

1/14/24

Ken Wanaas X 6234

$$L - L - * - F \Delta = ?$$

ϕ_1

L -
· ·
- -



$$\begin{array}{c} L L E F L L * D * O D - \\ - - F F E L E I E L E \end{array}$$

LL 6 8

° E,

$$\begin{array}{c} \Delta * O A C E ^ 2 L ^ o \Delta * O A \end{array}$$

7
3

A

*
A

Q
O

1/15/74

Phone call to Rochester Scamp machine room
With Ken Vanous. X6234

L L

- -

L L E F L L .

- - F F E L

L ▽ ▽ ▽ ▽ ▽ ▽ ▽ | L L L E L b L b
- - , ▽ * □ A C b A C E b L b ▽ * O A C b L b o * o

TAPE IPL ROS PROGRAM.

0202	SET ICR
1FFF	RESET ALL I/O
0E00	MOV I CTR TO E
AE29	EMIT START OF ICR LVL 2
3E20	SEND ICTR #2
AE49	CMT ADDRESS
3E2A	SEND TO LVL 2 RA
8E08	CHCTR EMIT 8 TO RE
8C00	ZERO RC LO
3C27	STORE C TO LVL 2 RT
0FC0D	LTH
8F1D	CMT ID TO RF
10D4	ALLOW INTERRUPT & DISPLAY
4EF8	PUT BYTE TO TAPE - START MOTOR & RD
CC0B	TEST
F003	REPEAT TEST
LVL2 2727	FETCH ERROR BUCKET TO RT
C70B	SKIP IF 7 HAS BIT
A057	BRANCH TO EXIT
44F8	PUT BYTE - SEND LIGHT DATA
F001	LOOP STOP
LVL2 350C	END
1FFF	START
8D06	
8C04	
850A	
8404	
8302	
0E6E	
C6DD	
0059	
A600	

↓

Test for 6/7

add 1 to count.

```

graph TD
    START[8D06] --> BEGIN[8302]
    BEGIN --> TEST{Test for 6/7}
    TEST --> ADD1[add 1 to count]
    ADD1 --> LOOP[Loop back to START]
    
```

C6CD
 0038
 0048
 A309
 F011
 F015
 8301
 A40B
 A401
 A301
 F01D
 B701
 F029
~~8420~~
 832A
 8514
 8801
 0986 continue
 F02D
 9987 one start
 C985
 F033
 A005
 C985
 0786
 0987
 0888
 C803
 F017
 79A0
 F049
 1070

Test for 4 bit
 add zero skip to I CTR
 add one skip to I CTR
 add 0A to zero skip.
 go to begin. = 0038.
 go to initialize 0036
 emit 10 to zero skip.
 add 0C to one skip.
 add 02 to one skip.
 add 02 to zero skip.
 go to 0038
 Set bit 01 in R7
 go to restart
 emit new 1 skip 20
 emit new & skip. 2A
 emit new no data 14
 emit start mask
 OR mask char reg = set bit on
 go begin
 XOR bit char reg mask (change bit)
 Test bit on
 go to begin = 0038
~~Test char bit on~~ skip next 3 INSTR.
 Test char bit on
 or mask char reg.
 XOR bit char.
 add mask to mask
 Test mask = &
 go to continue
 STOR DATA
 go to restart preamble
 next IPL TRG.

1/22/74 - With Paul Friedl

OPD - SCAMP - Top Editing proposal
Re: Letter from Bill Brough
of Bent & Bob Contino.

Propose: PALM (NEW)
~~RESCLING~~ STORAGE
NORELCO TAPE FOR PROGRAM LOAD
CORRESPONDENCE KBD - A
CRT (NEW)
FILE (NEW) OR
FILE IGAR
NO. PRINTER -
NO. COMMUNICATIONS

CONSOLE DESIGN
FRAME & COVERS } WOOD MODEL

REQUIRED HELP -

2 OPD ENGINEERS
2 STUDENT ENGINEERS

COSTS	PALM .	3500,-
	DISPLAY CARD	1500,-
	STORAGE	2000
	TAPE & ATT.	200
	KBD / CONSOLE	3000 5000
	FILE	4000
	SERVICE centers	10000
	DA	1000 5000
	TRAVEL	4000

≈ \$ 30K plus salaries & living expenses for op.

1/29/74

Call from Dell -

Ask for better quality tape from Vendor -

Jenkins - Boulders -

Hoogland - Boulders

All Spars in San Jose -

High density -

much error correction detection, etc
normal error rate ?

