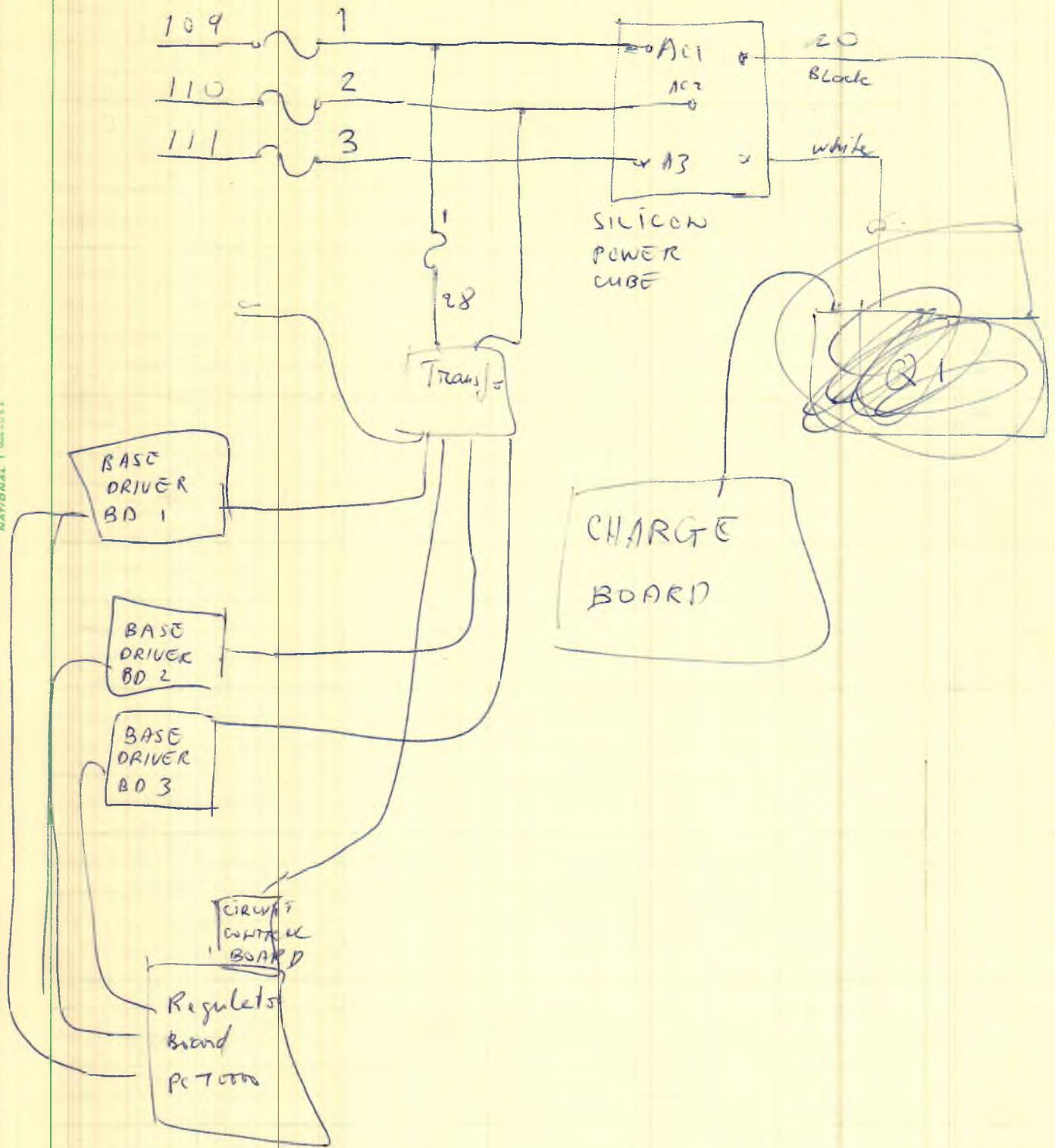


V E E - Arc Power



42,381 50 SHEETS 5 SQUARE
42,382 100 SHEETS 5 SQUARE
42,383 200 SHEETS 5 SQUARE
NATIONAL

PCB 11D521 control panel

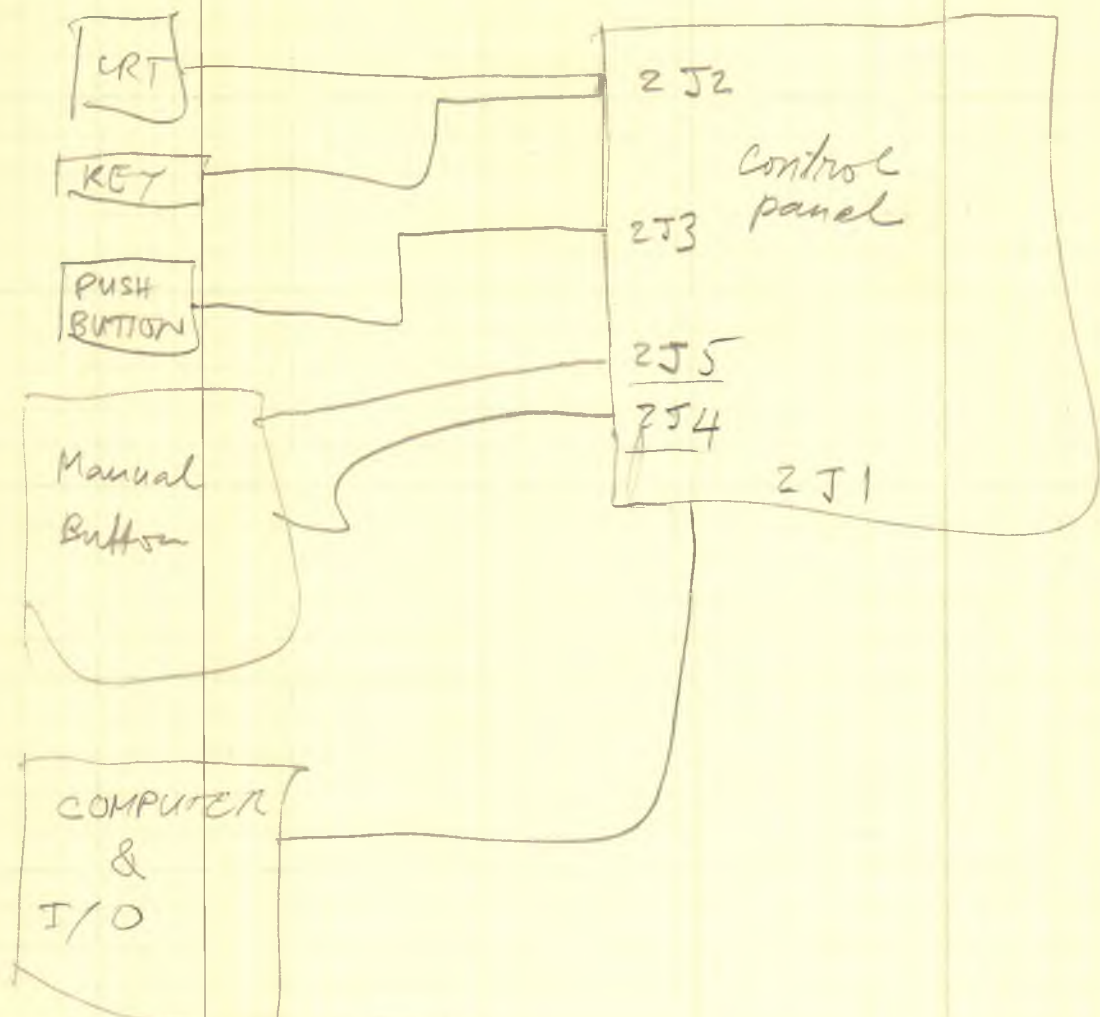
Note 1

Jumper 2J1-8 to 2J4-1 IF

Note c

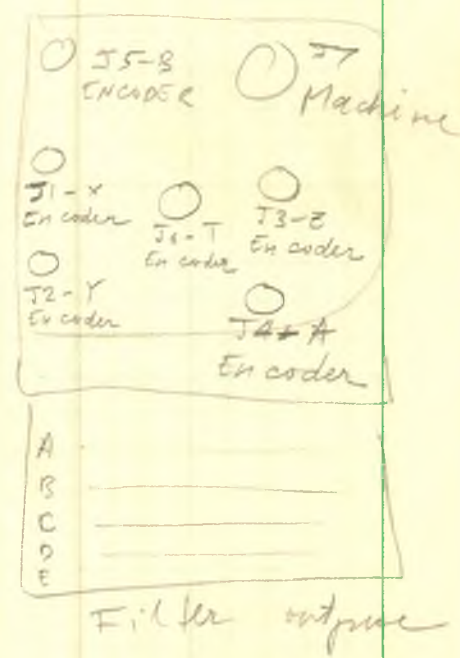
- If 11D521 control Panel w/o Rev.
- Add a 1.8 k Ω 1W into the same plug as the signal marked * on page 1.

