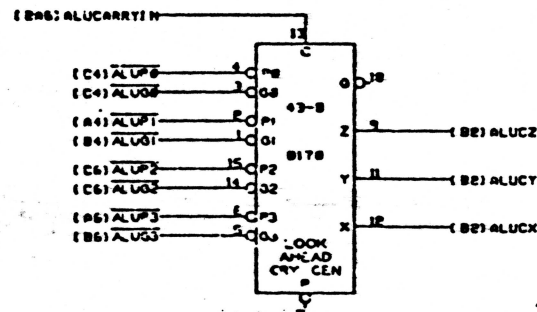
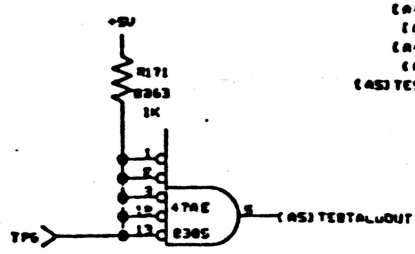
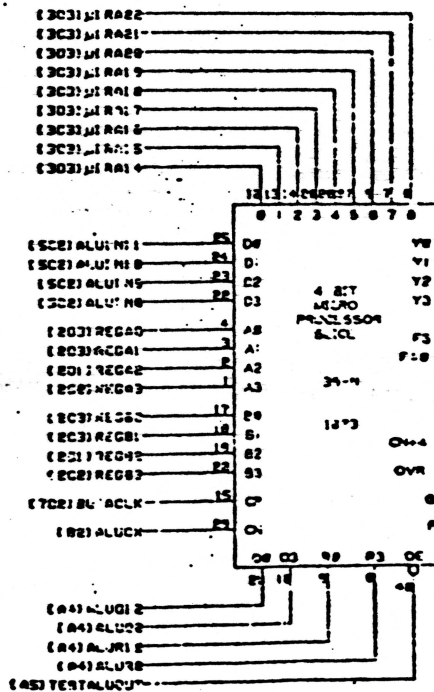
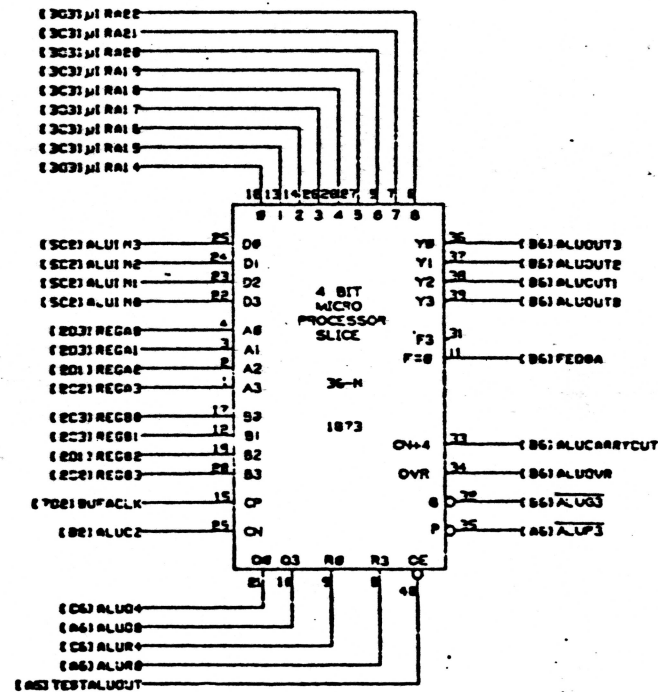
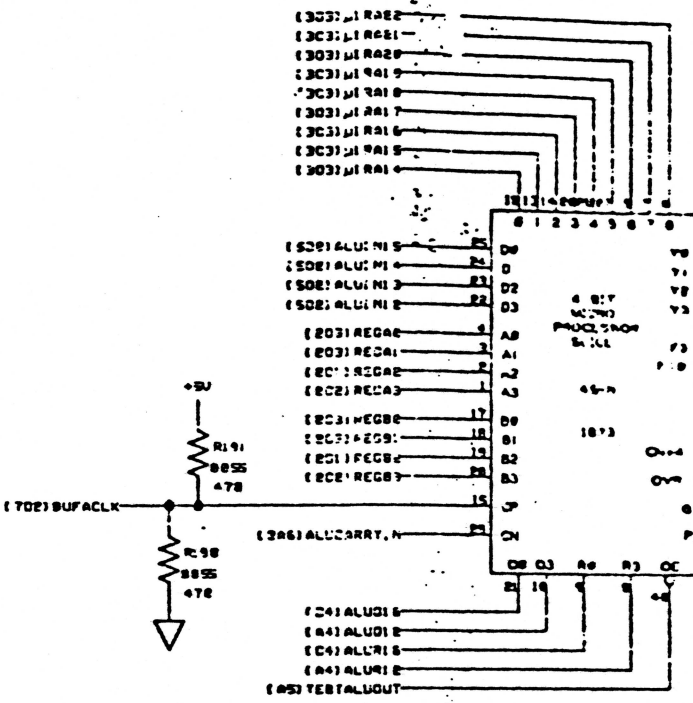
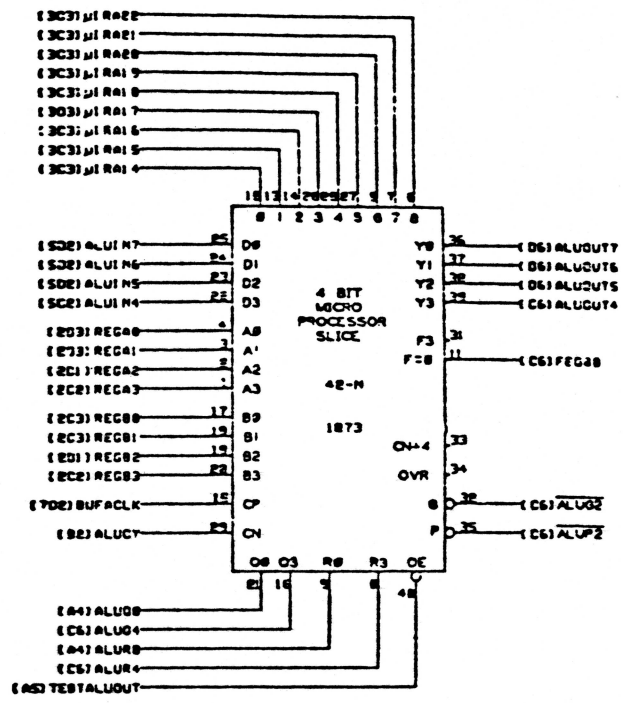


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REV	DESCRIPTION	DATE	APP BY
00	ALU PER ECO P833		
01	PER ECO P833		
02	PER ECO P869		
03	PER ECO 6780		
04	PER ECO 6783		
05	PER ECO 9622		
06	PER ECO 5850		
07	PER ECO G723 DIG. CORR.		



SPARE DATES

0799	03-J	02
0797	03-M	01
0365	05-M	01
0788	05A6	01
1020	07-J	02
0153	07AN	03
0607	09-B	01
0630	09-F	01
0537	09-B	01
0044	09AN	02
0170	09AN	01
1264	11AN	01
1020	13AN	02
0133	15-N	02
0364	15AN	02
1152	15AN	01
0417	17AN	02
0175	19-M	01
0527	01AN	02
0300	01AN	01
0797	07-F	01
0265	09-B	02
0201	33-B	01
1020	33-J	01
0575	36-F	01
0575	40-F	01
0417	41-B	01
0175	43-M	01

