

Keeping Constant <sup>SKIN</sup> resolution AT BONE ENDS.

GAIN CHANGES AT THE INPUTS TO THE INTEGRATORS OR CHANGES IN THE GAIN OF THE INTEGRATORS THEMSELVES CAUSE ~~CHANGES~~ CHANGES IN THE VELOCITY WITH WHICH BONES ARE DRAWN. IF THE GAIN OF THE INTEGRATORS IS AUTOMATICALLY CONTROLLED BY THE <sup>AVERAGE</sup> LONGITUDINAL DERIVATIVE OF THE SKIN, ~~then the skin will~~ IT IS POSSIBLE TO KEEP THE SKIN RESOLUTION CONSTANT AT THE BONE ENDS.

EXAMPLE: SUPPOSE WE WANT TO GENERATE A SPHERE. WITHOUT THIS <sup>ABOVE</sup> IMPROVEMENT, WE'D HAVE A CONSTANT NUMBER OF LINES ALONG A POLE OR CENTRAL AXIS AS:

Leffers  
Aug 28, 1966

W. H. King  
Aug 28, 1966

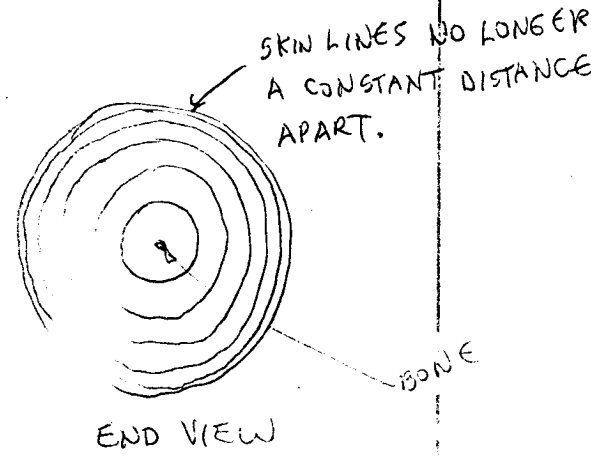
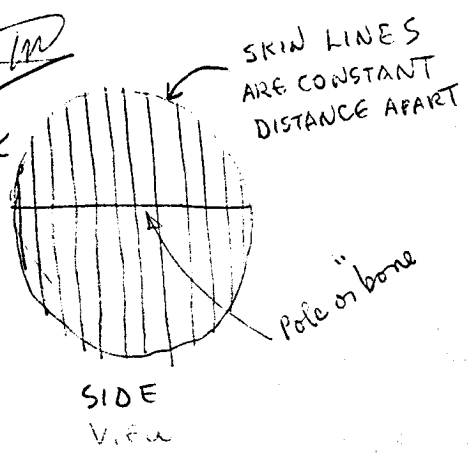
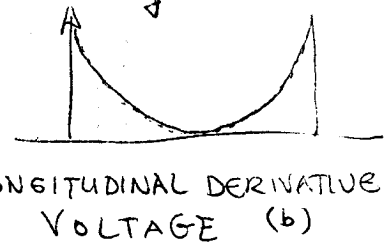
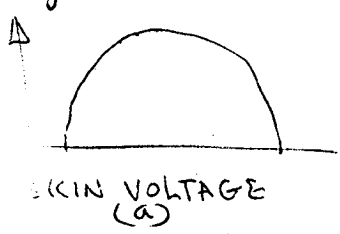


FIG 1.

FIG. 1 ILLUSTRATES THE PROBLEM.

NOW, WHEREAS IF we Differentiate <sup>the skin</sup> ~~the~~ Longitudinal (along the bone) ~~we~~ we have,



~~THE~~ THE SKIN VOLTAGE WOULD BE AVERAGED (FILTERED) THEN DIFFERENTIATED, then this voltage (Fig 2b) would be used to

CONSTANT SKIN RESOLUTION AT BONE ENDS <sup>2 of 2</sup> (2)

(CONTINUED)  
CONTROL THE GAIN OF THE INTEGRATORS, SUCH THAT;  
THE "STEEPER" THE SLOPE (IN THE LONGITUDINAL DIRECTION)  
THE LOWER THE GAIN.

THE SAME <sup>GAIN CHANGING</sup> MECHANISM CAN BE USED TO SLOW, STOP,  
OR REVERSE BONE DIRECTION, TO "OPEN UP" THE SKIN  
FOR A MOUTH OR EYE, ETC. FOR THIS PURPOSE, THE  
GAIN CHANGER ~~INPUT~~ (WHICH COULD BE MULTIPLIER INPUTS  
TO THE INTEGRATORS) COULD GET ITS INPUTS FROM A SCANNER  
WHICH CONTAINED A "FIELD" PATTERN FOR GAIN CONTROL,  
AND A SINGLE INTENSITY GAIN CONTROL ON THE  
SCANNING BEAM COULD CONTROL THE "OPENING AND  
CLOSING" OF A MOUTH, OR EYE.

THE IMPROVEMENT FOR KEEPING CONSTANT RESOLUTION  
WOULD MAKE A END VIEW OF THE SPHERE OF FIG. 1  
LOOK LIKE THIS:

*Lefferson*  
Aug 28, 1966

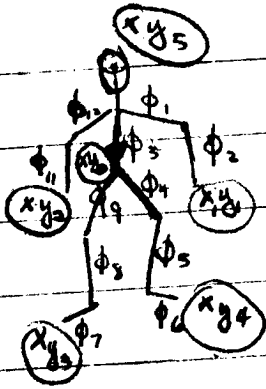


FIG 4,

*Lefferson*  
Aug 28, 1966

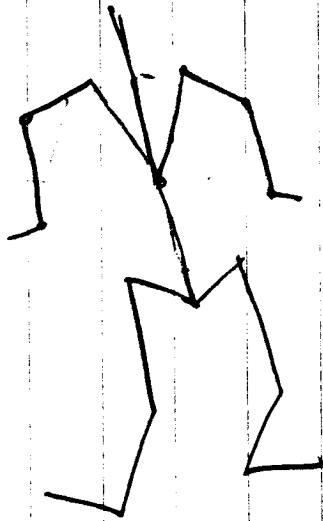
18 channels

+ 1 (sound background)  
+ 1 (table channel)



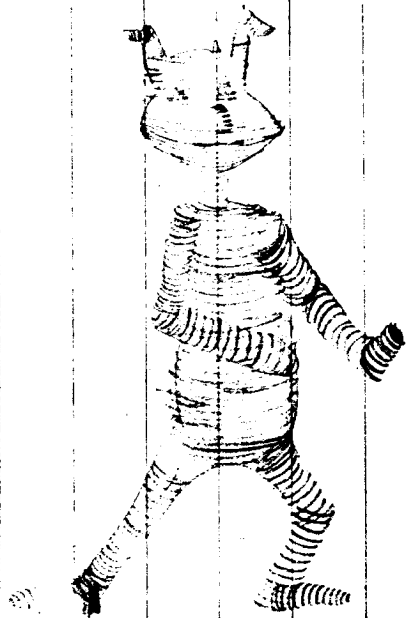
BONE MAN  
WITH "Z" BONE GEN

①



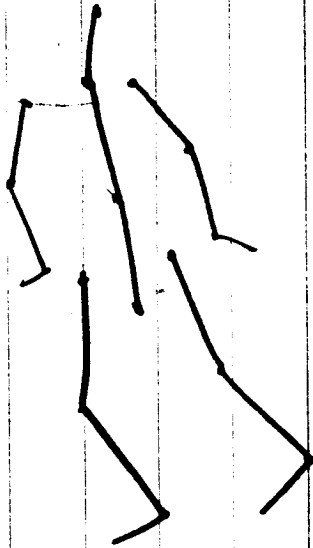
WITH SCANNER - AND  
GATING OFF BACK OF FIGURE

⑤



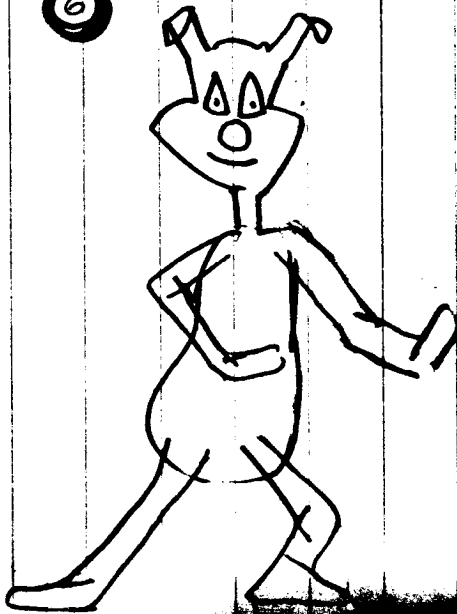
COUNTER, AND  
PROGRAMMED BLANKING

②



CREATING PULSE AT EDGES  
( $\sin \psi = 0$ ) AND A PULSE  
BY THRESHOLD OFF FILM (INTERLINES)