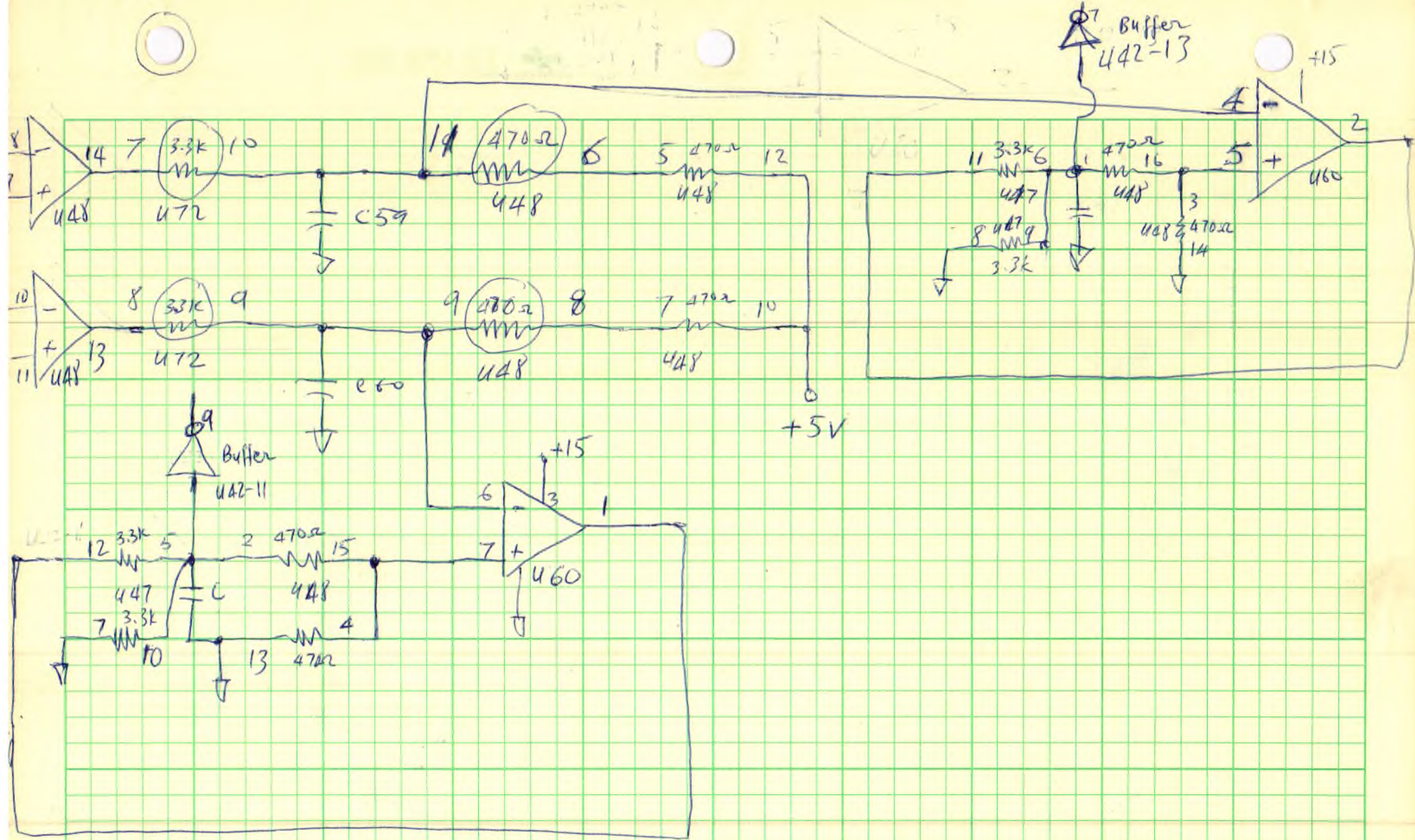
FRONT



10 SHEETS 3 SQUARE
25 SHEETS 3 SQUARE
50 SHEETS 3 SQUARE
100 SHEETS 3 SQUARE
200 SHEETS 3 SQUARE
NATIONAL

BACK

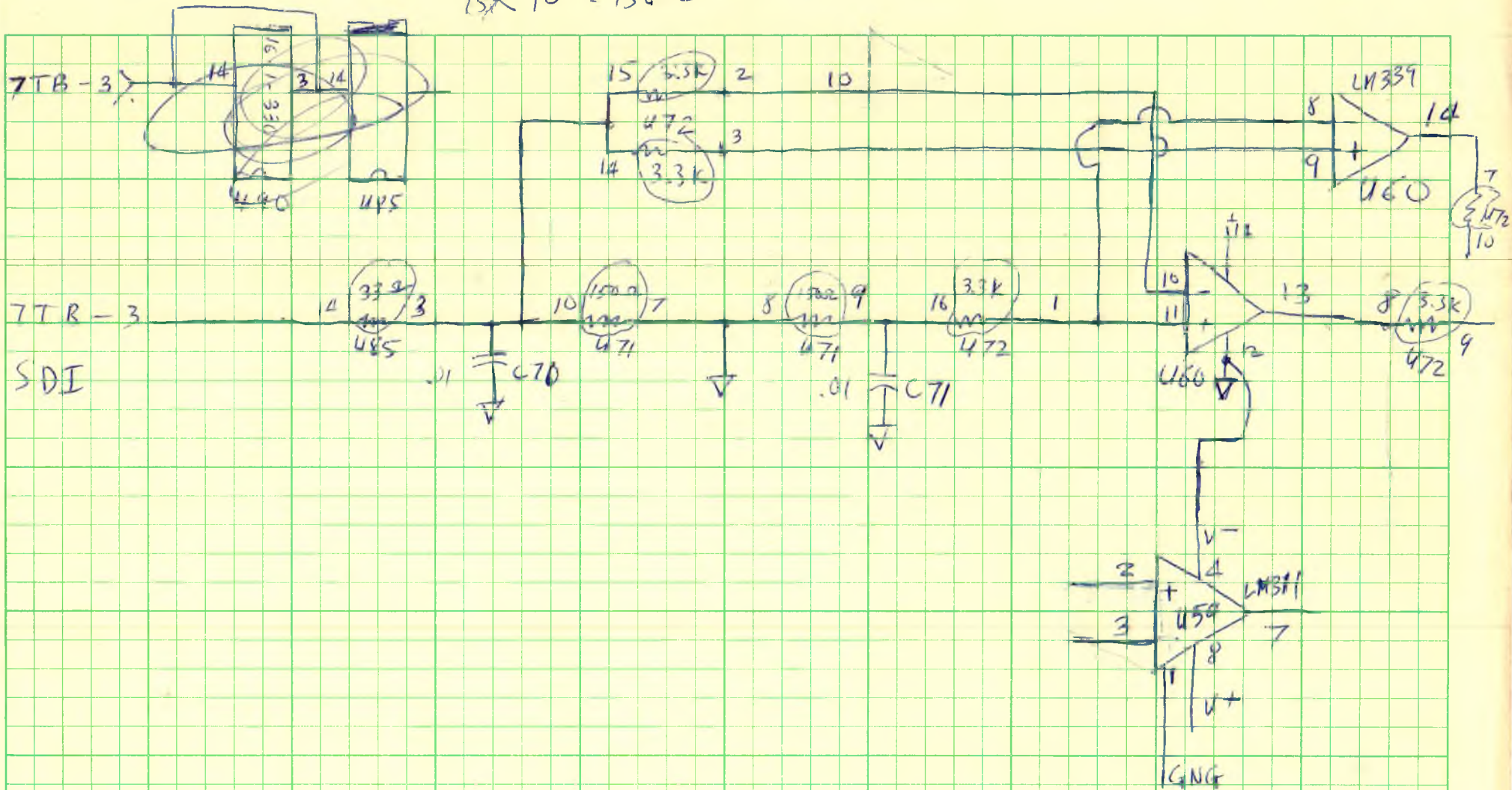




16-1-380

$$33 \times 10^0 = 33 \Omega$$

$$15 \times 10^1 = 150 \Omega$$



MIL JUNCTION BOX TO ELECTRICAL EQUIPMENT CABINET

	WIRE	COLOR	Size	MILL	ELECT.	LENGTH	TERM
SPINDLE	503	BL	12	TBD1-1	TBLD-8	6	3
MOTOR	504	BL	12	TBD1-2	TBRC-2	15	3
NO. 10	505	BL	12	TBD1-3	TBRC-3	15	3
SPINDLE	509	BL	12	-4	TBLD-9	6	3
MOTOR	510	BL	12	-5	TBRC-5	15	3
NO. 11	511	BL	12	-6	TBRC-6	15	3
SPINDLE	515	BL	12	-7	LD-10	6	3
MOTOR	516	BL	12	-8	RC-8	15	3
NO. 12	517			-9	RC-9	15	3
