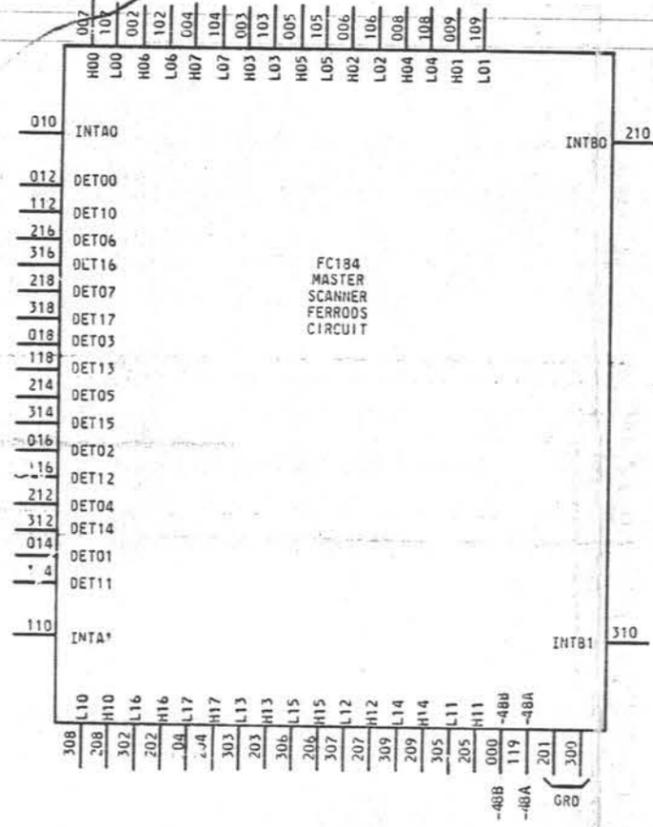


SHEET INDEX

CONTENTS	SHEET NO.	SHEET ISSUE
SHEET INDEX SUPPORTING INFORMATION CURRENT DRAIN USED ON NOTES SYMBOL RECORD OF CHANGES	1	2
CIRCUIT SCHEMATIC	2	2
COMPONENT LIST CIRCUIT DESCRIPTION	3	2

SYMBOL



DWG ISS	PREV FURN	STD	MFR DISC	SEE NOTE

- NOTES:
- UNLESS OTHERWISE SPECIFIED:
RESISTANCE VALUES ARE IN OHMS
CAPACITANCE VALUES ARE IN MICROFARADS
VALUES PRECEDED BY THE SYMBOL + (PLUS)
OR - (MINUS) ARE IN VOLTS.
 - POWER AND GROUND TERMINALS FOR INTEGRATED CIRCUITS:

IC CODE	GRD TERM.
 - BATTERY AND GROUND TERMINALS FOR THIS CIRCUIT PACK ARE AS FOLLOWS:

FUNCTION	TERMINAL
GRD	201,300
-48A	119
-48B	000
 - FERROD SENSOR DETECTION LEADS SHOULD BE COLINEAR AND SEPARATED FROM
 A. LOW (L) AND HIGH (H) LEADS
 B. INTERROGATE (INT) LEADS
 - HORIZONTAL MOUNTING CENTERS ARE 0.5 IN
 - GROUND RETURN

