL - A

REV	E.C.O.	DRWN.	CHKD.	APP'D.	MO. DAY YR
C	UPDATING	[illegible]	X	X	4-30-63
B	2300	LD		D	12-12-61
A	ECO # 702	LD			6-8-61
MATERIAL		JD	[illegible]		3-13-61
		SCALE: 1/1			
FINISH					
TOLERANCES UNLESS OTHERWISE NOTED	DEC. ± .005	FRAC. ± 1/64	ANGLE ± 1/2°		

DIGITRONICS
ALBERTSON NEW YORK

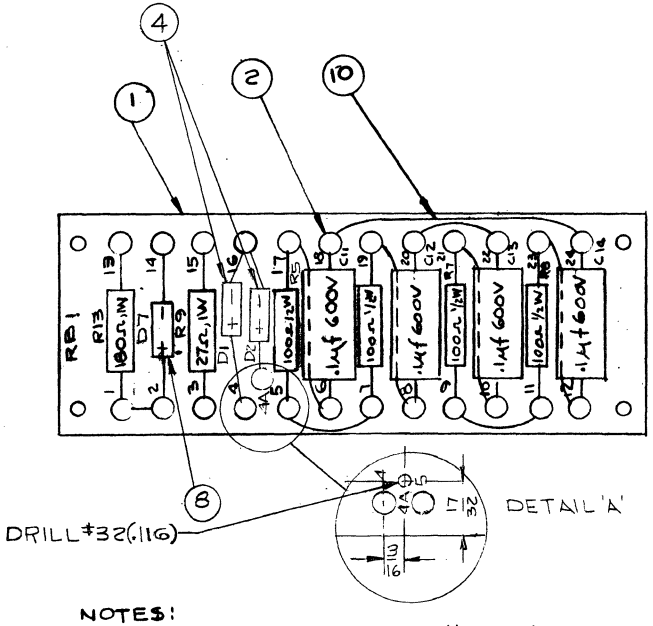
TITLE:
RESISTOR BOARD ASSY.
RB1

USED ON:

DRAWING NO.
B-C855

B-C 2075 B

QUAN BC2075-1	QUAN BC2075	DESCRIPTION	REF. STD	DWG. NO	ITEM
1	1	RESISTOR BOARD (2 SECTION		A-1042-2	1
5	5	TERMINAL LUG		TH-LBE101	2
4	4	CAPACITOR, .1 mf, 600 V, AEROVOX #P829 2EN28		TC-ZC104E	3
2	2	DIODE GT230		TCRSU0125	4
—	1	RESISTOR, FIXED COMP, 180Ω, 1W, 5%		TR-CC1B1C	5
—	1	" " " 27Ω, 1W, 5%		TR-CC270C	6
4	4	" " " 100Ω, 1/2W 5%		TR-CB101C	7
—	1	DIODE IN2069A		TCRS2069A	8
					9
AS REQ'D	AS REQ'D	JUMPER # 20 GA (INSULATE AS REQ'D)		TW-A20000	10



NOTES:
1. STAMP CHARACTERS 1/8 HIGH IN BLACK INK

REV		DWN.	CHKD.	APP'D.	MO. DAY YR.
B	ECO 4830	GT	[illegible]	PM	9-30-65
A	UPDATING P/L	LJ	X	X	6-26-63
REV	E.C.O.	DWN.	CHKD.	APP'D.	MO. DAY YR.
MATERIAL		SP	D	B	7-7-62
		SCALE: 1/1			
FINISH					
TOLERANCES UNLESS OTHERWISE NOTED	DEC. ± .005	FRAC. ± 1/64	ANGLE ± 1/2°		

DIGITRONICS
ALBERTSON, NEW YORK

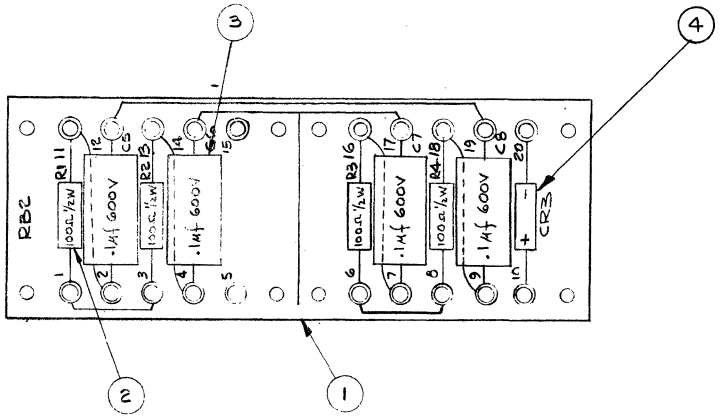
TITLE:
RESISTOR BOARD ASSEMBLY
"RB1"

USED ON:

DRAWING NO.
B-C2075

RES BD ASSY BC780 H

QUAN	DESCRIPTION	PART NO	ITEM
1	RESISTOR BOARD (2 SECTION)	A-1042-2	1
4	RESISTOR, FIXED COMP. 100Ω, ½W, 5%	TR-CB101C	2
4	CAPACITOR, .1μf 600V AEROVOX	TC-EC104E	3
1	DIODE IN2069A	TCRS2069A	4



NOTE:
STAMP CHARACTERS 1/8 HIGH
IN BLACK INK.

H	ECO 4626	ED			5-23-64
G	UPDATED	RD			5-1-63
F	E.C.O. 2797	LD			4-24-62
E	ECO	LD			1-4-62
D	ECO 2336	LD			12-26-61
C	ECO 532	DFK			12-29-60
B	ECO 504	DFK			12-9-60
	ECO 499	DFK			12-7-60

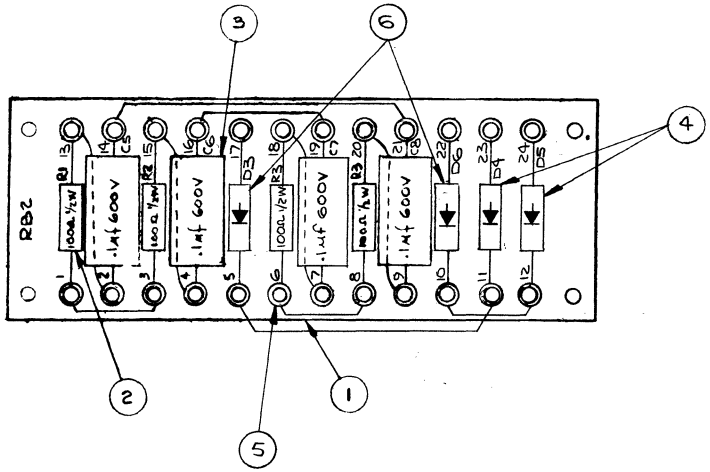
DFK 12-7-60

1/1

RESISTOR BOARD ASSEMBLY

B-C780

QUAN	DESCRIPTION	PART NO	ITEM
1	RESISTOR BOARD (2 SECTION)	A-1042-2	1
4	RESISTOR, FIXED COMP 100Ω ½W 5%	TR-CB-101C	2
4	CAPACITOR, .1μf 600V AEROVOX P82922V28	TC-EC104E	3
2	DIODE GT 230	TCR SJC 25	4
4	TERMINAL LUG	TM-.BE.C1	5
2	DIODE IN2069A	TCR 32069A	6



NOTE:
STAMP CHARACTERS 1/8 HIGH
IN BLACK INK.