SPINDLE	521			-10	LD-11	6	3
MOTOR	522			-11	RC-11	15	3
NO. 13	523			-12	RC-12	15	3
TH SW	526	RA	14	-13	RC-13	15	1
TH SW	530	RO	14	-14	RC-14	15	1
C GND	930	BU	14	TBC1-13	TBRB-11	15	1
FD. OR. STP.	83	RO	14	TBA-12	TBLD-12	9	1
AUX. COMMON	84	RO	14	TBA-11	TPLA 2	10	1

42-381 40 SHEETS 5 SQUARE
42-382 100 SHEETS 5 SQUARE
42-383 200 SHEETS 5 SQUARE



NATIONAL PAPER PRODUCTS CO.

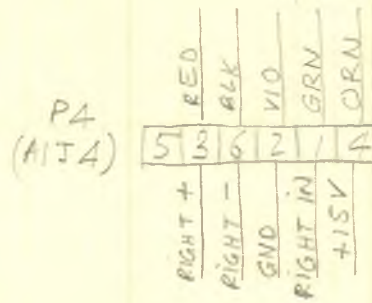
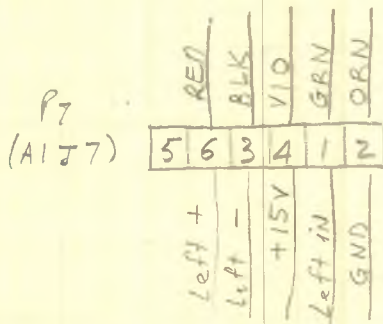
9:30

0-5 VDC Reference voltage → is isolated by a DC chopper transformer. → scaled to an adjustable lower level by the "MAX FREQ" "MIN. FREQ" add an adjustable + offset voltage to the reference voltage.