DWG ISSUE	DATE	DRAWN	APPRO
1	8-7-75	LRE	ELL
2DI	11-22-76	AS	RLB

SYMBOL
MASTER SCANNER FERROS
ELEMENT IDENT

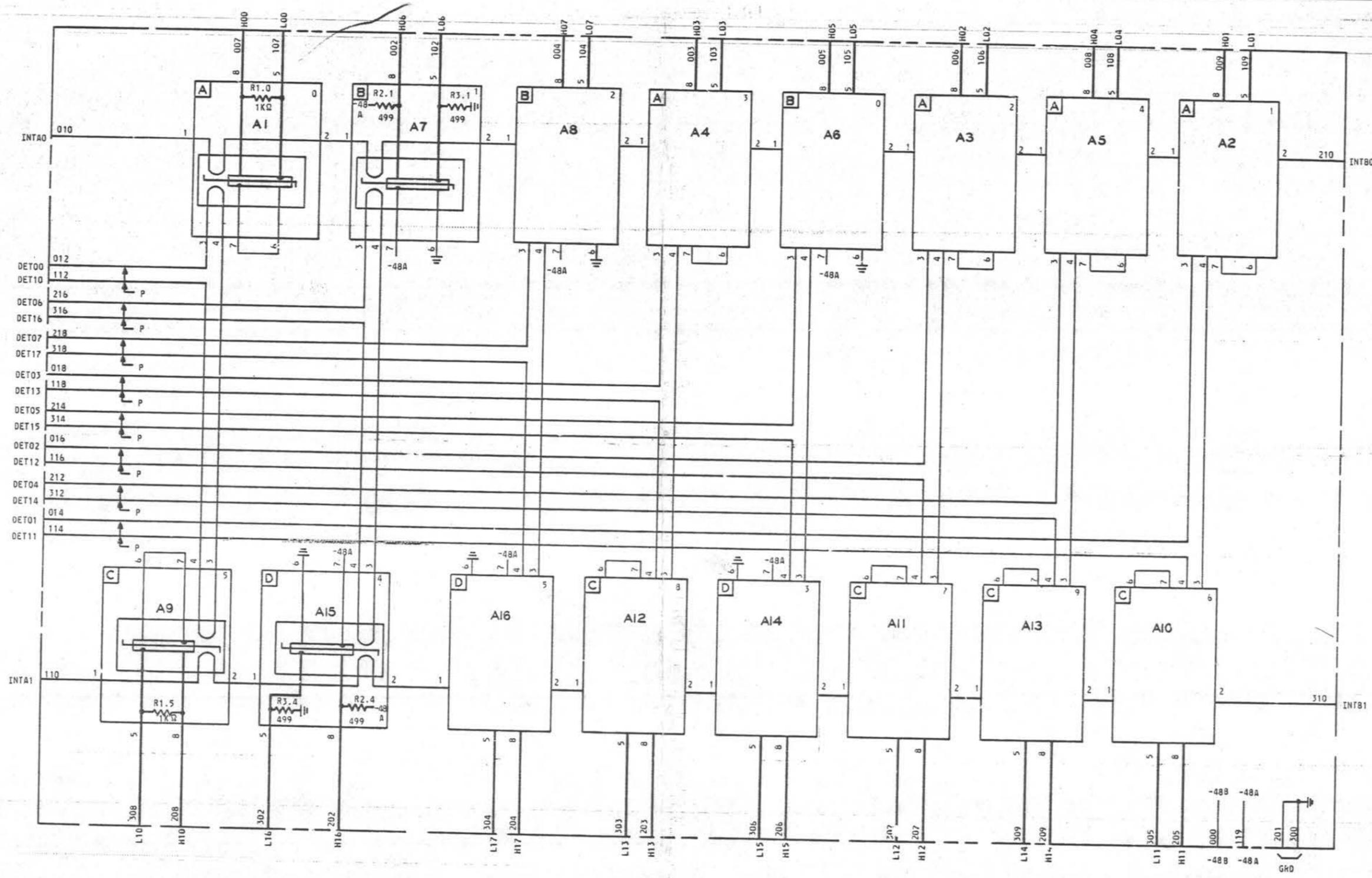
TERM. MOD	FUNCT	TERM.	LOC
H00	I	77	2A1
H01	I	009	2A8
H02	I	006	2A6
H03	I	003	2A4
H04	I	008	2A7
H05	I	005	2A5
H06	I	002	2A3
H07	I	004	2A4
H10	I	208	2G1
H11	I	205	2G8
H12	I	207	2G6
H13	I	203	2G4
H14	I	209	2G7
H15	I	206	2G5
H16	I	202	2G2
H17	I	204	2G3
INTA0	I	010	2E0
INTA1	I	110	2F0
INTB0	I	210	2B9
INTB1	I	310	2F9
L00	I	107	2A2
L01	I	109	2A8
L02	I	106	2A6
L03	I	103	2A5
L04	I	108	2A7
L05	I	105	2A5
L06	I	102	2A3
L07	I	104	2A4
L10	I	308	2G1
L11	I	305	2G8
L12	I	307	2G6
L13	I	303	2G4
L14	I	309	2G7
L15	I	306	2G5
L16	I	302	2G2
L17	I	304	2G3
DET00	0	012	2C0
DET01	0	014	2E0
DET02	0	016	2D0
DET03	0	013	2D0
DET04	0	212	2E0
DET05	0	214	2D0
DET06	0	216	2C0
DET07	0	218	2D0
DET10	0	112	2C0
DET11	0	114	2E0
DET12	0	116	2D0
DET13	0	118	2D0
DET14	0	312	2E0
DET15	0	314	2D0
DET16	0	316	2C0
DET17	0	318	2D0