Scamp cost increase \$70 -

2100 - 2170 base - 32K -

Call from Dennis

J. D. GEORGE

JAN 30 1974

On George Price's Figitronics

My input: Would cost too much to maintain

1st machine mid March -

Phase review Feb 28 -

Bra ex Royal -

Updated version of Odem in Emerald -

Spare battery for Wire Wrap -

Call to Paul Freidl.

J. D. GEORGE
JAN 30 1974

Need estimate for display,
and disk for OPD text editor.

Check with Morrison on disk effort -

Hope faster one required -

Packaging - 5-8 K

Human factors -

Bill Morrison 372-7349 -

Has anyone attached TIGAR to Palm? No!

→ TACO - OPD micro processor.

Comparable to PALM -

Jim Hoe Dept. 534/041 OPD

Houston Austin -

323-6659

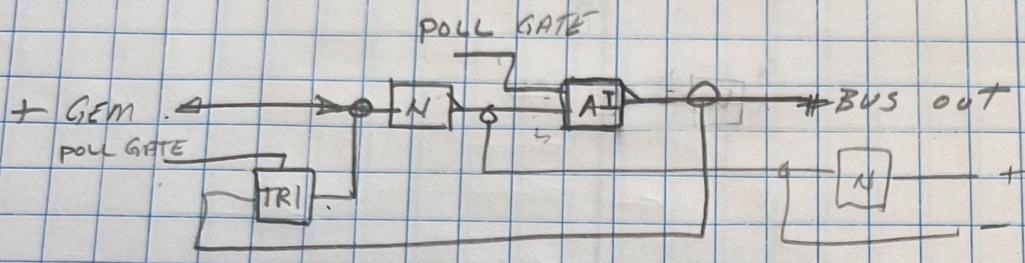
TACO Lou Horning - ^{Dept} 526/987 OPD austen.
323-140 (7221)

[Device Coupler] for 2741 / APL

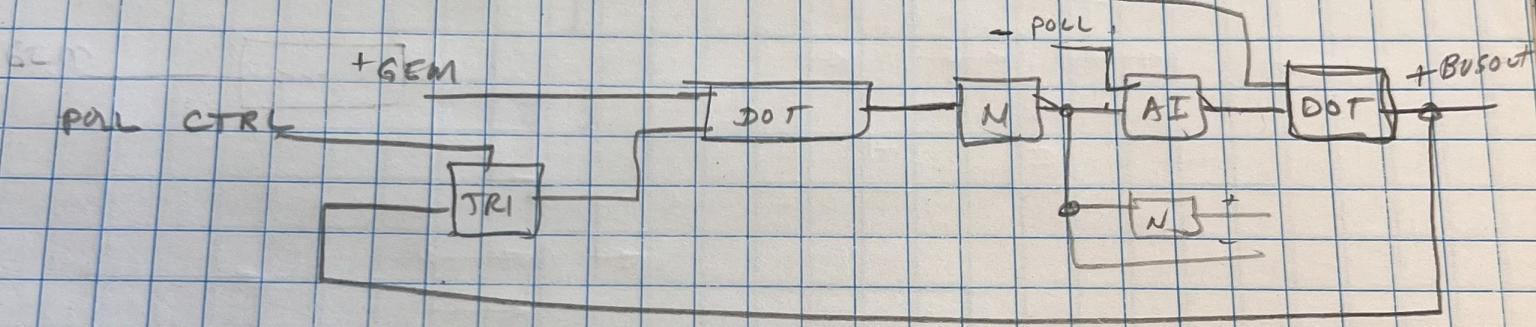
Minimal attachment for data gathering
Research - Yorktown Heights - Cdr. Systems
Interdivisional Conference on lab automation & instrumentation