CHART 1

	UNTESTED	TESTED
00M	005-12410	005-12411
100M	005-12412	005-12413
300M	005-12414	005-12415

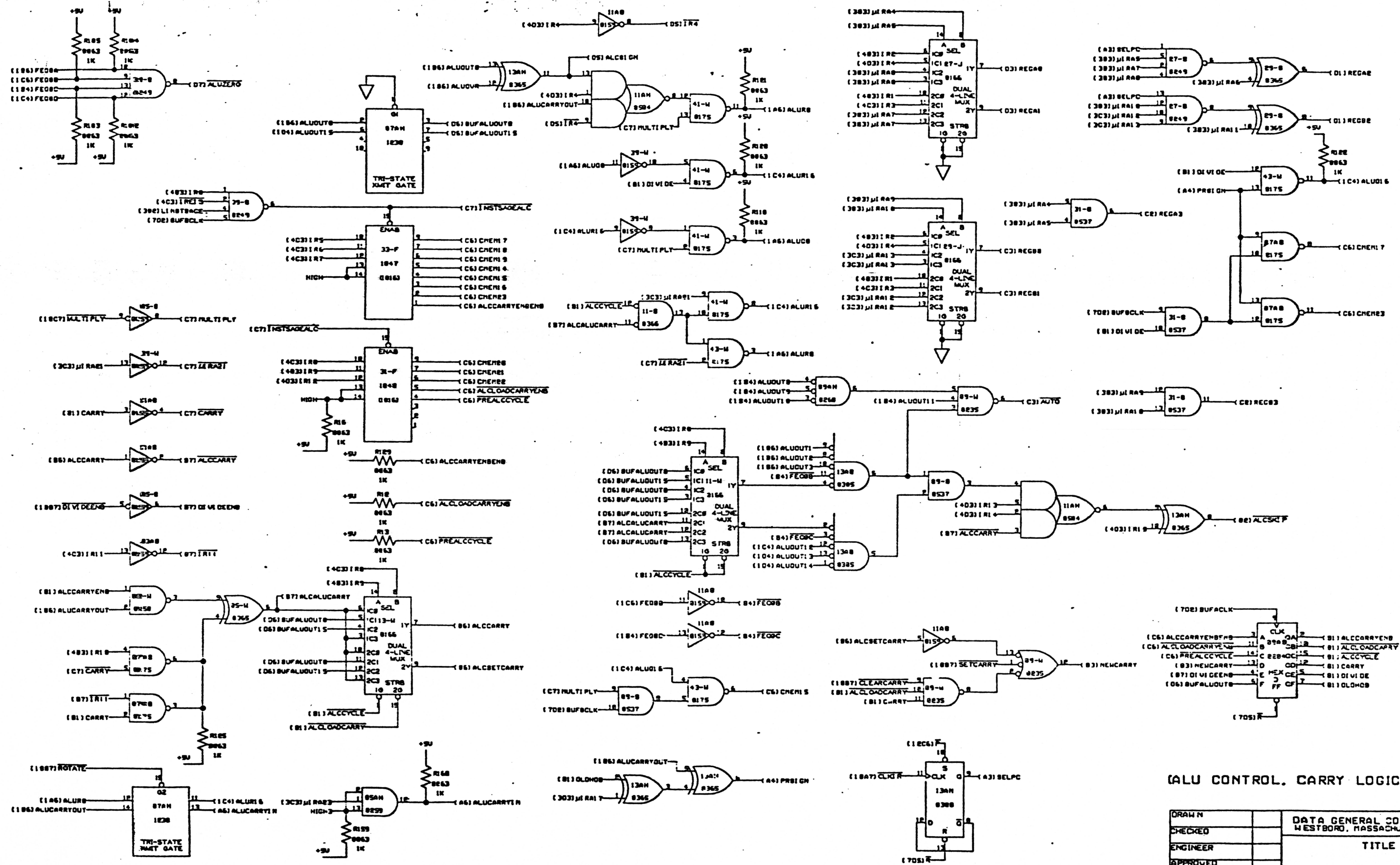
See page 3 for options

016000857
016000864

ARTWORK: 107 1307	DRAWN	DATE: 10/1/79	DATA GENERAL CORPORATION WESTBORO, MASSACHUSETTS 01581
ARTWORK VS SOHEMATIC	CHECKED		
REV: SCHEMATIC REV: 1	ENGINEER	DATE: 10/1/79	TITLE NOVA 4/C CPU
US: 00.01 00.03.04	APPROVED	DATE: 10/1/79	
01 07	FIRST USED ON		SIZE: CODE DRAWING NUMBER REV
	SEE CHART 1		001001600

ALL PARTS TO BE IDENTIFIED BY LETTERS OF THE ALPHABET AS SHOWN ON THIS DRAWING FOR CONSTRUCTION OR FIELD OF REPAIR BY MEANS OF A BUFFER INDICATOR.

REV DESCRIPTION PARTS APP BY



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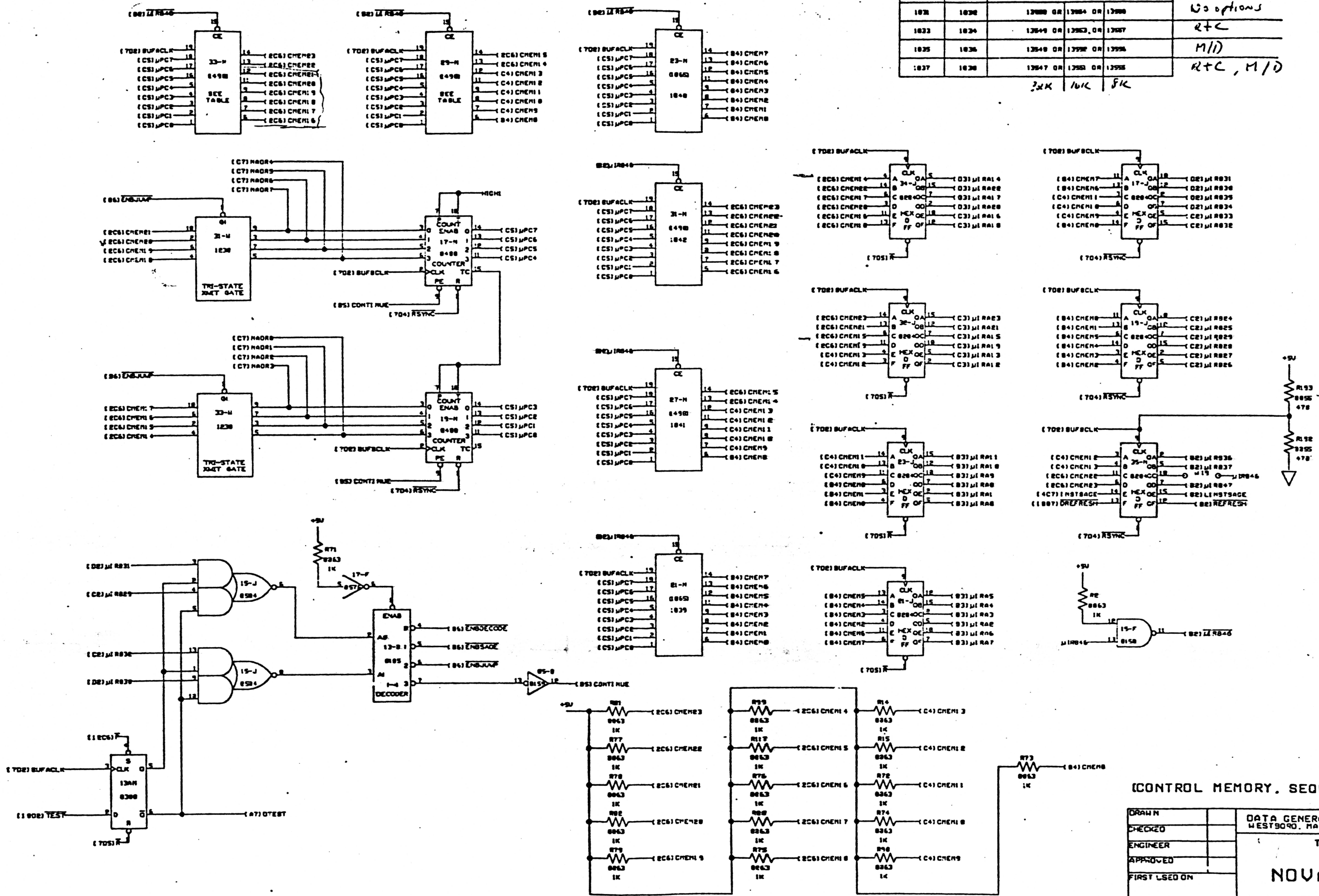
(ALU CONTROL CARRY LOGIC)

DRAWN		DATA GENERAL CORPORATION
CHECKED		WESTBORO, MASSACHUSETTS 01581
ENGINEER		TITLE
APPROVED		NOVA 4/C
FIRST USED ON		SIZE CODE DRAWING NUMBER
		001001600

SMALL UNIT IS REFERENCED TO OTHER DRAWINGS
 UNLESS INDICATED OTHERWISE BY THE DRAWING TITLE OR OTHERWISE
 BY THE USE OF SPECIAL SYMBOLS OR NOTATIONS.

LDC 234	LDC 235	006-02PT10M8	
1021	1022	13880 OR 13884 OR 13888	NO options
1023	1024	13849 OR 13853 OR 13857	R+C
1025	1026	13848 OR 13852 OR 13856	M/D
1027	1028	13847 OR 13851 OR 13855	R+C, M/D

