



# INSTRUCTIONS

GEK-86072

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## DATA LOGGING AMPLIFIER

### TYPES:

DLA53A  
DLA53B  
DLA53C

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GENERAL  ELECTRIC

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**DATA LOGGING AMPLIFIER**

**TYPES:**

- DLA53A
- DLA53B
- DLA53C

**DESCRIPTION**

The Type DLA53 is a data logging amplifier. Some models of the DLA53 provide isolated high speed contact outputs for oscillograph monitoring of static relay logic signals. Other contacts are provided to operate hand and self-reset lamps, depending upon the particular model of the DLA unit.

The Type DLA53 unit is packaged in a four rack unit (one rack unit equals 1-3/4 inches) enclosed metal case, suitable for mounting on a 19 inch rack. Outline and mounting dimensions are shown in Figure 1. The internal connection diagrams for the DLA53A, DLA53B and DLA53C are shown in Figures 2, 3 and 4, respectively. Component and card locations are shown in Figures 5, 6 and 7.

**RATINGS**

The DLA53 is designed for use in an environment where the ambient temperature outside the case does not exceed minus 20°C and plus 65°C.

The DLA53 is designed to operate on bias voltages of plus 15 volts DC and minus 15 volts DC. These voltages may be obtained from a Type SSA power supply.

The contact outputs of the DLA53 are rated for a maximum load of ten volt-amperes. Maximum current is 500 milliamperes, and maximum voltage is 250 volts DC.

**BURDENS**

The DLA53 relays present a maximum burden to the SSA power supply as follows:

MODEL	+15 VDC SUPPLY	-15 VDC SUPPLY
DLA53A	70 ma	860 ma
DLA53B	170 ma	1000 ma
DLA53C	165 ma	

In addition, each target lamp draws 20 milliamperes from the minus 15 volt DC supply.

*These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the General Electric Company.*

*To the extent required the products described herein meet applicable ANSI, IEEE and NEMA standards; but no such assurance is given with respect to local codes and ordinances because they vary greatly.*

## CONSTRUCTION

The DLA53 relays are packaged in an enclosed metal case with hinged front cover and removable top cover. The outline and mounting dimensions of the case are shown in Figure 1.

Type DLA53 relays contain printed circuit cards identified by a code number, such as A103 and A104 where A is designated as an auxiliary function. The printed circuit cards plug in from the front of the unit. The card sockets are marked with letter designations or "addresses" (G, H, J, etc.) which appear on the guide strips in front of each socket, on the component location drawing, on the internal connection diagram, and on the printed circuit card. The test points (TP1, TP2, etc.) shown on the internal connection diagram are connected to the instrument jacks on a test card in position T or AT with TP1 at the top of the AT card. TP1 is connected to reference; TP2 is connected to minus 15 volts DC; TP10 is tied to plus 15 volts DC through a 1.5K resistor. This resistor limits the current when TP10 is used to supply a logic signal to a card.

The DLA53 relays receive their inputs from associated ten conductor shielded cables. Sockets for these cables are located on the rear panel of the units. Output functions are connected to 12-point terminal strips, which are also located on the rear of the DLA53 units.

Target lamps are provided in the DLA53 units, which are viewed through a window mounted in the hinged front cover of the relay. Push buttons are also provided to reset target lamps without opening the cover.

## RECEIVING, HANDLING AND STORAGE

These relays will normally be supplied as part of a static relay equipment, mounted in a rack or cabinet with other static relays and test equipment. Immediately upon receipt of a static relay equipment, it should be unpacked and examined for any damage sustained in transit. If damage resulting from rough handling is evident, file a damage claim at once with the transportation company and promptly notify the nearest General Electric Sales Office.

Reasonable care should be exercised in unpacking the equipment. If the equipment is not to be installed immediately, it should be stored indoors in a location that is free from moisture, dust, metallic chips, and severe atmospheric contaminants.

Just prior to final installation the shipping support bolt should be removed from each side of all relay units to facilitate possible future unit removal for maintenance. These shipping support bolts are approximately eight inches back from the relay front panel. **STATIC RELAY EQUIPMENT, WHEN SUPPLIED IN SWING RACK CABINETS, SHOULD BE SECURELY ANCHORED TO THE FLOOR OR TO THE SHIPPING PALLET TO PREVENT THE EQUIPMENT FROM TIPPING OVER WHEN THE SWING RACK IS OPENED.**

**TESTING**GENERAL

The DLA53 relay is usually supplied from the factory mounted in a static relay equipment. All relay units for a given terminal of static relaying equipment are tested together at the factory, and each unit will have the same summary number stamped on its nameplate. When the DLA is furnished as a separate unit, it should be interconnected with the associated relay equipment via the shielded plug-in cables prior to testing.