1/30/74. By Unidirectional Bus -

Call Dan Motel 532-5312 for Tri State info
on dutchess -



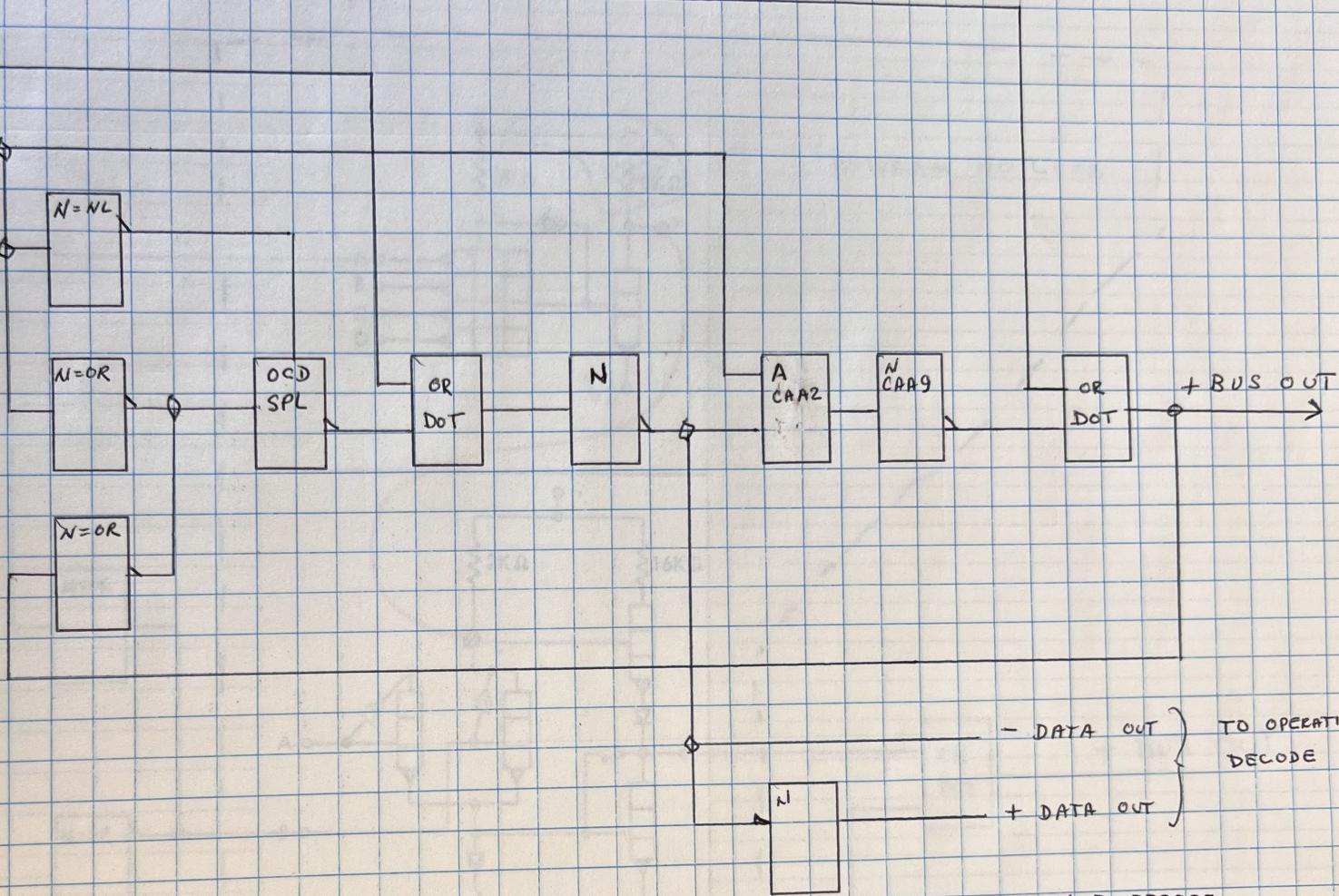
INTR REQ



+ DATA IN

+ DATA OUT / IN

- ENABLE DATA IN



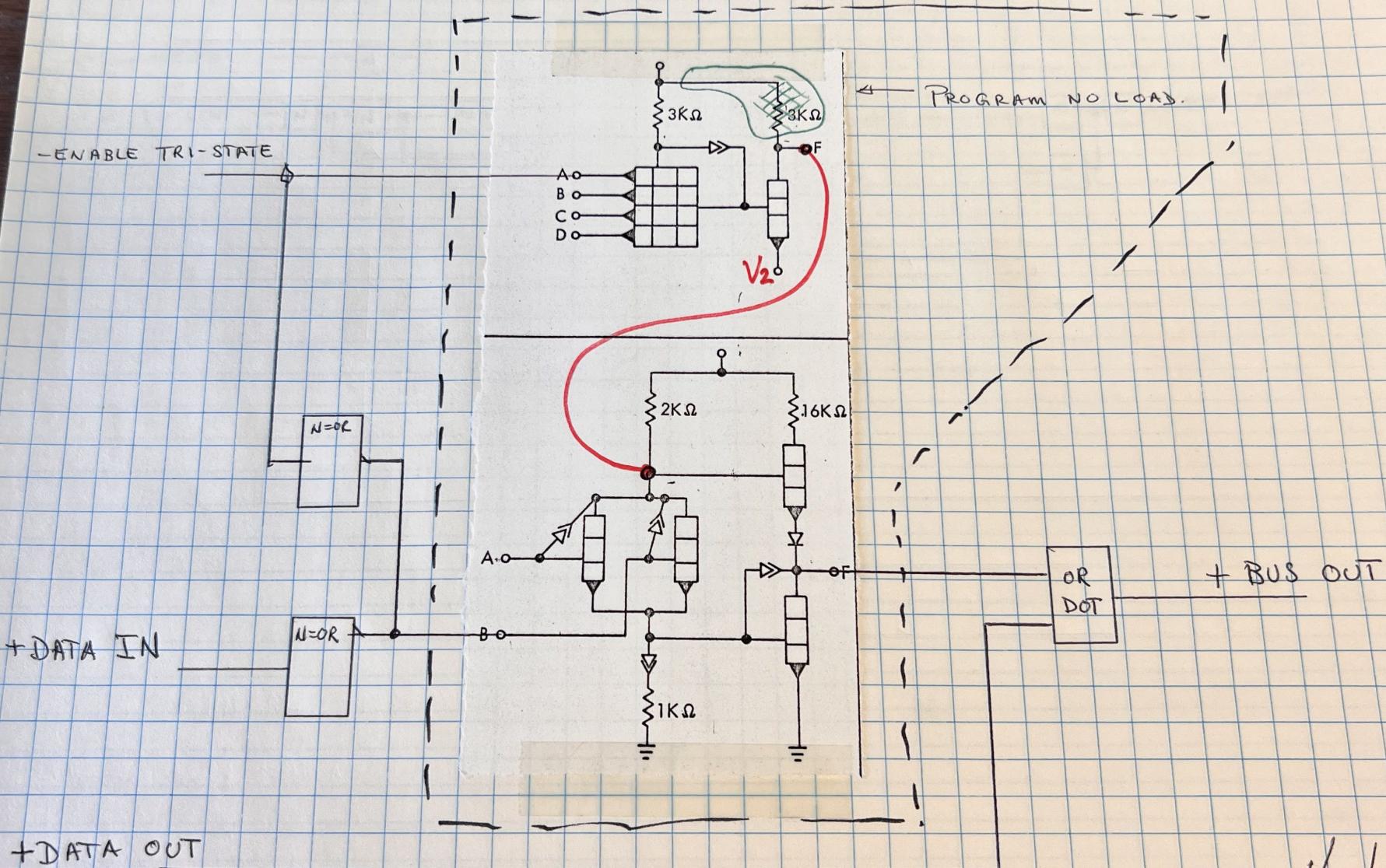
TYPICAL IMPLEMENTATION.

GROUND RULE: "+DATA OUT / IN" CAN DRIVE ONLY ONE DUTCHESS LOAD.

J. D. GEORGE

JULY 3, 1974

DUTCHESS TRI STATE FUNCTION



532 - 3031

532 -

RAGNOR MIDSKOGEN 4864

Circuit application to CBS

is there a channel available