REV	E.C.O.	DWN	CHKD	APP'D	MO DAY YR
		GT			12/1/61

MATERIAL

SCALE 1/1

FINISH

TOLERANCES UNLESS OTHERWISE NOTED: DEC. ± .005 | FRAC ± 1/64 | ANGLE ± 1/2°

DIGITRONICS
ALBERTSON NEW YORK

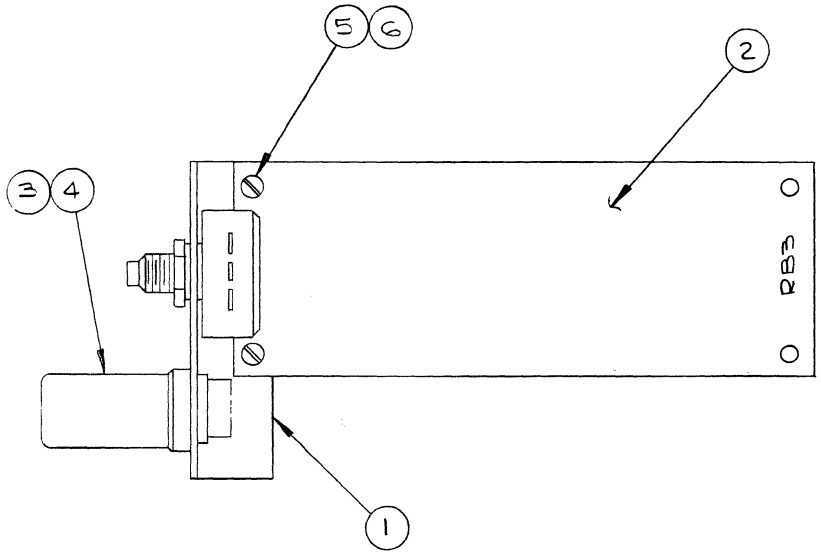
TITLE
RESISTOR BOARD ASSEMBLY
RB2

USED ON:

DRAWING NO.
BC 4848

DRWG. NO. BC4015 A

-3 QTY	-2 QTY	-1 QTY	ITEM	DRWG. NO.	DESCRIPTION
				BC4015	REWIND MOD. ASSY
1	1	1	001	BC4014-1	RELAY BRACKET ASSY
1	1	1	002	BC3681-1	RES. BD ASSY RB3
—	—	1	003	TKTVBCC06	RELAY TF-154-2C 24V
—	1	—	004	TKRVBCC06	RELAY TF-154-2C 12V
2	2	2	005	TH-GI0803	SCR #4-40X1/4 BHM
2	2	2	006	TH-NA0704	HEX NUT 4-40



NOTES:

1. USE ITEMS "5" & "6" TO TEMPORARILY ASSEMBLE ITEM "2" TO ITEM "1" UNTIL FINAL ASSEMBLY.
2. STAMP CHAR 1/8 HIGH GOTHIC STYLE, "INCR. RWD ASSY. BC4015-(AS APP.)" ON REAR OF PEARL, IN BLACK, & COVER WITH CLEAR LACQUER.

REV.	E.C.O. NO.	DWN.	CHKD.	APP'D.	MO. DAY YR.
	ADDED -3	[illegible]	[illegible]	AM	4-30-65
A	ECO 4464	E	[illegible]	[illegible]	6-9-64
ORIGINAL ISSUE		E	[illegible]	[illegible]	2-11-64

DIGITRONICS
ALBERTSON, NEW YORK

MATERIAL	SCALE:
	1/1
FINISH	
TOLERANCES UNLESS OTHERWISE NOTED: DEC. ± .005 / FRAC. ± 1/64 / ANGLE ± 1/2°	

TITLE: INCREMENTAL REWIND MODIFICATION ASSEMBLY

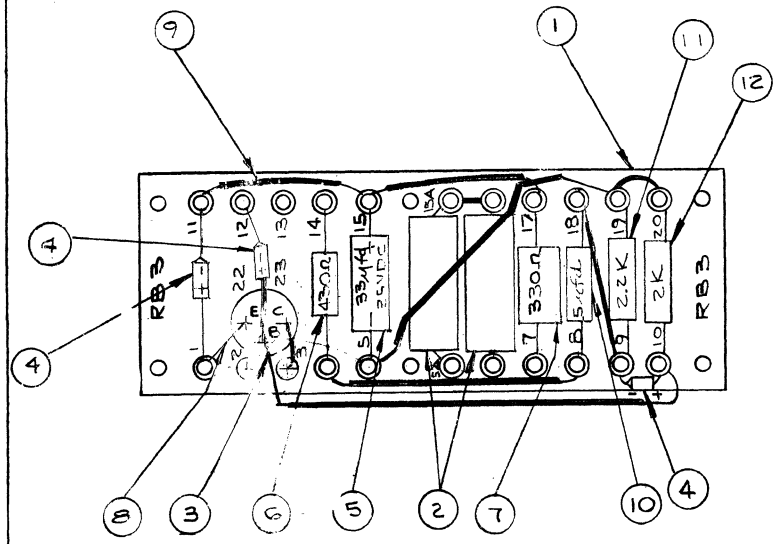
SHEET 1 OF 1 — DRAWING NO. BC4015

OGILVIE PRESS, INC., BROOKLYN 17, N. Y. STOCK NO. 195M 13391

BC3681 D

-1	DRWG. NO. BC3681	DESCRIPTION RESISTOR BD ASSY RB3

QTY	ITEM	DRWG. NO.	DESCRIPTION
1	001	BEG42-1	RESISTOR BD MARK RB3
2	002	AA4530	SPARK SUPPRESSOR
1	003	TQ-PA184B	TRANSISTOR 2N1184B
3	004	TCRS2069A	DIODE IN2069A
1	005	TC-TH336D	CAP 33MFD 35VDC
1	006	TR-CD431C	RESISTOR 430Ω 2W 5%
1	007	TR-CD331C	RESISTOR 330 OHM 2W 5
AR	008	TW-S22UUU	WIRE 22GA SOLID
AR	009	TW-A22000	WIRE 22GA SOLID SLVD
1	010	TC-ZA504E	CAPACITOR .5 mfd 200V
1	011	TR-CC222C	RES 2.2K 1W 5%
1	012	TR-CC202C	RES 2K 1W 5%



REV	E.C.O.	DWN.	CHK'D.	APP'D.	MO DAY YR.
D	ECO 4626				
C	4583				10-20-64
B	4504				8-11-64
A	4276				2-7-64
		SR			12-3-63

MATERIAL

SCALE. 1/1

FINISH

TOLERANCES UNLESS OTHERWISE NOTED | DEC ± .005 | FRAC. ± 1/64 | ANGLE ± 1/2°

DIGITRONICS
ALBERTSON, NEW YORK

TITLE.
RESISTOR BOARD ASSEMBLY "RB3"

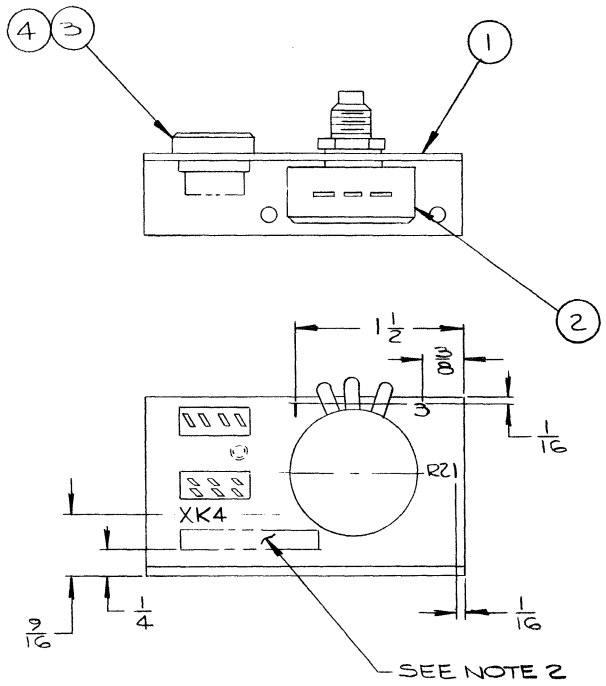
USED ON:

DRAWING NO. BC3681

DRWG. NO. BC4014

-1	DRWG. NO. BC4014	DESCRIPTION RELAY BRACKET ASSY

QTY	ITEM	DRWG. NO.	DESCRIPTION
1	001	BA4709	BRACKET, RELAY
1	002	TR-PD103D	POT, 10K 2WA-B TYPE J
1	003	TSKA10006	SOCKET, ALLIED 30055-1
1	004	TH-SI0303	SCR 2-56X1/4 BHM



4. DIM'S, DIM. LINES, AND ARROWS ARE FOR REF. ONLY.
3. COVER MARKING WITH CLEAR LACQUER.
2. STAMP ASSY. NO. 3/16 HIGH GOTHIC STYLE IN BLACK LOCATED AS SHOWN.
1. STAMP OR SCREEN CHARACTERS 1/8 HIGH GOTHIC STYLE IN BLACK LOCATED AS SHOWN.