3K 10K 5K

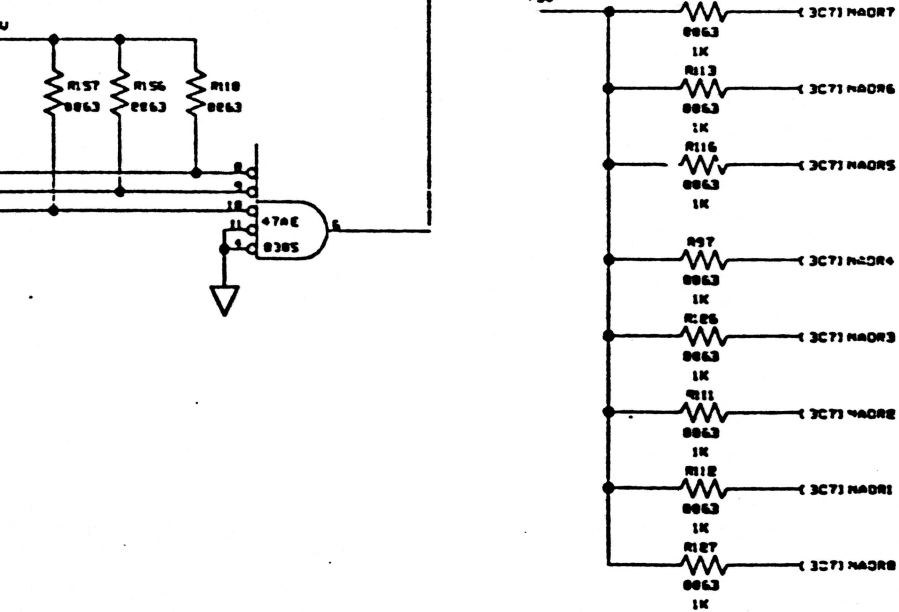
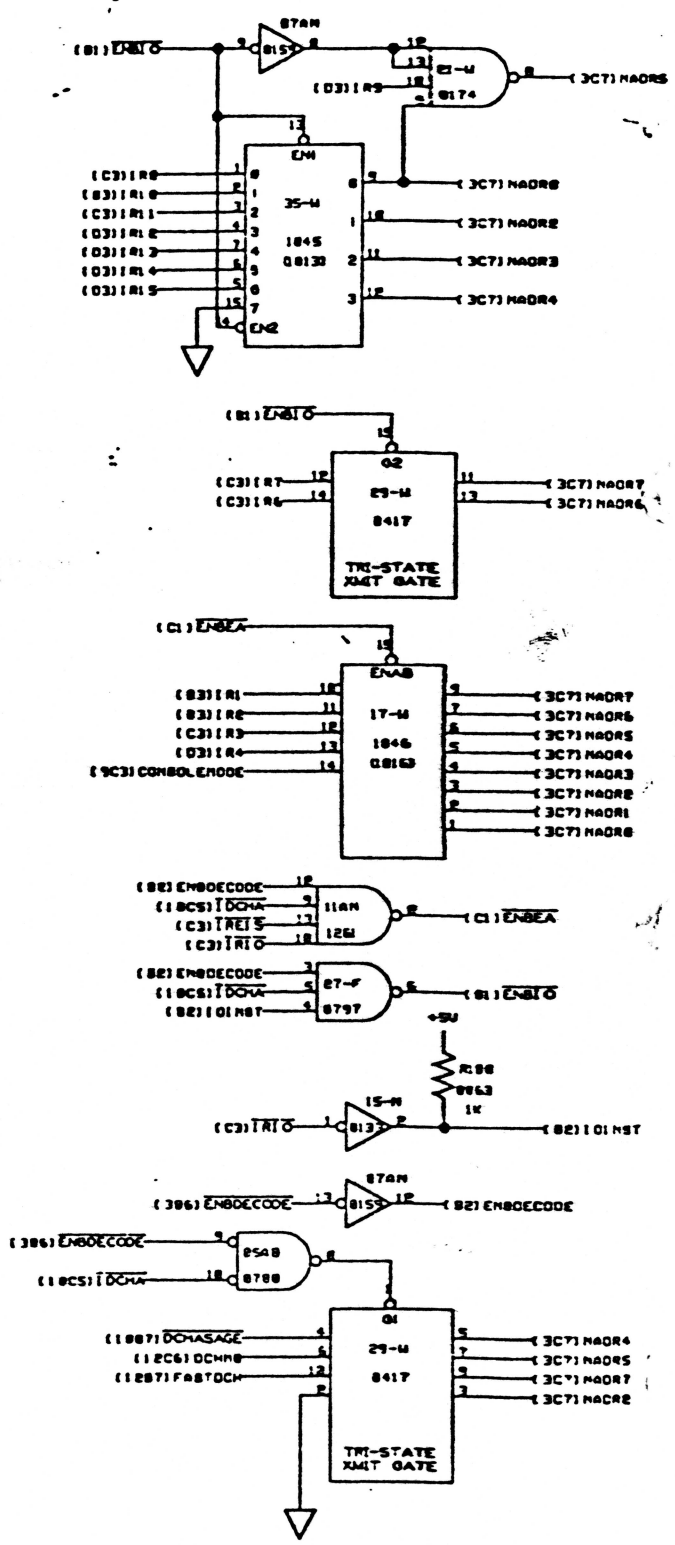
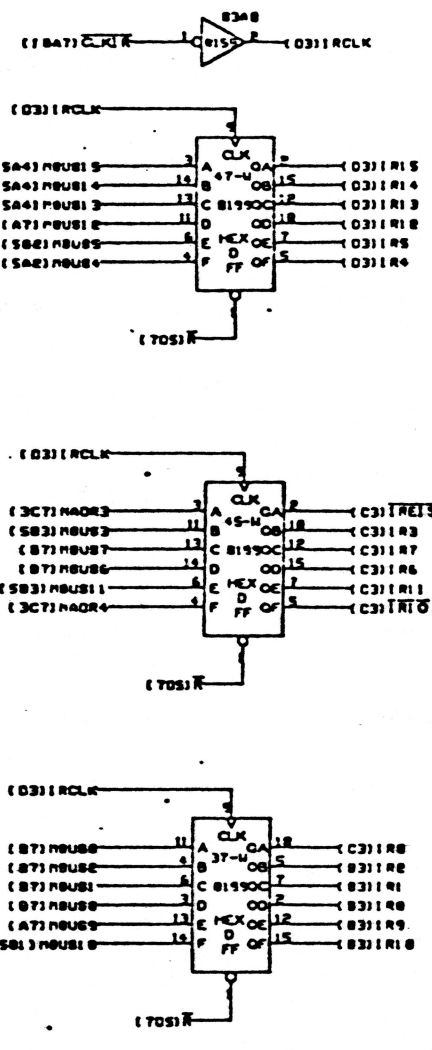
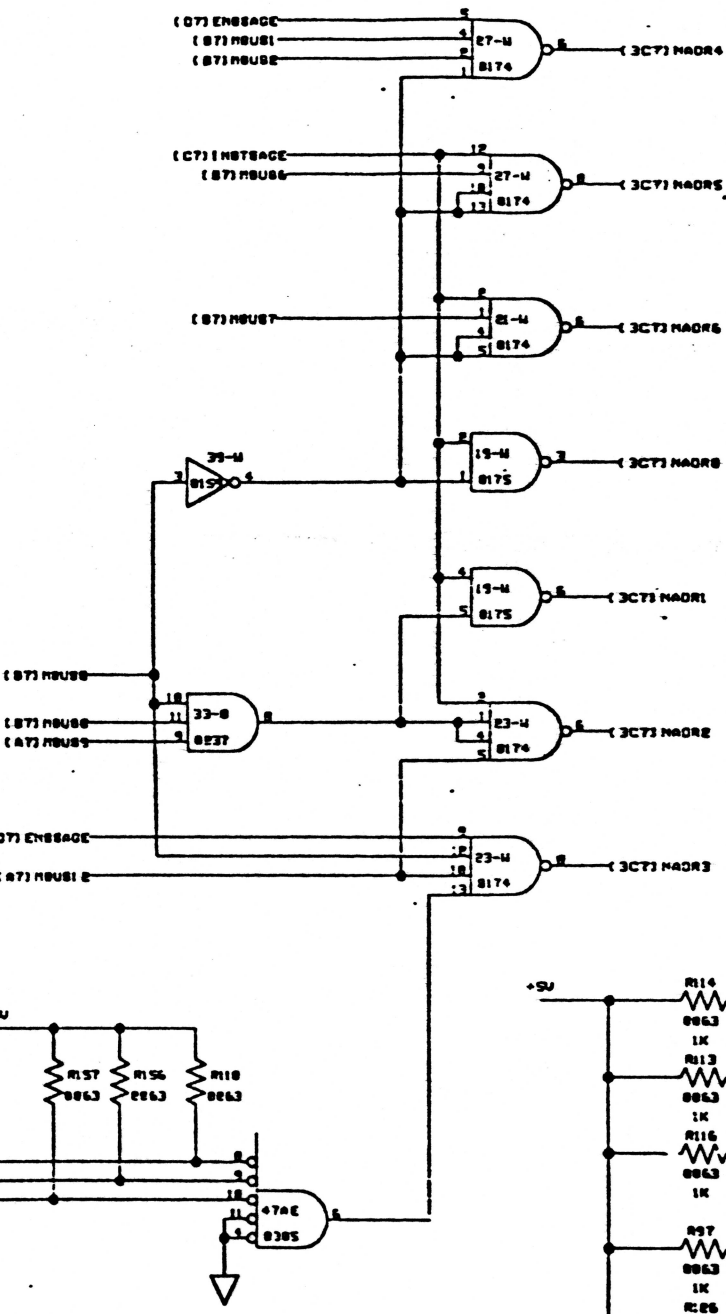
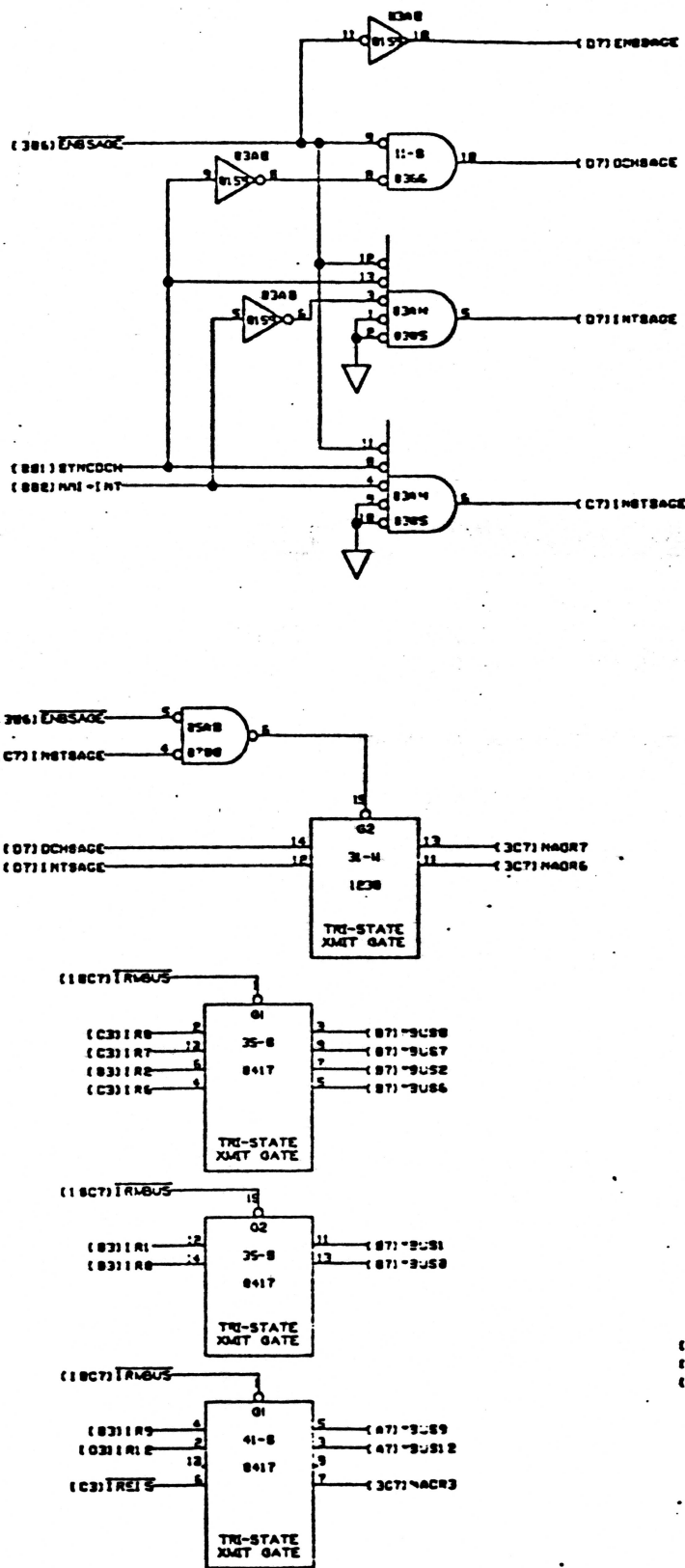


