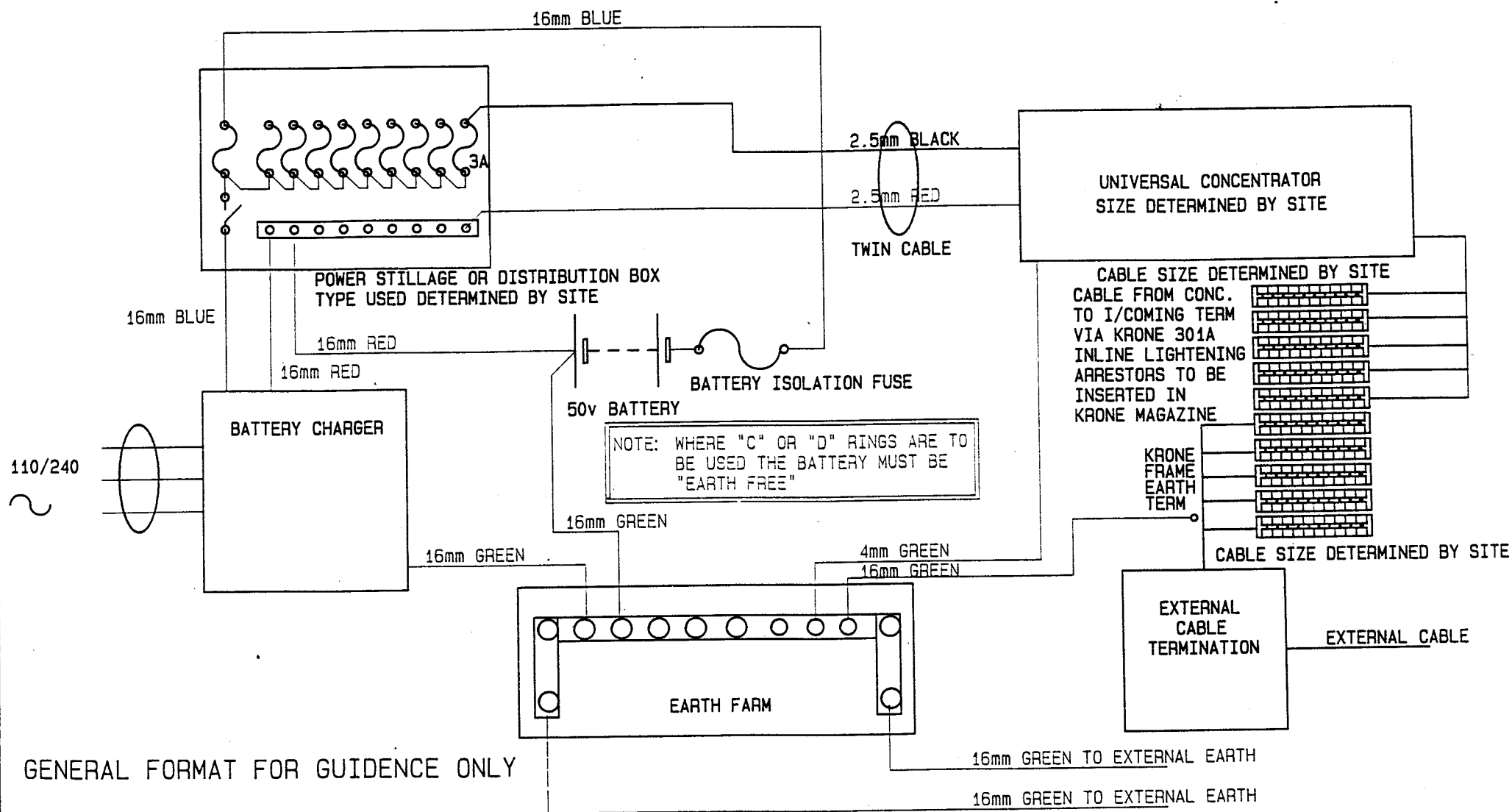


INDEX TO DRAWINGS

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90TSD0101/01	BLOCK SCHEMATIC
90TSD0101/02	CARD ALLOCATION DIAGRAM
90TSD0101/03	GENERAL CARD
90TSD0101/04	AUTO CARD
90TSD0101/05	OMNIBUS "A" RING CARD
90TSD0101/06	OMNIBUS "B" RING CARD
90TSD0101/07	OMNIBUS "C" RING CARD
90TSD0101/08	OMNIBUS "D" RING CARD
90TSD0101/09	C.B. SLAVE CARD
90TSD0101/10	C.B. CARD
90TSD0101/11	LEVEL CROSSING C.B. CARD
90TSD0101/12	LEVEL CROSSING MOD. TO 700 SERIES TELE
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90TSD0101/14	AUTO HALF BARRIER CARD
90TSD0101/15	CONCENTRATOR OVER-RIDE MOD.
90TSD0101/16	ABSENT UNIT
90TSD0101/17	CONTROL (TONE GEN) CARD
90TSD0101/18	TONE GEN
90TSD0101/19	CONTROL (GEC/STC) CARD
90TSD0101/20	GEC WAY STATION
90TSD0101/21	STC WAY STATION
90TSD0101/22	SECURITY ALARM CARD (NOT AVAILABLE AT PRESENT)
90TSD0101/23	PLATFORM BELI. CARD (NOT AVAILABLE AT PRESENT)
90TSD0101/24	OPERATORS UNIT (1)
90TSD0101/25	OPERATORS UNIT (2) PLUG-IN CONNECTIONS

INDEX TO DRAWINGS

[illegible]



GENERAL FORMAT FOR GUIDENCE ONLY

Revisions

DISC No. TSD0101/A

British Railways Eastern Region
Area Signal & Telecommunications Engineer

BRITISH RAIL

Corres. Ref:

Authority

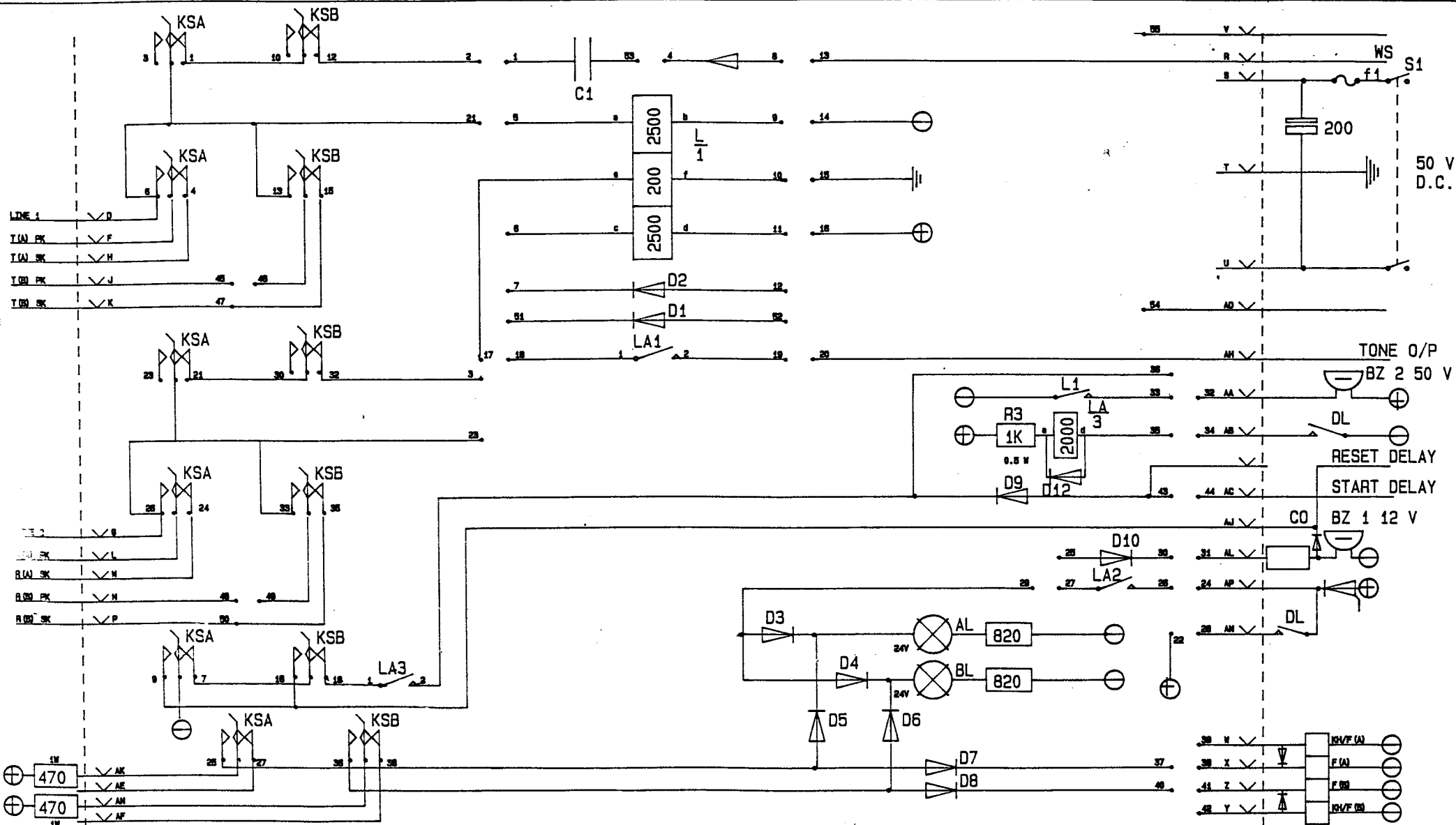
UNIVERSAL CONCENTRATOR
CABLING

A. Glazebrook
Area S&T. Engineer (North)

Scale/ Drawn AW Checked ML

BLOCK SCHEMATIC

No
90TSD0101/01



Revisions

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Area Signal & Telecommunications Engineer

BRITISH RAIL

Corres. Ref:

Authority

UNIVERSAL CONCENTRATOR

GENERAL CARD

A. Blazebrook
Area S.&T. Engineer (North)

Scale

Drawn

AW

Checked

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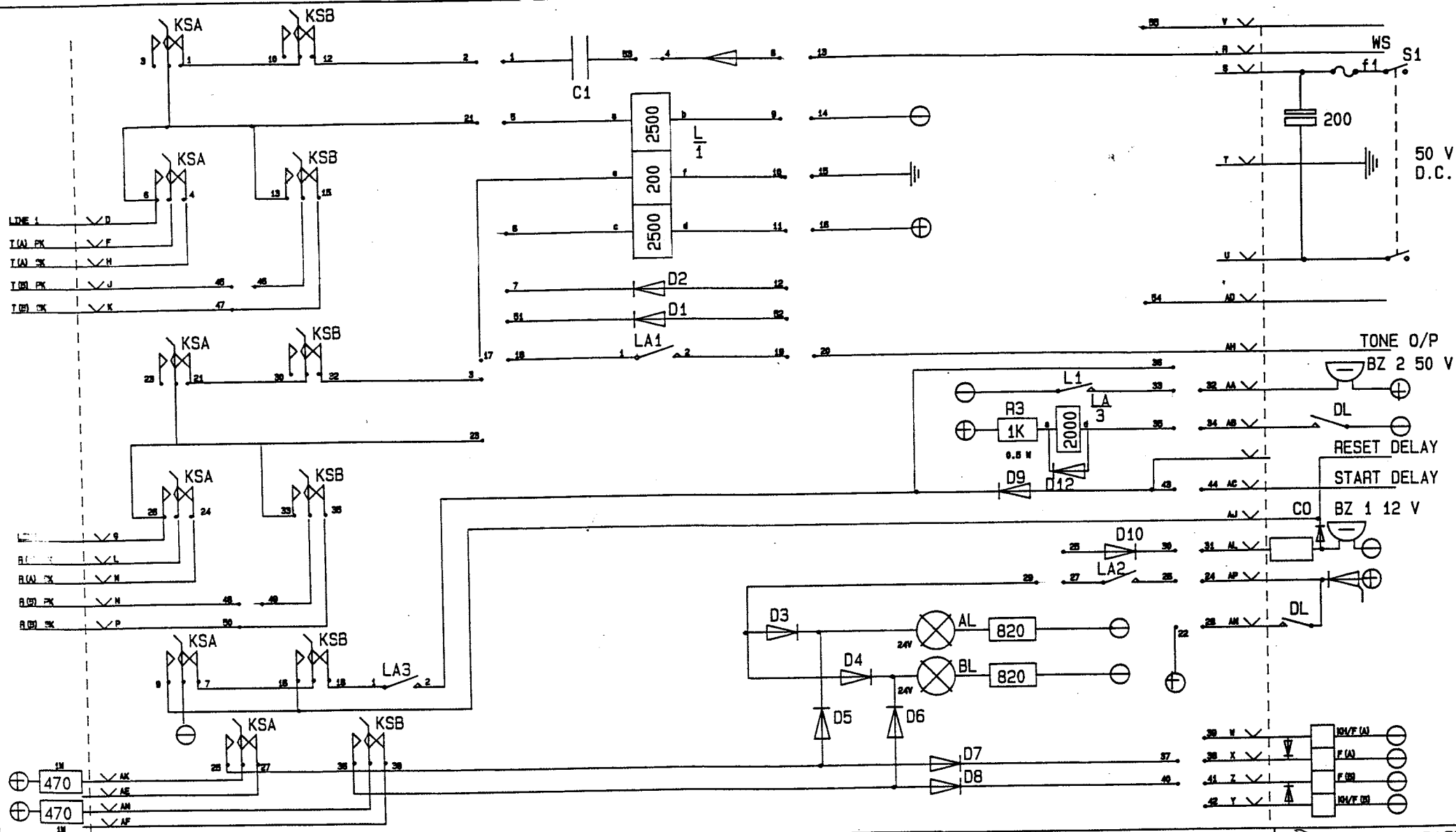
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Date