NOTES:

REV.	E.C.O. NO.	DWN.	CHKD.	APP'D.	MO. DAY YR.
A					
ORIGINAL ISSUE		E		D	2-11-64

DIGITRONICS
ALBERTSON, NEW YORK

MATERIAL	SCALE:
	1/1

FINISH

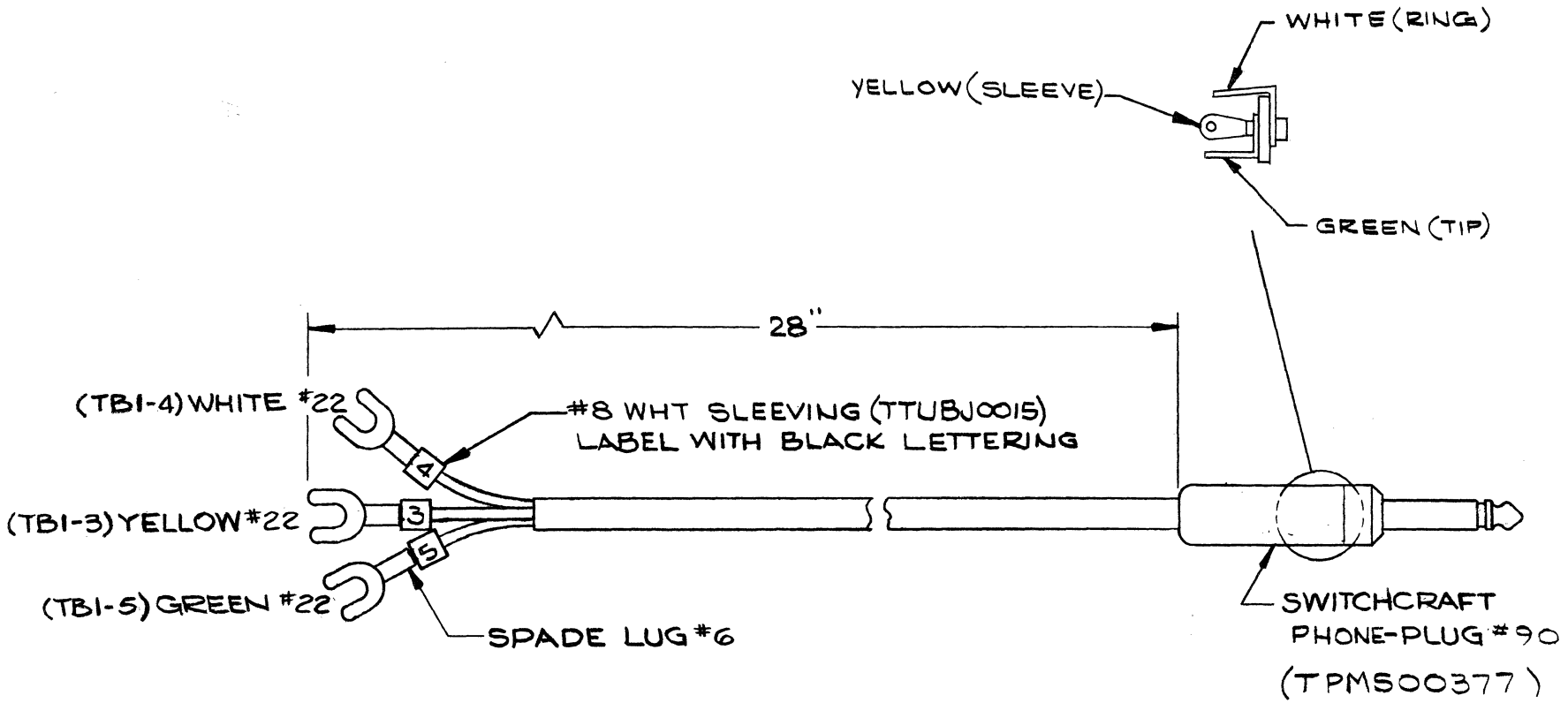
TOLERANCES UNLESS OTHERWISE NOTED: DEC. ± .005 | FRAC. ± 1/64 | ANGLE ± 1/2°

TITLE: RELAY BRACKET ASSY

SHEET 1 OF 1

DRAWING NO. BC4014

OGILVIE PRESS, INC., BROOKLYN 17, N. Y. STOCK NO. 195M 13391



REV	E.C.O.	DWN.	CHKD.	APP'D.	MO. DAY YR.
D	ECO 4670	BND		AM	1-12-65
C	ECO 4224	E			1-15-64
B	ECO 4110	JW			10-28-63
A	ECO 443	DFK			12-6-60

MATERIAL

DFK | | | 11-7-60

SCALE:

FINISH

TOLERANCES UNLESS OTHERWISE NOTED | DEC. ± .005 | FRAC. ± 1/64 | ANGLE ± 1/2°

DIGITRONICS
ALBERTSON, NEW YORK

TITLE:

CABLE ASSEMBLY

USED ON:

DRAWING NO. A-L25

CH 918

FOLD

TB1-1 (AC1) — F1 3A STD 1 — L1 — RED — BLK

TB1-2 (AC2) — STD 2 L2 — RED — BLK — C2 .25mfd 600V — C1 .25mfd 600V — TB1-3

T1 — BLK — RED

K3C — K4B — RB3 RC1 — 6A — 15A

SW5 PWR — SW1 — SW8 — R14 100Ω ½W — C16 .1mfd 600V — STD3

C3 6mfd 220V — BLU — YEL

M1

RB2 — R1 100Ω ½W — C5 .1mfd 600V — R2 100Ω ½W — C6 .1mfd 600V

GRN — RED — C4 1mfd 600V

K2A — K1A — K2B

SW1 — SW2

R3 100Ω ½W — C7 .1mfd 600V — R4 100Ω ½W — C8 .1mfd 600V

C9 6mfd 220V

M2 — BLU — YEL

RB1 — R5 100Ω ½W — C11 .1mfd 600V — R6 100Ω ½W — C12 .1mfd 600V

GRN — RED — C10 1mfd 600V

SW3 — SW4 — K5A — K5B — K3B — K1B

R7 100Ω ½W — C13 .1mfd 600V — R8 100Ω ½W — C14 .1mfd 600V

-30 — BRAKES — BRAKES (TB1-4)

K1C — K2C1

PHONO PLUG — TB1-3 (GND) — TB1-5 (-30) — TB1-6 (REWIND)