(CONTROL MEMORY SEQUENCER)

DRAWN		DATA GENERAL CORPORATION WESTBORO, MASSACHUSETTS 01581	TITLE	NOVA 4/C
CHECKED				
ENGINEER				
APPROVED				
FIRST USED ON		SIZE CODE	DRAWING NUMBER	REV
			0010016000	

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REV DESCRIPTION DRAFTS BY DATE



(SAGE, DECODE, IR)

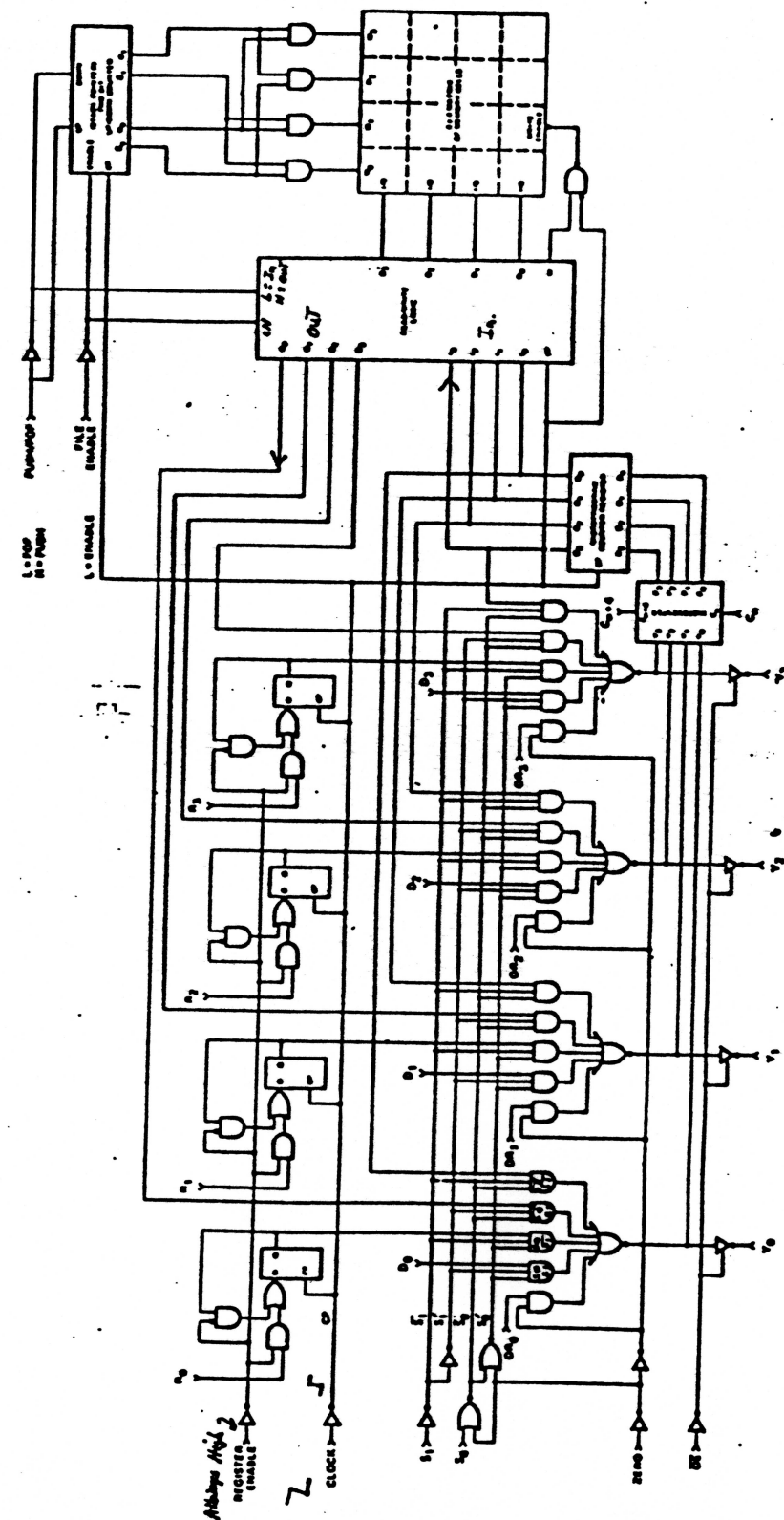
DRAWN		DATA GENERAL CORPORATION WESTBORO, MASSACHUSETTS 01581
CHECKED		
ENGINEER		
APPROVED		
FIRST USED ON		
		TITLE NOVA 4/5
		SIZE CODE DRAWING NUMBER 01 001001600

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1 SHEET AND 2

BLANK FILLER PAGE

100001074
(Continued)

MICROPROGRAM SEQUENCER BLOCK DIAGRAM



Note: R1 and D1 connected together and OR1 removed.

100001074
(Continued)

ADDRESS SELECTION

OCTAL	S ₁	S ₀	SOURCE FOR Y OUTPUTS	SYMBOL
0	L	L	Microprogram Counter	μPC
1	L	H	Register	REG
2	H	L	Push-Pop stack	STK0
3	H	H	Direct inputs	D _i

OUTPUT CONTROL

OR _i	ZERO	OE	Y _i
X	X	H	Z
X	L	L	L
H	H	L	H
L	H	L	Source selected by S ₀ S ₁

Z = High Impedance

SYNCHRONOUS STACK CONTROL

FE	PUP	PUSH-POP STACK CHANGE
H	X	No change
L	H	Increment stack pointer, then push current PC onto STK0
L	L	Pop stack (decrement stack pointer)

H = High
L = Low
X = Don't Care

OUTPUT AND INTERNAL NEXT-CYCLE REGISTER STATES

CYCLE	S ₁ , S ₀ , FE, PUP	μPC	REG	STK0	STK1	STK2	STK3	Y _{OUT}	COMMENT	PRINCIPLE USE
N N+1	0 0 0 0 -	J J+1	K K	R _a R _b	R _b R _c	R _c R _d	R _d R _a	J -	Pop Stack	End Loop
N N+1	0 0 0 1 -	J J+1	K K	R _a J	R _b R _a	R _c R _b	R _d R _c	J -	Push μPC	Set-up Loop
N N+1	0 0 1 X -	J J+1	K K	R _a R _a	R _b R _b	R _c R _c	R _d R _d	J -	Continue	Continue
N N+1	0 1 0 0 -	J K+1	K K	R _a R _b	R _b R _c	R _c R _d	R _d R _a	K -	Pop Stack; Use AR for Address	End Loop
N N+1	0 1 0 1 -	J K+1	K K	R _a J	R _b R _a	R _c R _b	R _d R _c	K -	Push μPC; Jump to Address in AR	JSR AR
N N+1	0 1 1 X -	J J+1	K K	R _a R _a	R _b R _b	R _c R _c	R _d R _d	K -	Jump to Address in AR	JMP AR
N N+1	1 0 0 0 -	J R _a +1	K K	R _a R _b	R _b R _c	R _c R _d	R _d R _a	R _a -	Jump to Address in STK0; Pop Stack	RTS
N N+1	1 0 0 1 -	J R _a +1	K K	R _a J	R _b R _a	R _c R _b	R _d R _c	R _a -	Jump to Address in STK0; Push μPC	
N N+1	1 0 1 X -	J R _a +1	K K	R _a R _a	R _b R _b	R _c R _c	R _d R _d	R _a -	Jump to Address in STK0	Stack Ref (Loop)
N N+1	1 1 0 0 -	J D+1	K K	R _a R _b	R _b R _c	R _c R _d	R _d R _a	D -	Pop Stack; Jump to Address on D	End Loop
N N+1	1 1 0 1 -	J D+1	K K	R _a J	R _b R _a	R _c R _b	R _d R _c	D -	Jump to Address on D; Push μPC	JSR D
N N+1	1 1 1 X -	J D+1	K K	R _a R _a	R _b R _b	R _c R _c	R _d R _d	D -	Jump to Address on D	JMP D

X = Don't care, 0 = LOW, 1 = HIGH, Assume C₀ = HIGH
Note: STK0 is the location addressed by the stack pointer.