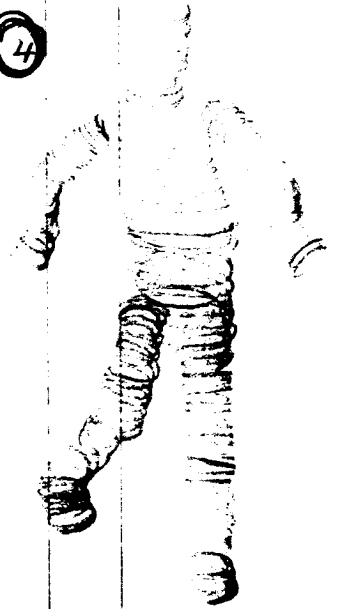
⑥



AND MULTIPLIER NETWORK  
( $\ominus + \phi$ )  
(USING A GATED D-C "VIDEO")

VIDEO

④



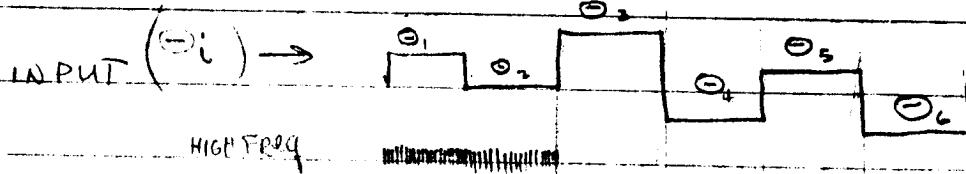
# WRINKLE & JOINTS

TWO THINGS MUST OCCUR:

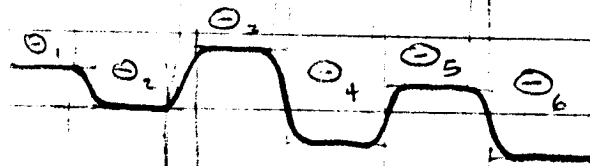
1. THE PLANES OF THE CROSS SECTIONS MUST TILT AS THEY APPROACH THE JOINT.
2. A CHARACTERISTIC FOLDING AND STRETCHING OF THE SURFACE NEAR THE JOINT.

Radius Bone length and  $z$  position.

## JOINT GENERATOR



OUTPUT



WIDTH GIVES RADIUS OF BEND

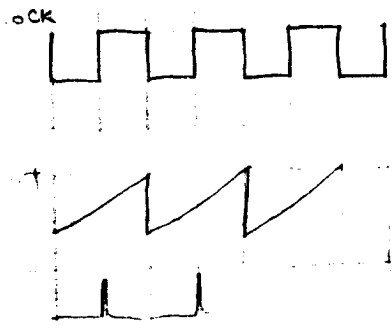
$$\text{SAY: } 50 \text{ BONES} / \frac{1}{24}$$

$$= 1200 \text{ BONES SEC}$$

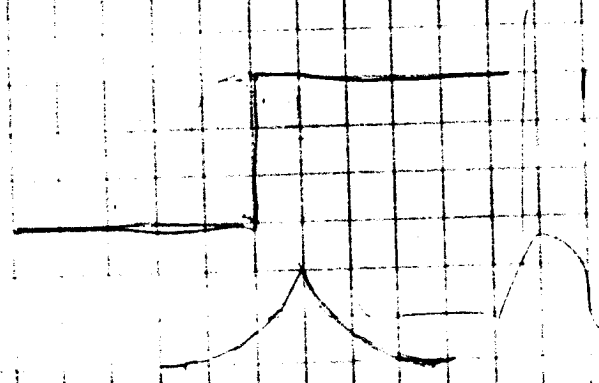
USING 50 LINES / BONE

$$\text{THE HF} = 60 \text{ KC}$$

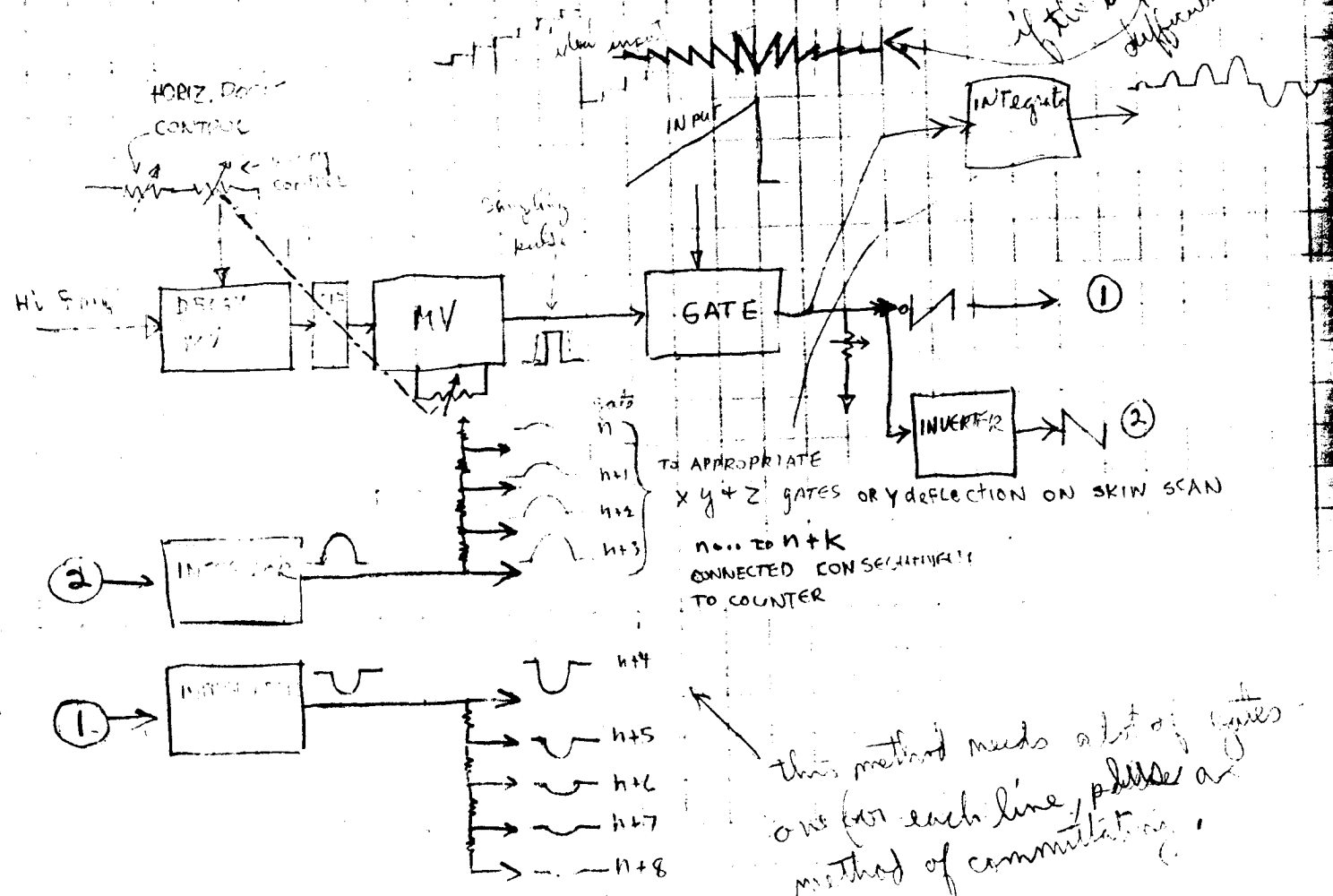
METHOD: LOW PASS FILTER (NO OVERTHOOT)