FWD — SW6 — NO

RB1 — R9 100Ω 1W — R12 300Ω 1W

K1 T154-4C 24VDC — R13 1kΩ 1W — TMS-14 C15 — TB1-3

CR1 IN2069A

RB3 — RB3-3

R21 10KΩ 2W — R22 430Ω 2W

.5mfd 200V C21 — CR23 IN2069A — CR21 IN2069A — 2N1184B Q1

R25 2.2K 1W — R26 2K 1W — C20 33mfd 35V — K4 TF154-2C 24VDC — CR20 IN2069A

K4A — K5 TF154-9C 24VDC — R24 330Ω 2W — CR22 IN2069A — RB2

SW9 — SW10 — K3A — K3 TF-154-4C

2. REF: T1 POLARIZED AS PER ED 193
1. WIRE AS PER DK400-147
NOTE:

REV.	E.C.O. NO.	DWN.	CHKD.	APP'D	MO. DAY YR
B	ECO 488	BD			6-23-65
A	ECO 4626				11-23-64
ORIGINAL ISSUE		FB			10-26-64

DIGITRONICS
ALBERTSON, NEW YORK

MATERIAL	SCALE:
FINISH	
TOLERANCES UNLESS OTHERWISE NOTED: DEC. ± .005 — FRAC. ± 1/64 — ANGLE ± 1/2°	

TITLE: SCHEMATIC, SPOOLER 4566A

FIRST USED ON: — SHEET 1 OF 1 — DRAWING NO. CH918

CH919

TB1-1 (AC1)
TB1-2 (AC2)
TB1-3 (GND)
TB1-5 (-15)
TB1-6 (REWIND)
TB1-4 (-15L)
CHASSIS GROUND
F1 3A
STD 1
STD 2
L1
L2
T1
C1 .25 mfd 600V
C2 .25 mfd 600V
C3 6 mfd 220V
C4 1 mfd 600V
C5 .1 mfd 600V
C6 .1 mfd 600V
C9 6 mfd 220V
C10 1 mfd 600V
C11 .1 mfd 600V
C12 .1 mfd 600V
C13 .1 mfd 600V
C14 .1 mfd 600V
C15 TMS-11 1000 mfd 25V
C16 .1 mfd 600V
C20 33 mfd 35V
C21 .5 mfd 200V
R1 100Ω ½W
R2 100Ω ½W
R3 100Ω ½W
R4 100Ω ½W
R5 100Ω ½W
R6 100Ω ½W
R7 100Ω ½W
R8 100Ω ½W
R9 27Ω 1W
R13 180Ω 1W
R14 100Ω ½W
R21 10KΩ 2W
R22 430Ω 2W
R24 330Ω 2W
R25 2.2K 1W
R26 2K 1W
RB1
RB2
RB3
RB3-3
RB4
RC1
M1
M2
K1 T154-4C 12VDC
K2 TF154-4C 12VDC
K3 TF-154-4C 12VDC
K4 TF154-2C 12VDC
K5 TF154-4C 12VDC
K1A
K1B
K1C
K2A
K2B
K2C1
K3A
K3B
K4A
K4B
K5A
K5B
SW1
SW2
SW3
SW4
SW5 PWR
SW6
SW7
SW8
SW10
CR1 IN2069A
CR2 IN2069A
CR3 IN2069A
CR22 IN2069A
CR23 IN2069A
Q1 2N1184B
CR20 IN2069A
FWD
REV
NO
NC
BLK
RED
GRN
BLU
YEL

2. REF: T1 POLARIZED AS PER ED 193
1. WIRE AS PER DK400-147
NOTE:

REV.	E.C.O. NO.	DWN	CHKD	APP'D	NO. DAY YR
A	ECO 4626	5			11 23 64
ORIGINAL ISSUE		FB			10-27-64

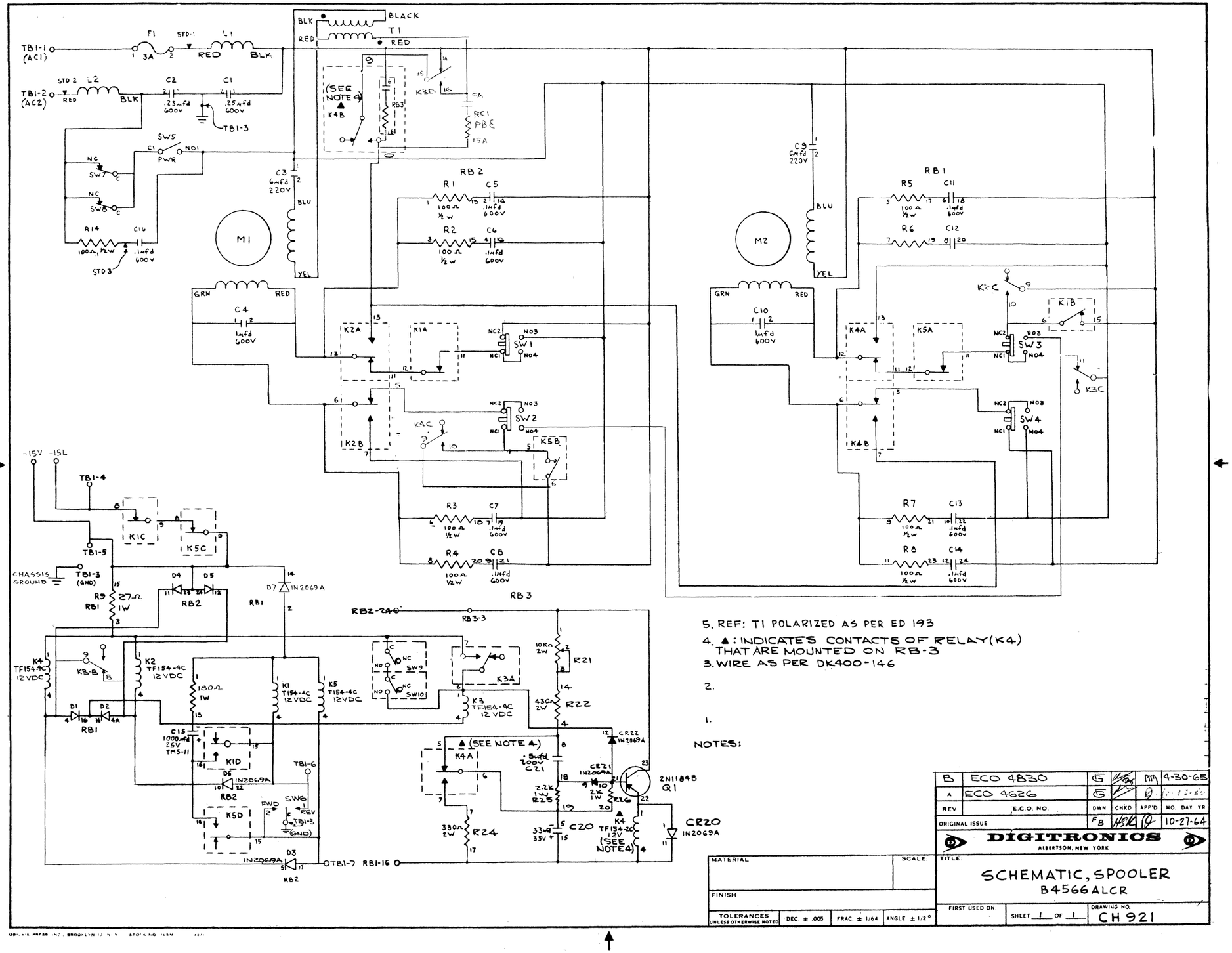
DIGITRONICS
ALBERTSON, NEW YORK

MATERIAL
FINISH
SCALE:
TOLERANCES UNLESS OTHERWISE NOTED: DEC. ± .005 | FRAC. ± 1/64 | ANGLE ± 1/2°

TITLE:
SCHEMATIC, SPOOLER
4566 ALCR

FIRST USED ON:
SHEET 1 OF 1
DRAWING NO. CH919

DRWG. NO. CH921



5. REF: T1 POLARIZED AS PER ED 193
4. ▲: INDICATES CONTACTS OF RELAY(K4) THAT ARE MOUNTED ON RB-3
3. WIRE AS PER DK400-146
2.
1.