2/12.

Cliff Fairclaw, AD Tech - Austin.

1. Cards - 10-100 meg byte Storage.

1/2 sec access -

3 meg storage -

2/26/74

Call from Cliff Faircloth, Austin.

Eng'g Director Tom Musto asked George Webb
and Eric Petterson to see Scamp; Re - Text Processing.
Will be here March 6 - afternoon -

Questions: a) Cost to attach Quality printer.

b) System availability

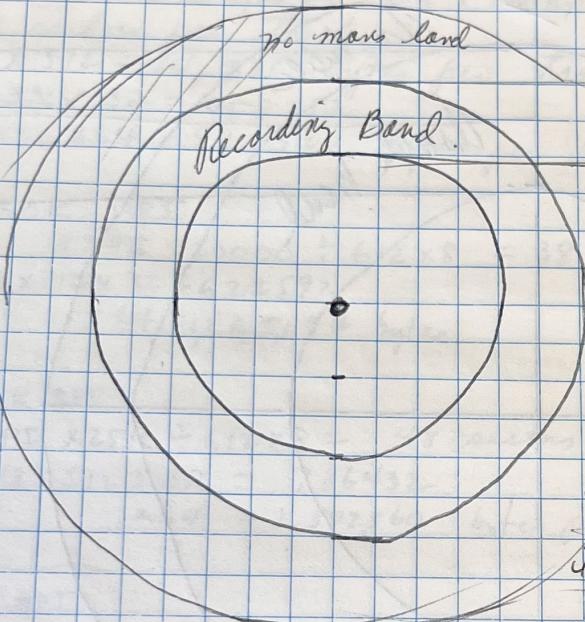
c) Cost of charges for Text editing.

d) programming package.