# LIP SYNC

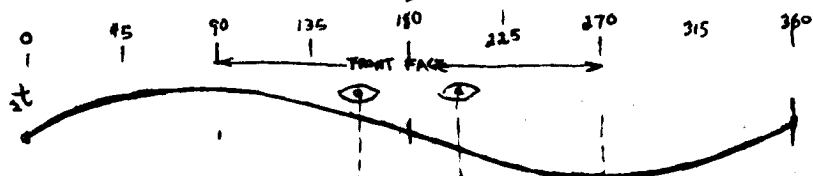


This method if the input is not too difficult to generate

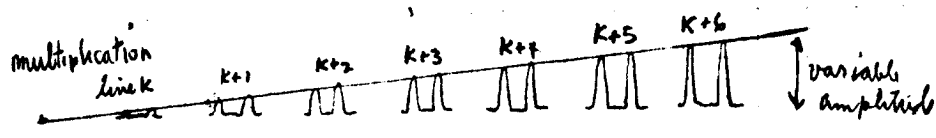
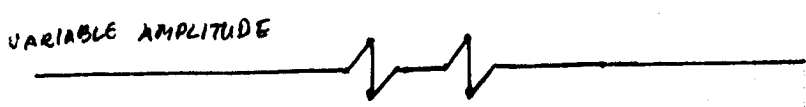
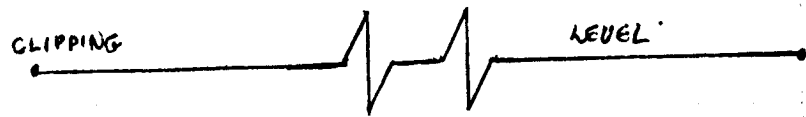
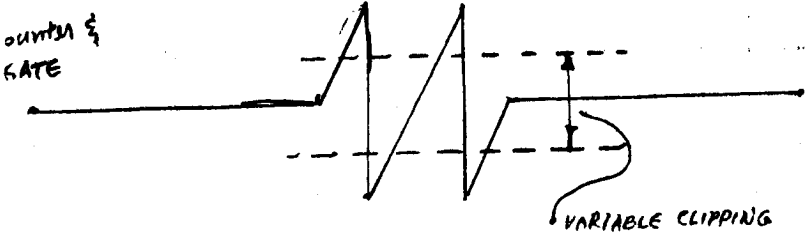
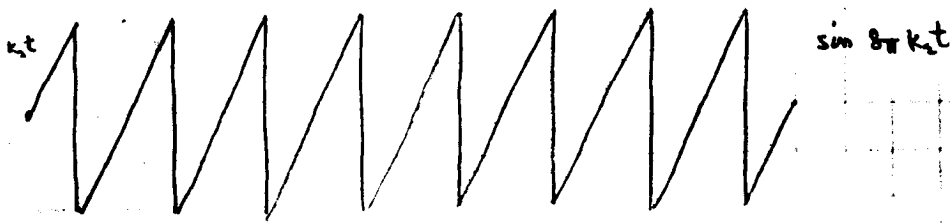


this method needs a lot of lines one for each line plus a method of commutation.

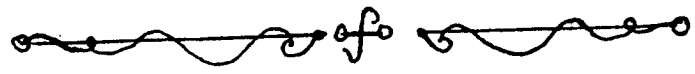
# EYES & LIP MOTION



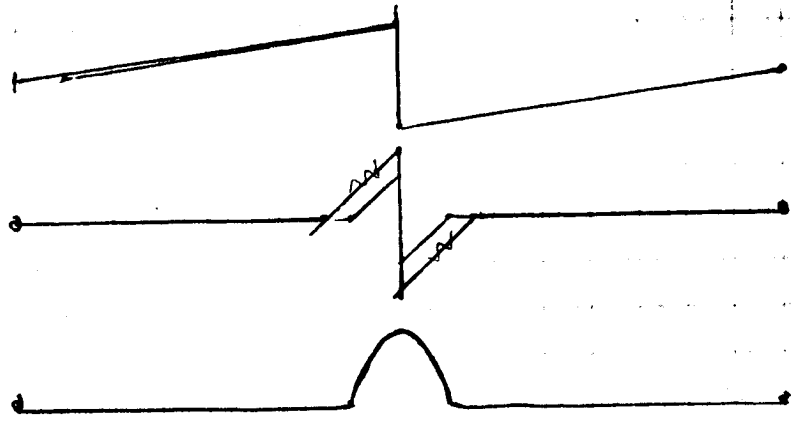
UPPER LIDS



INVERT + REVERSE MULT. FOR LOWER LID



LIP



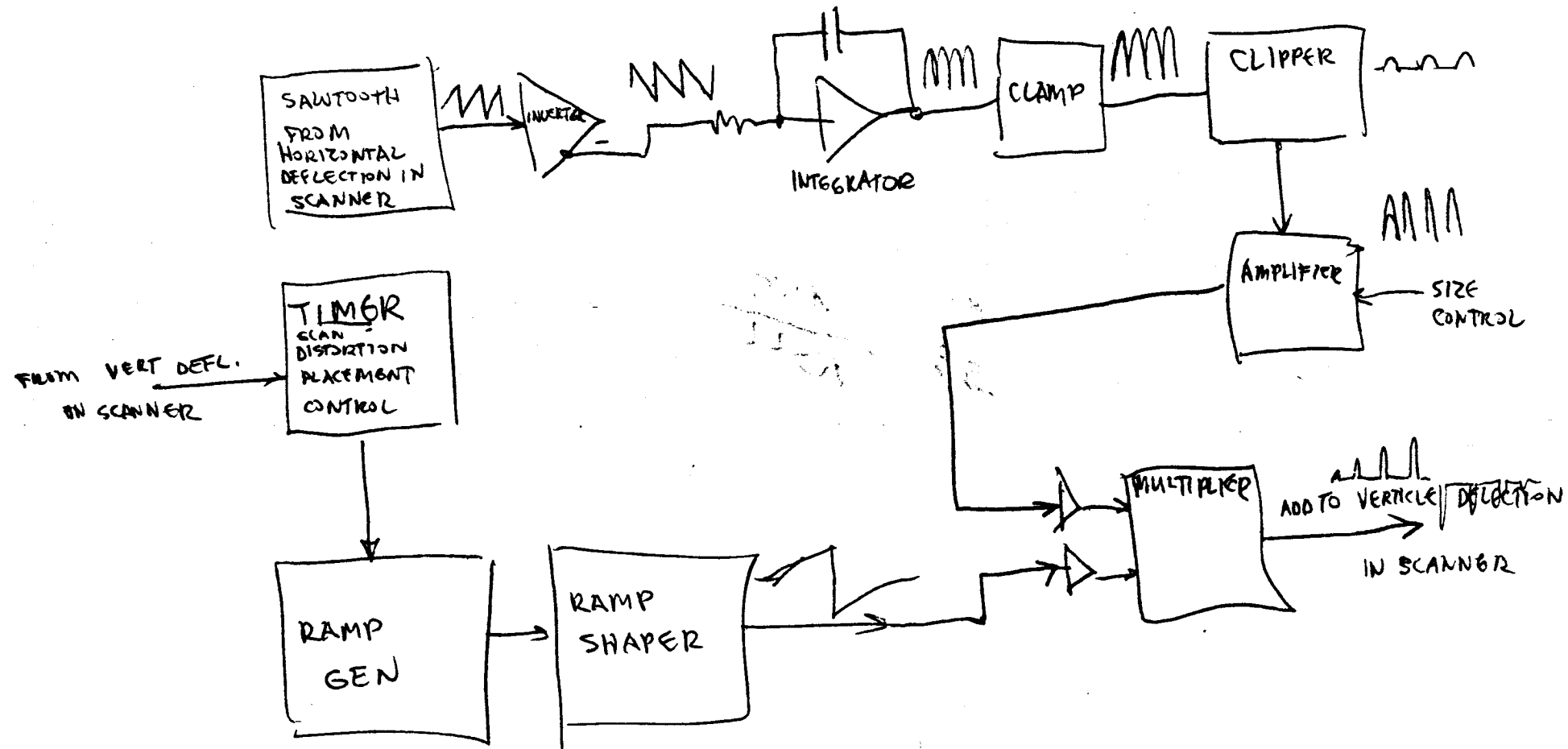
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~~SEE PAGE 10~~

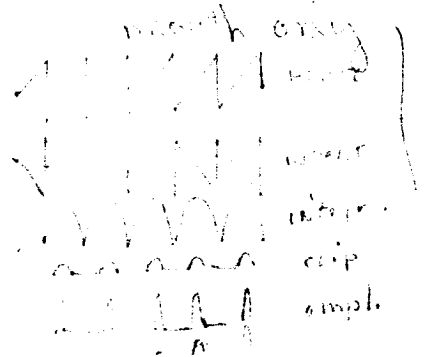
# LIP SYNC & EYES + BROWS

IN CONSTRUCTION WITH HEAD BONES

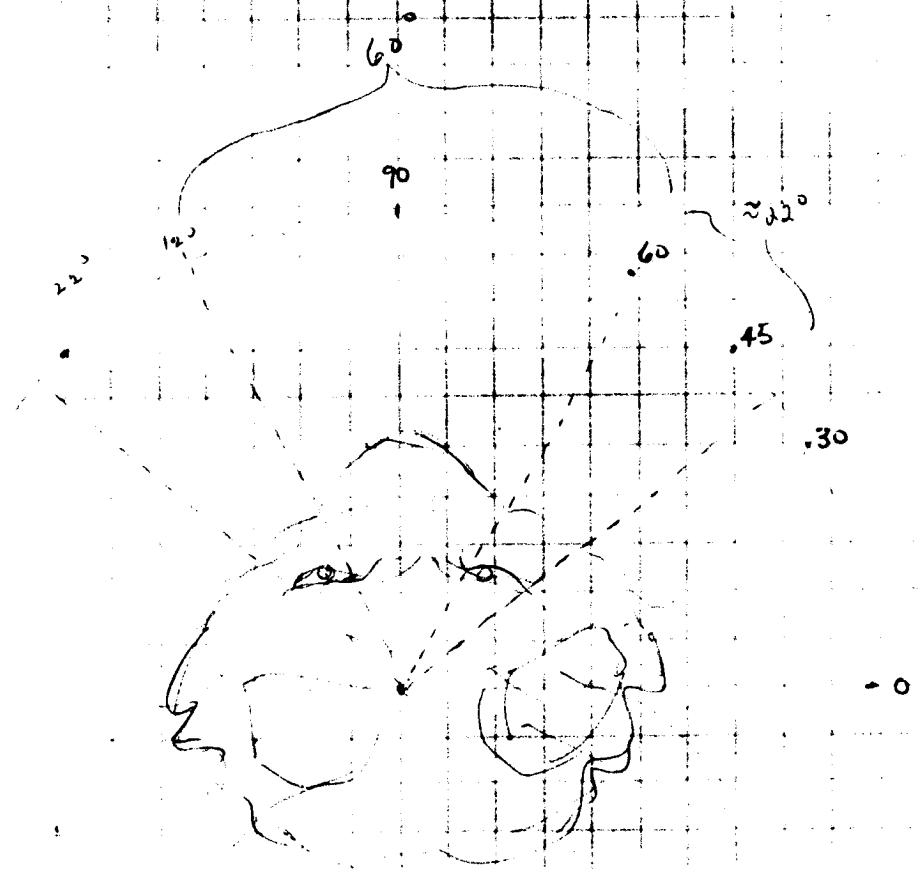
USE PRECEDING BONE TO SET CONDITIONS FOR SCANNING



need 2 x frequency change for eyes etc.