NOTES:

REV	E.C.O. NO	DWN	CHKD	APP'D	MO. DAY YR
B	ECO 4830	G	[illegible]	PM	9-30-65
A	ECO 4626	G	[illegible]	[illegible]	10-27-64
ORIGINAL ISSUE		FB	HSK	[illegible]	10-27-64

DIGITRONICS
ALBERTSON, NEW YORK

MATERIAL | SCALE:
FINISH
TOLERANCES UNLESS OTHERWISE NOTED | DEC. ± .005 | FRAC. ± 1/64 | ANGLE ± 1/2°

TITLE:
SCHEMATIC, SPOOLER
B4566ALCR

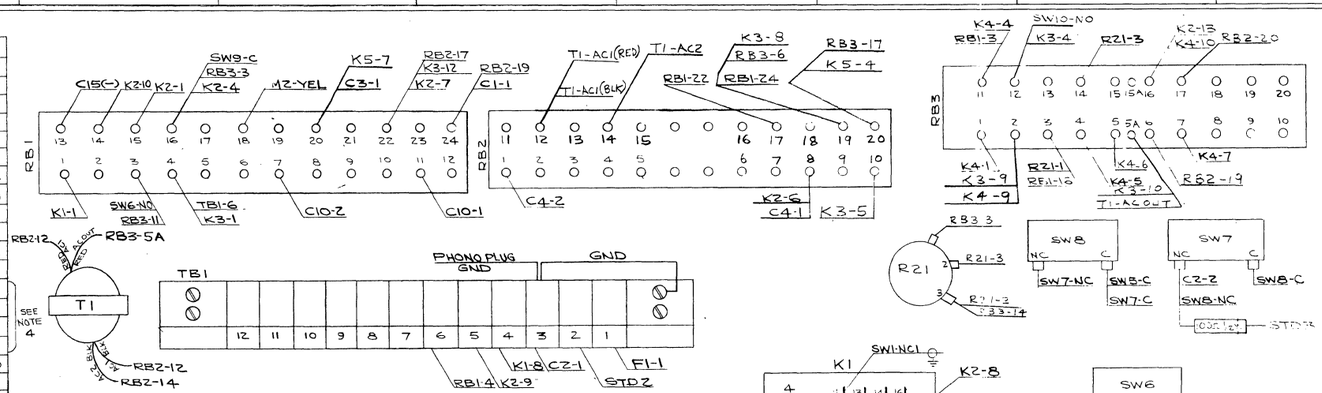
FIRST USED ON | SHEET 1 OF 1 | DRAWING NO. CH 921

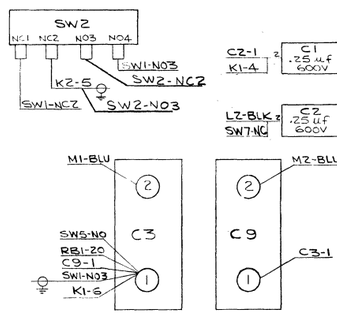
UBLINK PRESS INC., BROOKLYN 17, N.Y. STOCK NO. 1434 4271

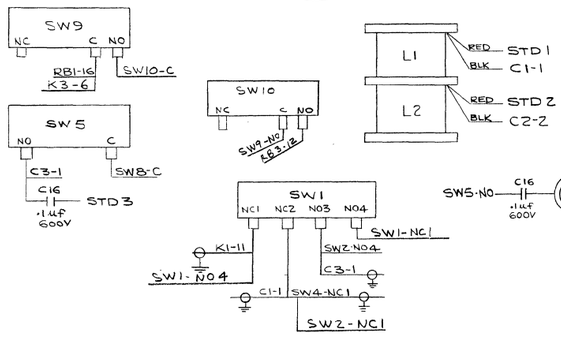
DRAWING NO.
D-

ITEM	GA	LOCATION	LOCATION	COL
1	18	TB1-1	F1-1	BRN
2	18	TB1-2	STD-2	BRN
* 3	22	SW7-C	SW8-C	RED
* 4	22	SW8-C	SW5-C	RED
5		L1-BLK	C1-1	BLK
6		M1-YEL	C1-1	
7	22	RB2-17	RB1-24	RED
8	22	SW1-NC2	SW2-NC1	
9	22	SW3-NC2	SW4NC1	
10		M2-YEL	RB1-18	
11	⊖	SW1-NC2	C1-1	
12	⊖	SW4-NC1	SW1-NC2	
13	22	K2-13	RB3-16	GRN
14	22	C1-1	RB1-24	BLU
15	22	C1-2	C2-1	VIO
16	22	C2-1	TB1-3	GRY
* 17		L2-BLK	C2-2	BLK
18	22	RB2-17	RB1-22	RED
* 19	22	SW1-NO3	SW2-NO4	ORN
20	⊖	SW3-NO3	K3-11	
21	22	K2-7	RB1-22	BLU
22	⊖	SW1-NO3	C3-1	
23	⊖	SW4-NO4	K1-5	
24	22	C3-1	RB1-20	WHT
* 25		M1-BLU	C9-2	
* 26		M1-RED	C4-2	
27	22	K2-12	C4-2	GRN
28	22	RB2-1	C4-2	BLU
* 29		M1-GRN	C4-1	
30	22	K2-6	RB2-8	VIO
31	22	RB2-8	C4-1	GRY
* 32	22	C9-1	C3-1	RED
* 33		M2-BLU	C9-2	
* 34		M2-RED	C10-2	
35	⊖	SW3-NC1	K5-5	
36	22	RB1-7	C10-2	ORN
* 37		M2-GRN	C10-1	
38	⊖	SW4-NC2	K5-8	
39	22	RB1-11	C10-1	YEL
40	⊖	SW1-NC1	K1-11	
41	⊖	SW2-NC2	K2-5	
42	22	C3-1	K1-6	WHT
43	22	K2-11	K1-12	GRN
44	22	K1-8	TB1-4	BLU
45	22	SW6-C	C2-1	BLK
46	22	K2-9	TB1-5	GRN
* 47		TB1-3	PHONO PLUG GND	
48	22	SW6-NO	RB1-3	VIO
49	22	RB1-4	TB1-6	GRY
50	22	K2-1	RB1-15	YEL
51	22			
52	22	K2-4	RB1-16	YEL
53	22	RB1-22	K3-12	
54	22	K1-9	K2-8	WHT
55	22	K2-10	RB1-14	WHT
56	22	K1-1	RB1-1	RED
57	22	C15(-)	RB1-13	ORN
58	22	C15(+)	K1-4	YEL
59	22	K1-4	C1-2	YEL
60	22	C3-1	SW5-NO	GRN
61	22	F1-2	STD-1	RED
* 62	22	STD-1	L1-RED	RED
63	22	SW7-NC	C2-2	RED
* 64	22	STD-2	L2-RED	RED
* 65	22	TB1-3	MOUNTING SCREW ON TERM BLK	BLK
* 66	22	SW7-NC	SW8-NC	RED
* 67	22	K3-7	K3-4	GRN
* 68	22	SW7-NC — 100Ω ½W —	STD-3	
* 69	22	SW5-NO — 1 — .1μF 600V	STD-3	
70	22	K1-5	K3-13	RED