28/11/90

No

90TSD0101/03



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British Railways Eastern Region
Area Signal & Telecommunications Engineer

UNIVERSAL CONCENTRATOR

AUTO CARD

BRITISH RAIL

A. Glazebrook
Area S&T. Engineer (North)

No
90TSD0101/04

Corres. Ref:

Authority

Scale

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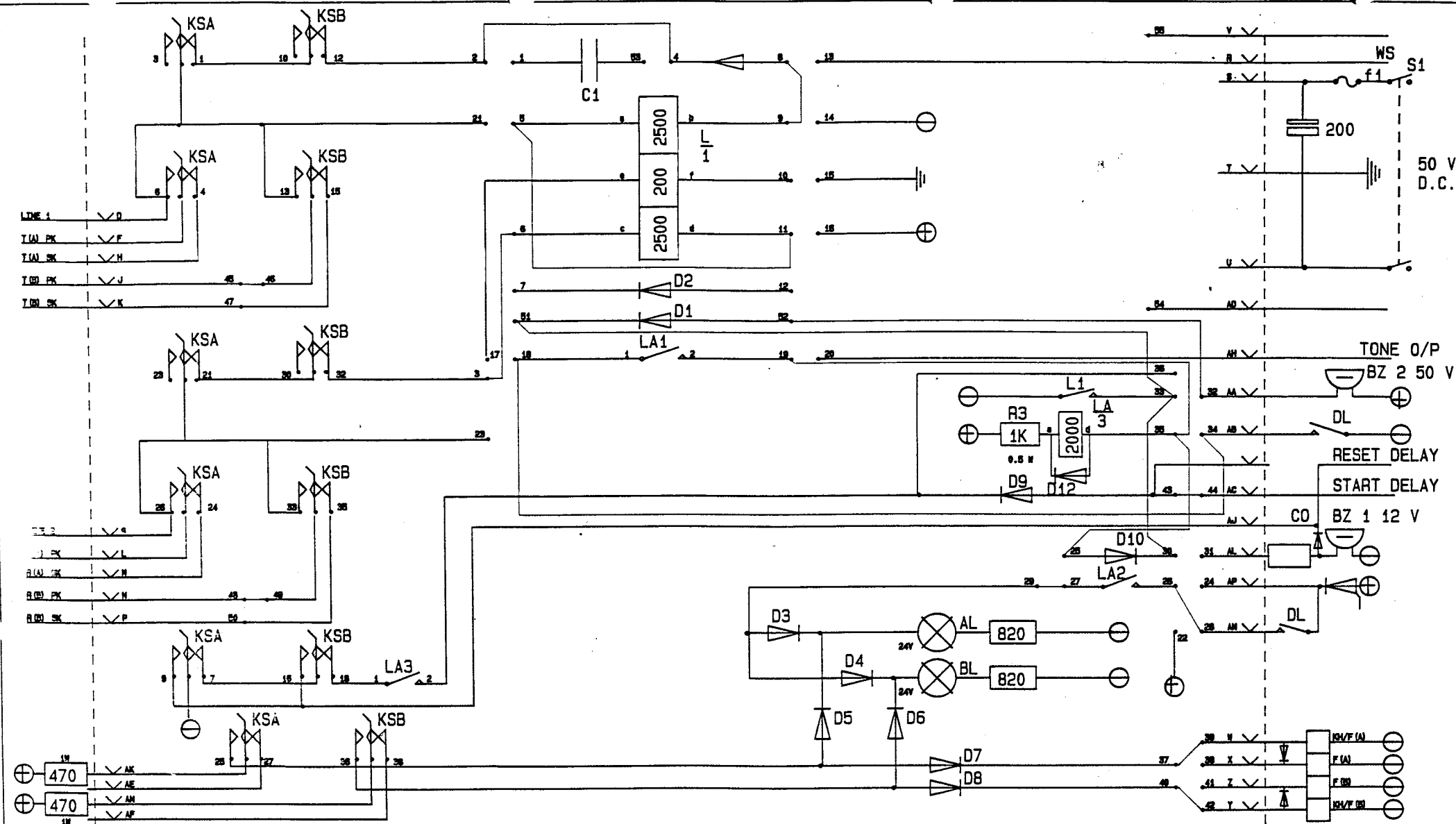
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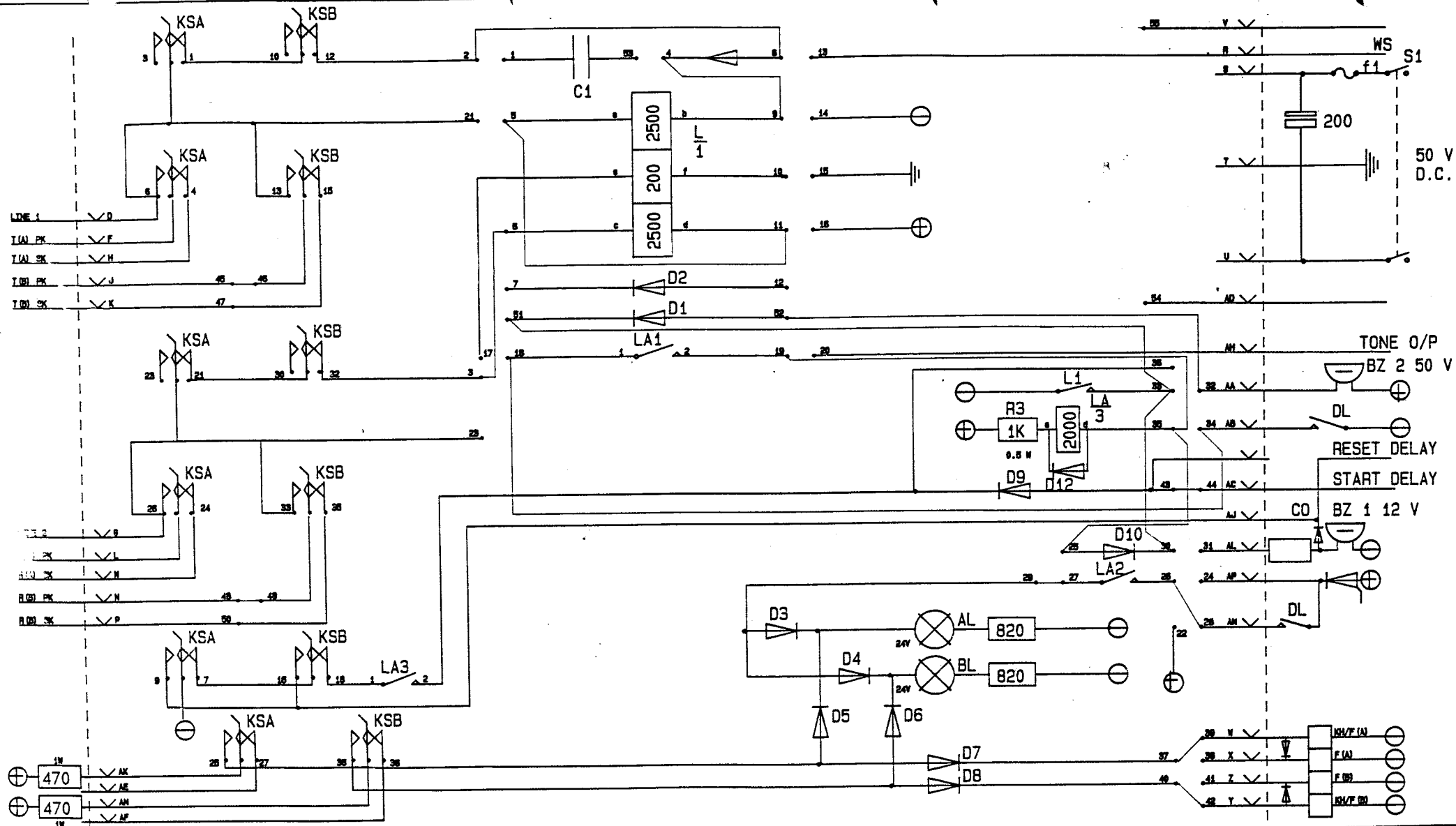
Approved

Date

28/11/90



Revisions	DISC No. TSD0101/A				British Railways Eastern Region Area Signal & Telecommunications Engineer		 BRITISH RAIL A. Glazebrook <i>A. Glazebrook</i> Area S.&T. Engineer (North) No. 90TSD0101/05 <table border="1" data-bbox="1888 1505 2143 1536"><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>								
	Corres. Ref:		Authority		UNIVERSAL CONCENTRATOR										
	Scale		Drawn	AW	Checked	ML		OMNIBUS 'A' RING							
			Approved		Date	28/11/90									



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DISC No. TSD0101/A

British Railways Eastern Region
Area Signal & Telecommunications Engineer

BRITISH RAIL

UNIVERSAL CONCENTRATOR

A. Glazebrook
Area S.G.T. Engineer (North)

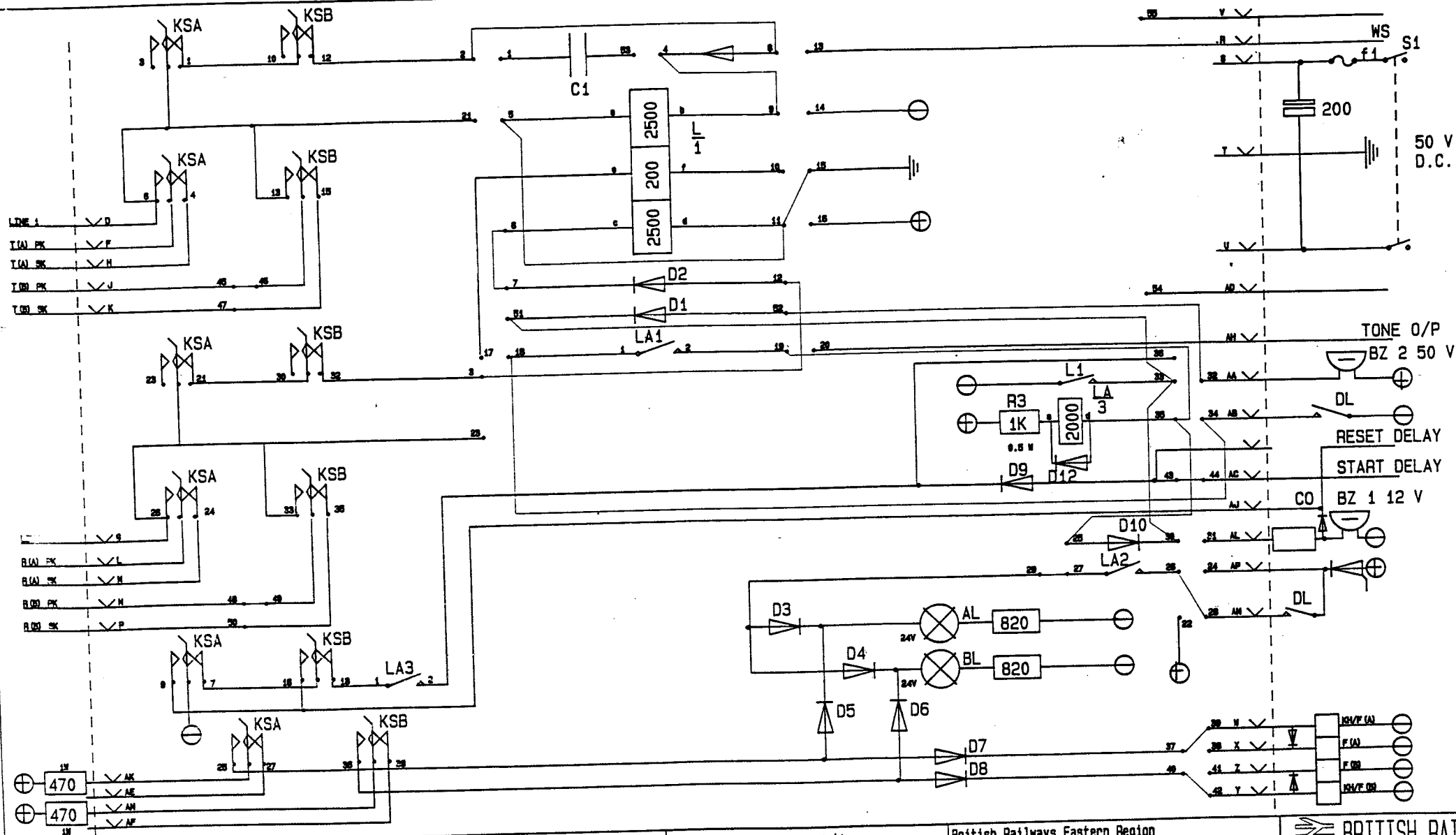
OMNIBUS 'B' RING

No
90TSD0101/06

Corres. Ref:

Authority

Scale	Drawn	AW	Checked	ML
	Approved		Date	28/11/90



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DISC No. TSD0101/A

British Railways Eastern Region
Area Signal & Telecommunications Engineer

BRITISH RAIL

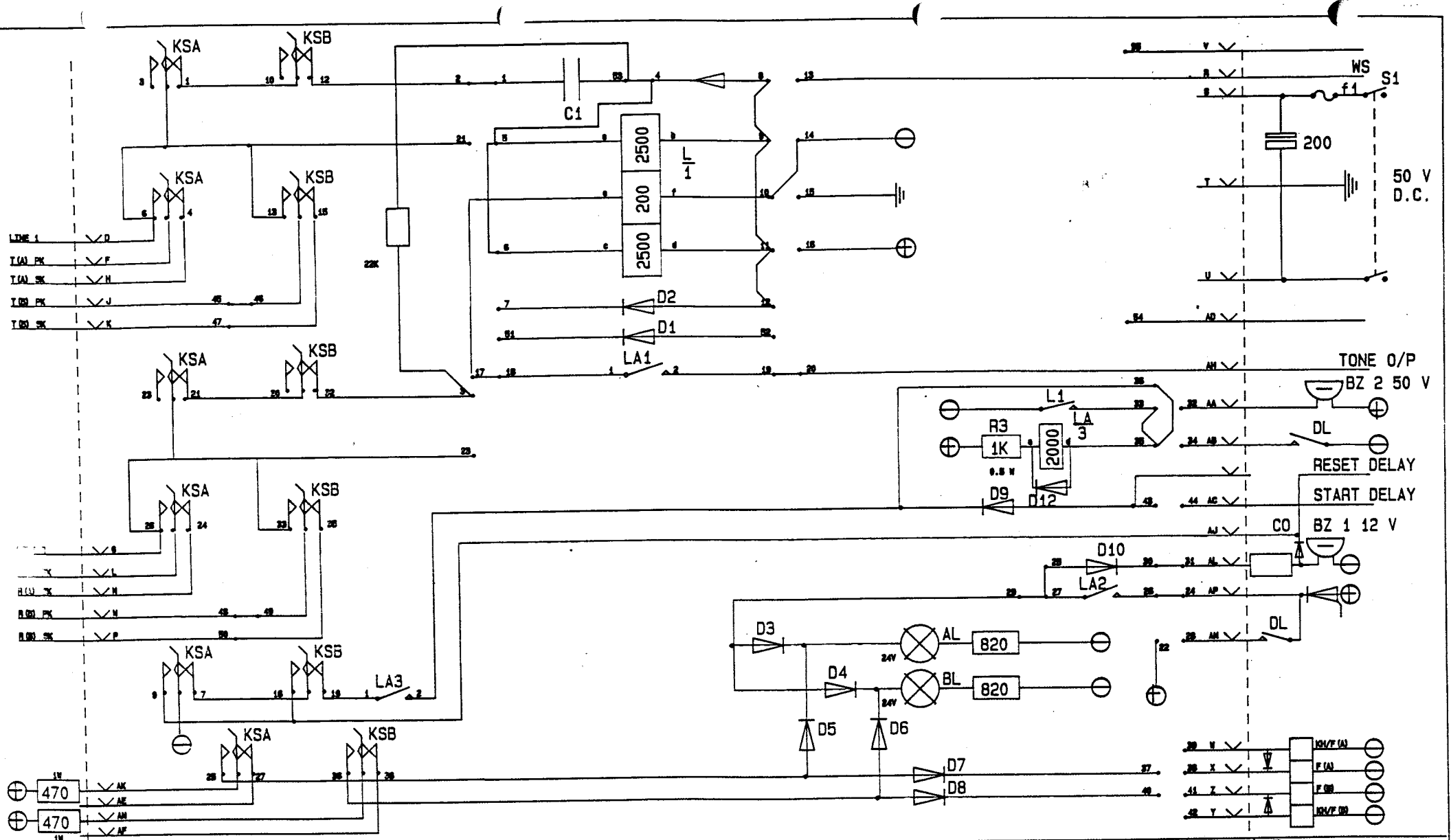
UNIVERSAL CONCENTRATOR

A. Glazebrook
Area S.E.T. Engineer (North)

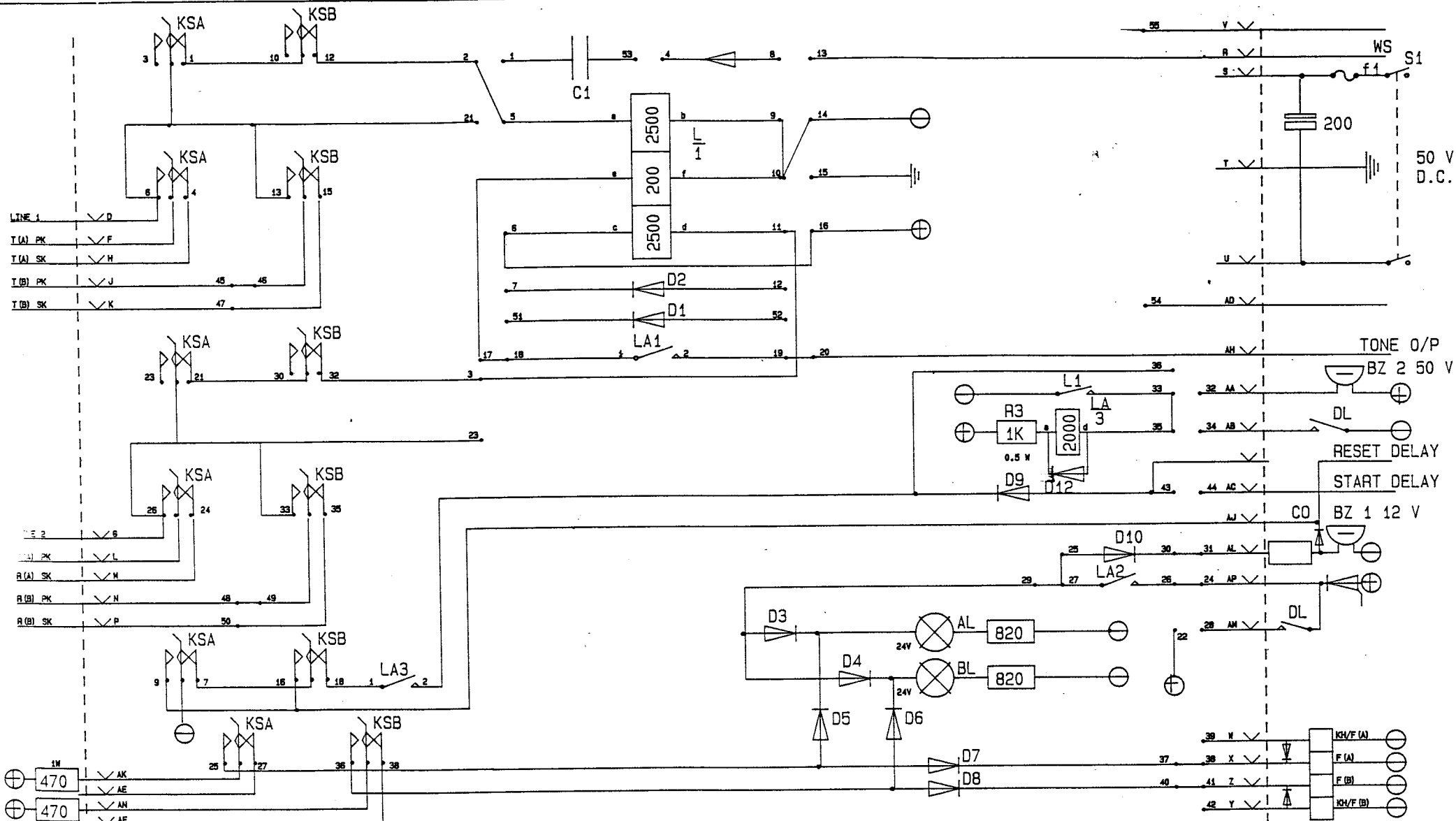
OMNIBUS 'C' RING

No 90TSD0101/07

Corres. Ref:	Authority
Scale	Drawn
Approved	AW
Checked	ML
Date	28/11/90



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					UNIVERSAL CONCENTRATOR									
	Corres. Ref:		Authority		CB SLAVE CARD		No							
	Scale /	Drawn	AW	Checked			ML	90TSD0101/09						
		Approved		Date			28/11/90	<table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>						



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DISC No. TSD0101/A

British Railways Eastern Region
Area Signal & Telecommunications Engineer

BRITISH RAIL

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UNIVERSAL CONCENTRATOR

A. Glazebrook
Area S&T. Engineer (North)

Scale

Drawn

AW

Checked

ML

Approved

Date

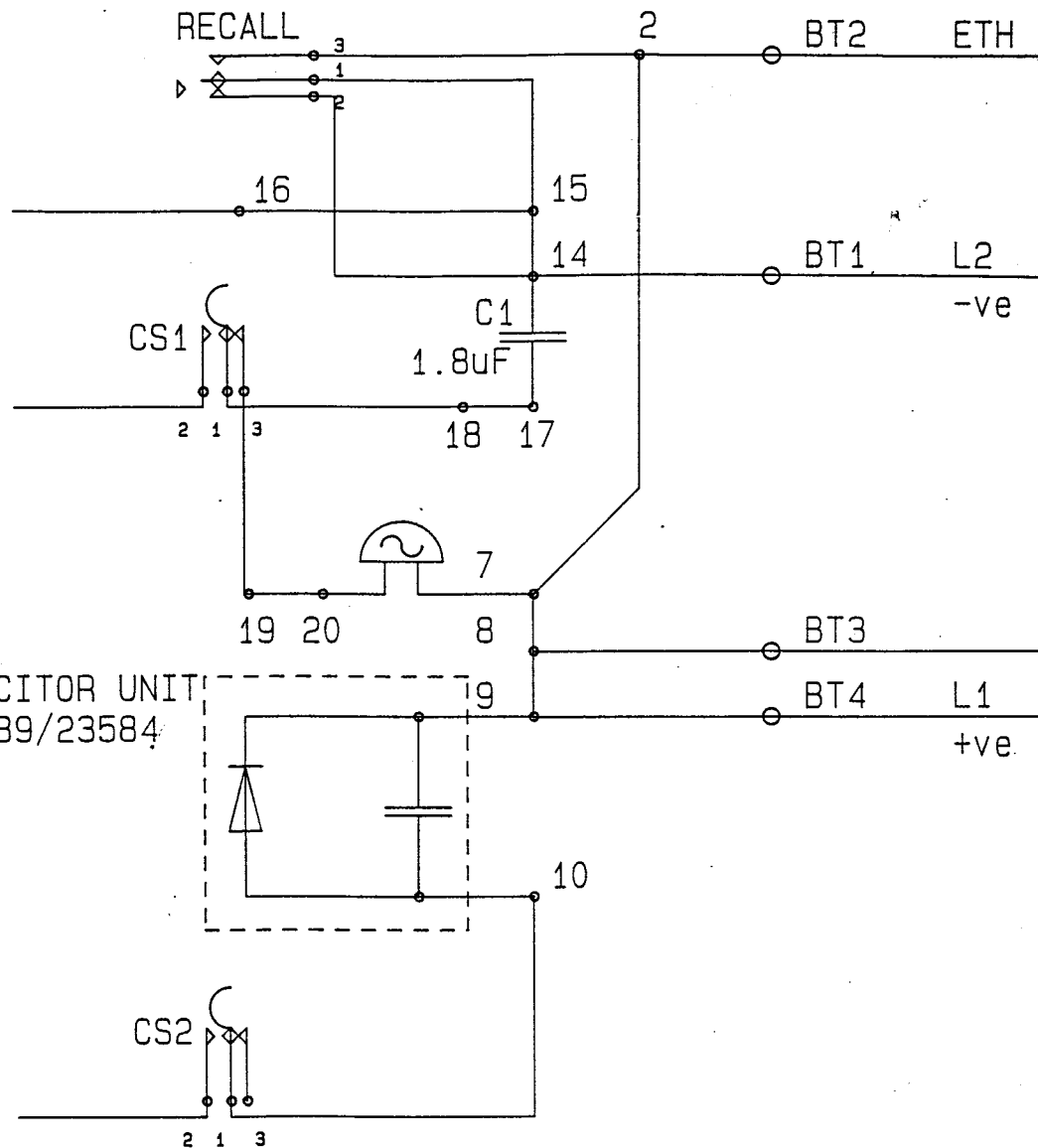
28/11/90

C.B. CARD

No

90TSD0101/10

DIODE/CAPACITOR UNIT
BR CAT No 89/23584
SEE DRG No
84NDT164



Revisions

DISC No. TSD0101/A

British Railways Eastern Region
Area Signal & Telecommunications Engineer

BRITISH RAIL

Corres. Ref:

Authority

UNIVERSAL CONCENTRATOR

TELE MOD FOR USE WITH
CB LEVEL XING CARD

A. Glazebrook
Area S.&T. Engineer (North)

No

90TSD0101/12

Scale

Drawn

AW

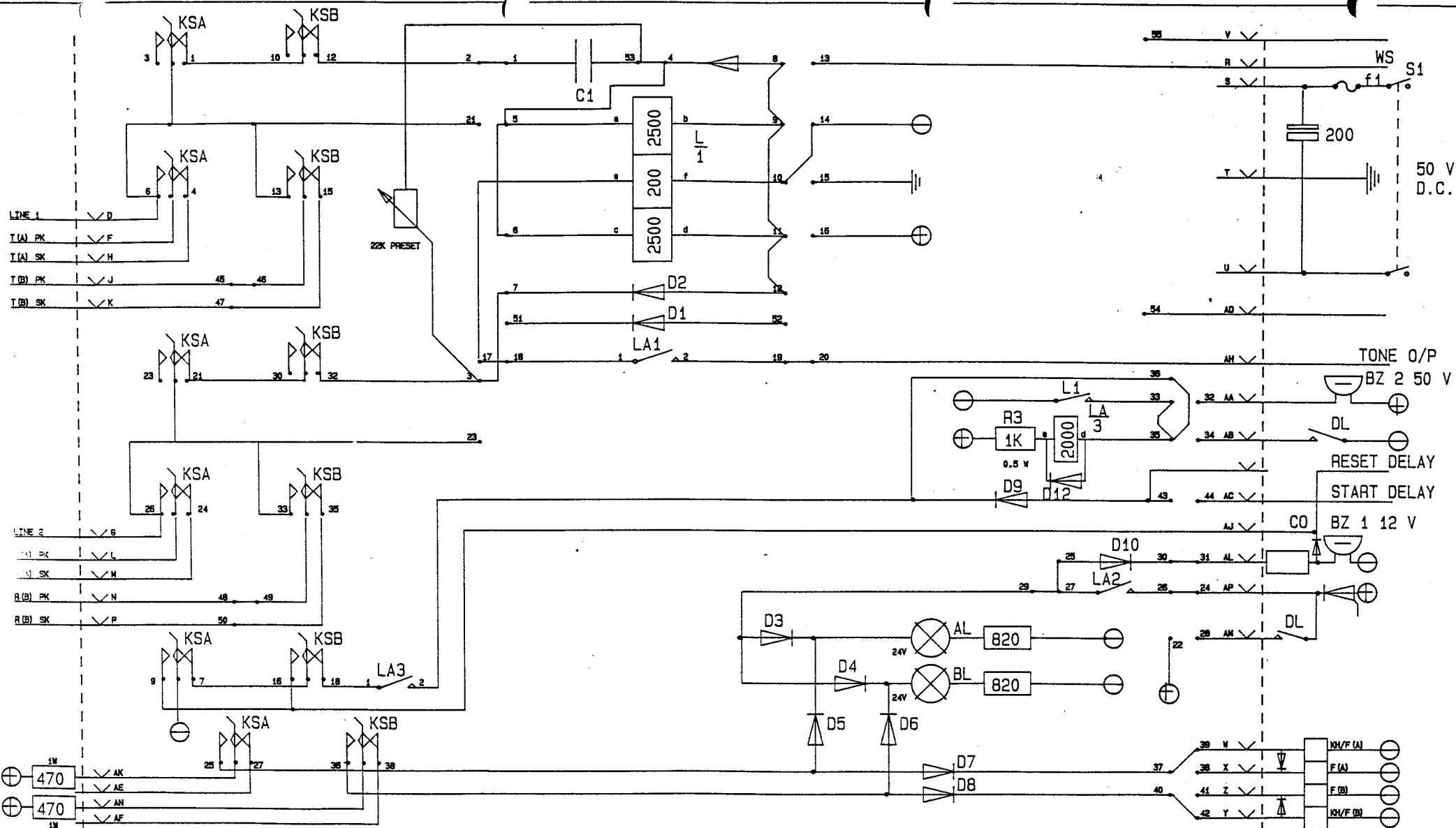
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28/11/90



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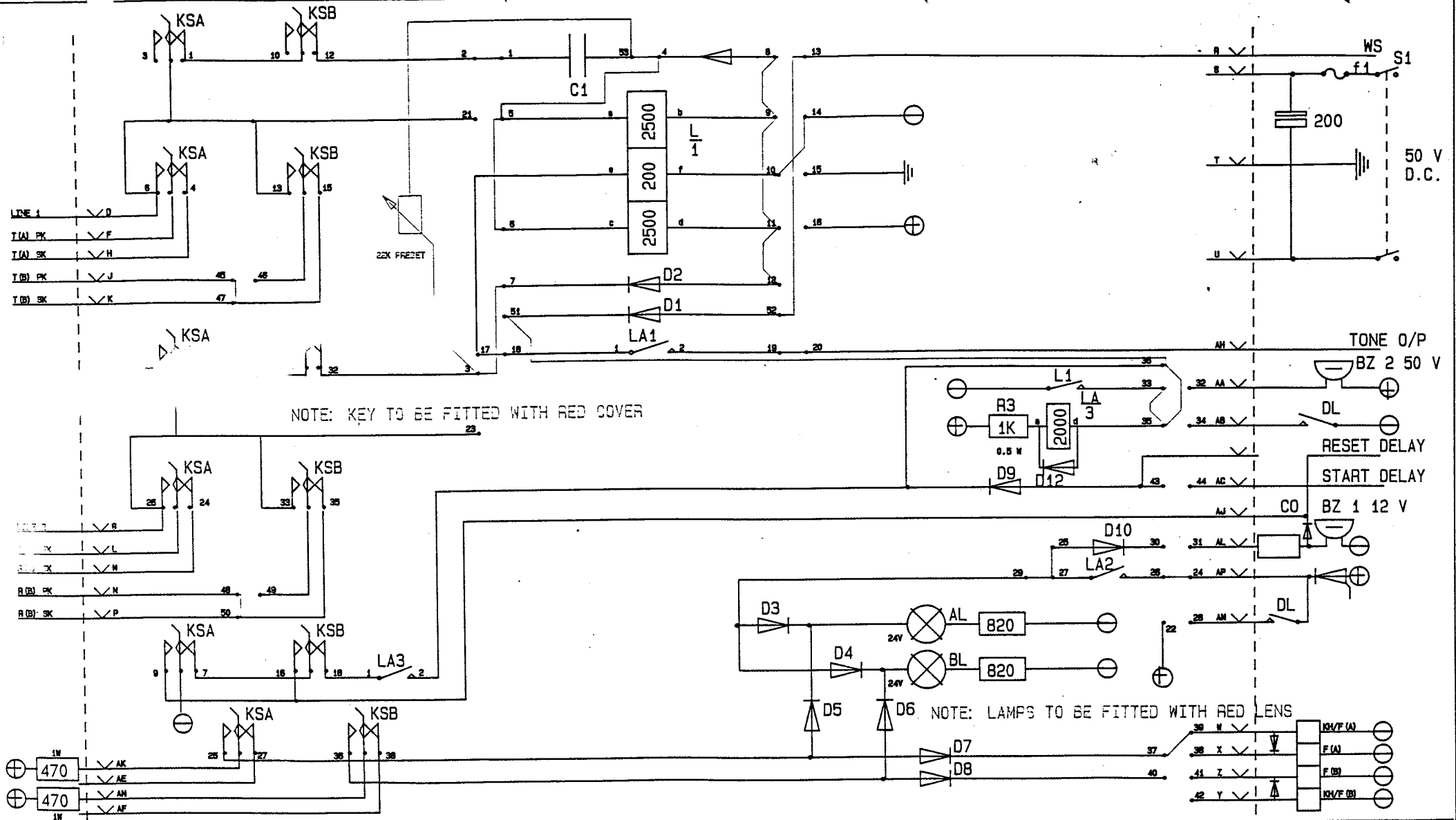
A. Glazebrook
Area S & T Engineer (North)

MAGNETO CARD

No
90TSD0101/13

Scale

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British Railways Eastern Region
Area Signal & Telecommunications Engineer

BRITISH RAIL

UNIVERSAL CONCENTRATOR

A. Glazebrook
Area S.G.T. Engineer (North)

A.H.B.CARD

No
90TSD0101/14

Corres. Ref:

Authority

Scale

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Date

28/11/90

1st AHB CIRCUIT

D L1
E L2
R WS

2nd AHB CIRCUIT

D L1
E L2
R WS

'N'th AHB CIRCUIT

D L1
E L2
R WS

CONCENTRATOR BACK PLANE

AN

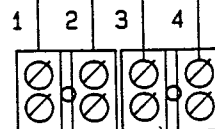
BZ 1-12 V

BZ 3-50 V

2K2

500

10K



4 WAY BELLING LEE
TERMINATION MOUNTED
ON REAR CONC. PANEL

BUZZER WIRES TO GO
VIA BLOCK SWITCH OR
BLOCK SWITCH RELAY
CONTACT CLOSED WHEN S.B.
IS OPEN

NOTE: CONCENTRATOR ON/OFF SWITCH TO BE STRAPPED OUT

Revisions

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British Railways Eastern Region
Area Signal & Telecommunications Engineer

BRITISH RAIL

UNIVERSAL CONCENTRATOR

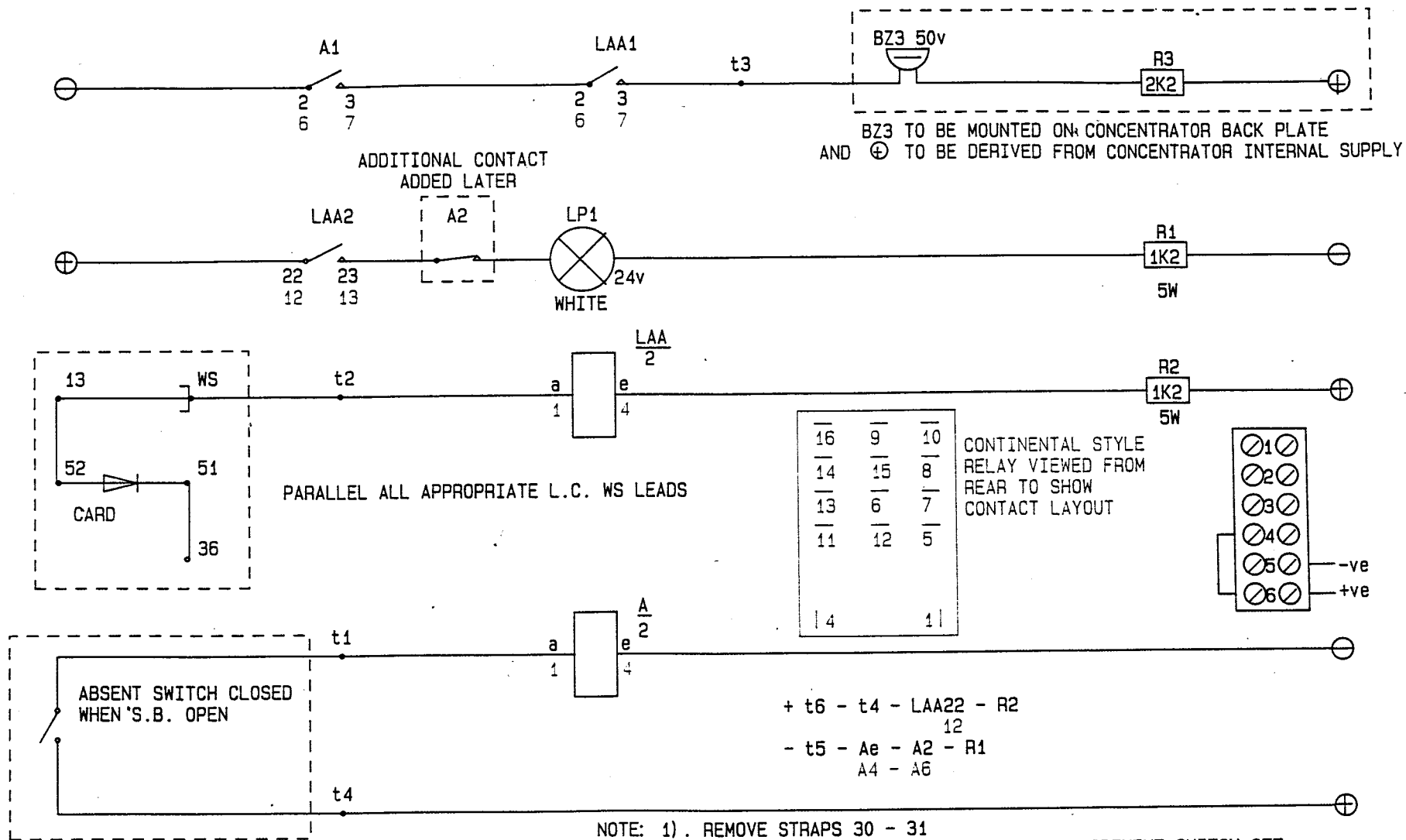
A. Glazebrook
Area S&T. Engineer (North)

AHB MOD TO CONC.