**INSTALLATION TESTS**WARNING:

THE LOGIC SYSTEM SIDE OF THE DC POWER SUPPLY USED WITH MOD III STATIC RELAY EQUIPMENT IS ISOLATED FROM GROUND. IT IS A DESIGN CHARACTERISTIC OF MOST ELECTRONIC INSTRUMENTS THAT ONE OF THE SIGNAL INPUT TERMINALS IS CONNECTED TO THE INSTRUMENT CHASSIS. IF THE INSTRUMENT USED TO TEST THE RELAY EQUIPMENT IS ISOLATED FROM GROUND, ITS CHASSIS MAY HAVE A ELECTRICAL POTENTIAL WITH RESPECT TO GROUND. THE USE OF A TEST INSTRUMENT WITH A GROUNDED CHASSIS WILL NOT AFFECT THE TESTING OF THE EQUIPMENT. HOWEVER, A SECOND GROUND CONNECTION TO THE EQUIPMENT, SUCH AS A TEST LEAD INADVERTENTLY DROPPING AGAINST THE RELAY CASE, MAY CAUSE DAMAGE TO THE LOGIC CIRCUITRY. NO EXTERNAL TEST EQUIPMENT SHOULD BE LEFT CONNECTED TO THE STATIC RELAYS WHEN THEY ARE IN PROTECTIVE SERVICE, SINCE TEST EQUIPMENT GROUNDING REDUCES THE EFFECTIVENESS OF THE ISOLATION PROVIDED.

Since the DLA53 logic sections are basically transistor switches, adjustments are neither provided nor required. The various functions that are monitored, and therefore serve as inputs to the DLA, are covered in the overall logic diagram and descriptive write-up furnished with each equipment.

**MAINTENANCE**PERIODIC TESTS

It should be sufficient to check the DLA outputs by observing oscillograph operation during periodic calibration tests made on the associated measuring units of the relaying scheme. No separate periodic tests of the DLA itself should be required.

TROUBLESHOOTING

By signal tracing using the overall logic diagram and the various equipment test points, it should be possible to quickly isolate a DLA malfunction. A test adapter card, 0108B9643G2, is supplied with each static relay equipment to supplement the test points provided on each amplifier card. Use of the adapter card is described in the printed circuit card instruction book, GEK-34158.

SPARE CARDS

The number of spare cards to be stocked depends on the total number of similar cards used at the same location or serviced by the same test group. For each type of card (different code designation) a suggested minimum number of spare cards would be:

One spare for	1 to 25 cards
Two spares for	25 to 75 cards
Three spares for	76 to 150 cards

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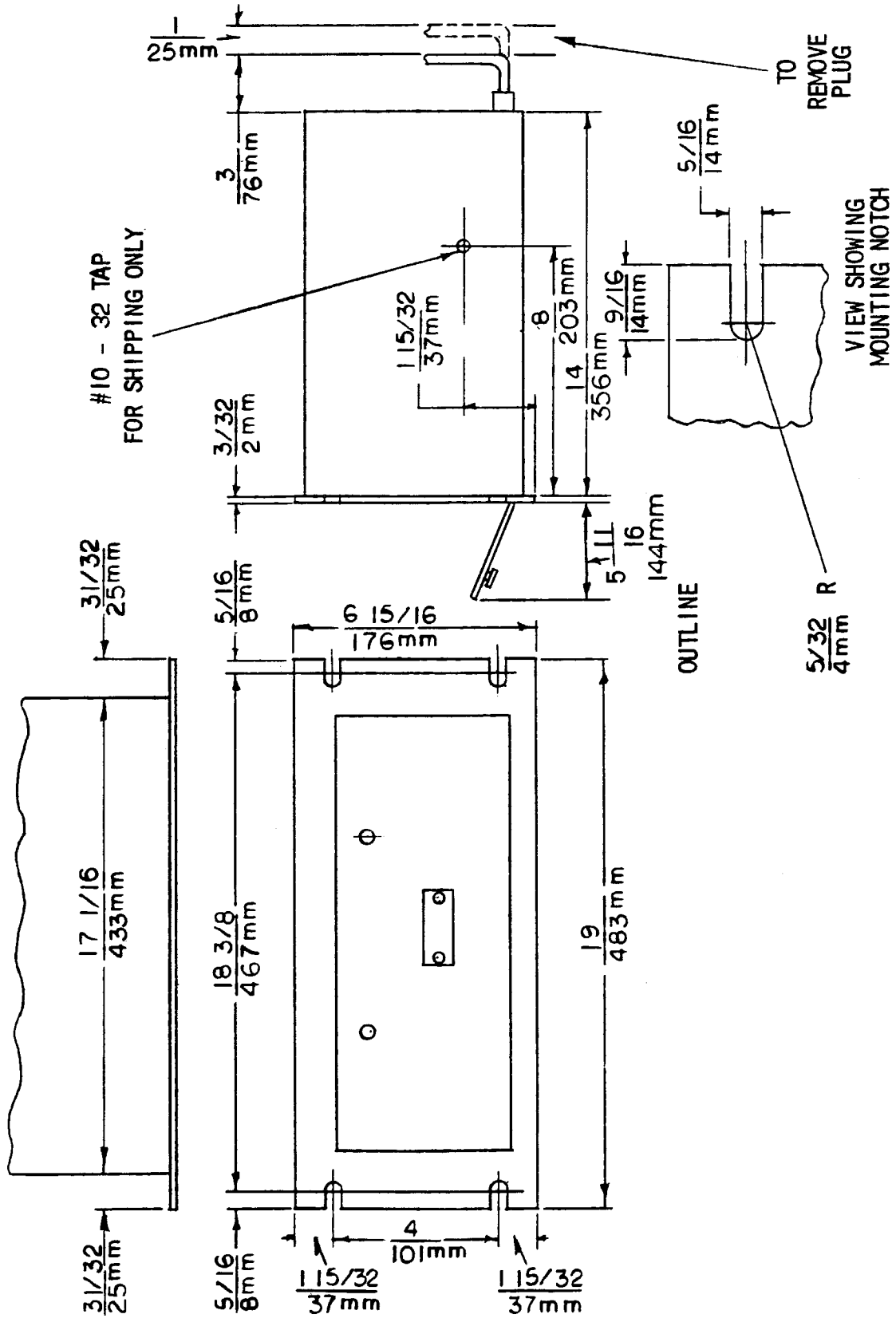