The result -c

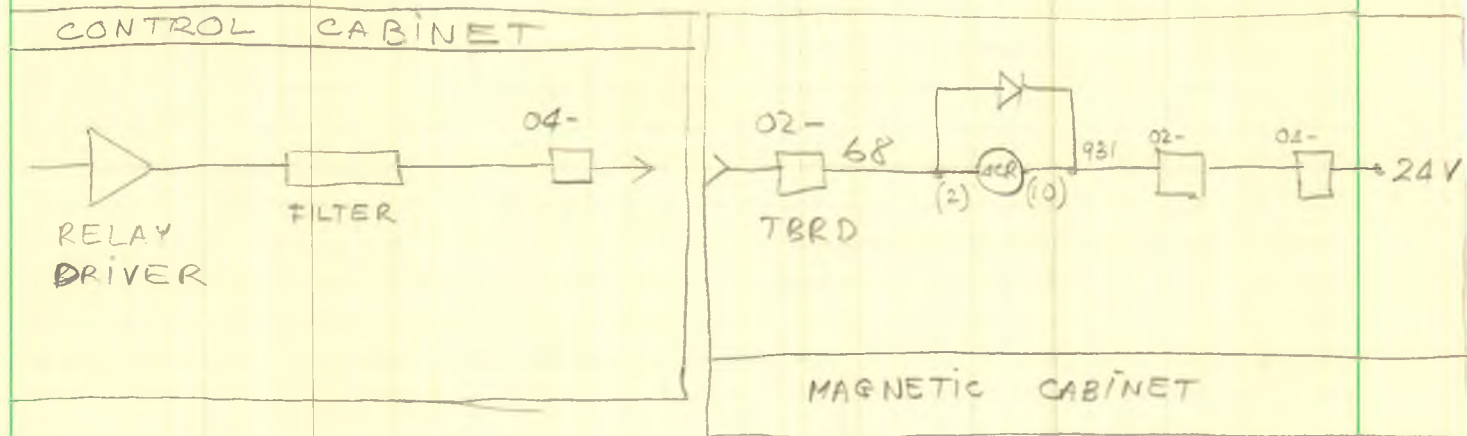
Spooler left

Spooler right



FOR TAPE

① SPINDLE CONTROL ON - OFF



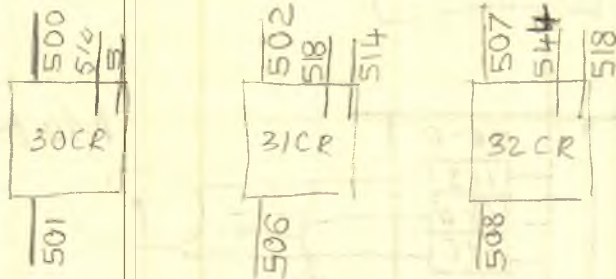
Need to know Relay

4CR

30CR

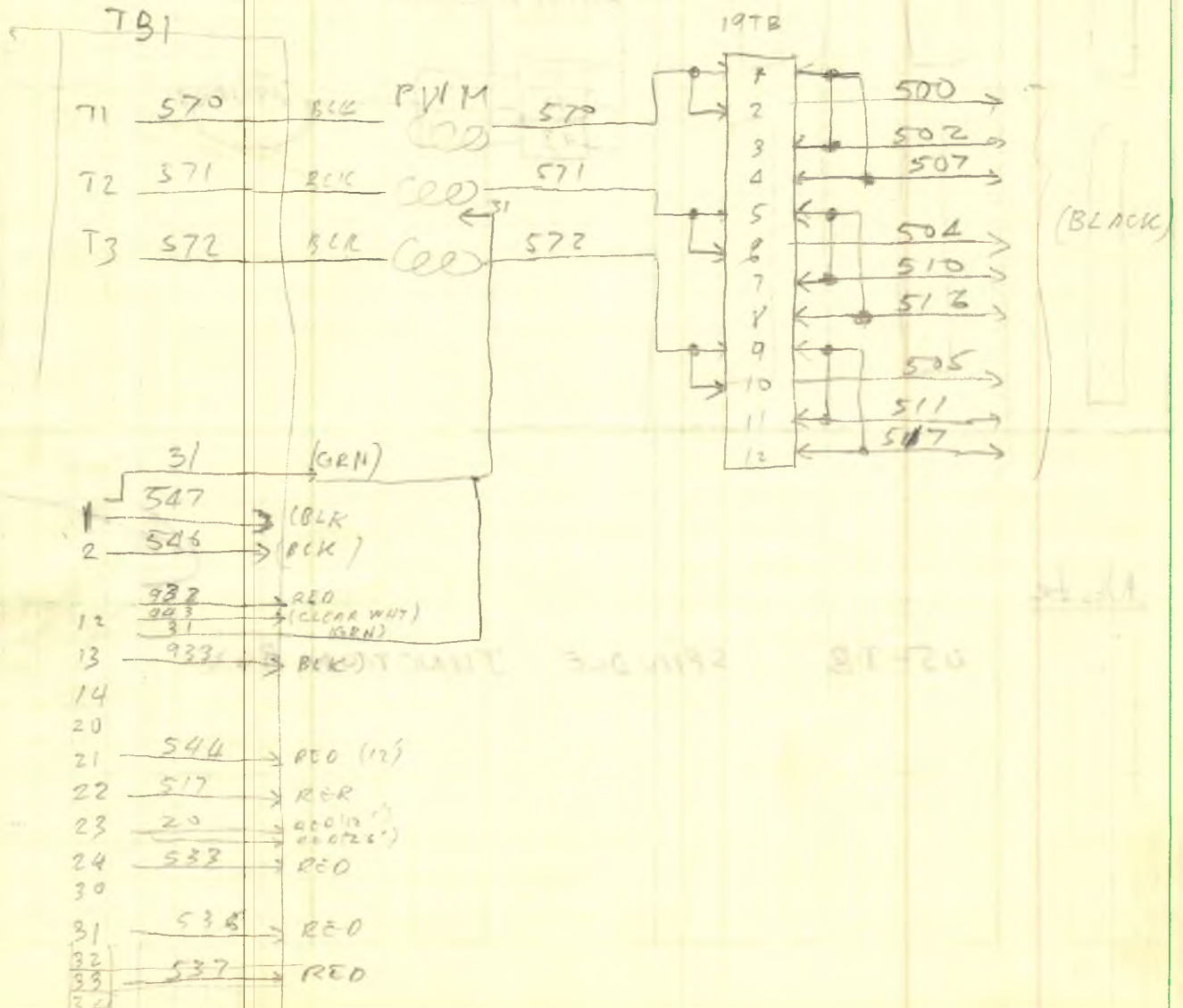
34CR

3



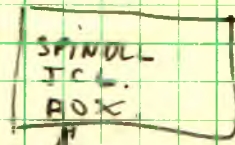
AUTO RESET CONTROL

518 & 544 illustrated

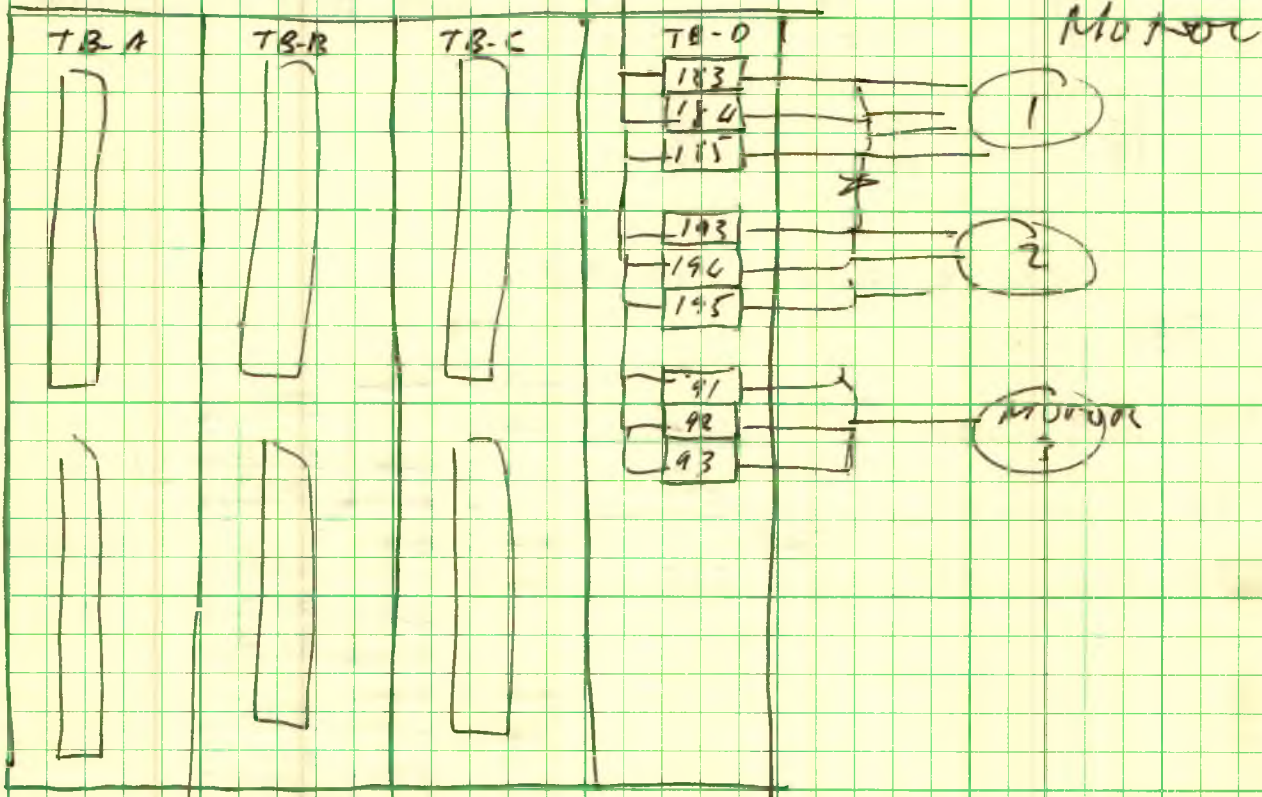


MILL JUNCTION BOX

3 - P.T. 1 UNITS

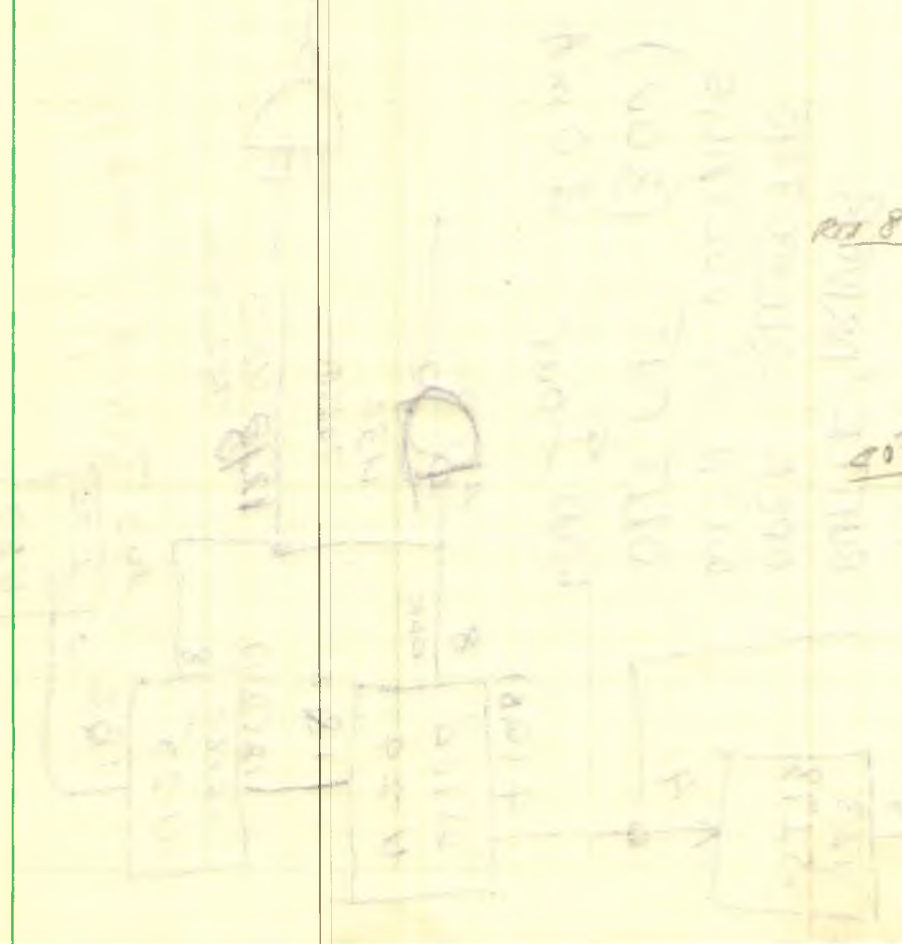
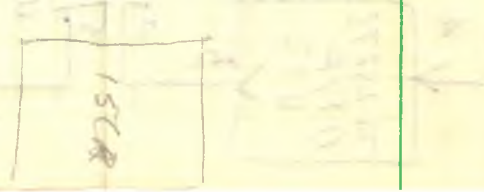
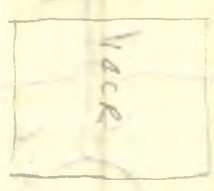
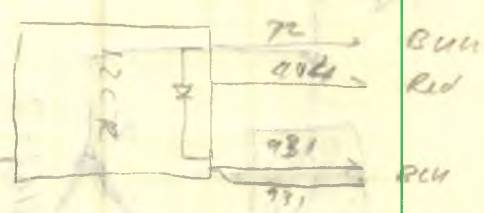