ITEM	GA	LOCATION	LOCATION	COL
71	22	RB3-3	RZ1-1	ORN
72	22	RZ1-2	RZ1-3	RED
73	22	RZ1-3	RB3-14	RED
74	22	RB3-4	K4-5	YEL
75	22	K4-6	RB3-5	GRN
76	22	K4-7	RB3-7	VIO
77	22	K4-4	RB3-11	BLK
78	22	K4-1	RB3-1	BRN
79	22	K4-9	RB3-2	BLU
80	22	K4-10	RB3-16	WHT
81	22	RB1-16	RB3-3	ORN
82	22	RB1-3	RB3-11	GRY
83		TI-AC1(BLK)	RB2-12	
84		TI-AC1(RED)	RB2-12	
85		TI-AC2(BLK)	RB2-14	
86		TI-AC OUT(RED)	RB3-5A	
87	22	K2-4	K2-9	RED
88	22	SW9-C	RB1-16	BLK
89	22	SW9-C	K3-6	BLU
90	22	K3-4	RB3-12	ORN
91		K3-1	RB1-4	
92		K5-1	K3-5	
93		K3-5	RB2-10	
94		K5-4	RB2-20	
95		RB2-20	RB3-17	
96		K5-6	C10-2	
97		K5-7	RB1-20	
98		K5-9	C10-1	
99		K5-10	K2-13	
100		K3-8	RB2-19	
101		RB2-19	RB3-6	
102		K3-9	RB3-2	
103		K3-10	RB3-5A	
104		SW10-C	SW9-NO	
105	↓	SW10-NO	RB3-12	
106				
107				
108				
109				
110				
111				
112				
113				
114				
115				







NOTES:
1. REF: SCH CH918, CH919
2. * NOT TO BE INCLUDED IN CABLE
3. ⊖ SHIELDED WIRE ALPHA 1703
4. REF: POLARIZE T1 AS PER ED 193

DWN	CHKD	APPD	ECO #	DATE	REV
					D
					C
					B
					A
			–		–

DRAWING NO.
D-

DIGITRONICS
ALBERTSON, NEW YORK

TITLE:
SPOOLER WIRING (INCR)
4566A (SERIES)

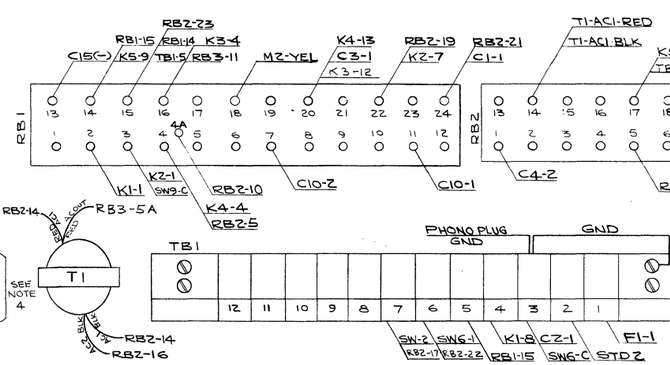
REF. DWG. NO.

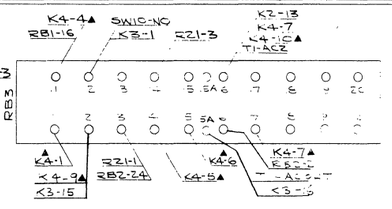
DRAWING NO.
D-K400-147

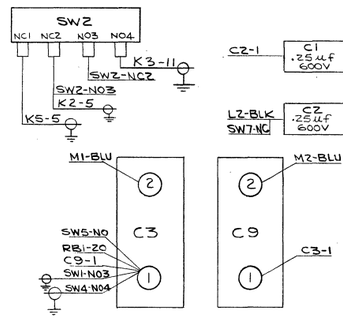
DRAWING NO. D-

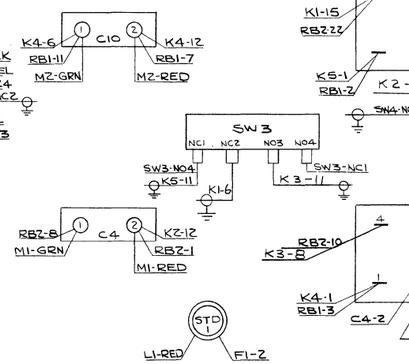
ITEM	GA	LOCATION	LOCATION	COL
1	18	TB1-1	F1-1	BRN
2	18	TB1-2	STD-2	BRN
* 3	22	SW7-C	SW8-C	RED
* 4	22	SW5-C	SW6-C	RED
* 5		L1-BLK	C1-1	BLK
* 6		M1-YEL	C1-1	
7	22	RB2-21	RB1-24	RED
8	⊖	K5-5	SW2-NC1	
9	⊖	SW3-NC2	K1-6	
* 10		M2-YEL	RB1-18	
11	⊖	SW1-NC2	C1-1	
12	⊖	SW4-NC1	SW1-NC2	
13	22	RB1-16	RB3-11	GRN
14	22	C1-1	RB1-24	BLU
15	22	C1-2	C2-1	VIO
16	22	C2-1	TB1-3	GRY
* 17		L2-BLK	C2-2	BLK
18	22	RB2-19	RB1-22	RED
19	⊖	K3-11	SW2-NO4	
20	⊖	SW3-NO3	K3-..	
21	22	K2-7	RB1-22	BLU
22	⊖	SW1-NO3	C3-1	
23	⊖	SW4-NO4	C3-1	
24	22	C3-1	RB1-20	WHT
* 25		M1-BLU	C3-2	
* 26		M1-RED	C4-2	
27	22	K2-12	C4-2	GRN
28	22	RB2-1	C4-2	BLU
* 29		M1-GRN	C4-1	
30	22	K2-6	RB2-8	VIO
31	22	RB2-8	C4-1	GRY
* 32	22	C9-1	C3-1	RED
* 33		M2-BLU	C9-2	
* 34		M2-RED	C10-2	
35	⊖	SW3-NC1	K5-11	
36	22	RB1-7	C10-2	ORN
* 37		M2-GRN	C10-1	
38	22	SW9-C	RB1-3	RED
39	22	RB1-11	C10-1	YEL
40	⊖	SW1-NC1	K1-11	
41	⊖	SW4-NC1	K1-5	
42				
43	22	K2-11	K1-12	GRN
44	22	K1-8	TB1-4	BLU
45	22	SW6-1	TB1-6	BLK
46	22	SW3-NO	SW10-C	GRN
* 47		TB1-3	PHONO PLUG GND	
48	22	SW6-2	TB1-7	VIO
49	22	SW6-C	TB1-3	GRY
50	22	RB2-21	K3-14	YEL
51				
52	22	K4-6	C10-1	YEL
53	22	K4-12	C10-2	VIO
54	22	RB1-20	K4-13	WHT
55	22	K1-9	K5-8	WHT
56	22	K3-1	K3-6	RED
57	22	RB1-14	K5-9	ORN
58	22	RB1-15	TB1-5	YEL
59	22	RB1-3	K2-1	YEL
60	22	C3-1	SW5-NO1	GRN
61	22	F1-2	STD-1	RED
* 62	22	STD-1	L1-RED	RED
63	22	SW7-NC	C2-2	RED
* 64	22	STD-2	L2-RED	RED
* 65	22	TB1-3	MOUNTING SCRW ON TERM BLK	BLK
66	22	K2-1	K4-1	RED
67	22	K3-7	K4-1	GRN
68	22	K1-15	K1-4	WHT
69	22	K1-4	RB2-22	BLK
70	22	K2-4	RB2-10	RED