Figure 1 (0227A2037-0) Outline and Mounting Dimensions for Type DLA53 Relays

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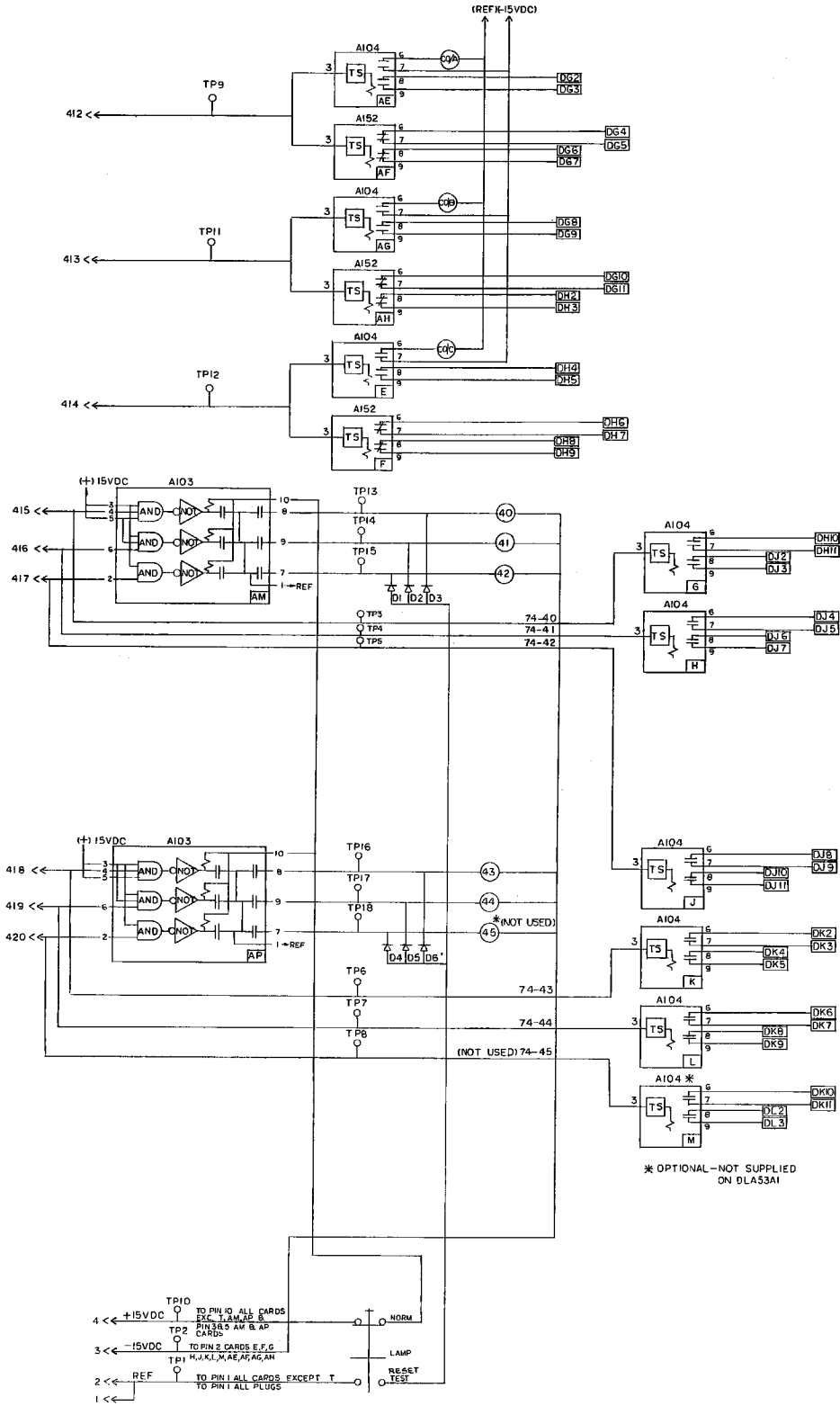