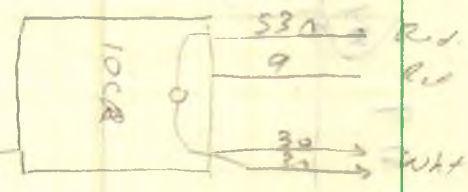
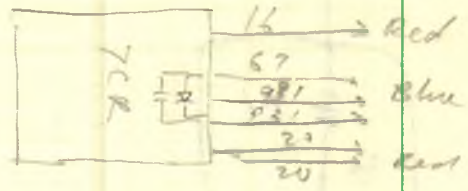
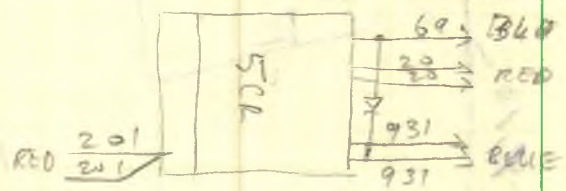
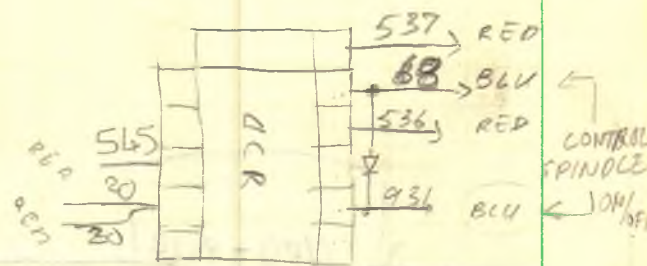


? Need to find pin layout.

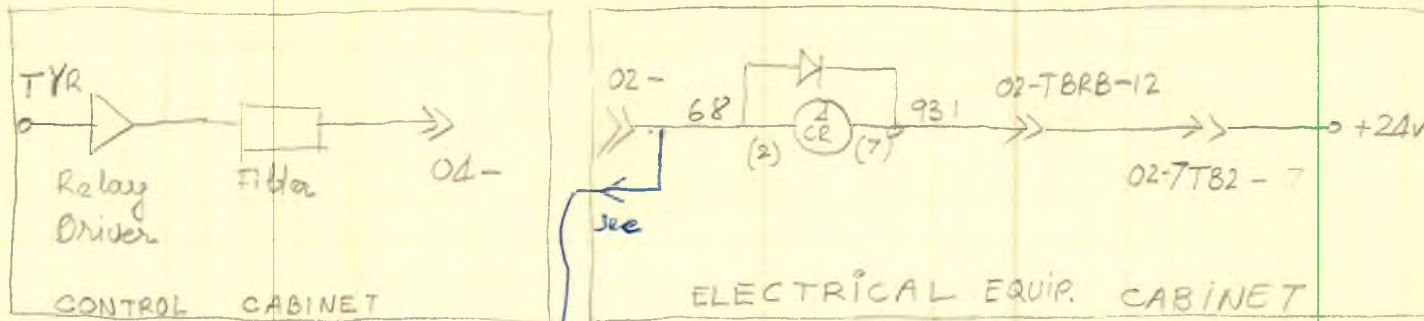


Note

05-TB SPINDLE JUNCTION BOX



RELAY 4, 5, 7, 11, 12 & 100CR controlled by system logic



WIRE #	FROM	TO	7-1 BOARD
67	7CR-1	02-TBRB-7	02-7TB4-4
68	4CR-2	02-TBRB-8	02-7TB4-1
69	5CR-2	02-TBRB-9	02-7TB6-1
70	11CR-2	02-TBRB-10	02-7TB4-6
72	12CR-2	02-TBRB-1	02-7TB4-3
941	100CR-2	02-TBRB-13	02-7TB5-2
946	14CR-2	02-TBLD-6	02-7TB4-5