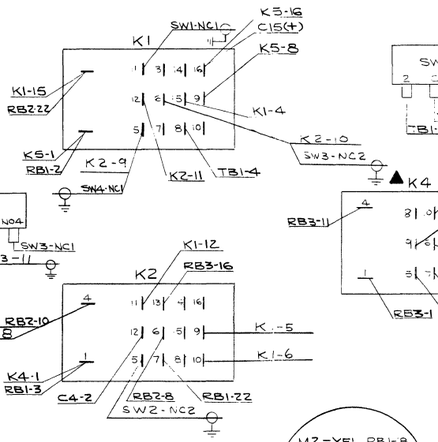
ITEM	GA	LOCATION	LOCATION	COL
71	22	RB2-10	RB1-4A	ORN
72	22	RB2-22	TB1-6	RED
73	22	K6-15	K5-4	RED
74	22	K5-4	RB2-17	YEL
75	22	K2-6	RB1-2	GRN
76	22	RB1-4	RB2-5	VIO
77	22	RB2-17	TB1-7	BLK
78	22	RB1-16	K3-4	BRN
79	22	C15(-)	RB1-13	BLU
80	22	RB1-2	K1-1	WHT
81	22	K1-1	K5-1	ORN
82	22	RB1-14	RB1-15	GRY
83		T1-AC1(BLK)	RB2-14	
84		T1-AC1(RED)	RB2-14	
85		T1-AC2(BLK)	RB2-16	
86		T1-AC OUT(RED)	RB3-5A	
87	22	SW8-NC	SW7-NC	RED
88		C15(+)	K1-16	BLK
89		K1-16	K5-16	BLU
90		RB3-3	RB2-24	
91		K4-4	K3-9	VIO
92		RB3-2	K3-15	RED
93		SW8-NC	100Ω ½W	STD3
94		SW5-NO1	.1uf 600V	STD3
95		RB1-15	RB2-23	YEL
* 96		RB3-3	R21-1	BLK
* 97		R21-2	R21-3	RED
* 98		R21-3	RB3-14	RED
* 99		K4-5▲	RB3-4	BLU
* 100		K4-6▲	RB3-5	VIO
* 101		K4-7▲	RB3-7	RED
* 102		K4-1▲	RB3-1	WHT
* 103		K4-9▲	RB3-2	BLK
* 104		K4-10▲	RB3-16	RED
* 105		K4-4▲	RB3-11	BLU
106		K3-16	RB3-5A	WHT
107		K4-7	RB3-16	BLK
108	↓	K2-13	RB3-16	VIO
109	⊖	SW1-NC2	K5-6	
110	⊖	SW2-NC2	K2-5	
111	⊖	SW4-NC2	K4-5	
112	22	SW10-NO	RB3-12	WHT
113	22	K3-1	RB3-12	RED
114	22	K2-9	K1-5	
115	22	K2-10	K1-6	
116	22	K3-12	RB1-20	
117	22	K3-8	K2-4	
118	22	K4-9	K5-6	
119	22	K4-10	K5-5	
120	22	K4-11	K5-12	
121	22	RB2-21	RB3-6	

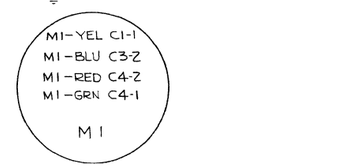


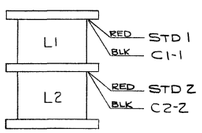


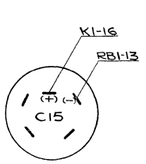


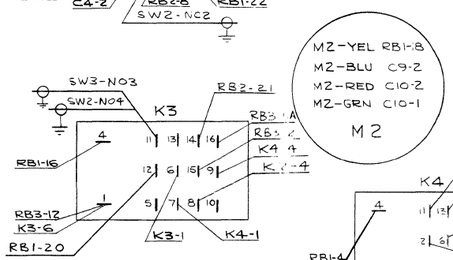


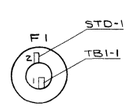


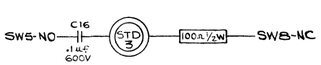


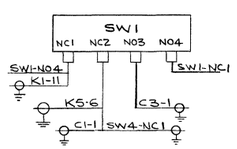


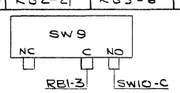


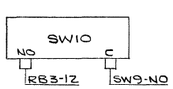


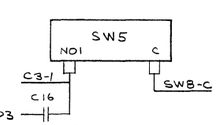


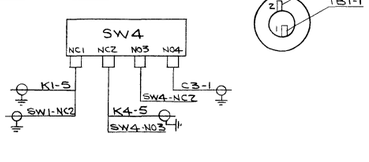


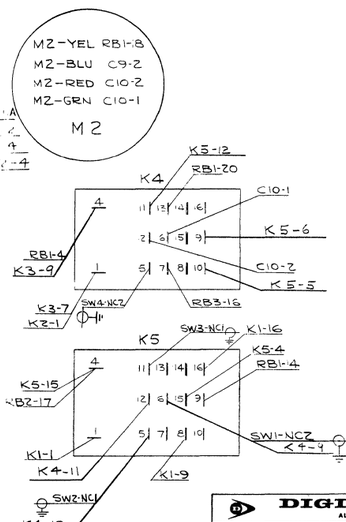












NOTES:
1- ⊖ SHIELDED WIRE ALPHA 1703
2- * NOT TO BE INCLUDED IN CABLE
3- ▲ ALL K4 NOTATIONS REFERS TO THE K4 RELAY MOUNTED ON RB-3 REF SCH CH 911, CH 912, CH 920, CH 921
4- REF: POLARIZE T1 AS PER ED 193

DWN	CHKD	APPD	ECO #	DATE	REV
AA	BJ	AM	13-3		D
RS	RS	AM	1772		C
RG	RG	AM	1820		B
RG	RG		1820		A
JL	JAS		—		—

DRAWING NO. D-1

DIGITRONICS
ALBERTSON, NEW YORK

TITLE: SPOOLER WIRING (NUCE) B4566A (SERIES)

REF. DWG. NO.

DRAWING NO. D-K400-146

TRANSISTOR AND DIODE SPECIFICATIONS

The transistor and diodes used in this unit are listed below along with Digitronics part numbers, and their electrical and physical characteristics are listed on the following pages.

ITEM	DIGITRONICS PART NUMBER
Transistor	
2N1184B	TQ-PA184B
Diode	
1N2069A	TCRS2069A
GT230	TCRSU0125

Diode GT230 is manufactured to Digitronics specifications and therefore is not commercially available.

Transistor 2N1184B and Diode 1N2069A are standard commercial components.

I. DIODE	CLASS	MATERIAL	CATAGORY
IN2069A	POWER	SILICON	-

II. PARAMETERS (at 25 degrees C unless otherwise noted)

POWER DISSIPATION N/A

PIV 200V @ 5uamp

I reverse 5uamp @ 200V

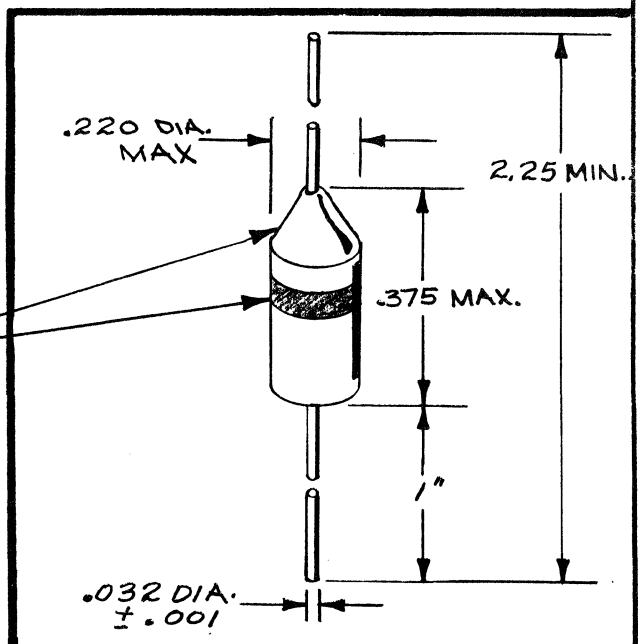
V forward 1.25V @ 500ma.