ALL COMPONENTS ARE TO BE USED AS SHOWN UNLESS OTHERWISE SPECIFIED IN THE SCHEMATIC. THE BOARD IS TO BE ASSEMBLED IN ACCORDANCE WITH THE BOARD CONSTRUCTION AND TESTING INSTRUCTIONS.

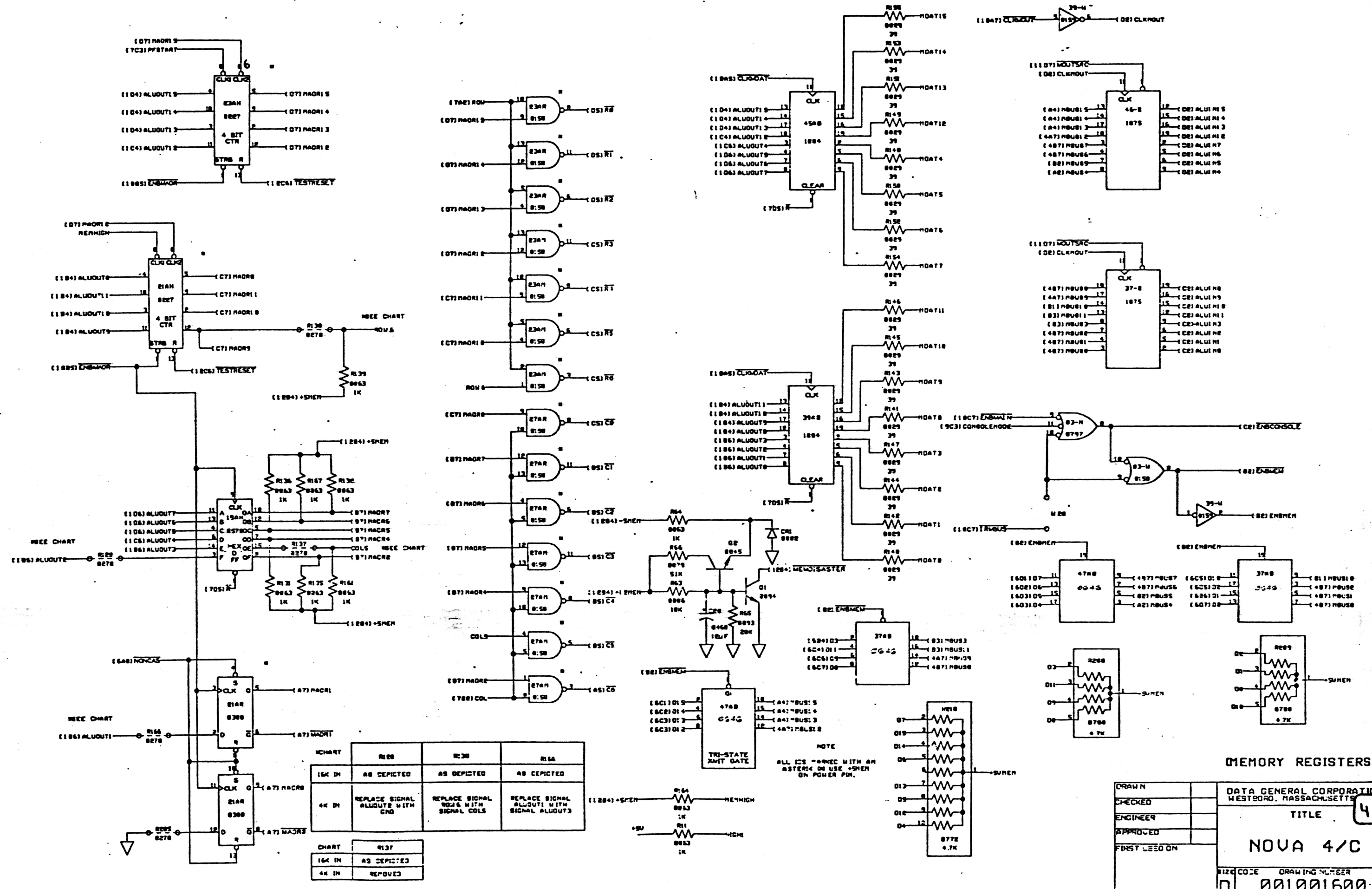
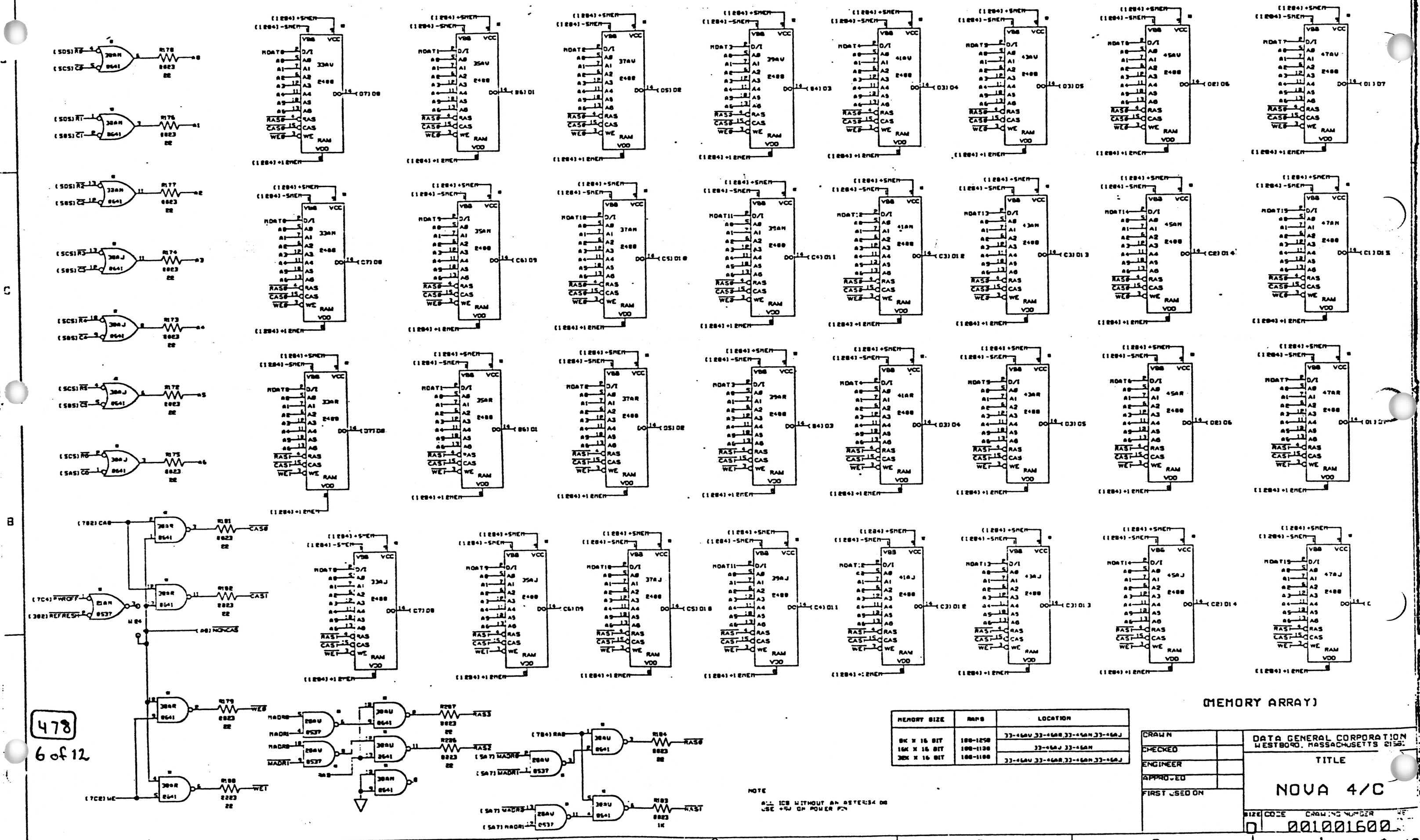