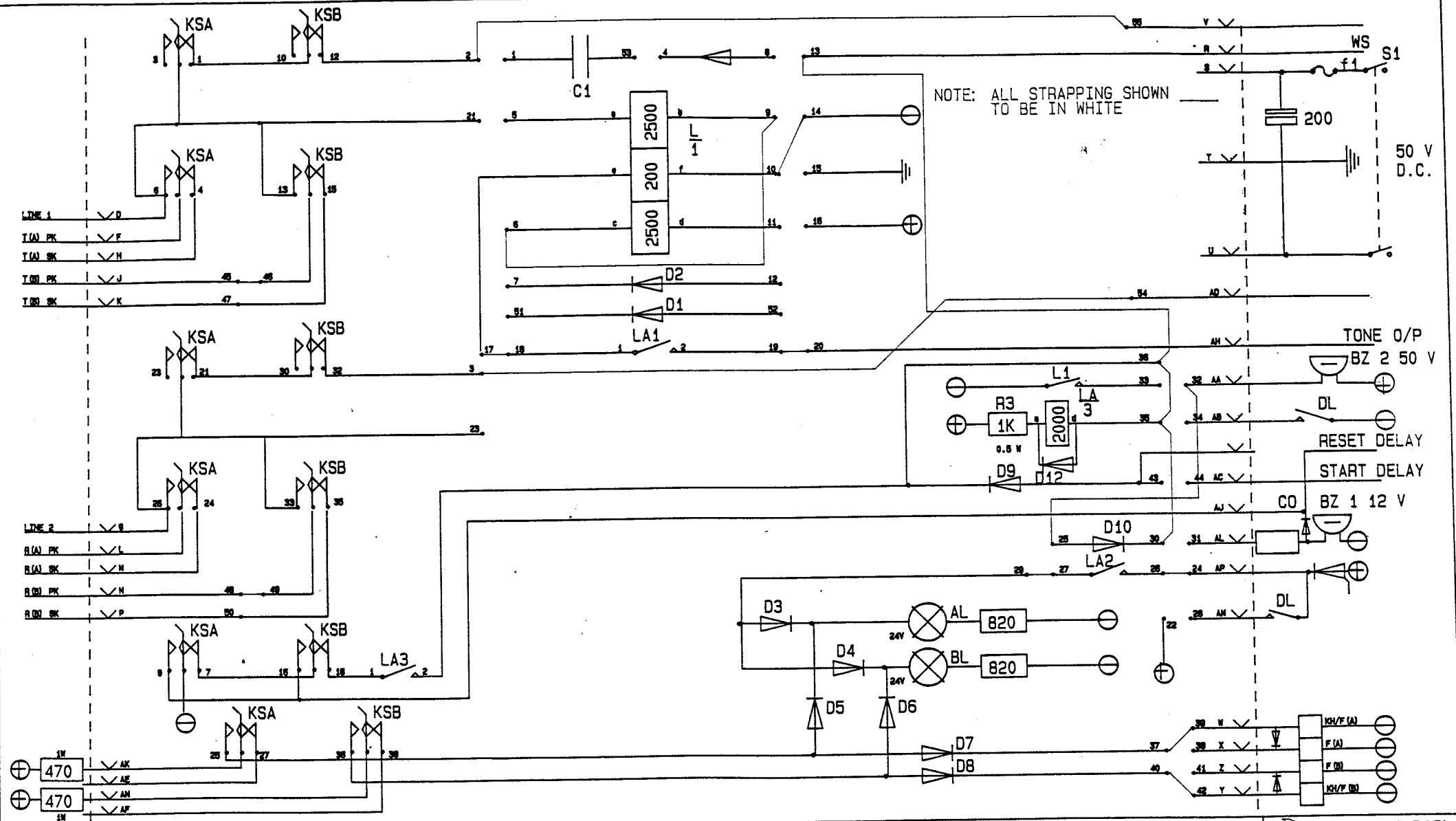
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90TSD0101/15

Corres. Ref: Authority

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	Approved		Date	28/11/90



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		Corres. Ref:		Authority		UNIVERSAL CONCENTRATOR		No		
		Scale	Drawn	AW	Checked	ML	LEVEL XING ABSENT UNIT		90TSD0101/16	
		Approved			Date	28/11/90				



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British Railways Eastern Region
Area Signal & Telecommunications Engineer

BRITISH RAIL

UNIVERSAL CONCENTRATOR

A. Glazebrook
Area S&T. Engineer (North)

CONTROL (TONE GEN) CARD

No
90TSD0101/17

Corres. Ref:

Authority

Scale

Drawn

AW

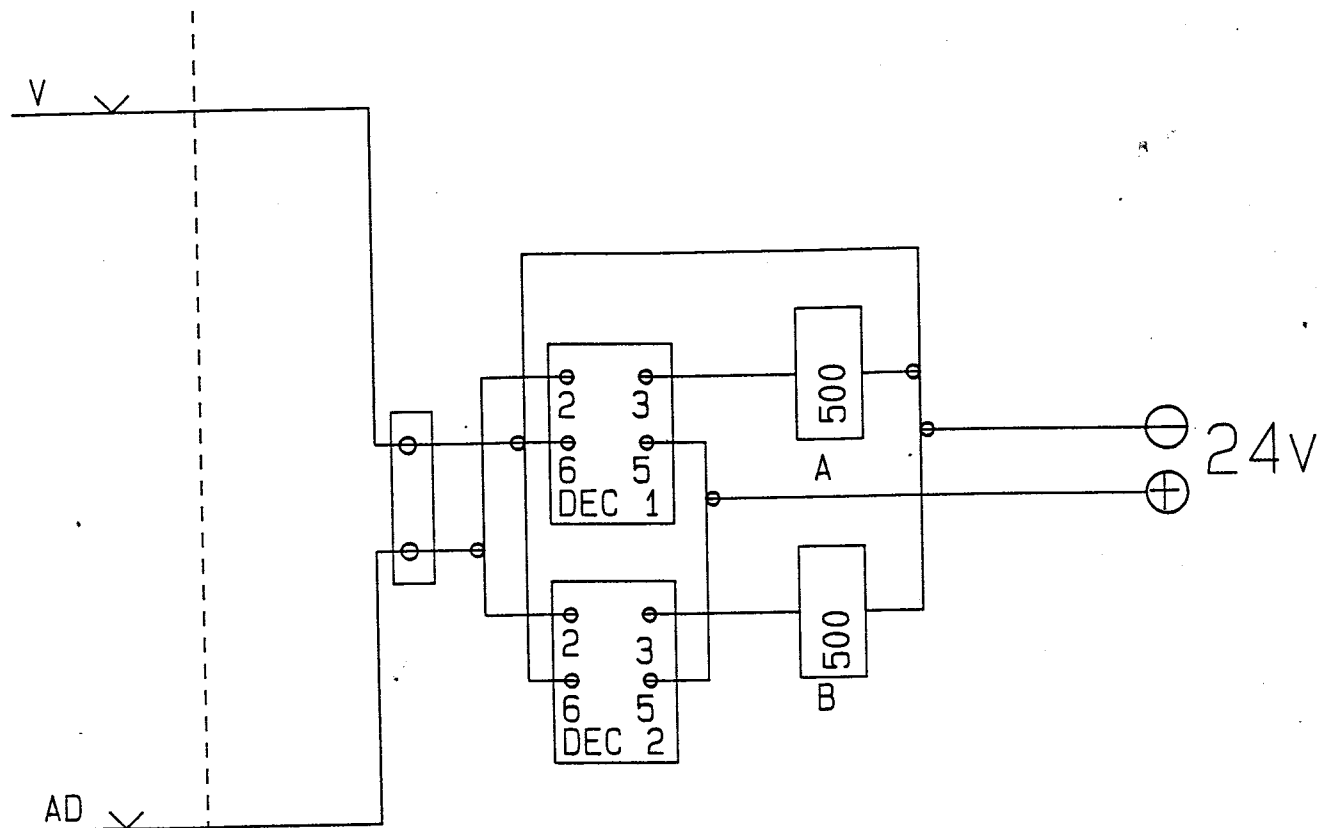
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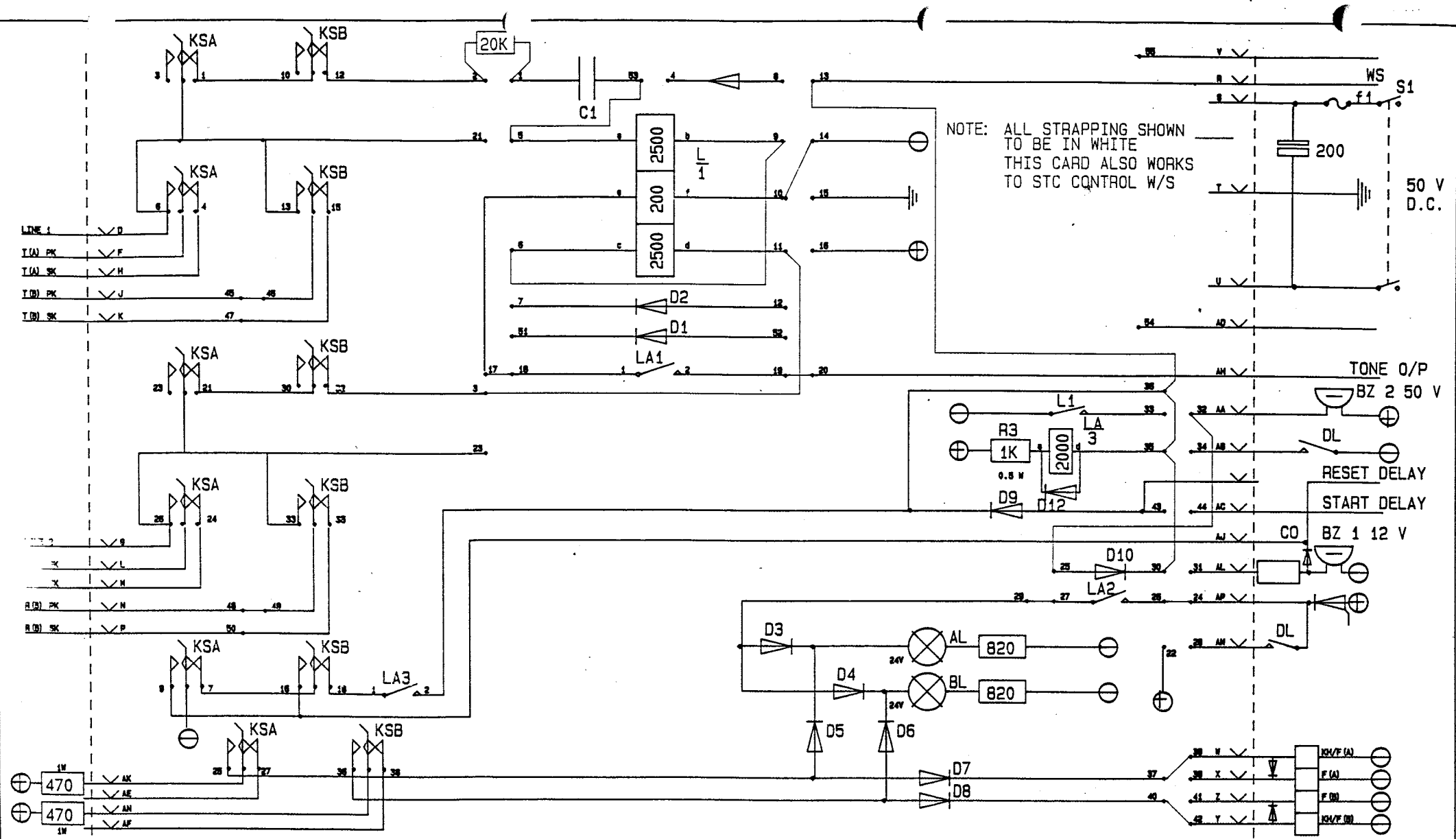
Date