SYSTEM USED ON	DESIGN CONTROL
NO. 3 ESS	DI

CURRENT DRAIN:

SHEET INDEX NOTES	SUPPORTING INFORMATION	NOTICE - NOT FOR USE OR DISCLOSURE OUTSIDE THE BELL SYSTEM EXCEPT UNDER WRITTEN AGREEMENT.																				
1. FOR SINGLE REISSUES, A CHANGED OR NEW SHEET WILL BE ASSIGNED THE SAME ISSUE NUMBER AS SHEET 1. 2. FOR CONCURRENT REISSUES, A CHANGED OR NEW SHEET WILL BE ASSIGNED THE HIGHEST ISSUE NUMBER AFFECTING THAT SHEET. 3. THE ISSUE NUMBER OF SHEET 1 IS RECOGNIZED AS THE ISSUE NUMBER OF THE WHOLE DRAWING.	<table border="1"> <thead> <tr> <th>CATEGORY</th> <th>NUMBER</th> </tr> </thead> <tbody> <tr> <td>CONNECTOR ON FRAME</td> <td>947A, 947C OR 947E</td> </tr> <tr> <td>CIRCUIT PACK INFORMATION DRAWING</td> <td> </td> </tr> <tr> <td>SERIES FOR LATEST CLASS "A" CHANGE</td> <td> </td> </tr> <tr> <td>ACCEPTABLE SERIES</td> <td>1</td> </tr> </tbody> </table>	CATEGORY	NUMBER	CONNECTOR ON FRAME	947A, 947C OR 947E	CIRCUIT PACK INFORMATION DRAWING		SERIES FOR LATEST CLASS "A" CHANGE		ACCEPTABLE SERIES	1	<table border="1"> <tbody> <tr> <td>FC184 CIRCUIT PACK</td> <td>1711</td> </tr> <tr> <td>MASTER SCANNER FERROS CIRCUIT</td> <td> </td> </tr> </tbody> </table>	FC184 CIRCUIT PACK	1711	MASTER SCANNER FERROS CIRCUIT		<table border="1"> <tbody> <tr> <td>AT&T CO STANDARD</td> </tr> <tr> <td>DWG SIZE</td> <td>ISSUE</td> </tr> <tr> <td>6S</td> <td>2DI</td> </tr> </tbody> </table>	AT&T CO STANDARD	DWG SIZE	ISSUE	6S	2DI
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BELL LABORATORIES		CPS - FC184																				
		3 SHEETS																				

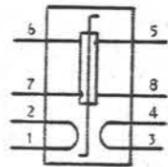
MASTER SCANNER FERRODS CIRCUIT



ISSUE
2D1

COMPONENT LIST

FERROD SENSOR



DESIG	LOC	CODE
A1	2B1	2C ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
A2	2B3	
A3	2B4	
A4	2B6	
A5	2B2	
A6	2B4	
A7	2B5	
A8	2B7	
A9	2F0	
A10	2F2	
A11	2F4	
A12	2F6	
A13	2F2	
A14	2F3	
A15	2F5	
A16	2F7	