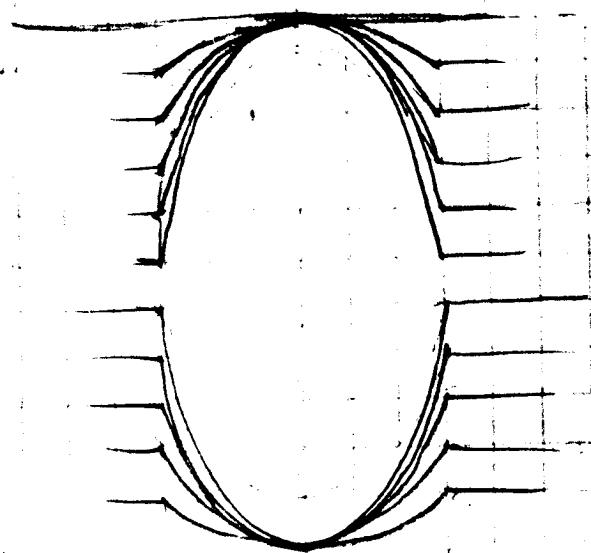
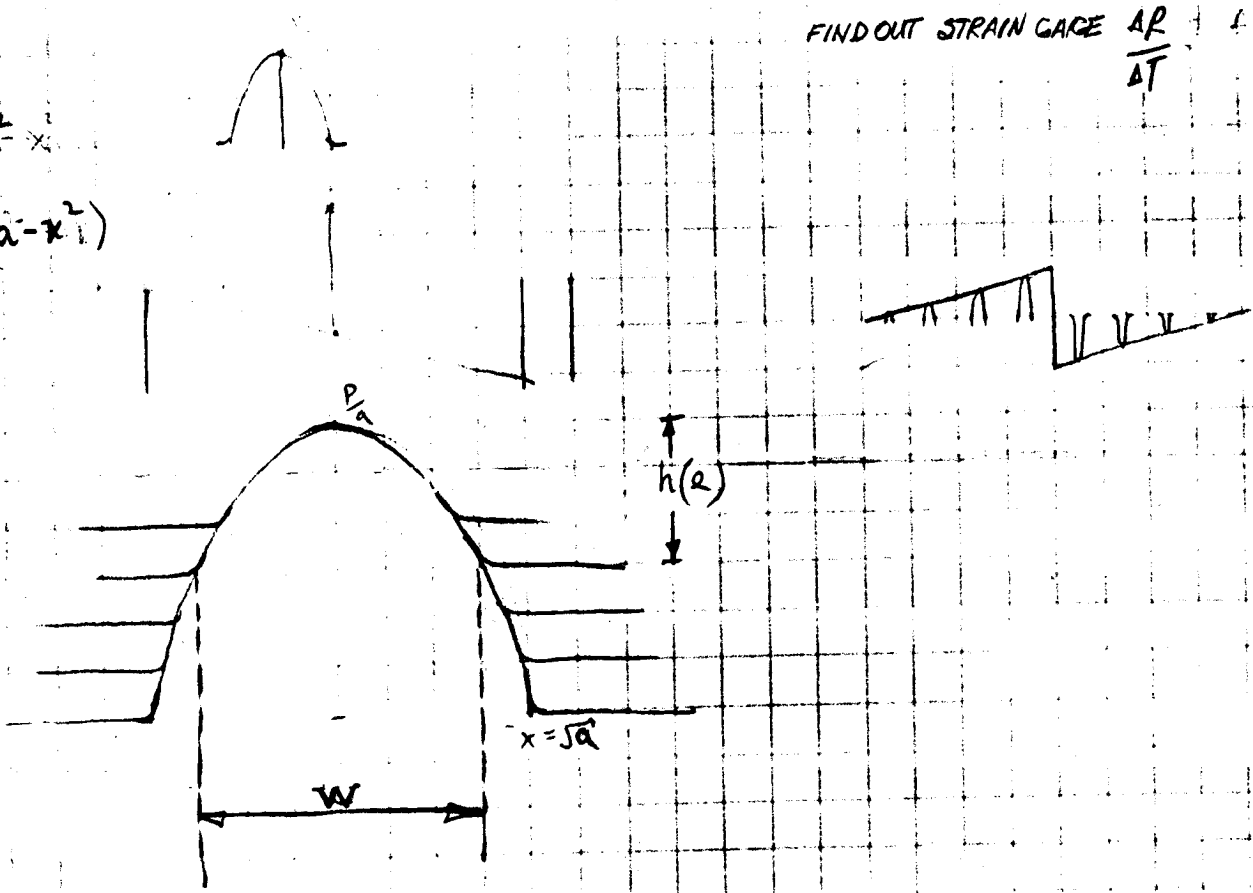