3/11/74 Discussion with Si Kee and Greg Toben

- 1. Cannot record at least last half inch to outside of disk due to turbulence
- 2. Need head on our 6" disk to determine useable area of disk -

Assume 5" disk.



$$2'' \times \text{PI} \times 36K \text{ BPI}$$

$$3.14159$$

$$\overline{6.28318}$$

$$6.28$$

$$30$$

$$\overline{188.4000}$$

$$37.$$

$$\begin{array}{r} 612 \\ 87 \\ \hline 489 \end{array} \quad \begin{array}{r} 5 | 188.400 \\ 33 \\ \hline 37 \end{array} \quad 188400$$

$$\begin{array}{r} 376800 \\ 565200 \\ \hline 6028800 \end{array}$$

Assume 6" disk

$$5''$$

$$4''$$

$$3'' \times \text{PI} \times 30K \text{ BPI}$$

$$3''$$

$$6.28$$

$$3.14$$

$$9.4$$

$$30$$

$$\overline{282.000}$$

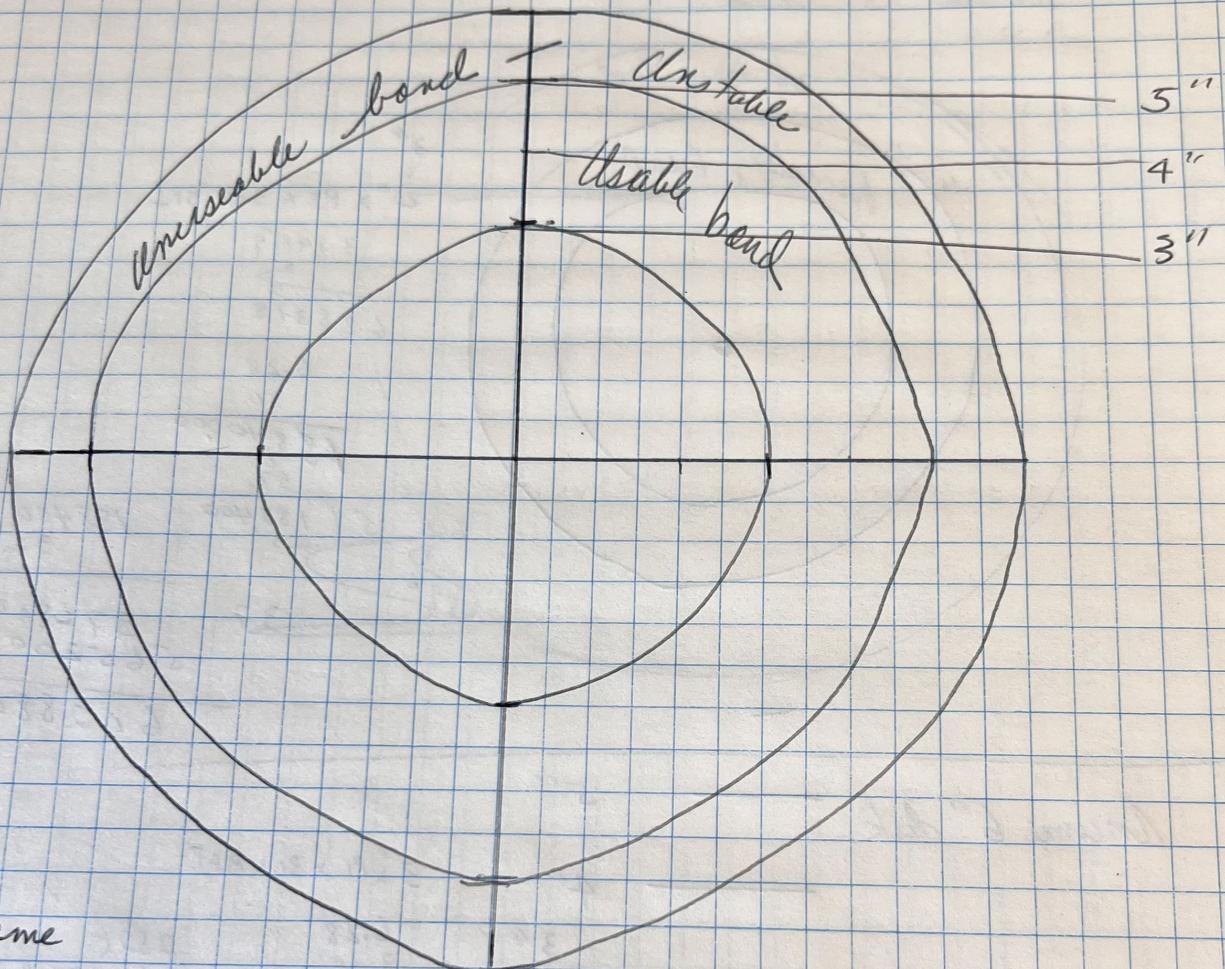
$$\begin{array}{r} 282K \\ 64 \text{ tracks} \end{array}$$