CIRCUIT DESCRIPTION (CONT)

FUNCTIONAL DESCRIPTION

THE FERROD IS THE BASIC SCAN ELEMENT OF A SCANNER. IT CAN BE CONSIDERED A 2-WINDING TRANSFORMER WHOSE COUPLING (THE ABILITY TO INDUCE A SIGNAL FROM THE PRIMARY WINDING TO THE SECONDARY WINDING) IS CONTROLLED BY THE AMOUNT OF CURRENT IN THE CONTROL WINDINGS. THE PRIMARY AND SECONDARY WINDINGS OF THE TRANSFORMER ARE ASSOCIATED WITH THE INTERROGATE AND READOUT WINDINGS, RESPECTIVELY.

RESISTORS

DESIG	CODE
[10] R1.0 - R1.9	KS-20616, L1A, 1KΩ
[6] R2.0 - R2.5	KS-20616, L1A, 499
[6] R3.0 - R3.5	KS-20616, L1A, 499

CIRCUIT DESCRIPTION

PURPOSE OF CIRCUIT

THIS CIRCUIT PROVIDES 16 FERROD SCAN POINT ELEMENTS WHICH ARE USED TO FORM THE MASTER SCANNER MATRIX.

THE FC184 FERROD CIRCUIT PACK HAS 16 FERRODS (TYPE 2C) MOUNTED TO FORM A 2-BY-8 MATRIX. THE INTERROGATE WINDINGS OF THE (EIGHT) FERRODS WHICH FORM A HALF ROW ARE CONNECTED IN SERIES AND THE READOUT WINDINGS OF EACH FERROD IN ONE HALF ROW IS CONNECTED IN SERIES WITH THE READOUT WINDINGS OF THE CORRESPONDING FERROD IN THE OTHER HALF ROW. THE CONTROL WINDINGS OF TEN FERRODS ARE ARRANGED INTERNALLY IN THE LOOP CONFIGURATION WHILE THE CONTROL WINDINGS OF THE OTHER SIX FERRODS ARE ARRANGED INTERNALLY IN THE BATTERY AND GROUND CONFIGURATION.

IN THE LOOP CONFIGURATION, THE FERROD CONTROL WINDINGS ARE CONNECTED IN A SERIES AIDING LOOP ON THE CIRCUIT PACK. BATTERY AND GROUND TO SATURATE THE FERRODS MUST BE SUPPLIED EXTERNALLY BY THE USING CIRCUIT. RESISTORS TO LIMIT THE CURRENT IN THE CONTROL WINDINGS MUST BE PROVIDED BY THE USING CIRCUIT.

IN THE BATTERY AND GROUND CONFIGURATION, THE -48V BATTERY AND GROUND ARE SUPPLIED THROUGH THE FERROD CONTROL WINDINGS TO THE USING CIRCUIT. RESISTORS TO LIMIT THE CURRENT IN THE CONTROL WINDINGS MUST BE PROVIDED BY THE USING CIRCUIT. A 1000 OHM RESISTOR IS PROVIDED IN PARALLEL WITH THE CONTROL WINDINGS OF EACH LOOP TYPE FERROD TO LIMIT THE VOLTAGE SURGE WHEN THE CURRENT TO THE CONTROL WINDINGS IS INTERRUPTED. SIMILARLY, A 499 OHM RESISTOR IS PROVIDED IN PARALLEL WITH EACH OF THE CONTROL WINDINGS OF EACH BATTERY AND GROUND TYPE FERROD TO LIMIT VOLTAGE SURGES.

ISSUE
2D1

FC184 CIRCUIT PACK	2	CPS-FC184
BELL TELEPHONE LABORATORIES INCORPORATED	65	SHEET 3

MADE IN THE U.S.A.