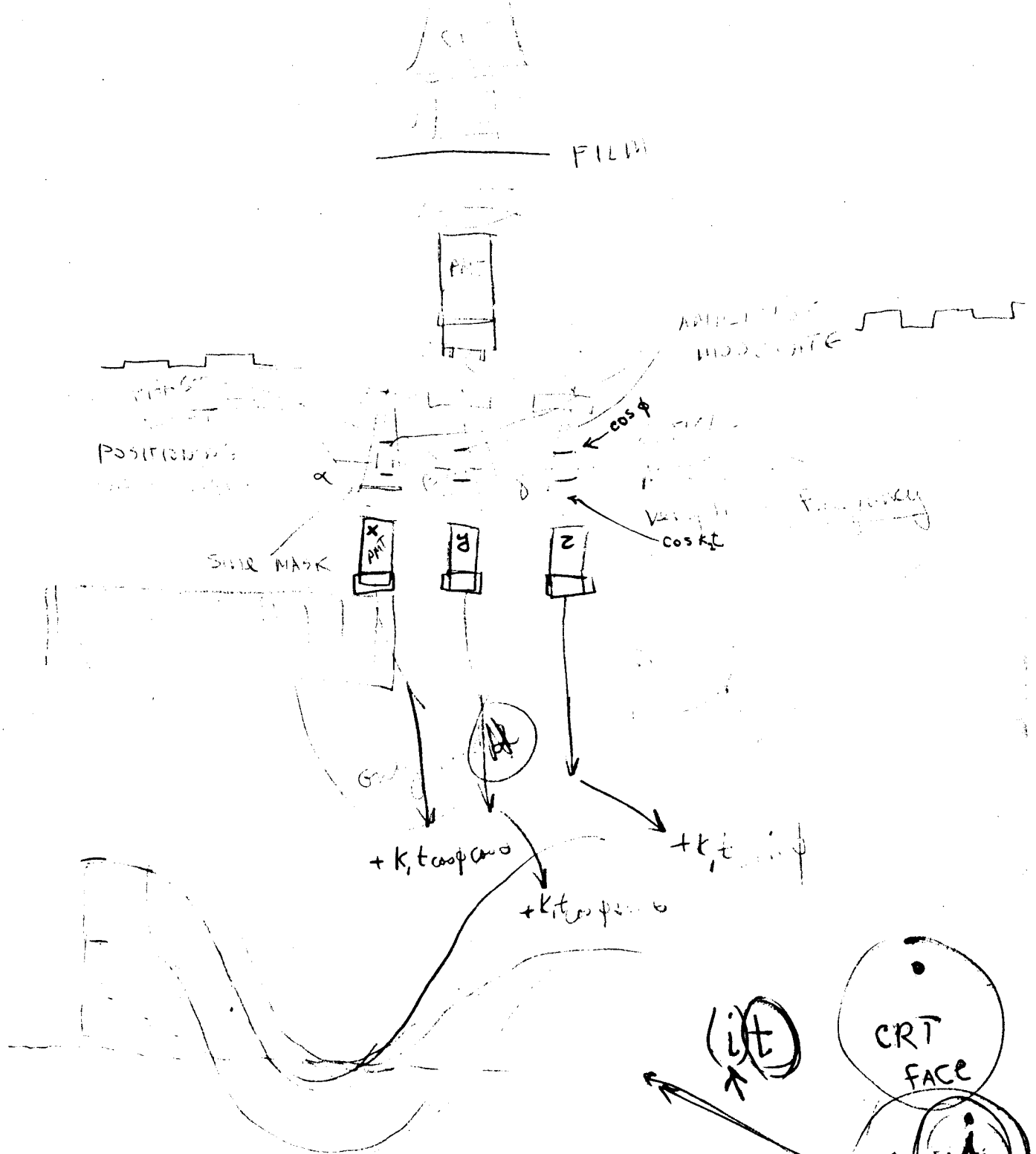


FIND OUT STRAIN GAGE  $\frac{\Delta R}{\Delta T}$

$$y = \frac{1}{p}x^2 - x^2$$
$$= -\frac{1}{p}(a-x^2)$$



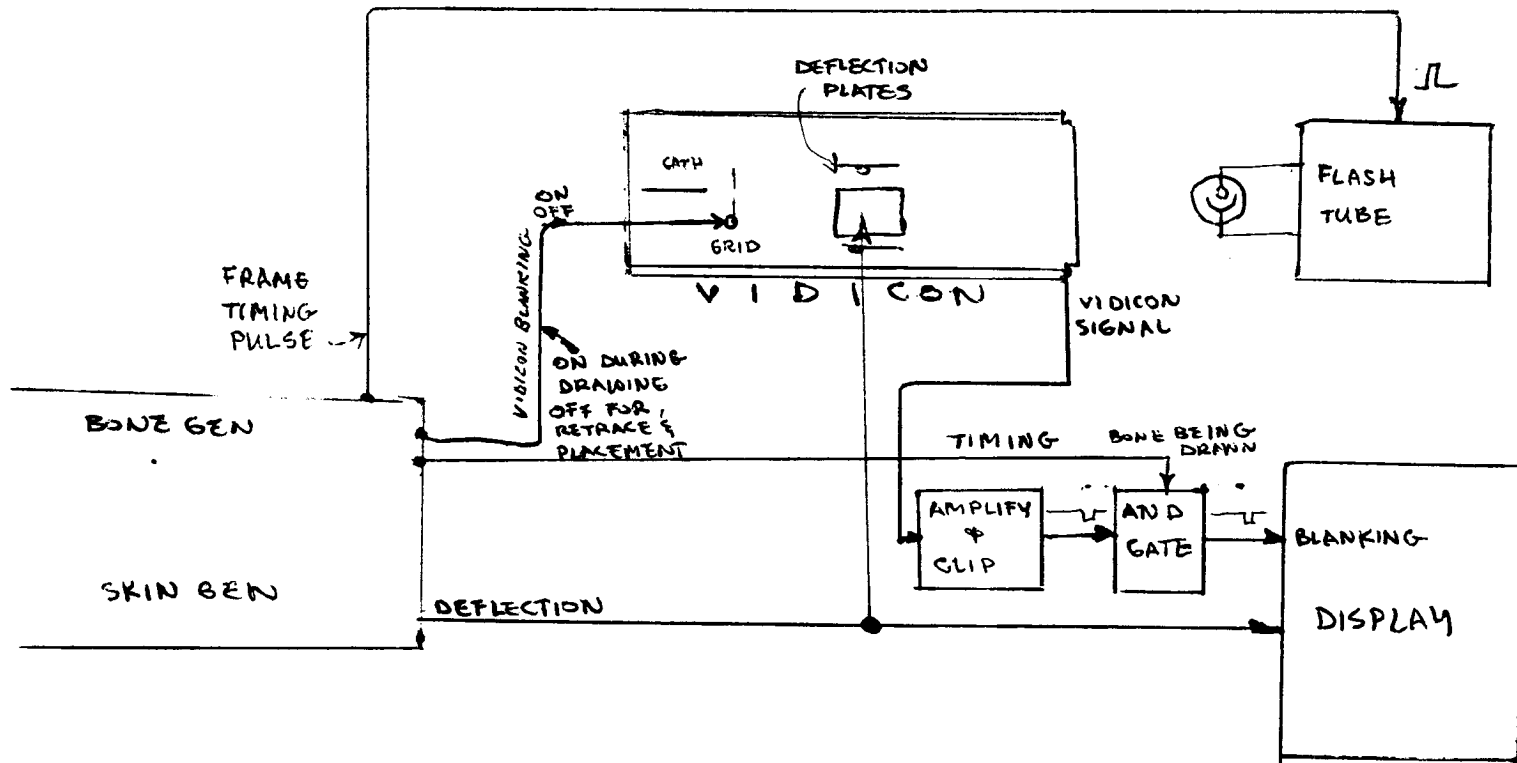
TYPICAL PARABOLIC SCANNING DISTORTION



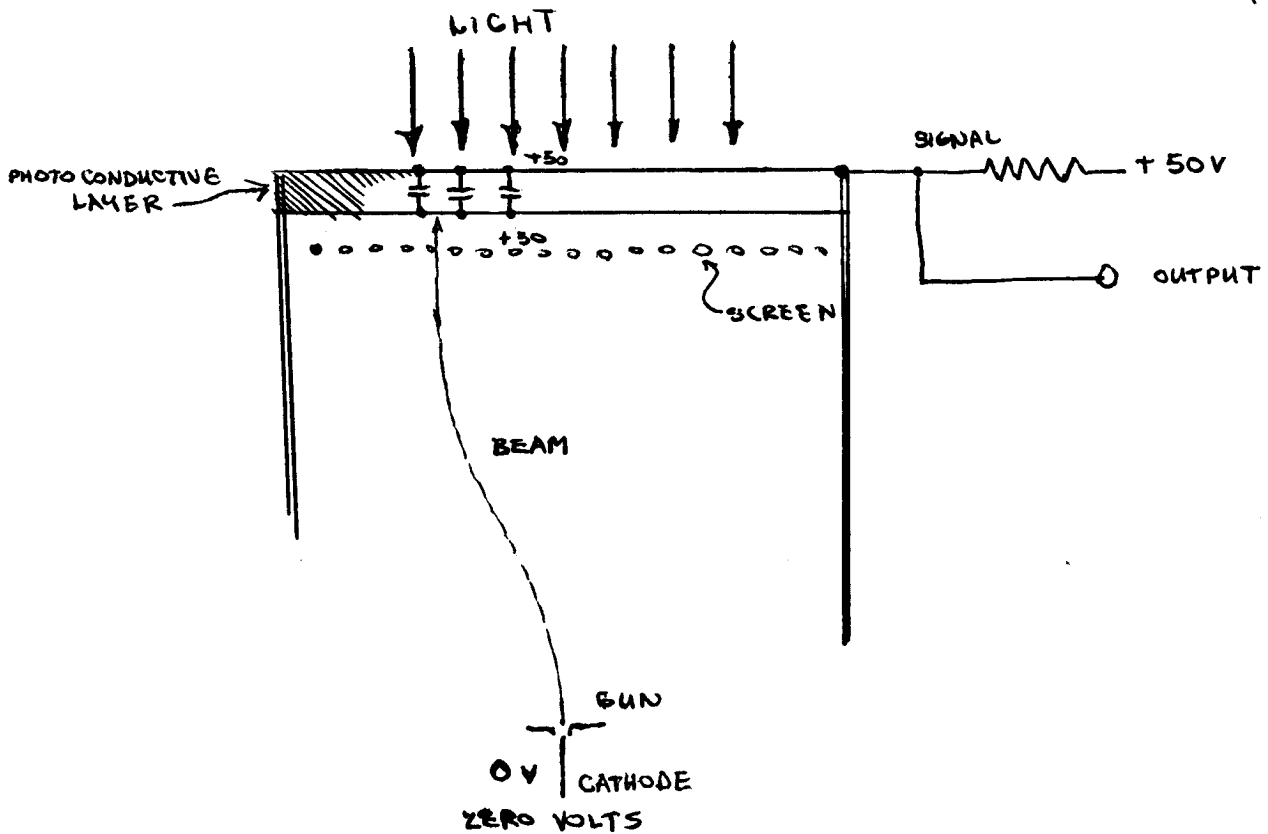
For certain combinations use

- $\sin(\alpha + \beta)$
- $\cos(\alpha + \beta)$
- $\sin(\alpha - \beta)$
- $\cos(\alpha - \beta)$