Figure 2 (0145D8708-0) Internal Connection Diagram for the Type DLA53A Unit



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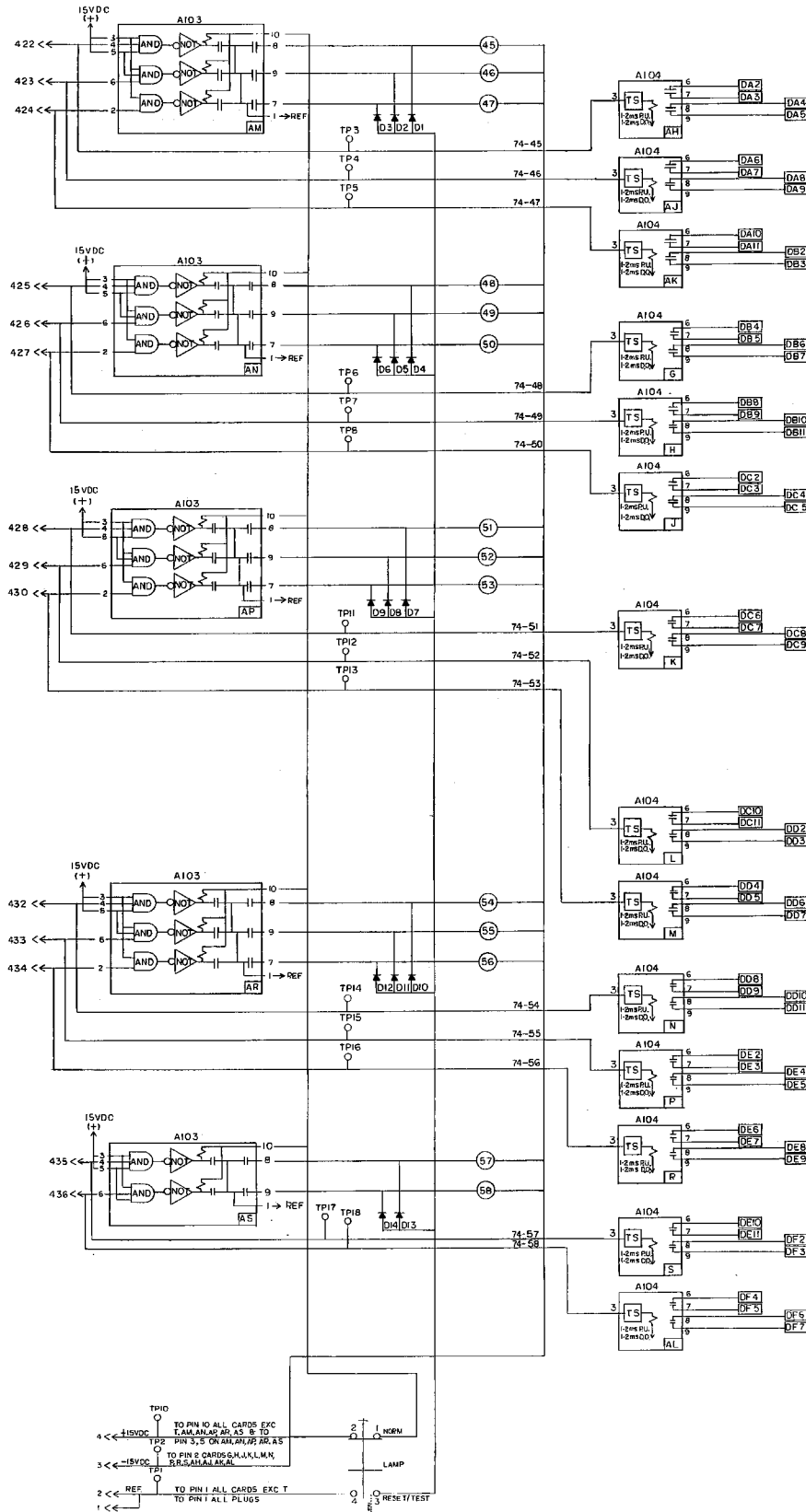