$$\begin{array}{r} 1128 \\ 1692 \\ \hline 18048.000 \end{array}$$

$$\begin{array}{r} 21.8M \text{ bytes} \\ \hline \end{array}$$

Continuation -

3/12/74



Assume

~~15K~~ ~~20K~~ BPI

$$\begin{aligned} &14/322 \text{ bits/track} \\ &14336 \text{ bytes/28 sectors} \\ &14336 \times 64 = 917504 \end{aligned}$$

25K

30K

35K

Next Page.

Continue 3/2/74

Assume

3" inner track diameter.
also assume

15K BPI

$$3 \times \text{PI} \times 15000 = 141372$$

$$\frac{141372}{512 \text{ bytes per sector}} + 100 \text{ byte overhead} \times 8 = 28.875$$

= 28 sectors per track

$$28 \times 512 = 14,336 \text{ bytes per track -}$$

$$14,336 \times 32 = 458752$$

$$14336 \times 64 = 917504 \text{ bytes per surface.}$$

assume 20K BPI

$$3 \times \text{PI} \times 20000 \div 612 \times 8 = 38 \text{ seconds per track -}$$
$$38 \times 512 \times 32 = 622592$$

$$\times 64 = 1,245,194 \text{ bytes}$$

assume 25K BPI

$$3 \times \text{PI} \times 25K \div 612 \times 8 = 48 \text{ sectors}$$

$$48 \times 512 \times 32 = 786432$$

$$\times 64 = 1,572,860 \text{ bytes per surface.}$$

assume 30K BPI

$$3 \times \text{PI} \times 30K \div 612 \times 8 = 57 \text{ sectors}$$

$$57 \times 512 \times 64 = 1,867,780 \text{ bytes}$$

These figures are based on MFM
Recording -

Include 100 byte per sector overhead.

Continued 3/12 -

Gross disk capacity based
on previously defined parameters -

i.e. 1. Outside $\frac{1}{2}$ inch of disk
not usable -

2. record 64 tracks on 1" band
.960 inch band.

Assume 15K BPI - Inner track = 3" diameter -

$$3 \times \pi \times 15K = 141372$$

$$141372 \times 64 = 9.04781E6 \text{ or } 9,047,810 \text{ bits per surface}$$

$$3 \times \pi \times 20K \times 64 = 1.20637E7 = 12,063,700 \text{ bits}$$

$$3 \times \pi \times 25K \times 64 = 1.50796E7 \text{ or } 15,079,600 \text{ bits}$$

$$3 \times \pi \times 30K \times 64 = 1.80956E7 = 18,095,600 \text{ bits.}$$

Assume 2F recording -

$$20K BPI =$$

$$3 \times \pi \times 20K BPI = 188495 \div 2 = 94247.5$$

$$94247 \div 612 \times 8 = 15.2498 \text{ sectors per track -}$$

$$19 \times 512 = 9,728 \text{ bytes per track}$$

$$9728 \times 64 = 622,592 \text{ bytes per surface.}$$

Data rate $\frac{1}{3 \times \pi \times 20000 \times 30} = 1.076839E-7$ = 178 ns per bit.
 $178 \times 16 \text{ 2.8 usec cycle steal rate.}$

$$= 355 \text{ KC cycle steal rate.}$$

Now assume Only $\frac{1}{2}$ inch band from 4" to 5" -

$$4 \times \pi \times 30K \div 612 \times 8 = \\ 376800 \div 4896 = \sim 75 \text{ track sectors.}$$

$$75 \times 512 \times 32 =$$

~~75
25 60
25 84
55 00
38 432
38 680 00
7 520 00
11 2281~~