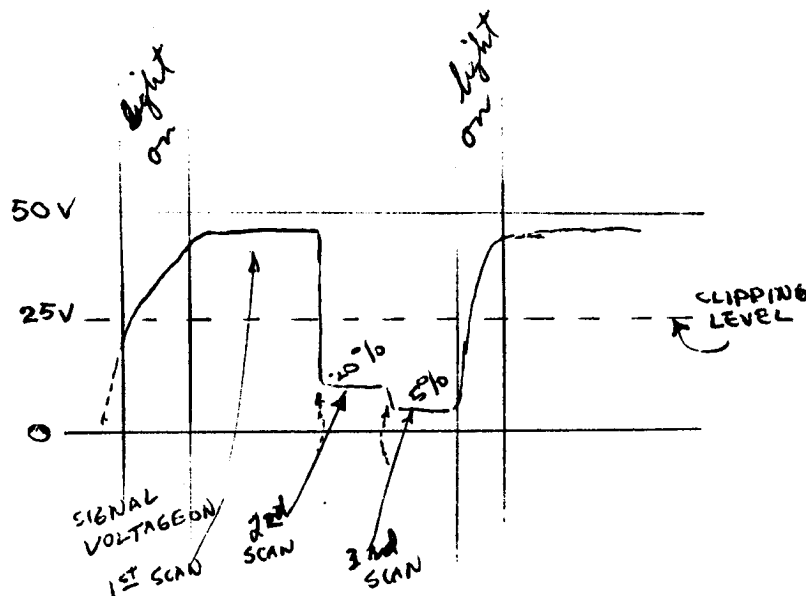


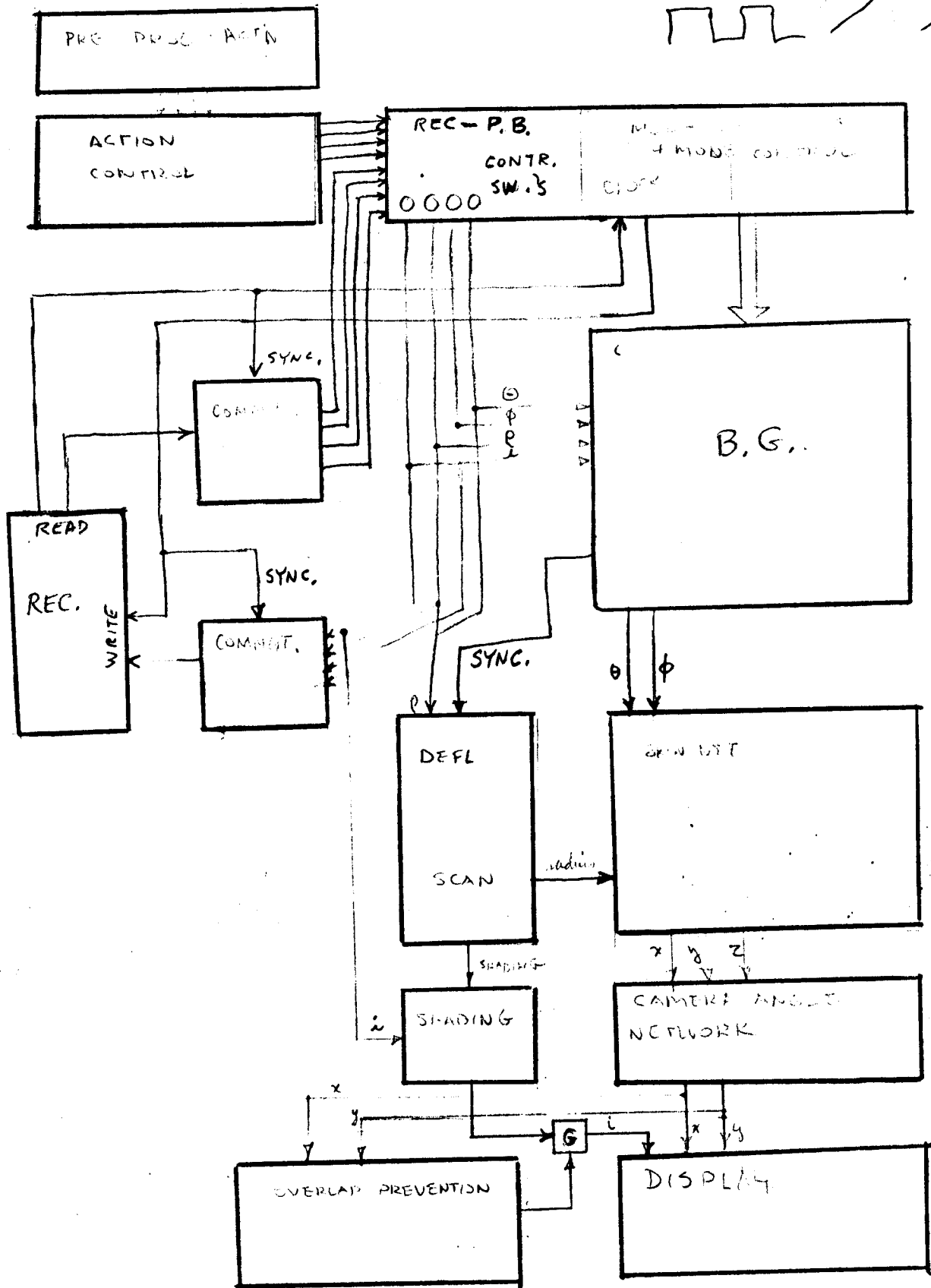


# VIDICON OPERATION FOR OVERLAP PREVENTION

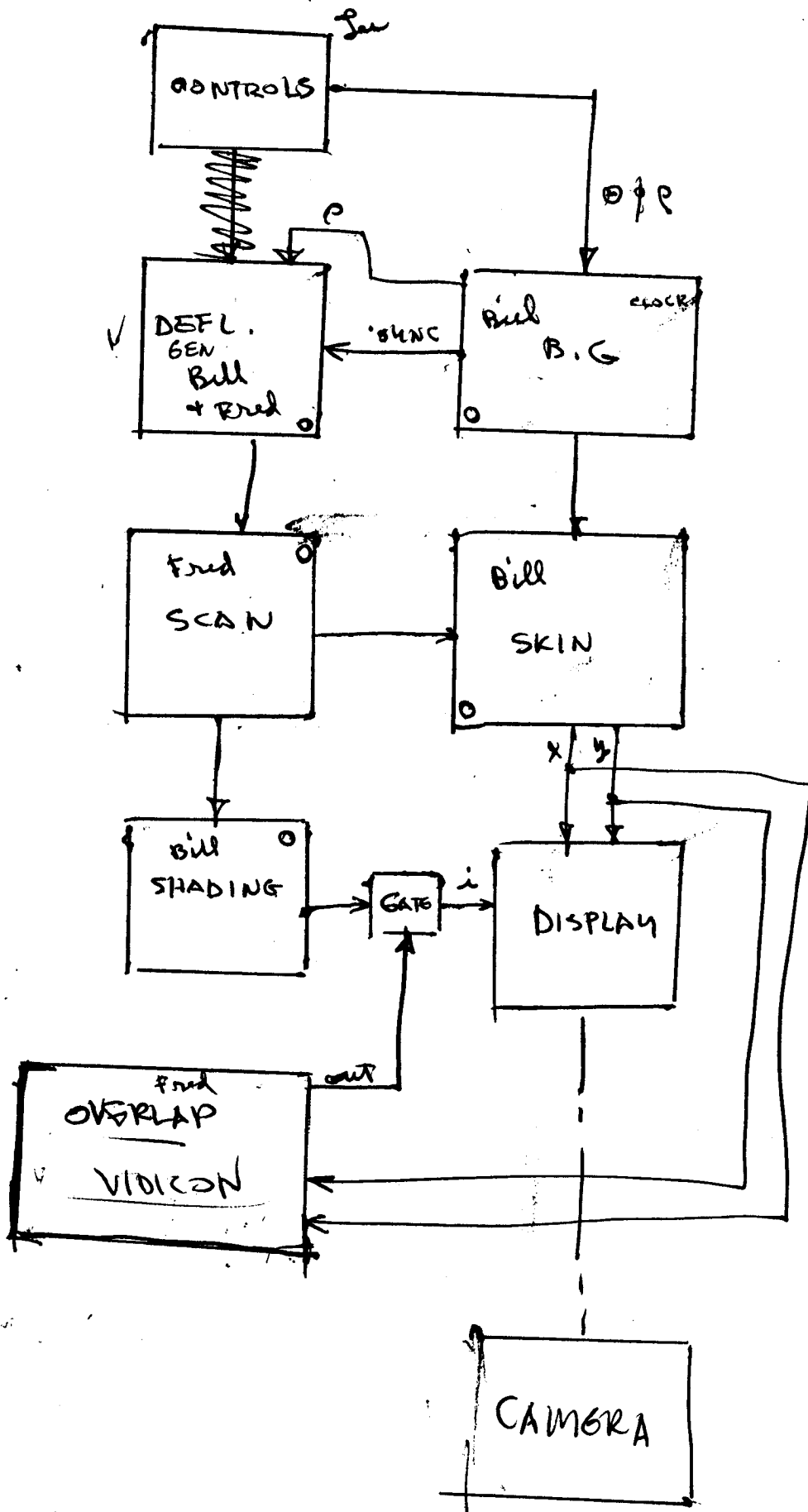


1. TURN ON LIGHT - GUN SIDE OF PHOTO CONDUCTIVE LAYER CHARGES TO SIGNAL ELECTRODE
2. TURN OFF LIGHT - " " " " " " " STAYS AT " "
3. TURN ON BEAM AND SCAN: - GUN SIDE OF PHOTO CONDUCTIVE LAYER IS DISCHARGED TO CATHODE POTENTIAL WHEREVER ELECTRON BEAM SCANS, CAUSING SIGNAL CURRENT TO FLOW. RE-SCANNING SAME AREA PRODUCES LITTLE CURRENT BECAUSE AREA WAS ALREADY DISCHARGED ON FIRST SCAN.
4. TURN OFF ELECTRON BEAM, TURN ON LIGHT. ALL AREAS NOW RETURN TO SIGNAL ELECTRODE POTENTIAL AND CYCLE IS REPEATED FOR NEXT FRAME.