Figure 3 (0145D8709-0) Internal Connection Diagram for the Type DLA53B Unit

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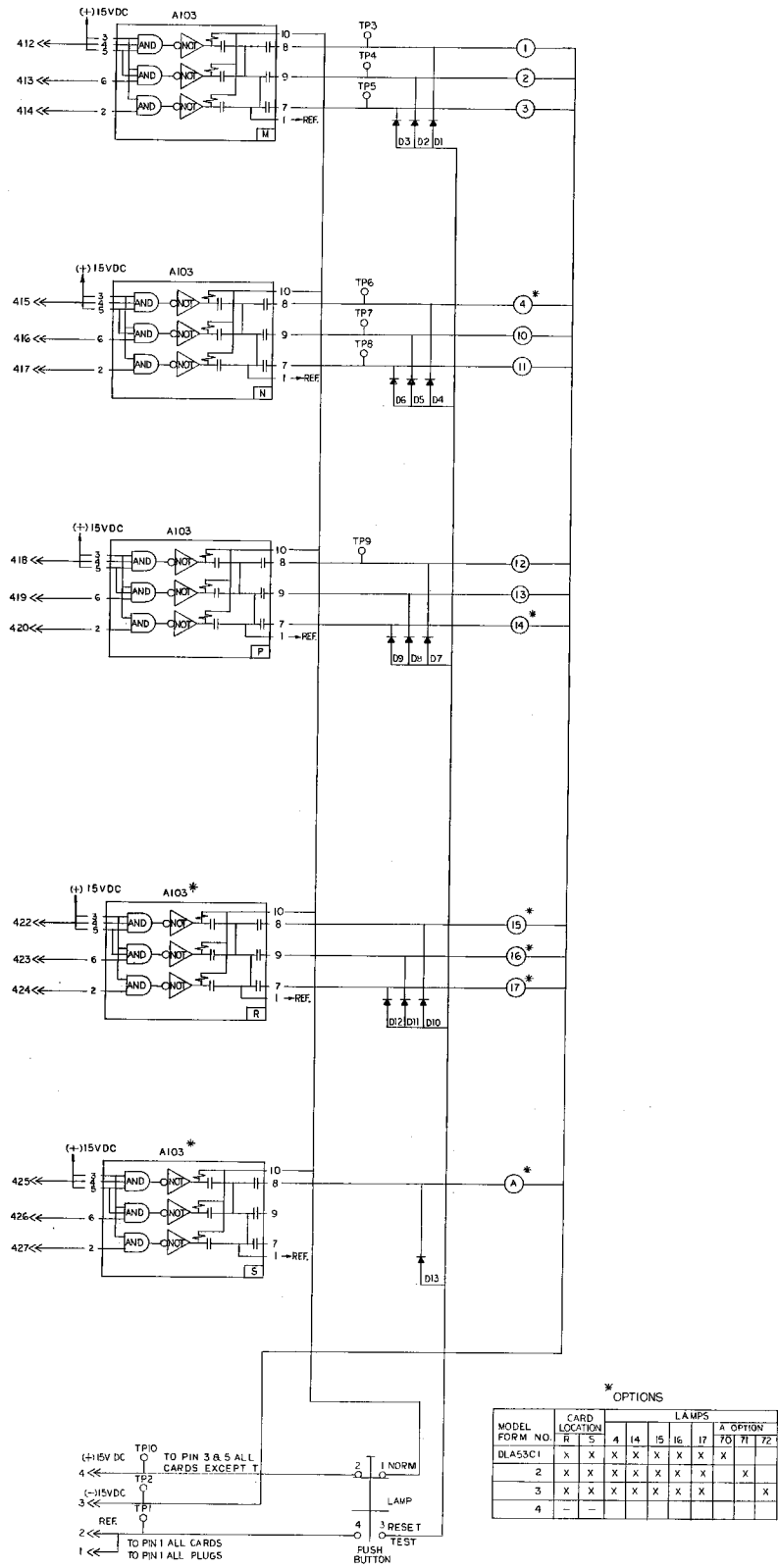
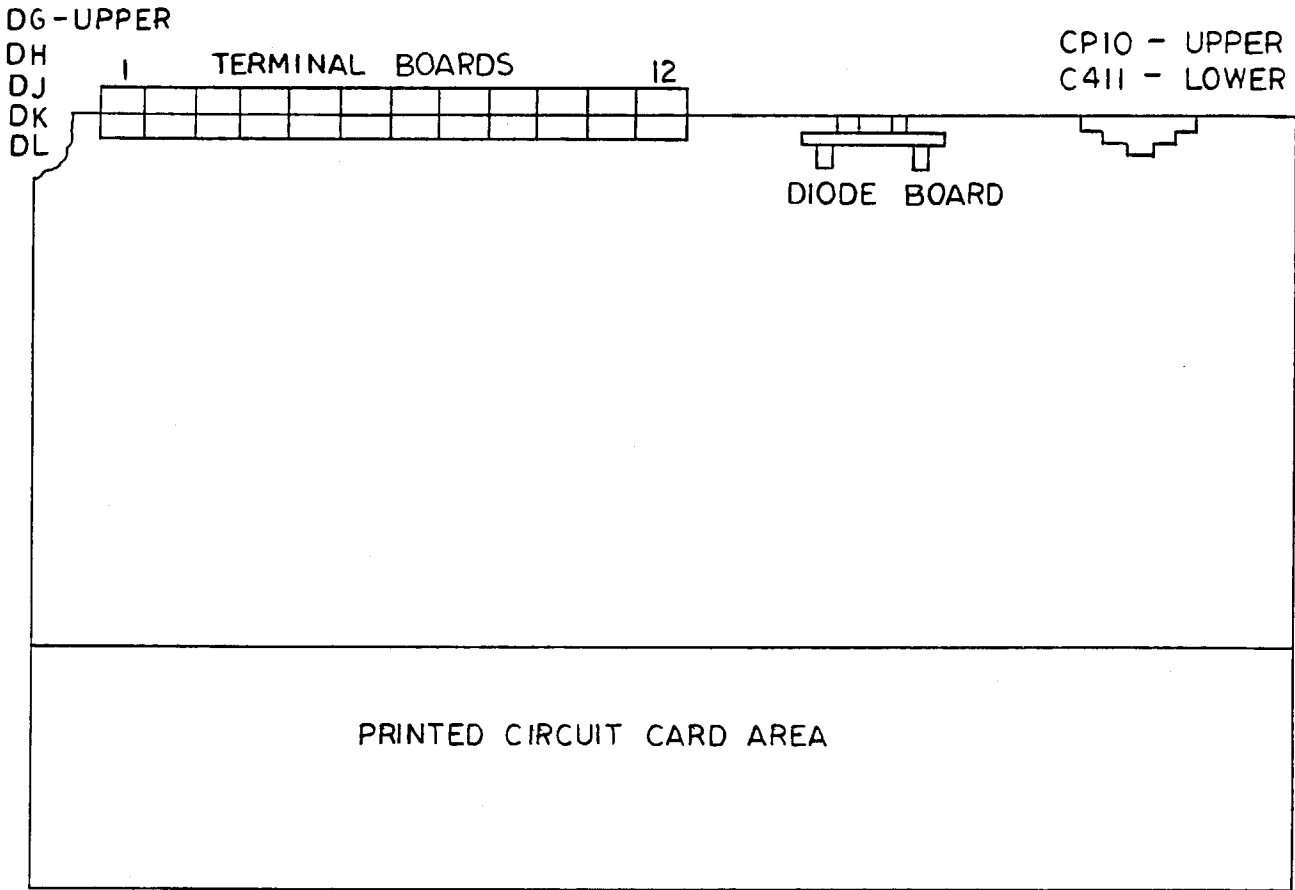
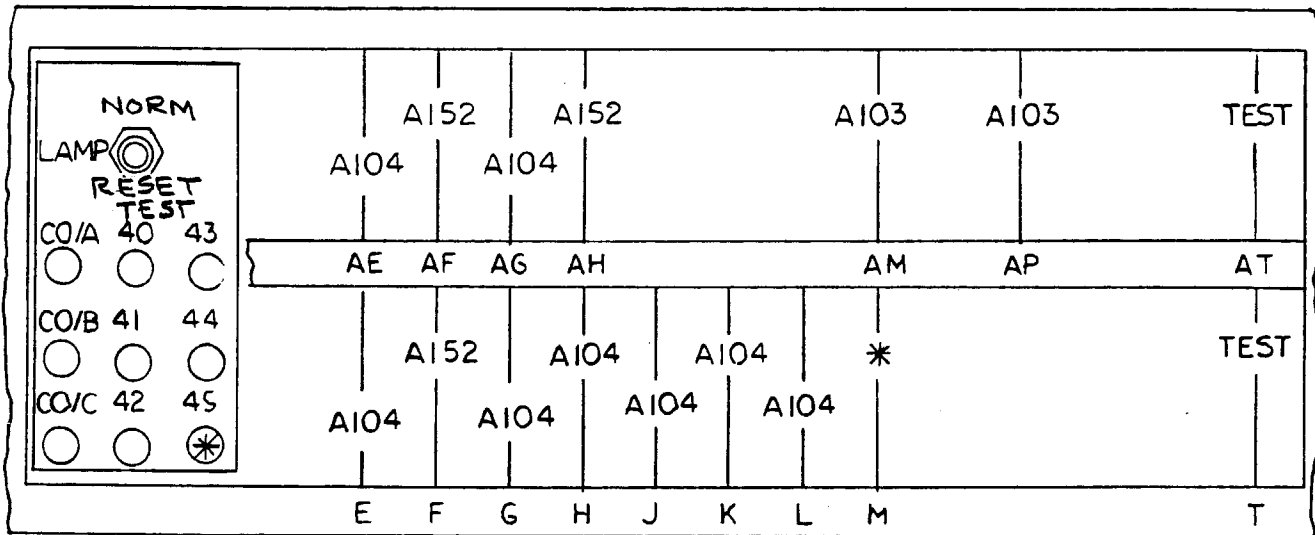