CHART	R137	R138	R139
16K IN	AS DEPICTED	AS DEPICTED	AS DEPICTED
4K IN	REPLACE SIGNAL ALUOUT1 WITH GND	REPLACE SIGNAL ROWS WITH SIGNAL COLS	REPLACE SIGNAL ALUOUT1 WITH SIGNAL ALUOUT3

CHART	R137
16K IN	AS DEPICTED
4K IN	REMOVED

DRAWN		DATA GENERAL CORPORATION WESTBORD, MASSACHUSETTS TITLE 47 NOVA 4/C SIZE CODE DRAWING NUMBER AS- 001001600
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ENGINEER		
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MEMORY SIZE	RAMS	LOCATION
8K X 16 BIT	100-1250	33-46AV, 33-46AR, 33-46AN, 33-46AJ
16K X 16 BIT	100-1100	33-46AJ, 33-46AN
32K X 16 BIT	100-1100	33-46AV, 33-46AR, 33-46AN, 33-46AJ

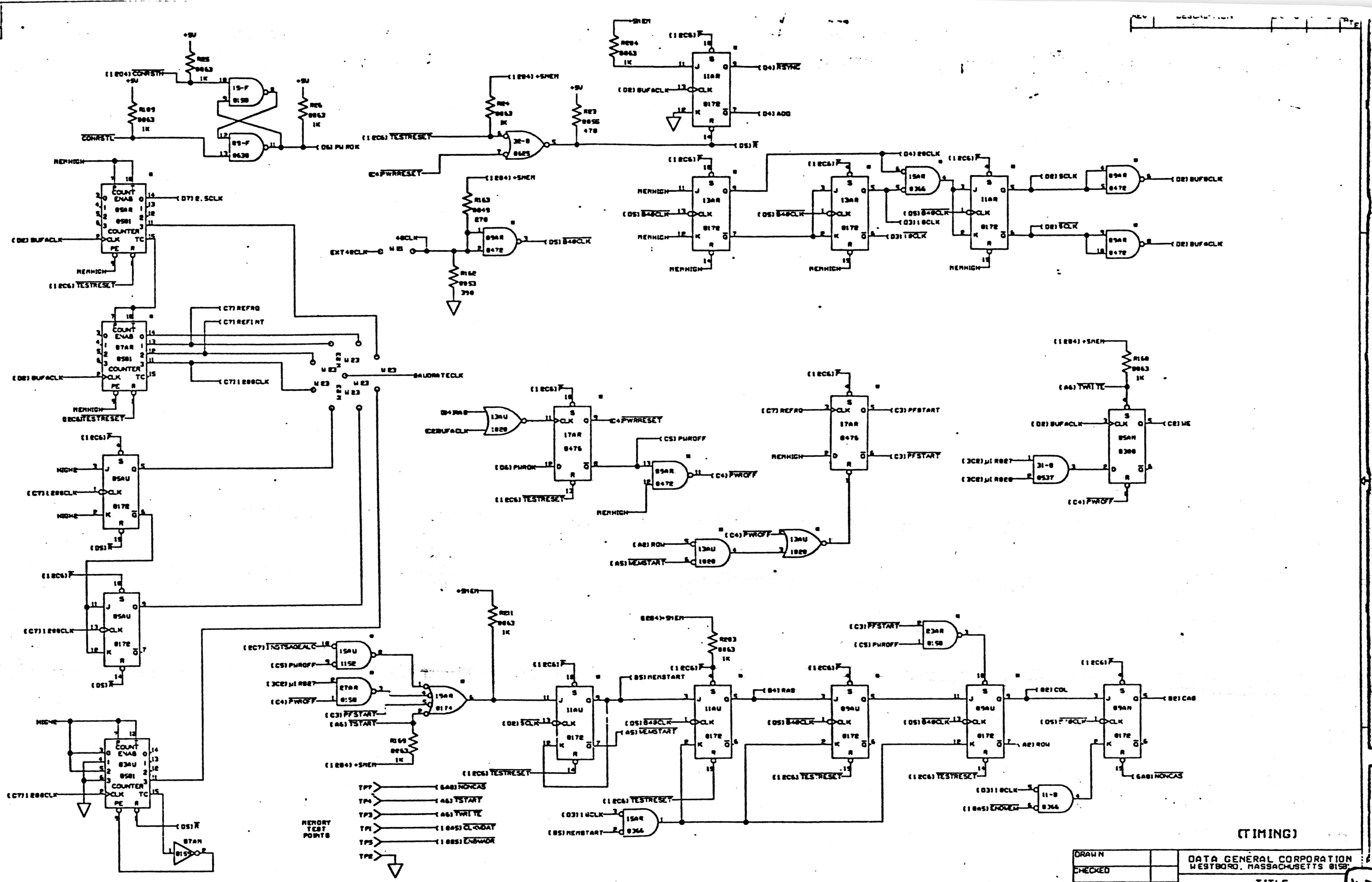
MEMORY ARRAY

DRAWN	DATA GENERAL CORPORATION WESTBORO, MASSACHUSETTS 01581 TITLE NOVA 4/C SIZE CODE DRAWING NUMBER 0 001001600
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NOTE
ALL ICs WITHOUT AN OVERSIZED DR USE 0.5U OF POWER FN

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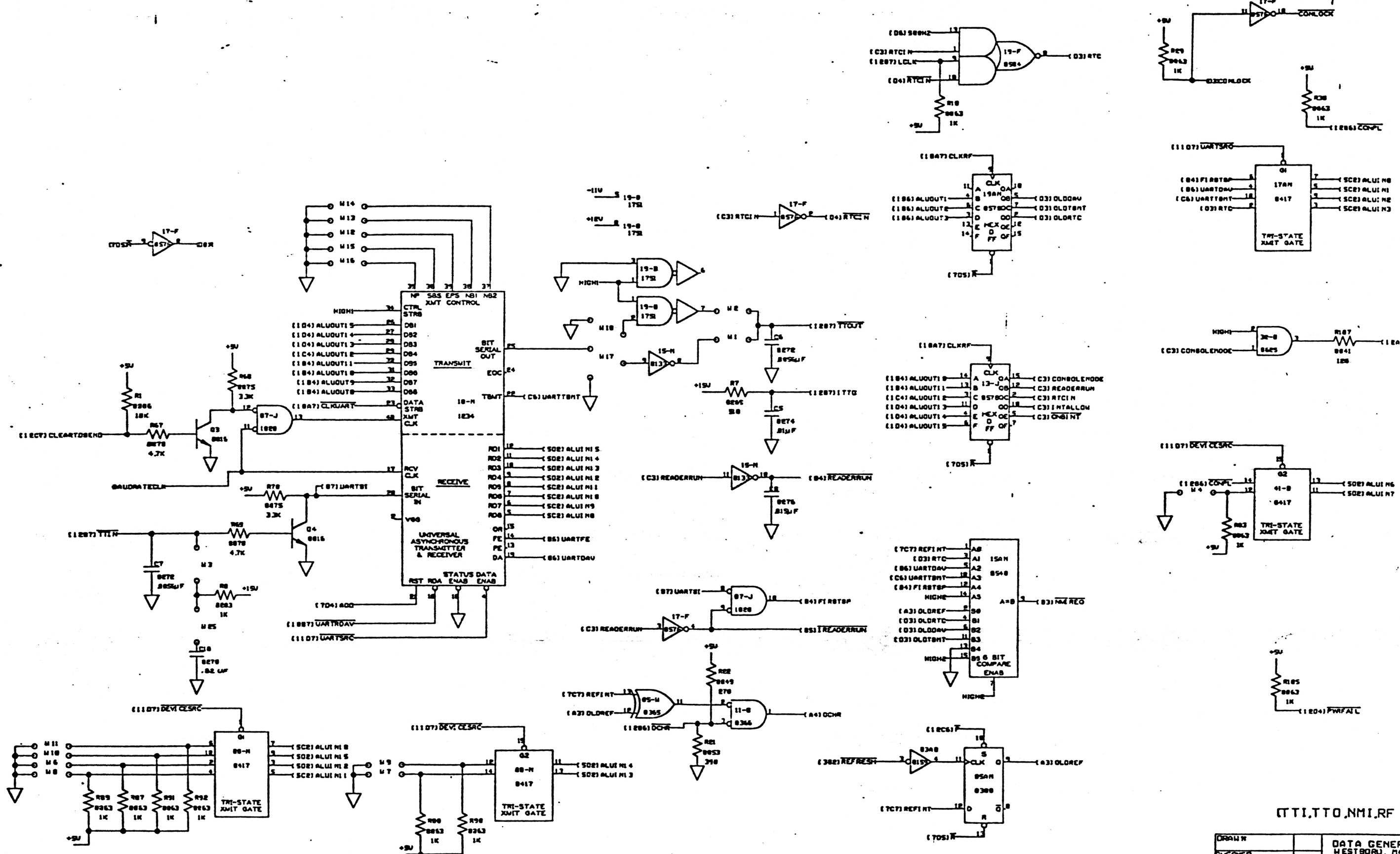
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ENGINEER		TITLE
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BIZ CODE	DRAWING NUMBER	REV.
0	001001600	