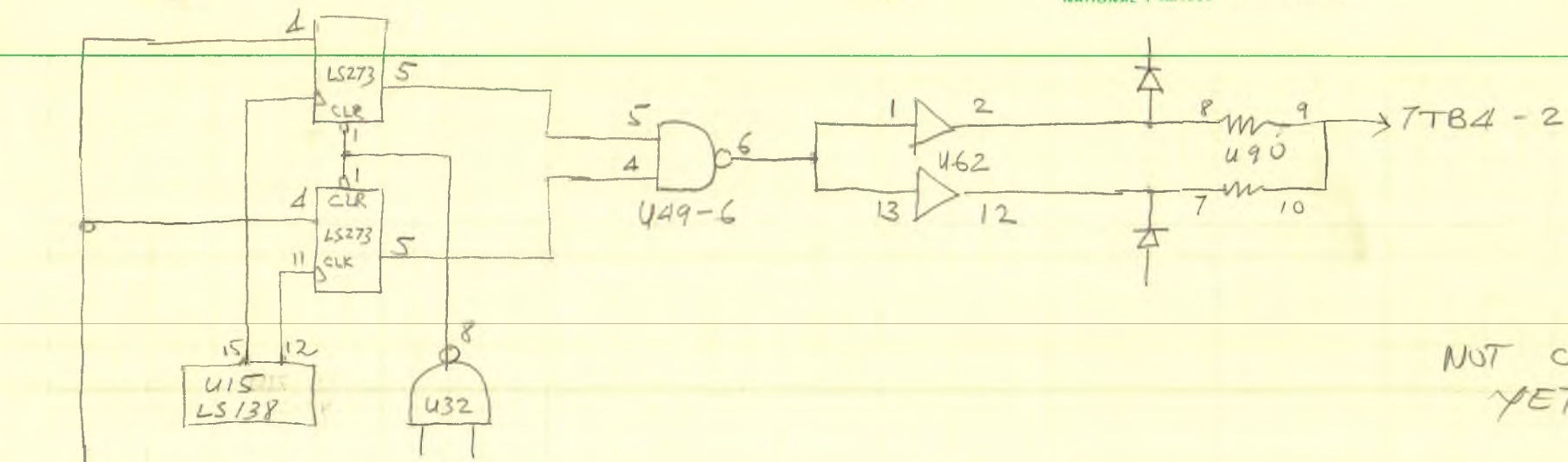
LAST WIRE # USED

- (00 - 99) - AC CONTROL - 84
- (100 - 199) - LINE INPUT - 111
- (200 - 299) - COOLANT - 211
- (300 - 399) - ROTARY AXIS (NCDN) - 308
- (400 - 499) - HYDRAULICS & AUTO TOOL CHANGER - 416
- (500 - 599) - SPINDLE DRIVER - 598
- (900 - 999) - LOGIC CONTROL - 948

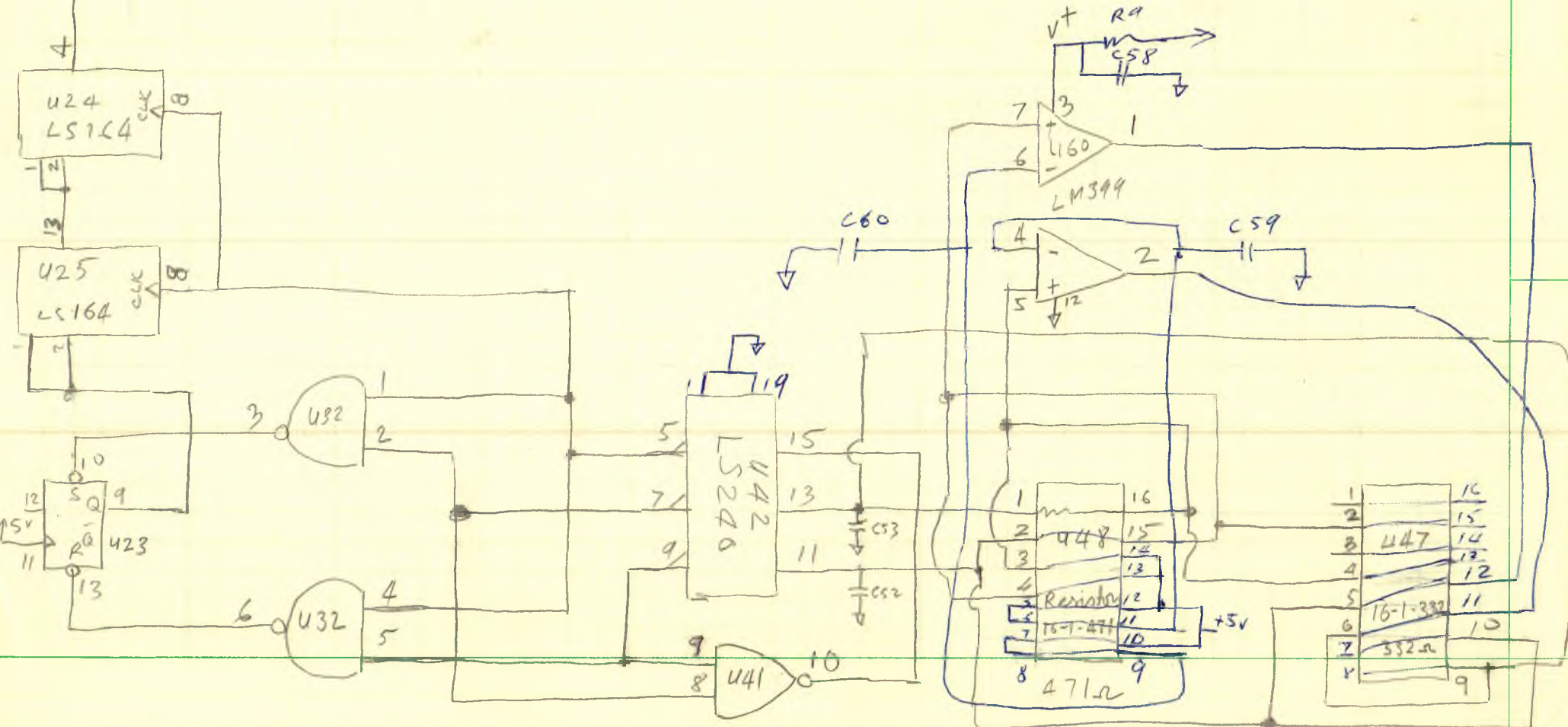
INTERWIRE MARKING FOR TERMINAL BOARDS

- 01-TB SPINDLE DRIVE CAB.
- 02-TB ELECTRICAL EQUIPMENT CAB.
- 03-TB MILL JUNCTION BOX
- 04-TB CONTROL CAB.
- 05-TB SPINDLE JUNCTION BOX
- 06-TB HYDRAULIC JUNCTION BOX
- 07-TB TOOLCHANGER JUNCTION BOX.