I peak 6A @ 25° C

I average 750ma. @ 25° C

I surge 20A @ 1/2 cycle surge @ 60 cycles

NOTE: Environmental as per ED67.



Cathode identified by bullet nose or color band.

DIGITRONICS
ALBERTSON, NEW YORK

TITLE:
DIODE, Silicon, Power

REV	E.C.O.	CHKD.	APP'D.	MO. DAY YR.
A				

USED ON:
DIGITRONICS PART NUMBER

DRAWING NO TCRP2069A

I. DIODE	CLASS	MATERIAL	CATAGORY
125	SWITCHING	GERMANIUM	GOLD BONDED JUNCTION (UNIVERSAL TYPE)

II. PARAMETERS (at 25 degrees C unless otherwise noted)

POWER DISSIPATION 80 mw @ Ø -1 = 1 mw/ ° C

PIV 35V (min) @ 100 ua

I reverse 10V (min) @ 10 ua

V forward 0.45 @ 50 ua @ 55 ° C

I peak @ 10 ma

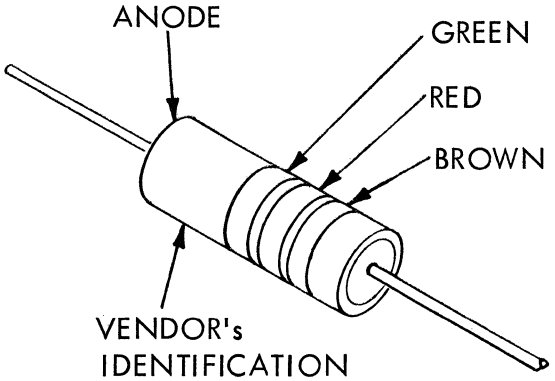
I average 70 ma @ 0.7V (max)

I surge 300 ma @ Vf ≦ 1.5V per 10 ms @ 5CPS (5% duty cycle)

NOTE: 1. Recovery as per ED-10
with tr ≦ 0.3 usec

2. Environmental as per ED 67.

3. Replaces DX2 (S-151)
DX3 (S-152)
GTD230 (S-153)



DIGITRONICS
ALBERTSON, NEW YORK

TITLE: DIODE 125

REV	E.C.O.	CHKD.	APP'D.	MO. DAY YR.
A				

USED ON:

DRAWING NO TCRSU0125

APPENDIX

CLAIM FOR DAMAGE IN SHIPMENT

The instrument should be tested as soon as it is received. If it fails to operate properly, or is damaged in any way, a claim should be filed with the carrier. A full report of the damage should be obtained by the claim agent, and this report should be forwarded to us. We will then advise you of the disposition to be made of the equipment and arrange for repair or replacement. Include model number, type number, and serial number when referring to this instrument for any reason.

WARRANTY

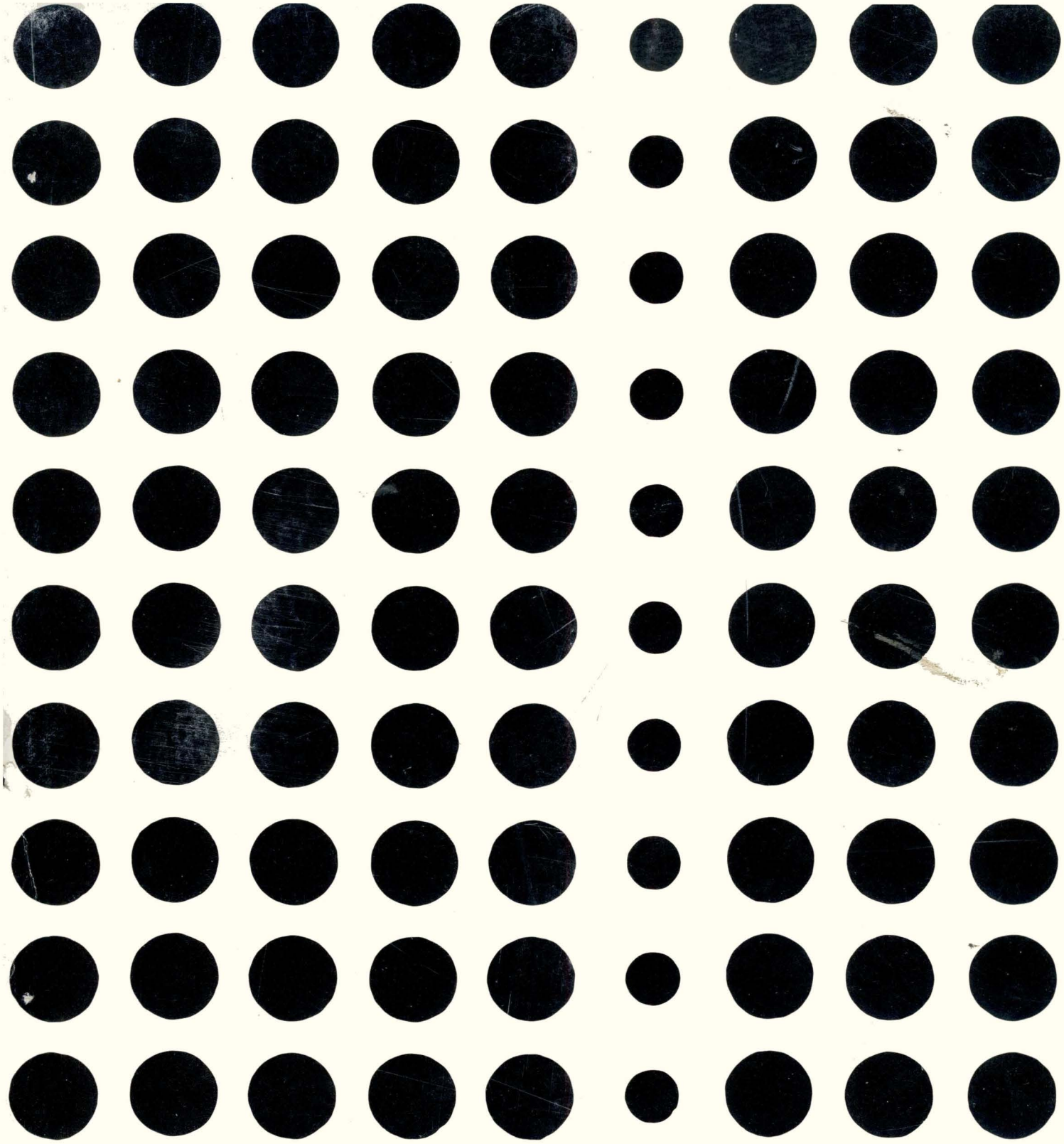
Digitronics Corporation warrants each instrument manufactured by them to be free from defects in material and workmanship. Our liability under this warranty is limited to servicing or adjusting any instrument returned to the factory for that purpose and to replace any defective parts thereof (except tubes and fuses). This warranty is effective for one year after delivery to the original purchaser when the instrument is returned, transportation charges prepaid by the original purchaser, and which upon our examination is disclosed to our satisfaction to be defective. If the fault has been caused by misuse or abnormal conditions of operation, repairs will be billed at cost. In this case, an estimate will be submitted before the work is started. If any fault develops, the following steps should be taken:

1. Notify us, giving full details of the difficulty, and include the model number, type number, and serial number. On receipt of this information, we will give you service instruction or shipping data.

2. On receipt of shipping instructions, forward the instrument prepaid, and repairs will be made at the factory. If requested, an estimate will be made before work begins provided the instrument is not covered by the warranty.

SHIPPING

All shipments of Digitronics Corporation instruments should be made via Railway Express. The instruments should be packed in a wooden box and surrounded by two or three inches of excelsior or similar shock-absorbing material.



DIGITRONICS CORPORATION, ALBERTSON, L.I.