28/11/90

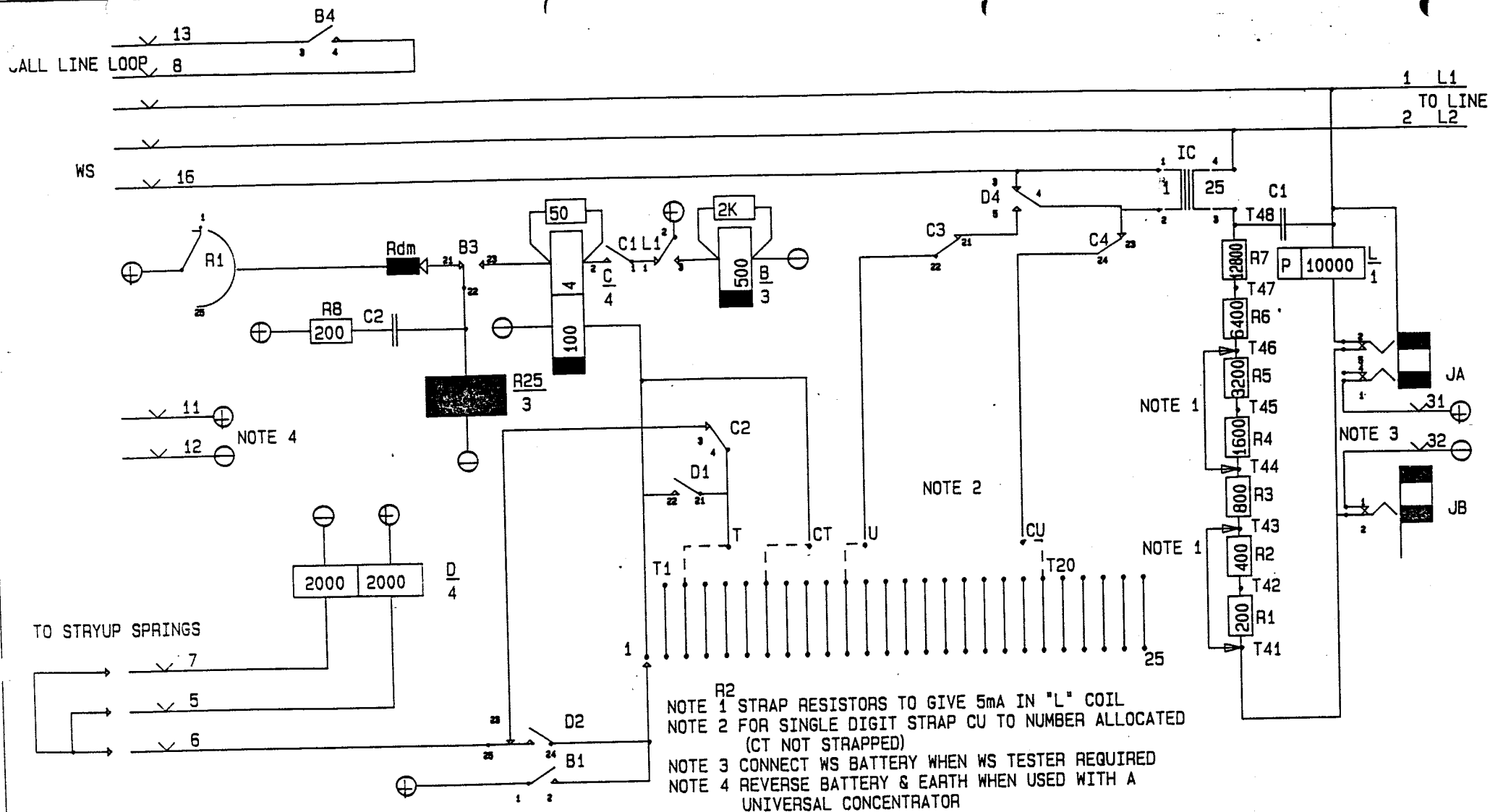


NOTE: V & AD CONNECTED FROM CONCENTRATOR
BACK PLANE TO DETECTION UNIT VIA
TERMINAL BLOCK

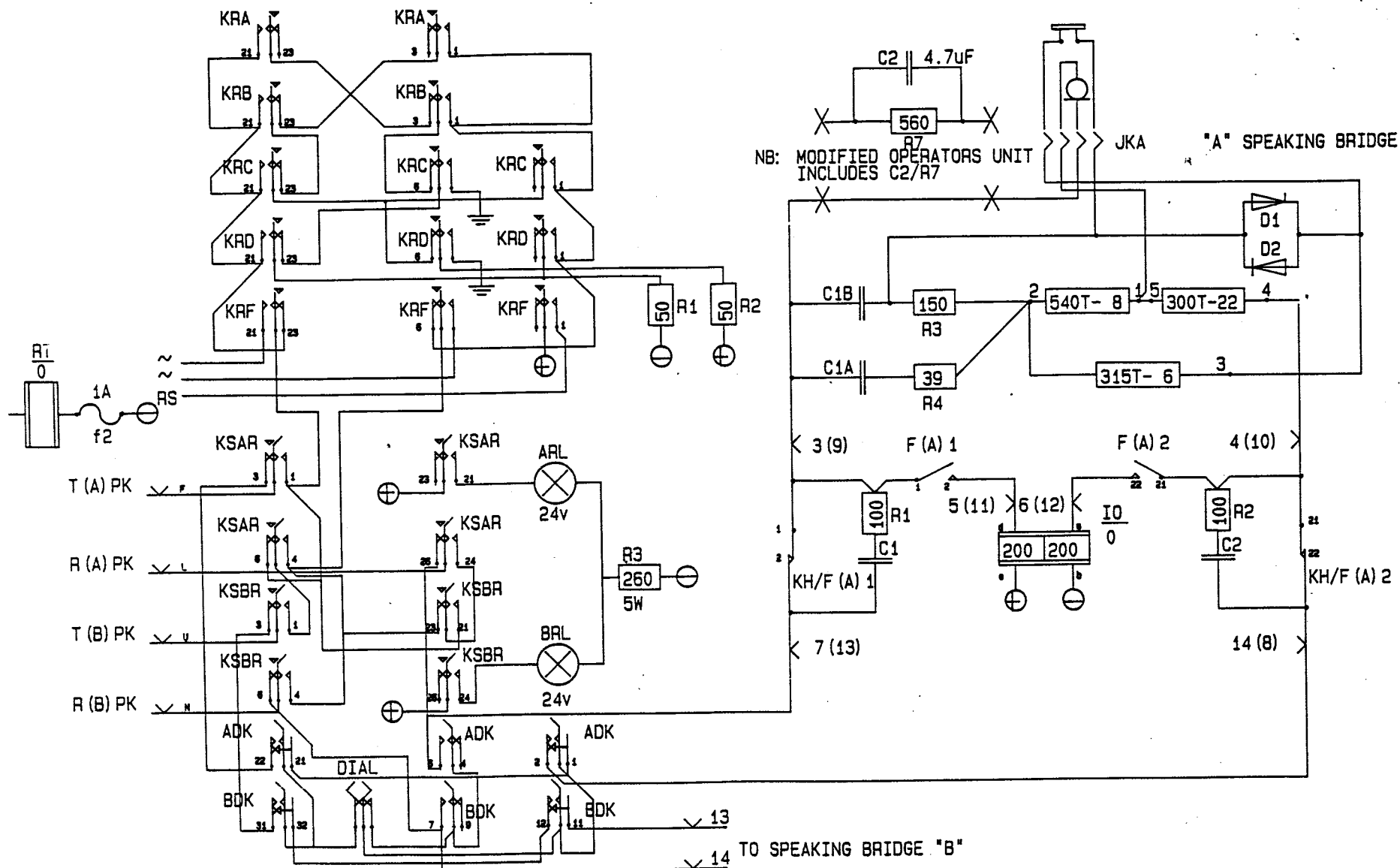
	Revisions	DISC No. TSD0101/B					British Railways Eastern Region Area Signal & Telecommunications Engineer		BRITISH RAIL	
							UNIVERSAL CONCENTRATOR		A. Glazebrook Area S & T Engineer (North)	
		Corres. Ref:					Authority			
Scale		Drawn	AW	Checked	ML	TONE GENERATOR		No 90TSD0101/18		
		Approved		Date	28/11/90					



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		Corres. Ref:		Authority			
		Scale	Drawn	AW	Checked		ML
		Approved		Date			28/11/90
		UNIVERSAL CONCENTRATOR					
		CONTROL (GEC) CARD					



	Revisions	DISC No. TSD0101/B	British Railways Eastern Region Area Signal & Telecommunications Engineer		 A. Glazebrook Area S&T. Engineer (North)	
			UNIVERSAL CONCENTRATOR			
			Corres. Ref:	Authority	GEC W/S	No 90TSD0101/20
			Scale	Drawn Approved		



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British Railways Eastern Region
Area Signal & Telecommunications Engineer

BRITISH RAIL

UNIVERSAL CONCENTRATOR

A. Stazebrook
Area S.&T. Engineer (North)

OPERATORS UNIT

No
90TSD0101/24

Corres. Ref:

Authority

Scale

Drawn

AW

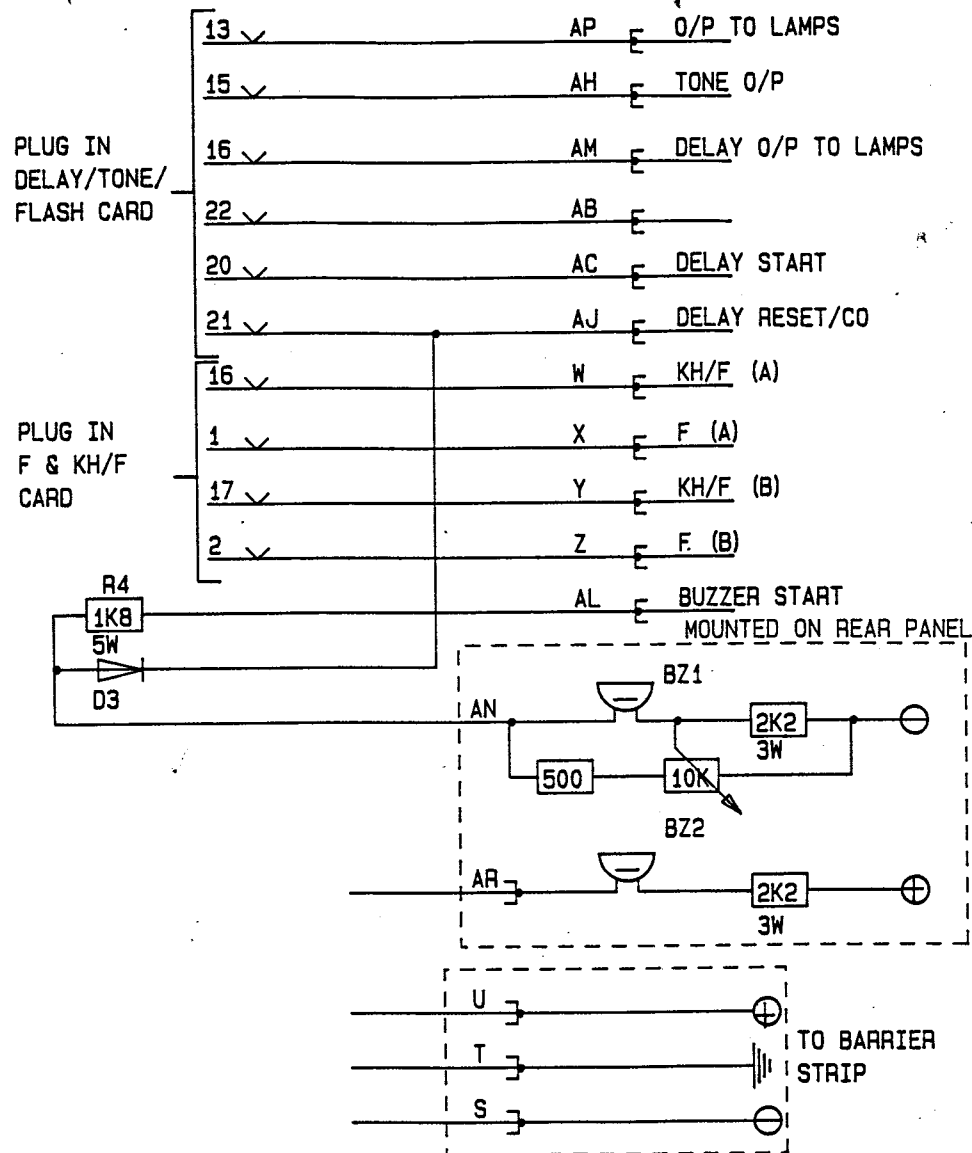
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Approved