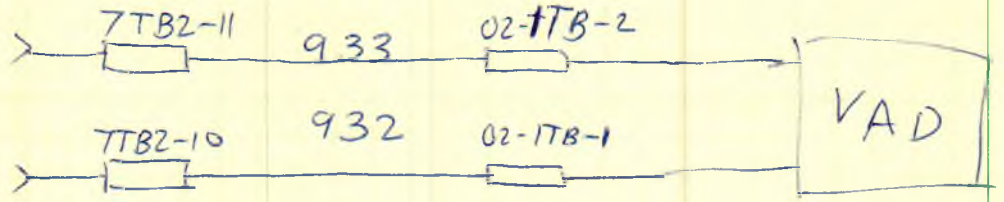
6/9/90



NOT COMPLETE
YET



SPEED CONTROL CIRCUIT



MACHINE CONTROL BOARD TO ELECTRICAL EQUIPMENT CABINET

FUNCTION	WIRE #	COLOR	MIL.	ELECT.	TERM
RA1	26	RED	7TB3-2	TBLA-6	1
RA2	27	RED	7TB3-3	TBLA-7	1
RA3	26	RED	7TB3-4	TBLA-8	1
ACEQ	31	GR	7TB2-1	CG	1
DA3	67	BLU	7TB4-4	TBRB-7	1
DA1 START/STOP	68	BLU	7TB4-2	TBRB-8	1
DB0	69	BLU	7TB6-1	TBRB-9	1
DA5	70	BLU	7TB4-6	TBRB-10	1
RA0	71	RED	7TB3-1	CRM-5	1
DA2	72	BLU	7TB4-3	TBRB-1	1
C.GNG	930	BLU	7TB2-2	TBRB-11	1
P24 F	931	BLU	7TB2-7	TBRB-12	1
A01G (acceleration)	932	RED	7TB2-10	ITB-1	2
A02 (control)	933	BLACK	7TB2-11	ITB-2	2
A01	934	WHITE	7TB2-9	ITB-3	2
SHIELD	934	WHITE	7TB2-8	ITB-4	2
DB1	941	BLU	7TB6-2	TBRB-13	1
RA8	944	RED	7TB3-9	TBLD-5	1
DA4	945	BLU	7TB4-5	TBLD-6	1
RA7	946	BLU	7TB3-8	TBRD-2	1
RA6	947	BLU	7TB3-7	TBRD-3	1
RA9	948	BLU	7TB3-10	TBLD-7	1
RB10	20	RED	7TB5-11	ITB-8	1

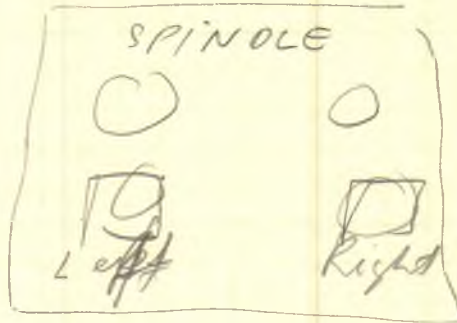
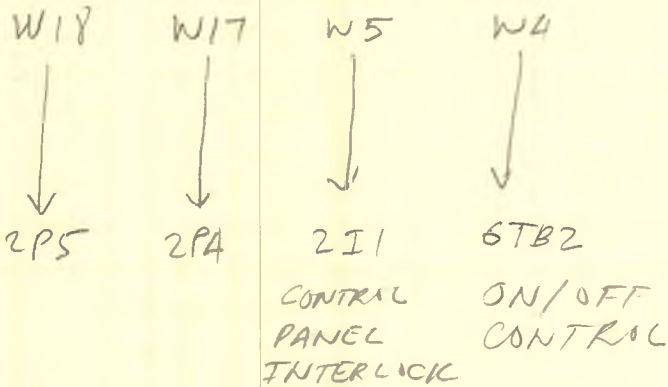
7TB1

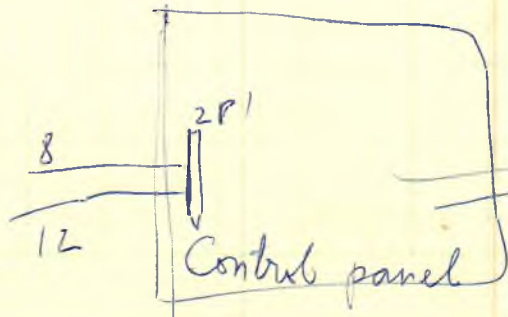
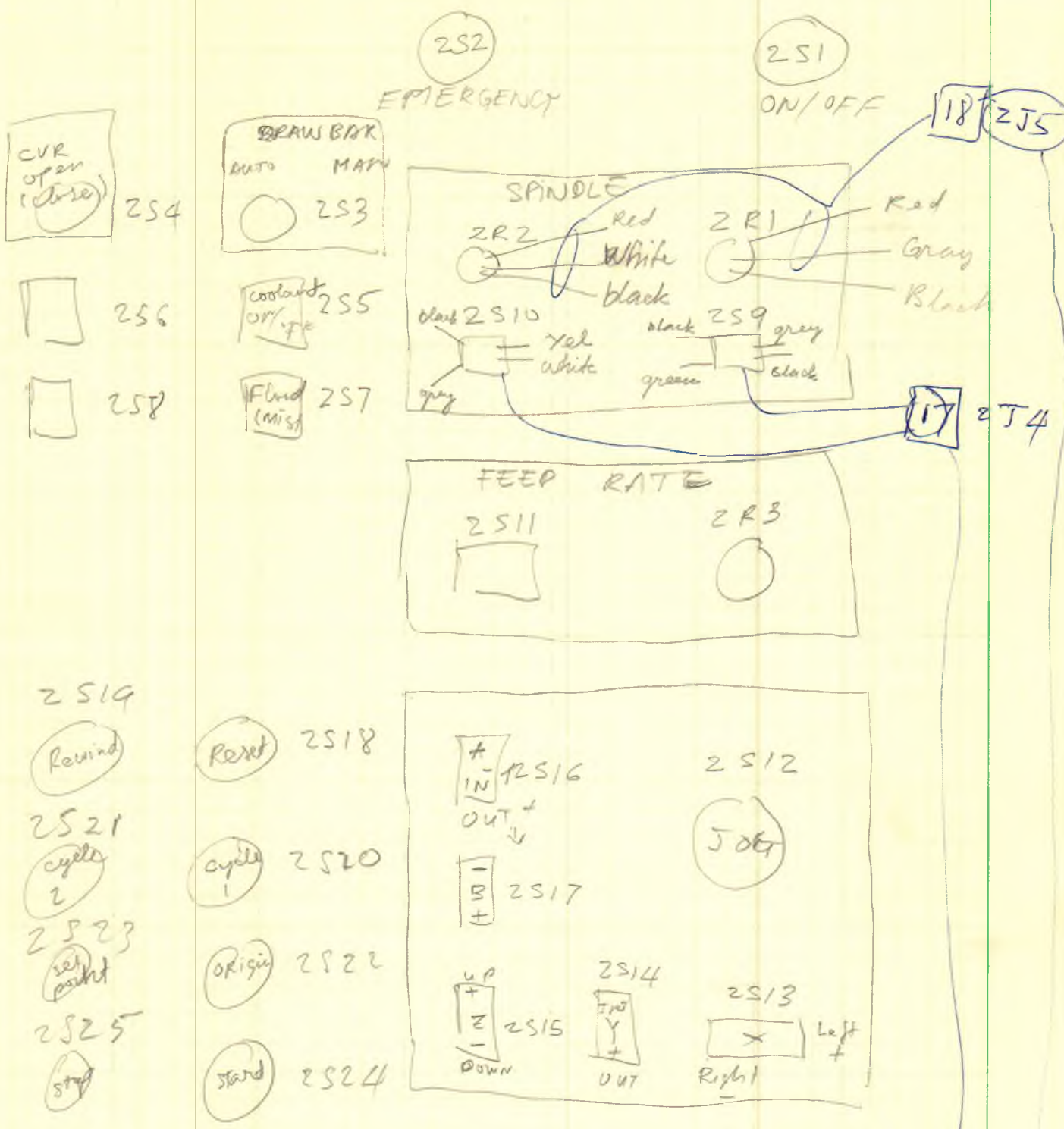
- 1 Clear
- 2 Yel
- 3 Wht
- 4 Green
- 5 Black and Brown
- 6 White / brown and White / black
- 7 Blue
- 8 Red
- 9 Orange
- 10 ~~Red~~ Violet
- 11 Grey
- 12 - NC