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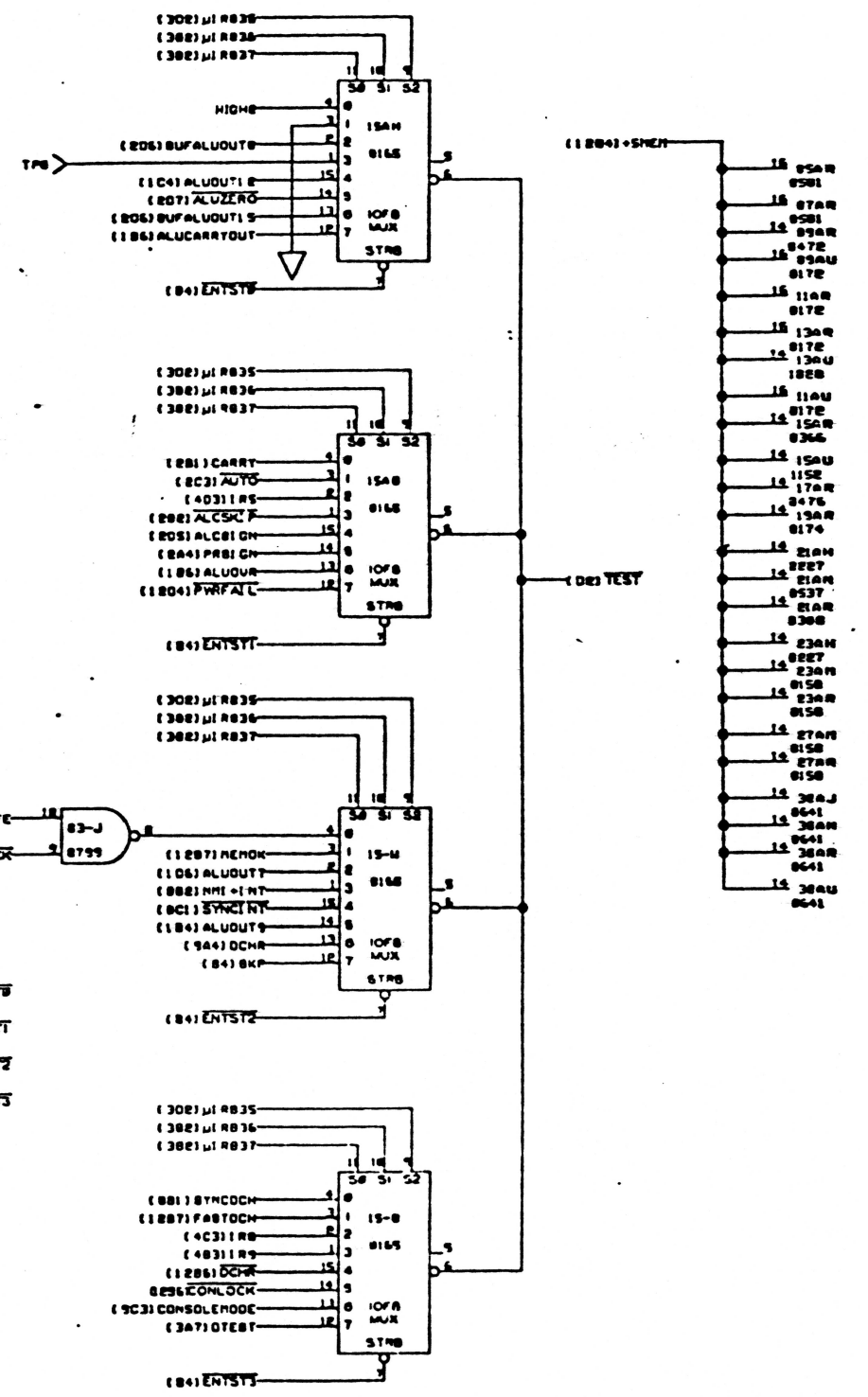
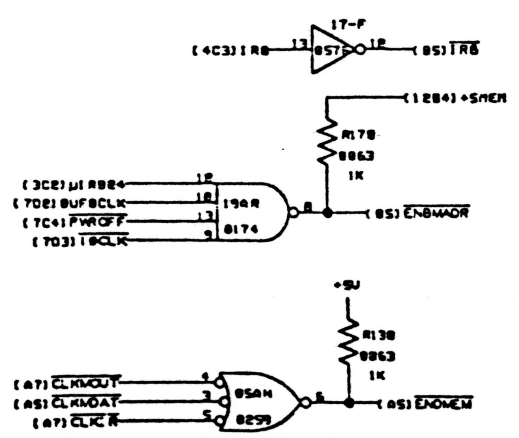
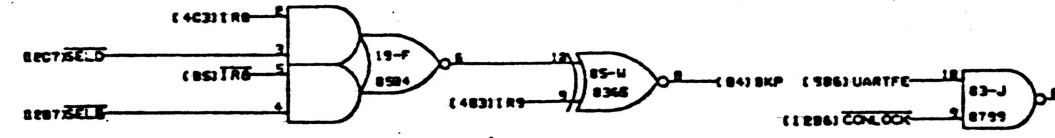
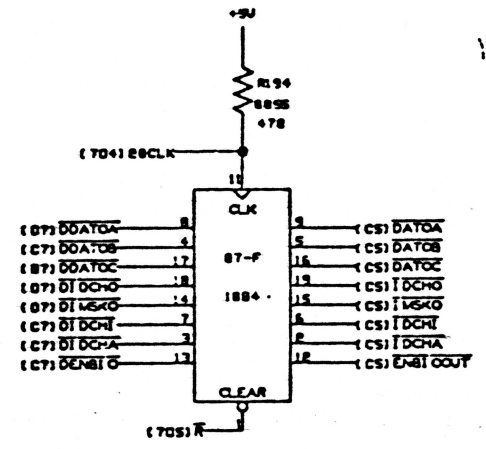
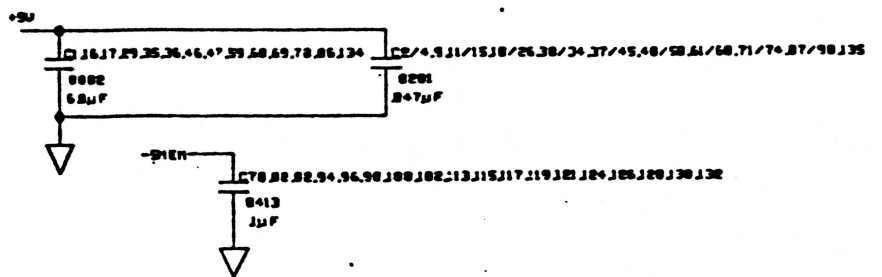
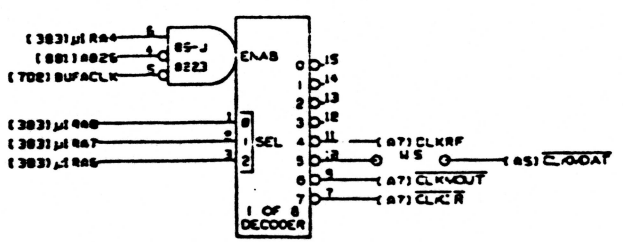
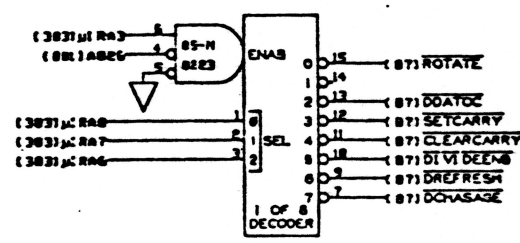
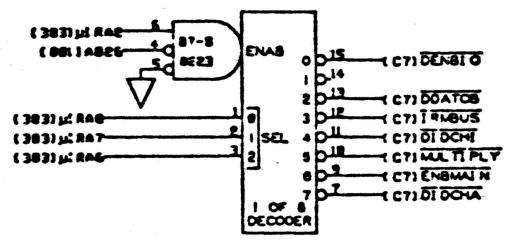
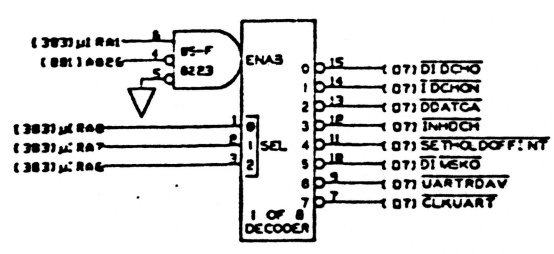
REVISIONS				
REV	DESCRIPTION	DRFTG	APP BY	DATE



(TTI, TTO, NMI, RF REGISTER)

DRAWN	DATA GENERAL CORPORATION
CHECKED	WESTBORO, MASSACHUSETTS 01581
ENGINEER	TITLE
APPROVED	NOVA 4/C
FIRST SECON	SIZE CODE DRAWING NUMBER
	001001600

SMALL PARTS LIST APPROVED BY DATE TO BE USED IN THIS DRAWING AS THE BASIS FOR PROCUREMENT TO BE MADE BY THE BUYER AT HIS OWN RISK.