Date

28/11/90



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DISC No. TSD0101/B

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Area Signal & Telecommunications Engineer

BRITISH RAIL

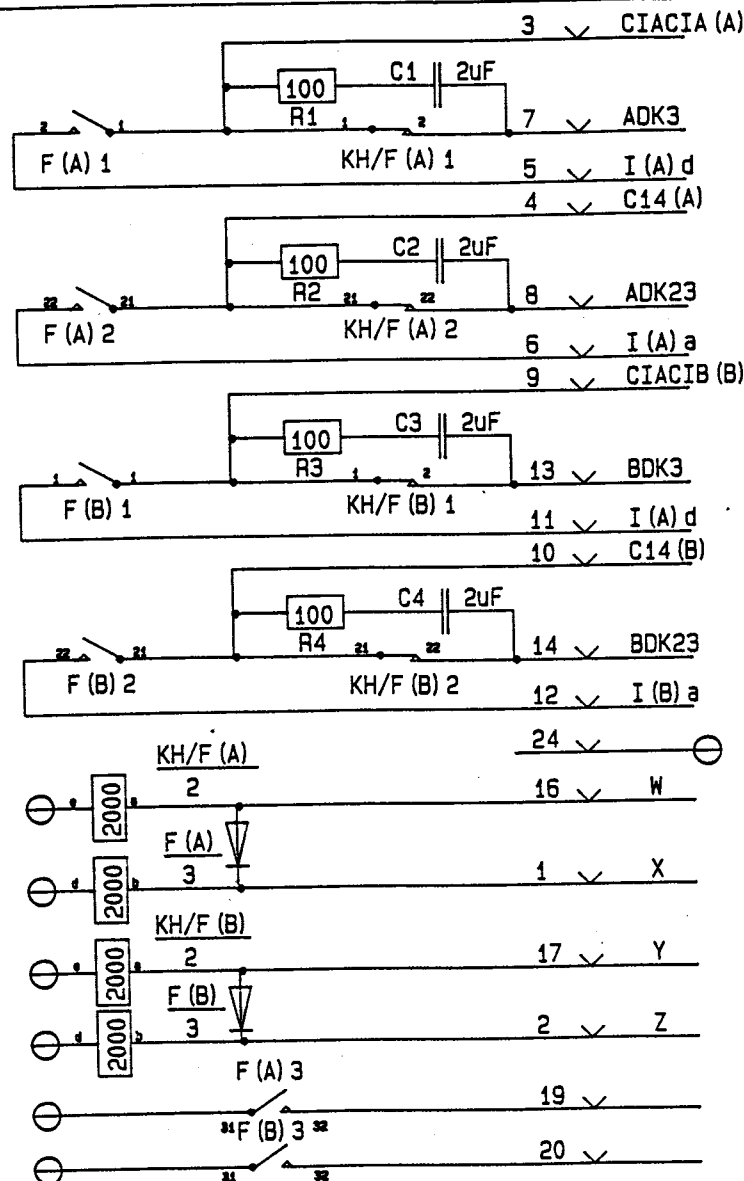
UNIVERSAL CONCENTRATOR

A. Glazebrook
Area S&T. Engineer (North)

OPERATORS UNIT

No
90TSD0101/25

Scale	Drawn	AW	Checked	ML
	Approved		Date	28/11/90



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DISC No. TSD0101/B

British Railways Eastern Region
Area Signal & Telecommunications Engineer

BRITISH RAIL

UNIVERSAL CONCENTRATOR

A. Glazebrook
Area S&T. Engineer (North)

KH/F RELAY UNIT

No
90TSD0101/26

Corres. Ref:

Authority

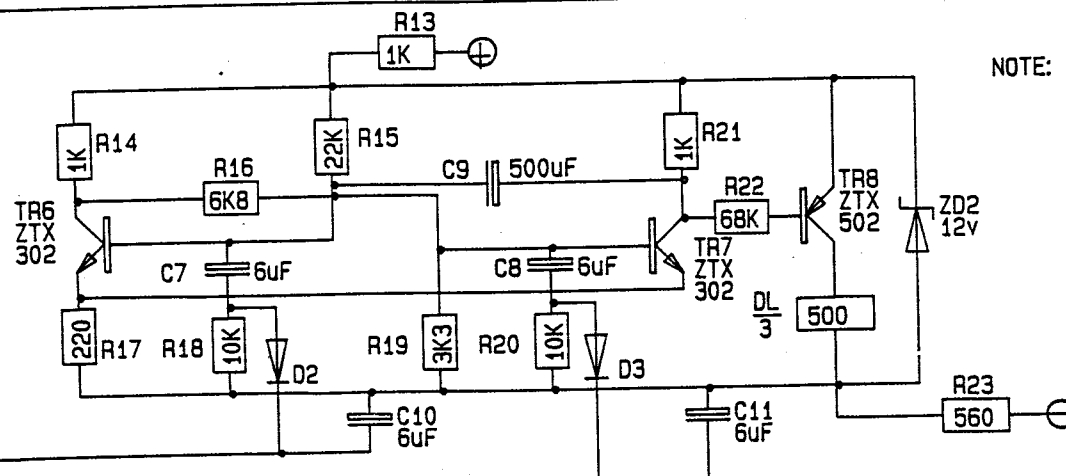
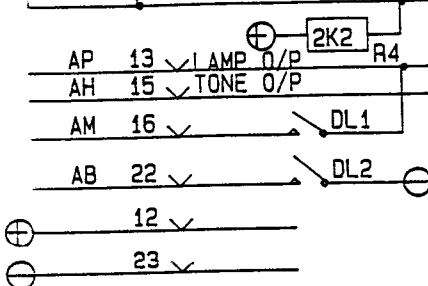
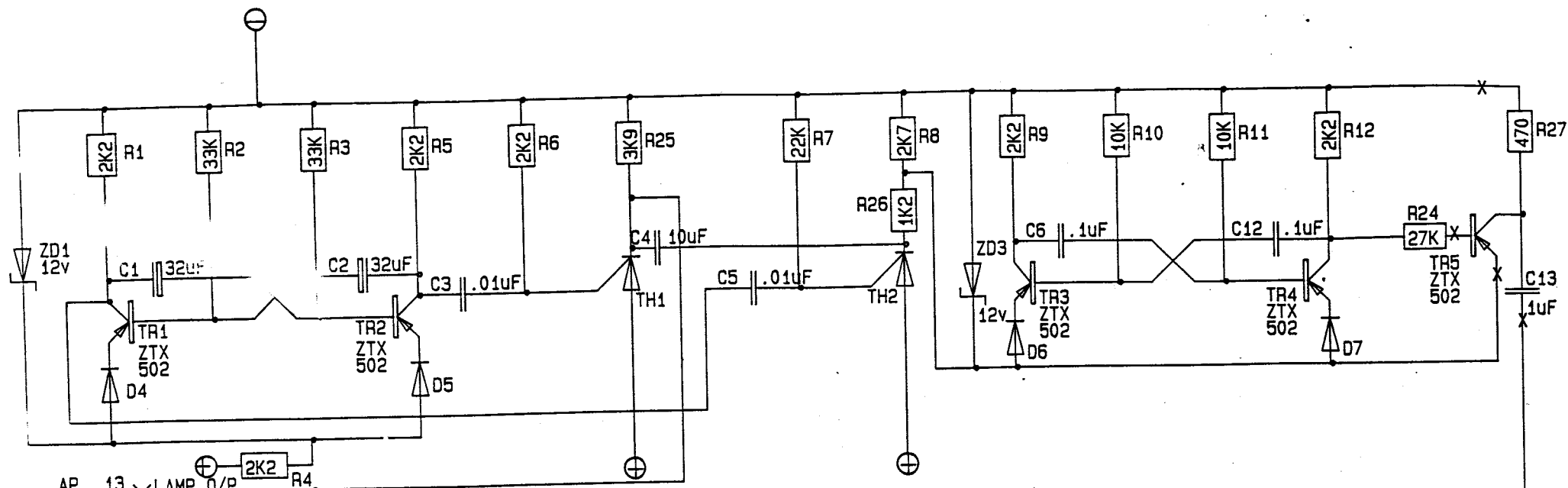
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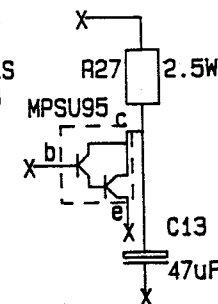
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NOTE: MODIFIED TONE
& FLASH UNIT
HAS NEW VALUES
FOR R27 & C13
& TR5



Revisions

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British Railways Eastern Region
Area Signal & Telecommunications Engineer

BRITISH RAIL

Corres. Ref:

Authority

UNIVERSAL CONCENTRATOR

A. Glazebrook
Area S&T Engineer (North)

Scale

Drawn

AW

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ML

DELAY/TONE/FLASH UNIT

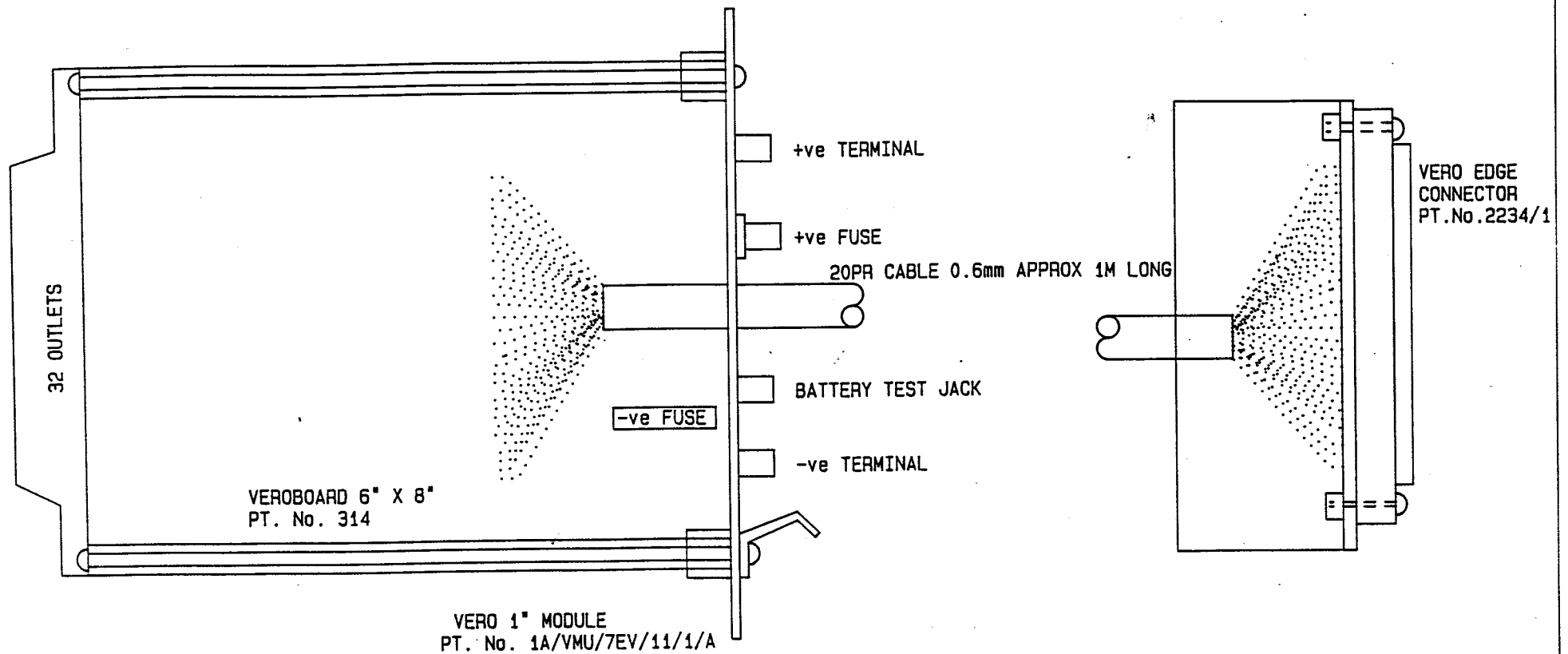
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Date