in Control Cabinet

Connects to J-7 (machine)

W4, 5, 17, 18 cables

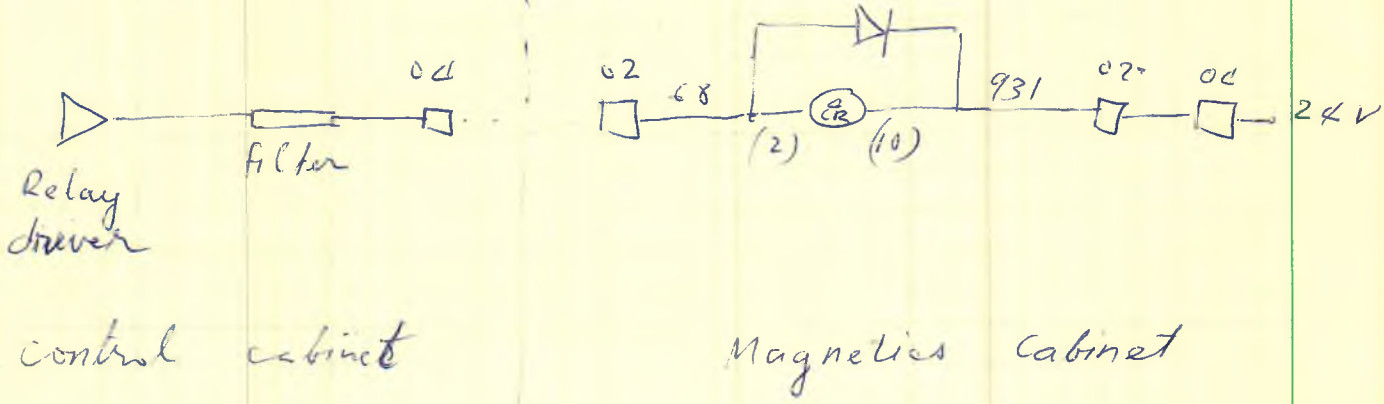




FUNCTION	POWER PANEL	GROUP / COLOR	CONNECTOR PANEL	J7	MARVIN CONTROL BOARD TTBI-1	COLOR
24V P24F POWER	6TB3-10	ORG	C3A	6P7-G(424)	-9	ORG
P15F+5V	6TB3-11	VIOLE	C3B	6P7-H(415)	-10	VIOLET
M15F-15V	-12	GREY	C3C	6P7-I(-15)	-11	GREY
S0I	1P1-29	WHT/BLK	C10A	6P7-A	-3	WHT
S0O	1P1-30	WHT/BLK	C10B	6P7-B	-2	YEL
S0I	1P1-31	WHT/BLK	C10C	6P7-C	-4	GRN
P5F# 5V	6TB3-8	BLU	C2C	6P7-D(+5)	-7	BLU
P5F2 +5V	6TB3-9	RED	C3D	6P7-D+5	-8	RED
SHIELD				6P7-L	-1	
GND				6P7-K	-5	BRN
GND				-K	-5	BLK
GND				-K	-6	WHT/BLK
GND				-K	-6	WHT/BRN
P5FI	6P1-E	904 BLU			TBC-5	X-axis
P5FI	6P2-E	910 BLU			TBC-11	Y-axis
P5FI	6P3-E	916 BLU			TBC1-3	Z-axis

* DRIVE MUST BE IN "CURRENT TRIP" MODE, SHORTING
 PLUG ON PIN 2 & 3 OF SW101 SWITCH
 SW101 LOCATED ON REGULATOR BOARD

+24v wire # 931 ; to drive relay



42 SHEETS 5 SQUARE
 42 SHEETS 5 SQUARE
 42 SHEETS 5 SQUARE
 NATIONAL INSTRUMENTS, U.S.A.

left door

AC Ampere
Spindle 1 2
Spindle 3

77B1 77B2
77B3 77B4
Machine Control 7-1
Ass 11D563

left side

TBLA

TBLB

TBLC

TBCD

Right side

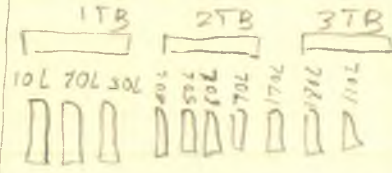
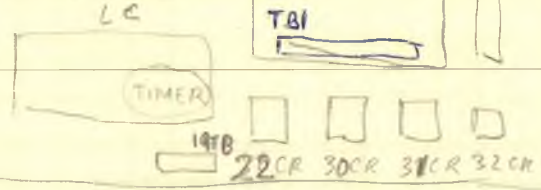
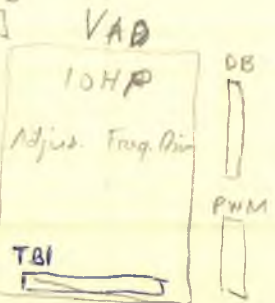
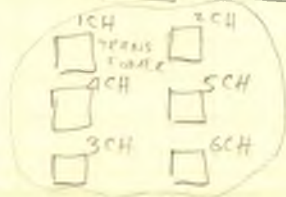
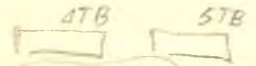
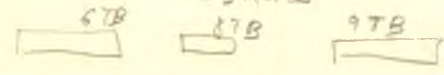
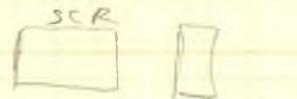
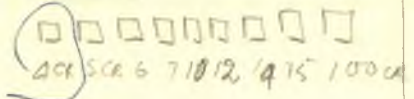
TBRA

TBRB

TBRC

TBRD

Spindle Connection



PTI
Empty

ELECT
BOY

TRANSFORMER

BoTTOP?