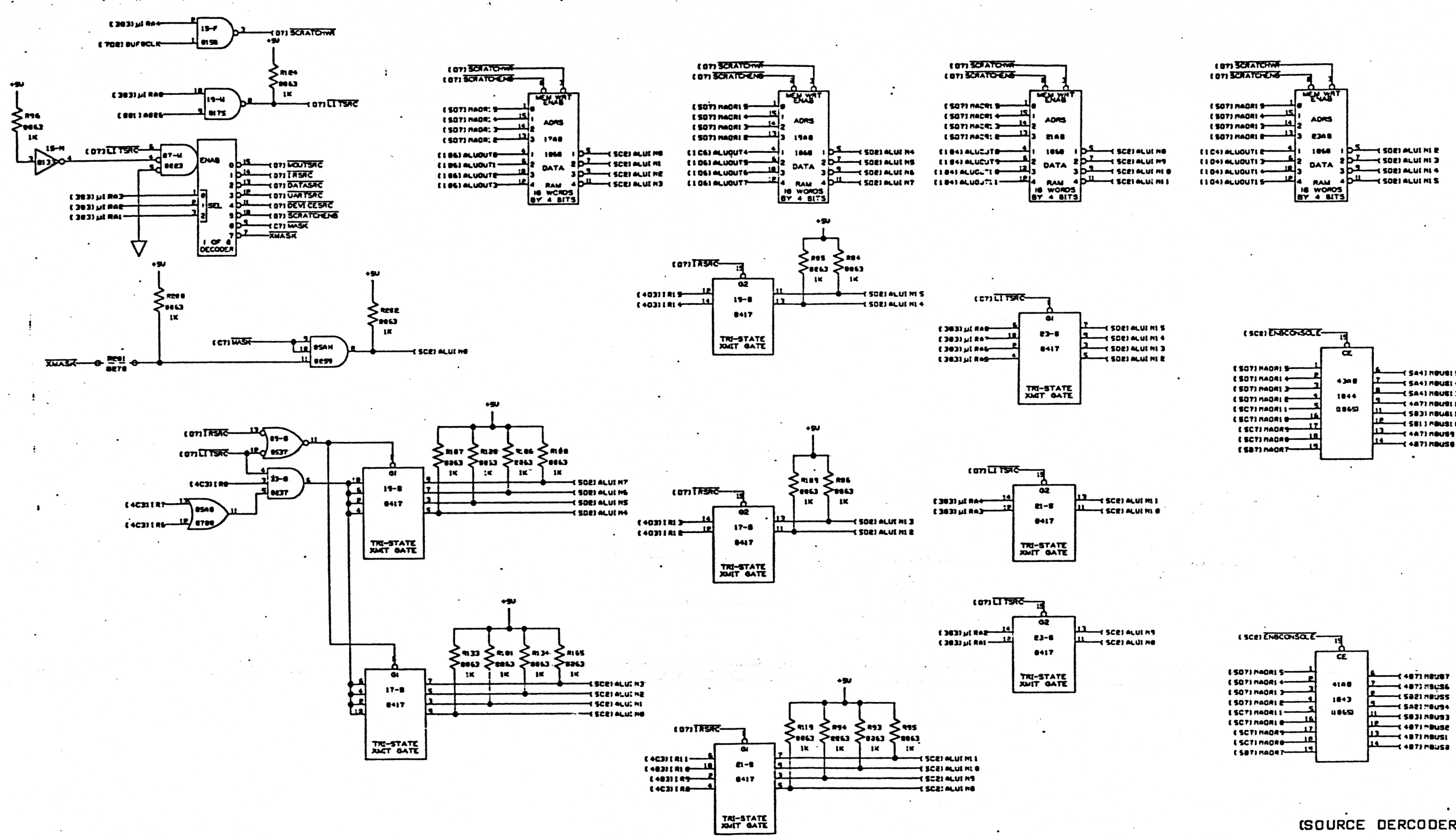


(RANDOM DECODERS. TEST MUX)

DRAWN		DATA GENERAL CORPORATION
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ENGINEER		TITLE
APPROVED		NOVA 4/C
FIRST USED ON		SIZE CODE DRAWING NUMBER
		001001600

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(SOURCE DECODERS, BUFFERS)

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CHECKED		TITLE
ENGINEER		NOVA 4/C
APPROVED		
FIRST USED ON		
DRAWING NUMBER		0010016000

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ALL DIMENSIONS TO BE GIVEN IN INCHES UNLESS OTHERWISE SPECIFIED
 ALL DIMENSIONS TO BE GIVEN IN METERS UNLESS OTHERWISE SPECIFIED
 ALL DIMENSIONS TO BE GIVEN IN FEET UNLESS OTHERWISE SPECIFIED

A001 O (04) CHD. 8
 A002 O (04) CHD. 8
 A003 O (04) +5V
 A004 O (04) +5V
 A005 O
 A006 O
 A007 O
 A008 O
 A009 O
 A010 O (00) +1.5V
 A011 O
 A012 O
 A013 O
 A014 O
 A015 O
 A016 O
 A017 O
 A018 O
 A019 O
 A020 O
 A021 O
 A022 O
 A023 O
 A024 O
 A025 O
 A026 O
 A027 O
 A028 O
 A029 O
 A030 O
 A031 O
 A032 O
 A033 O
 A034 O
 A035 O
 A036 O
 A037 O
 A038 O
 A039 O
 A040 O
 A041 O
 A042 O
 A043 O
 A044 O
 A045 O
 A046 O
 A047 O
 A048 O
 A049 O
 A050 O

A051 O (0C7) STRT
 A052 O
 A053 O (0C7) DAT1 C
 A054 O
 A055 O
 A056 O (0A3) DATOB
 A057 O
 A058 O (0A3) DATOA
 A059 O
 A060 O (003) DCH A
 A061 O
 A062 O (007) DSA
 A063 O
 A064 O (0A7) DSS
 A065 O
 A066 O (007) DSE
 A067 O
 A068 O (007) DST
 A069 O
 A070 O (007) IDNST
 A071 O
 A072 O (007) DSW
 A073 O
 A074 O (007) I OPLB
 A075 O
 A076 O
 A077 O
 A078 O
 A079 O
 A080 O (C7) SELD
 A081 O (C7) CLEAR TO SEND
 A082 O (07) SELB
 A083 O (07) ITT0
 A084 O
 A085 O (07) ITT0Y
 A086 O
 A087 O (07) LCLK
 A088 O (904) READERRUN
 A089 O (906) SSBH2
 A090 O
 A091 O
 A092 O
 A093 O (07) TTN
 A094 O (07) FASTDC4
 A095 O (07) MEMOK
 A096 O (04) +5V
 A097 O (04) +5V
 A098 O (04) +5V
 A099 O (04) CHD. 8
 A100 O (04) CHD. 8

0001 O (04) CHD. 8
 0002 O (04) CHD. 8
 0003 O (04) +5V
 0004 O (04) +5V
 0005 O
 0006 O
 0007 O
 0008 O
 0009 O
 0010 O
 0011 O
 0012 O
 0013 O
 0014 O
 0015 O
 0016 O
 0017 O (C6) DCHMB
 0018 O
 0019 O
 0020 O
 0021 O
 0022 O
 0023 O (C6) TESTRESEY
 0024 O
 0025 O (C6) F
 0026 O
 0027 O
 0028 O
 0029 O (C6) INTR
 0030 O
 0031 O
 0032 O
 0033 O (0A7) DC4G
 0034 O
 0035 O (06) DC4W
 0036 O
 0037 O (0A7) DC4I
 0038 O
 0039 O
 0040 O (06) CON-DCK
 0041 O (001) RCENB
 0042 O
 0043 O
 0044 O
 0045 O
 0046 O
 0047 O
 0048 O (06) CONL
 0049 O (06) CONLEB
 0050 O

0051 O (04) CONRSTH
 0052 O (04) CONRSTL
 0053 O
 0054 O (04) PWRFAIL
 0055 O (005) DATA7
 0056 O (006) DATA4
 0057 O (005) DATA3
 0058 O (006) DATA11
 0059 O (006) DATA2
 0060 O (006) DATA3
 0061 O (005) DATA4
 0062 O (005) DATA3
 0063 O (006) DATA3
 0064 O (006) DATA3
 0065 O (005) DATA1
 0066 O (006) DATA3
 0067 O
 0068 O
 0069 O
 0070 O (04) +1.5V
 0071 O (04) +1.5V
 0072 O (04) +1.5V
 0073 O (005) DATA3
 0074 O
 0075 O (006) DATA3
 0076 O
 0077 O (C7) I11U
 0078 O
 0079 O (006) PWR
 0080 O
 0081 O
 0082 O (005) DATA2
 0083 O
 0084 O
 0085 O
 0086 O
 0087 O (04) +1.5V
 0088 O (04) +1.5V
 0089 O
 0090 O (04) +1.5V
 0091 O (04) -5V
 0092 O (04) +5V
 0093 O (04) +5V
 0094 O (04) +5V
 0095 O (005) DATA3
 0096 O (04) MEMO1 SASTER
 0097 O (04) +5V
 0098 O (04) +5V
 0099 O (04) CHD. 8
 0100 O (04) CHD. 8

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DRAWN		DATA GENERAL CORPORATION WESTBORO, MASSACHUSETTS 01581
CHECKED		TITLE
ENGINEER		NOVA 4/C
APPROVED		
FIRST USED ON		
SIZE CODE	01	DRAWING NUMBER 001001600