28/11/90

No

90TSD0101/27



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					OUTRIGGER		No 90TSD0101/28		
				Corres. Ref:		Authority			
				Scale		Drawn		AW	
						Checked		ML	
						Approved		Date 28/11/90	

MAGNETO CARD

2-1, 53-4-5-6, 8-9-11-12, 10-14, 17-18, 19-20, 7-3, 33-35-36,
25-27-29, 30-31, 24-26, 37-39, 40-42,
Add 22K Pre-set skeleton pot. 53-3
KEY - Blue LAMPS - White

MAGNETO AUTO HALF BARRIER CARD

2-1, 53-4-5-6, 8-9-11-12, 10-14, 17-18, 19-20, 7-3, 13-52,
51-33-35-36, 25-27-29, 26-24, 37-39, NOTE "A" Operator Only
OVER-RIDE MUST BE FITTED TO THE CONCENTRATOR
KEY - Red LAMPS - Red

CONTROL (TONE GEN) CARD

2-55, 3-54, 10-14, 17-18, 19-20, 13-36-35-30, 32-25, 27-29,
26-24, 37-39, 40-42, NOTE Strips V & AD must be connected
to concentrator back plane via terminal strip to Tone Detect Unit.
KEY - White LAMPS - White

CONTROL (GEO/STD) CARD

53-5, 9-6, 11-3, 10-14, 17-18, 19-20, 13-36-35-30, 32-25,
27-29, 26-24, 37-39, 40-42,
Add 20K Resistor 1-2
KEY - White LAMPS - White

LTU STRAPPING GUIDE

Note 1

For "A" operator only strap 45-47
48-50
For "A" & "B" op. strap 45-46
48-49

Note 2

Where omnibus "C" or "D" ring
used battery must be earth free
& earth connected to supply
earth on connection strip.

AUTO CARD

1-2, 53-4-5-6, 8-9-11-3, 33-35, 22-26, 25-27-29,
Add 22K Pre-set skeleton pot. 53-3
KEY - Yellow LAMPS - White

OMNIBUS "A" RING CARD

2-4, 8-9, 5-11, 6-3, 51-33-30, 52-32, 34-18, 19-35-25, 27-29,
26-28, 37-39, 40-42, 43-44,
KEY - Green LAMPS - White

OMNIBUS "B" RING CARD

2-8, 4-9, 5-11, 6-3, 51-33-30, 52-32, 34-18, 19-35-25, 27-29,
26-28, 37-39, 40-42, 43-44,
KEY - Green LAMPS - White

OMNIBUS "C" RING CARD

2-8, 4-9, 5-11-15, 6-7, 12-3, 51-33-30, 52-32, 34-18, 19-35-25,
27-29, 26-28, 37-39, 40-42, 43-44, See NOTE 2
KEY - Green LAMPS - White

OMNIBUS "D" RING CARD

2-4, 8-9, 5-11-15, 3-7, 6-12, 51-33-30, 52-32, 34-18, 19-35-25,
27-29, 26-28, 37-39, 40-42, 43-44, See NOTE 2
KEY - Green LAMPS - White

C.B. SLAVE CARD

1-2, 53-4-5-6, 8-9-11-12, 10-14, 7-3, 17-18, 19-20, 33-35-36,
25-27-29, 30-31, 26-24,
Add 22K resistor 53-3.
KEY - Black LAMPS - White

C.B. CARD

2-5, 9-10-14, 6-16, 33-35, 25-27-29, 30-31, 26-24, 11-3,
KEY - Black LAMPS - White

LEVEL CROSSING C.B.

3-5, 9-10-14, 6-16, 33-35-36, 25-27-29, 30-31, 26-24, 37-38,
Add P.O. No. 1a Thermistor 2-11, NOTE "A" Operator Only.
KEY - Black LAMPS - White

UNIVERSAL CONCENTRATOR

SIGNALMENS OPERATING INSTRUCTIONS

General.

The concentrator consists of an operators unit situated on the left hand side and circuit units with call lamps and answer keys, there being one unit for each circuit on the concentrator.

The operators unit has 2 hand-set sockets, the left hand side one being the "A" position and the right hand side one being the "B" position. For ringing out there are "A" and "B" hand set ring pushes for use with the A,B,C,D, or F ring keys and a red dial key for use with the dial.

Call-In.

When a Direct Line or Signal Post Telephone calls in, call lamps on the relevant circuit unit flash and an interrupted bleep is heard. To answer throw answer key down for "A" hand-set or up for "B" hand-set. This will steady the call lamp in the appropriate position. The operator can now speak to the caller.

For omnibus circuits a similar answering procedure applies except that the buzzer responds to the calling code and the call lamp comes on for 10 seconds to show which circuit is calling.

Restore answer key after use.

To call out.

Select circuit required and throw answer key for hand-set being used. Press "A ring" or "B ring" push depending on hand-set in use and ring out with A,B,C,D, or F ring keys as required.* "A RING" OR "B RING" PUSHES MUST BE RE-SET BEFORE SPEECH CAN BE ESTABLISHED.

To dial out select circuit required and throw answer key, throw red dial key left for "A" hand-set or right for "B" hand-set and dial. THE DIAL KEY MUST BE RESTORED BEFORE SPEECH CAN BE ESTABLISHED.

Restore circuit answer key after use.

The concentrator is so designed that the Signal Post Telephone can only be answered on the "A" hand-set and only one circuit can be connected to one hand-set at any time.

* In special circumstances No key is required to be pressed for ringing out. See circuit card details.

LTU STRAPPING GUIDE

Note 1

For "A" operator only strap

45-47

For "A" & "B" op. strap

48-50

45-46

48-49

Note 2

Where omnibus "C" or "D" ring used battery must be earth free & earth connected to supply earth on connection strip.

AUTO CARD

1-2, 53-4-5-6, 8-9-11-3, 33-35, 22-26, 25-27-29,

Add 22K Pre-set skeleton pot. 53-3

KEY - Yellow

LAMPS - White

OMNIBUS "A" RING CARD

2-4, 8-9, 5-11, 6-3, 51-33-30, 52-32, 34-18, 19-35-25, 27-29,
26-28, 37-39, 40-42, 43-44,

KEY - Green

LAMPS - White

OMNIBUS "B" RING CARD

2-8, 4-9, 5-11, 6-3, 51-33-30, 52-32, 34-18, 19-35-25, 27-29,
26-28, 37-39, 40-42, 43-44,

KEY - Green

LAMPS - White

OMNIBUS "C" RING CARD

2-8, 4-9, 5-11-15, 6-7, 12-3, 51-33-30, 52-32, 34-18, 19-35-25,
27-29, 26-28, 37-39, 40-42, 43-44, See NOTE 2

KEY - Green

LAMPS - White

OMNIBUS "D" RING CARD

2-4, 8-9, 5-11-15, 3-7, 6-12, 51-33-30, 52-32, 34-18, 19-35-25,
27-29, 26-28, 37-39, 40-42, 43-44, See NOTE 2

KEY - Green

LAMPS - White

C.B. SLAVE CARD

1-2, 53-4-5-6, 8-9-11-12, 10-14, 7-3, 17-18, 19-20, 33-35-36,
25-27-29, 30-31, 26-24,
Add 22K resistor 53-3.

KEY - Black

LAMPS - White

C.B. CARD

2-5, 9-10-14, 6-16, 33-35, 25-27-29, 30-31, 26-24, 11-3,
KEY - Black LAMPS - White

LEVEL CROSSING C.B.

3-5, 9-10-14, 6-16, 33-35-36, 25-27-29, 30-31, 26-24, 37-38,
Add P.O. No. 1a Thermistor 2-11, NOTE "A" Operator Only.
KEY - Black LAMPS - White

MAGNETO CARD

2-1, 53-4-5-6, 8-9-11-12, 10-14, 17-18, 19-20, 7-3, 33-35-36,
25-27-29, 30-31, 24-26, 37-39, 40-42,
Add 22K Pre-set skeleton pot. 53-3
KEY - Blue LAMPS - White

MAGNETO AUTO HALF BARRIER CARD

2-1, 53-4-5-6, 8-9-11-12, 10-14, 17-18, 19-20, 7-3, 13-52,
51-33-35-36, 25-27-29, 26-24, 37-39, NOTE "A" Operator Only
OVER-RIDE MUST BE FITTED TO THE CONCENTRATOR
KEY - Red LAMPS - Red



CONTROL (TONE GEN) CARD

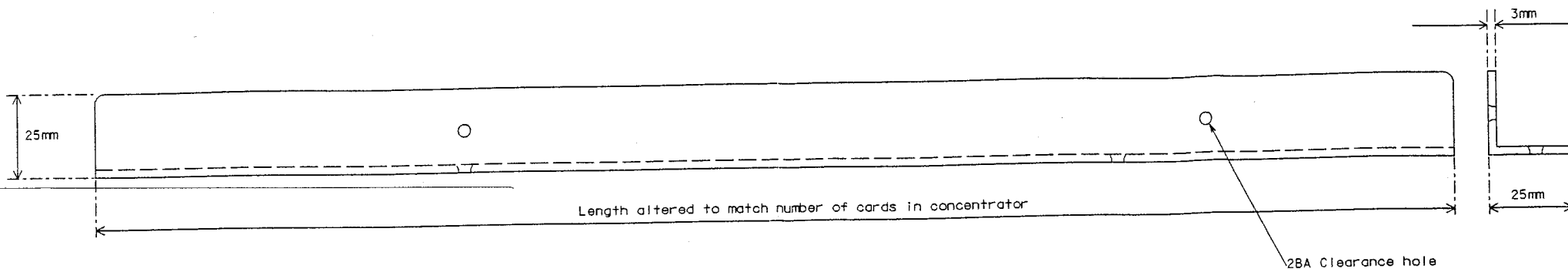
2-55, 3-54, 10-14, 17-18, 19-20, 13-36-35-30, 32-25, 27-29,
26-24, 37-39, 40-42, NOTE Strips V & AD must be connected
from concentrator back plane via terminal strip to Tone Detect Unit.
KEY - White LAMPS - White

CONTROL (GEC/STC) CARD

53-5, 9-6, 11-3, 10-14, 17-18, 19-20, 13-36-35-30, 32-25,
27-29, 26-24, 37-39, 40, 42,
Add 20K Resistor 1-2
KEY - White LAMPS - White

SPARE POSITION CARD

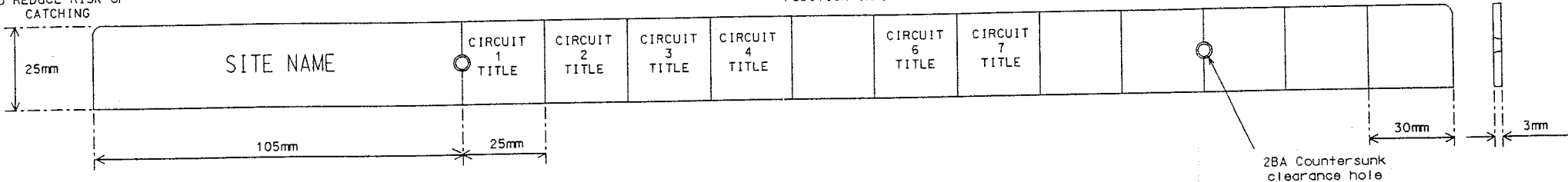
45-47, 48-50, K/S4-5, K/S24-25, K/S27-28, K/S37-38.
Remove L & LA relays, AL & BL lamps, and Keyswitch.
Attach "SPARE POSITION" label to cover key and lamp holes.



NOTE:
CORNERS ROUNDED
TO REDUCE RISK OF
CATCHING

LEFT BLANK
IF SLOT FITTED
WITH SPARE
POSITION CARD

LEFT BLANK IF SLOTS FITTED WITH BLANKING PLATES



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UPDATE PROCEDURE

INFORMATION ONLY

Path NE/STD-DGNS/CONC/0001
Filename 0001-041 Seedfile
Scale NTS Size A3
Drawn AJW Checked SAR
Issue date 05/06/97
Revision Information
RE-FRAMED

UNIVERSAL CONC.
STANDARD DRAWINGS
CCT DESIGNATION STRIP

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1 2