Figure 4 (0145D8710-0) Internal Connection Diagram for the Type DLA53C Unit



TOP - VIEW  
(COVER REMOVED)

FRONT

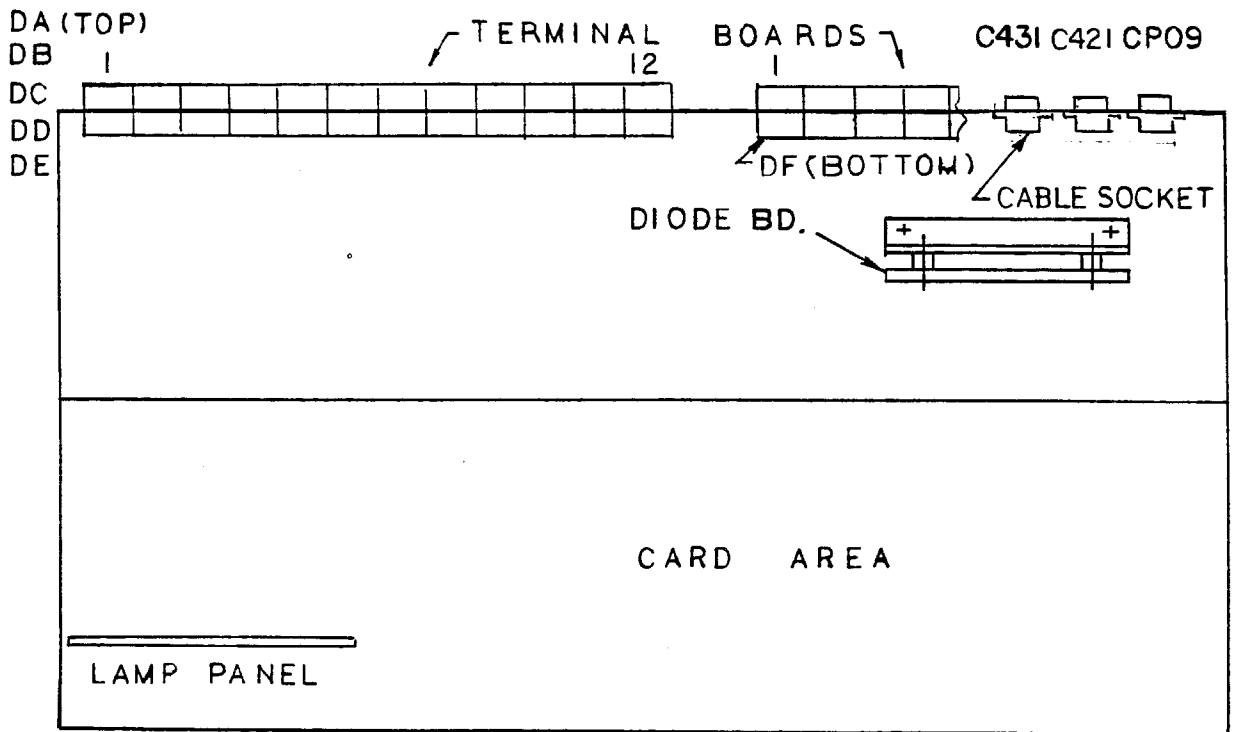


FRONT VIEW  
(COVER REMOVED)

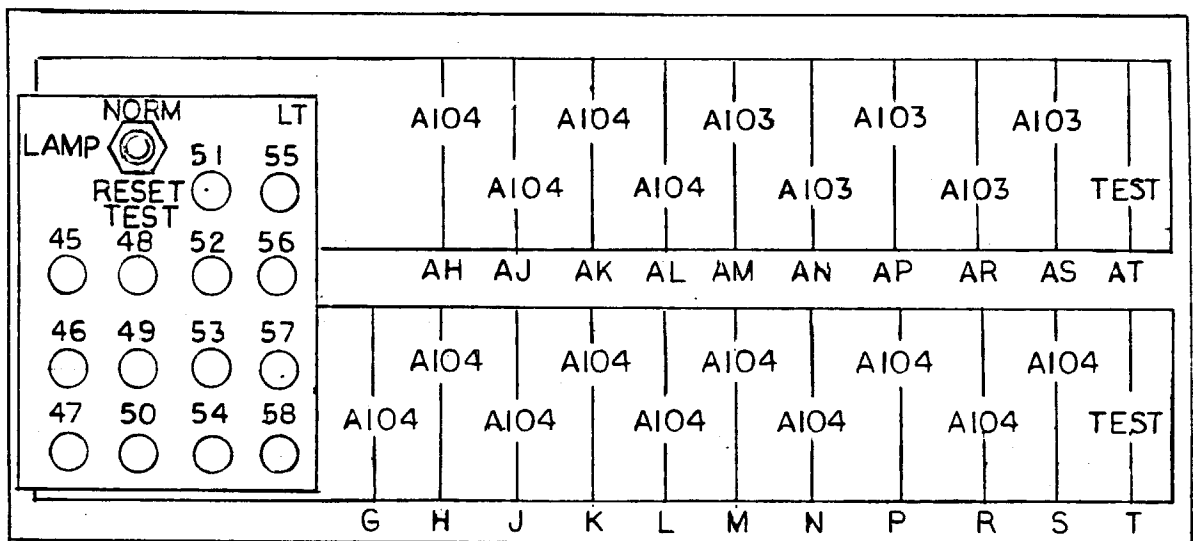
\* = OPTIONAL LAMP & CARD  
SEE UNIT INTERNAL

Figure 5 (0285A6224-0) Component Location Diagram  
for the Type DLA53A Unit

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PLAN VIEW  
(COVER REMOVED)

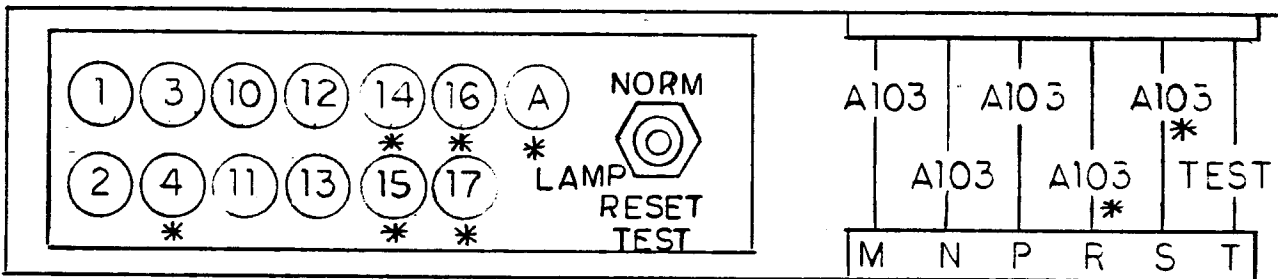
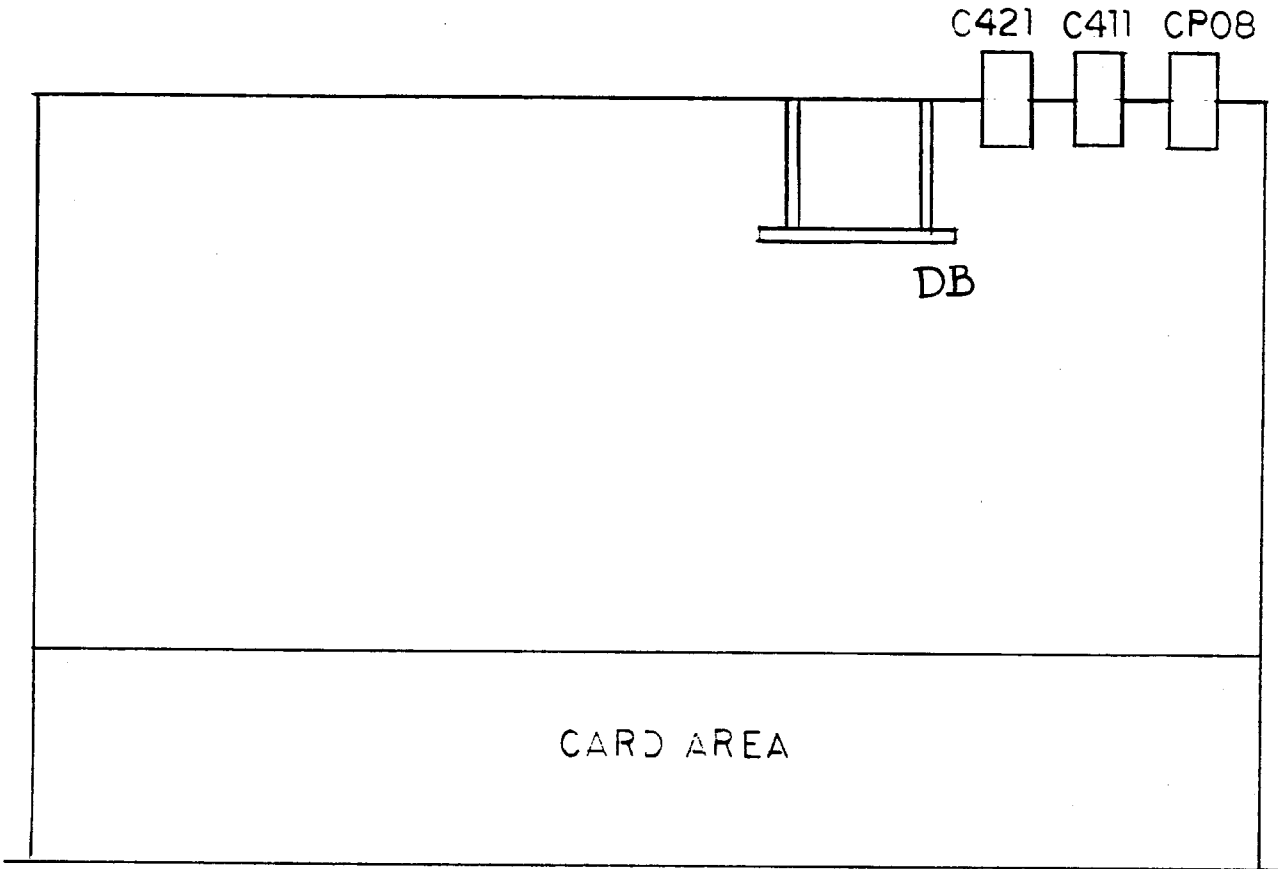


FRONT VIEW  
(COVER REMOVED)

INTERNAL CONN. 0145D8709

Figure 6 (0285A6225-0) Component Location Diagram  
for the Type DLA53B Unit

FOR INTERNAL REFER TO 0145D8710



FRONT VIEW  
(COVER REMOVED)

\* WHEN REQ'D

Figure 7 (0285A6226-0) Component Location Diagram  
for the Type DLA53C Unit

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