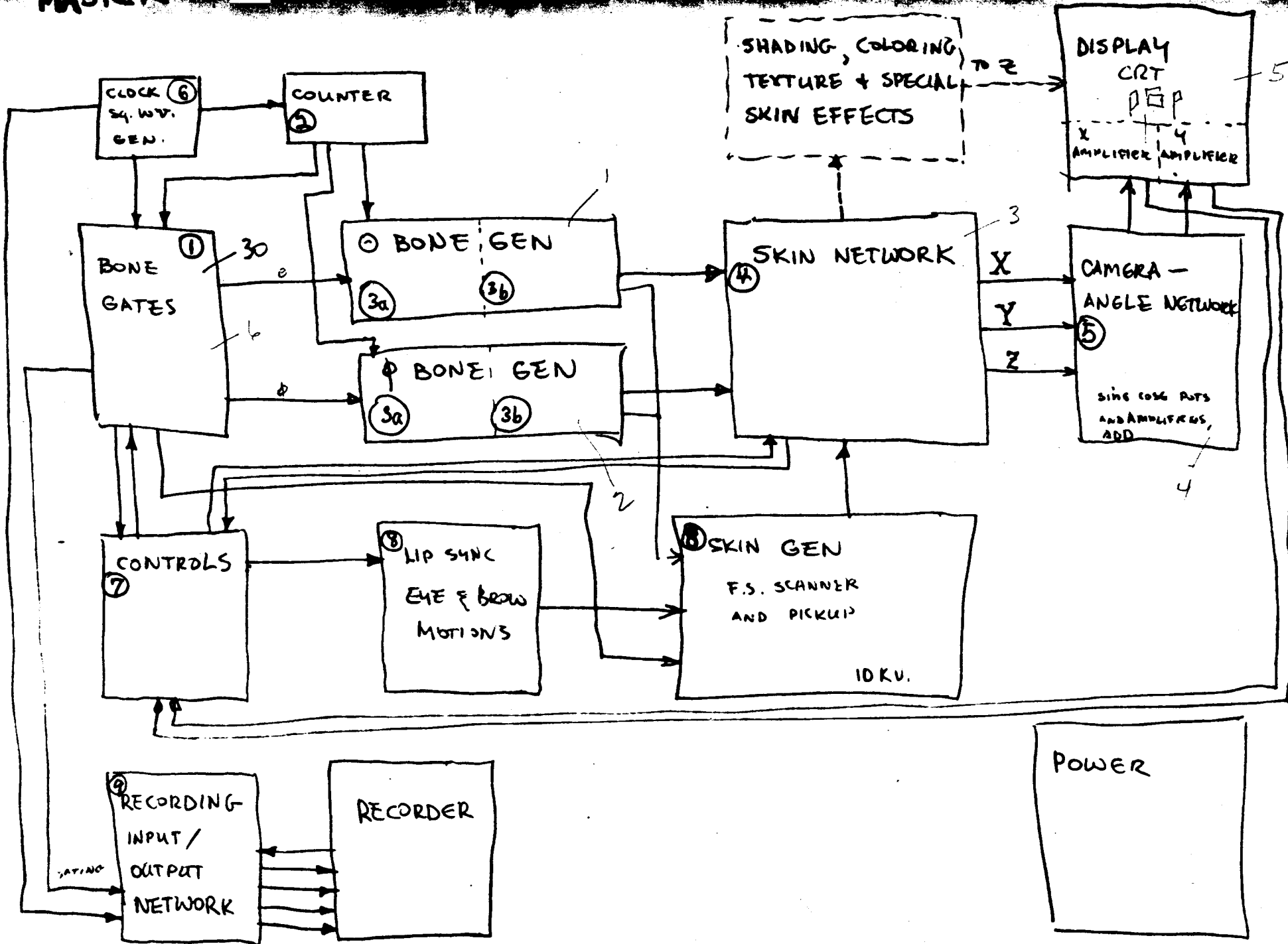


MODE I  
MODE-II

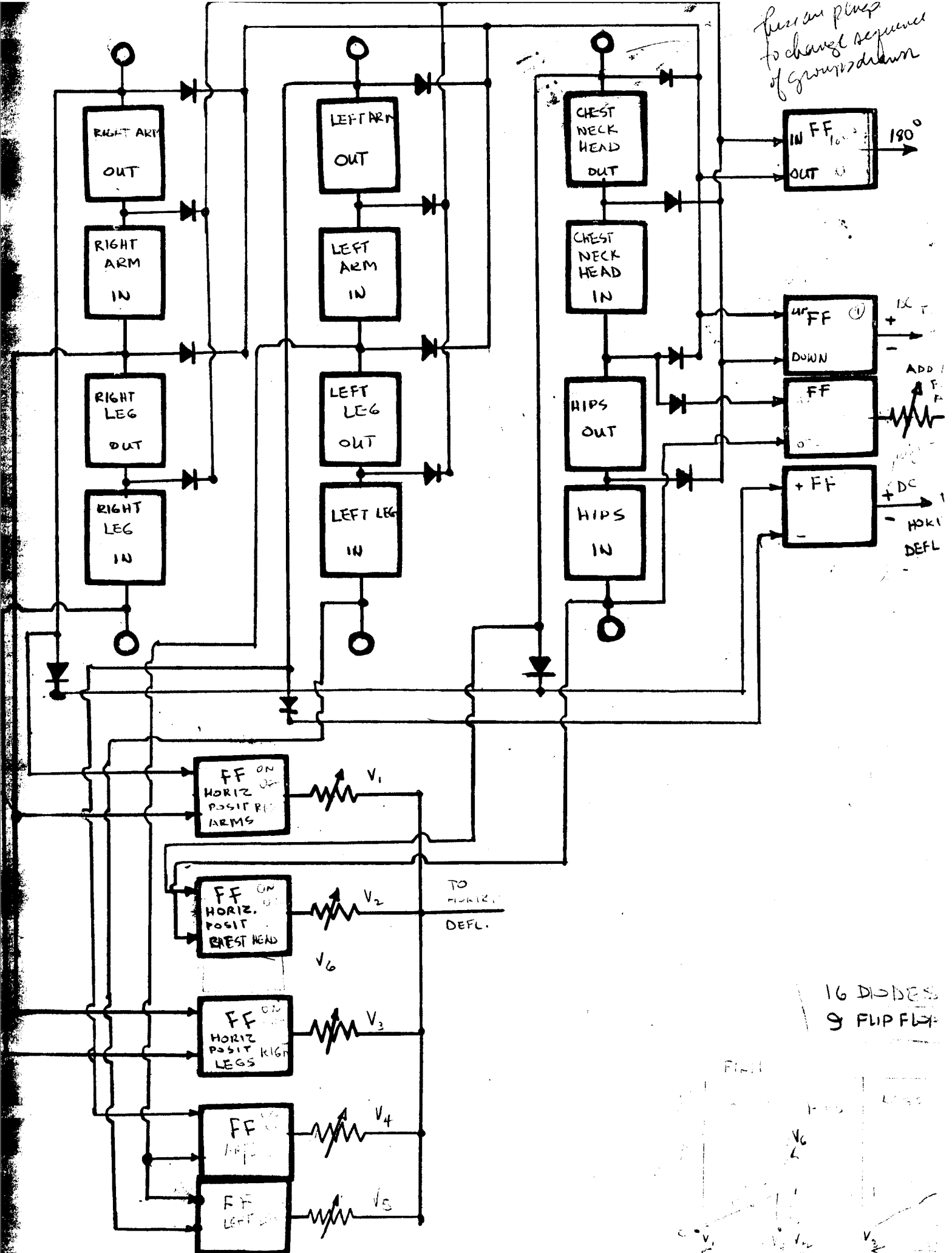




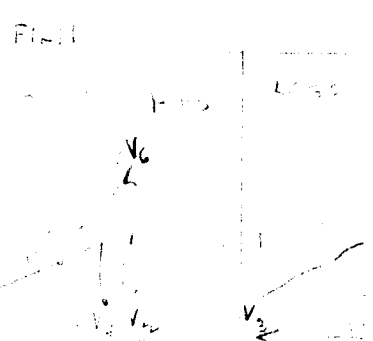
# MASTER

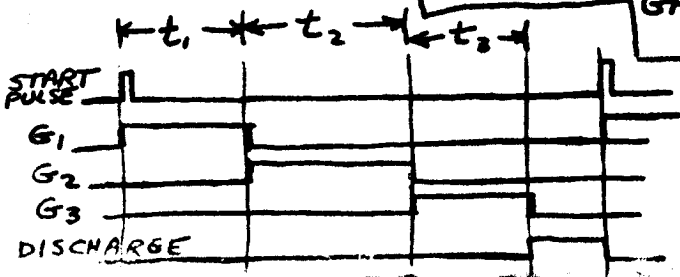
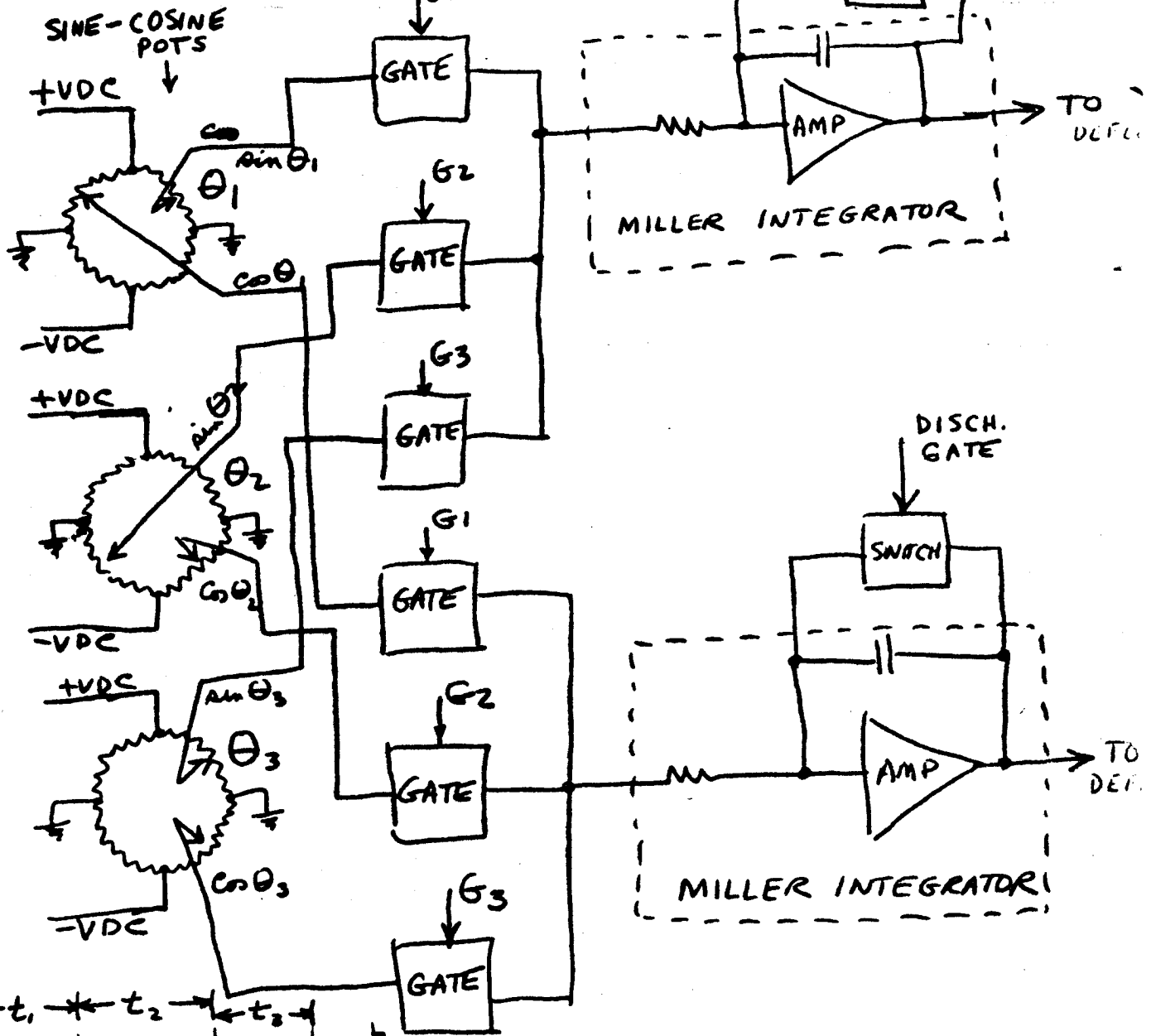
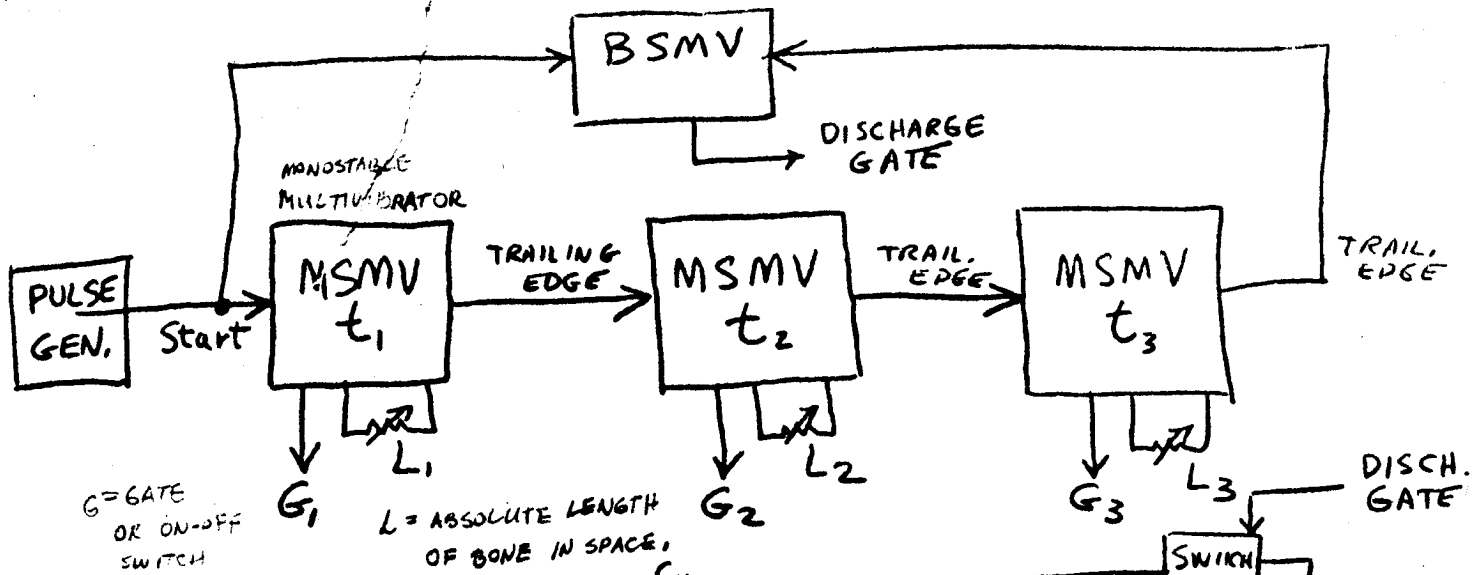


*Use an plug to change sequence of groups down*



16 DIODES  
9 FLIP FLOPS





BONE GENERATOR

W. Altemus  
11-2-60

HARRISON  VISIONICS

AUG 28, 1960

I, LEE HARRISON III, DO HEREBY DECLARE THAT THE IDEAS FOR THE ENSUING, CORPORATE FORMATION HAVE BEEN ORIGINATED BY ME OVER THE PAST FOUR YEARS.

THE WORD "VISIONICS" WAS CONCEIVED BY ME IN THE SUMMER OF 1958.

THIS CORPORATION WILL BE IN THE BUSINESS OF DEVELOPING AN ELECTRO-VISUAL ART OF ANIMATION (ANIMATED DRAWINGS) WHEREBY THE CONTINUOUS MOTION OF OBJECTS & PERFORMERS WILL BE PRODUCED ELECTRONICALLY THE CORPORATION, TO BE KNOWN AS

HARRISON VISIONICS

MAY PRODUCE FILMS FOR PUBLIC CONSUMPTION  
MAY PRODUCE ELECTRONIC & MECHANICAL  
EQUIPMENTS FOR THE PRODUCTION OF SAID FILM  
MAY ACQUIRE PATENTS ON SAID EQUIPMENTS AND  
COPYRIGHTS ON SAID FILMS.

MAY ACT AS HOLDING COMPANY FOR STOCKS,  
 MAY DEVISE AND PRINT STOCK, MAY SELL  
 SAID STOCKS TO THE PUBLIC, OR TO  
 PRIVATE ENTERPRISES AND MAY ENGAGE  
 IN BUSINESS ASSOCIATED WITH ANIMATED-FILM  
 PRODUCTION OR SUBSEQUENT ELECTRO-VISUAL  
 EQUIPMENTS, DISPLAYS, COMPUTERS ETC.

THE ORIGINAL STOCK ISSUE WILL BE TEN MILLION  
 SHARES TO BE DISTRIBUTED AS FOLLOWS:

~~6 MILLION TO LEE HARRISON III  
 1 MILLION TO HOWARD WRIGHT  
 1 MILLION TO ROBERT EBY  
 1 MILLION TO WILLIAM ULTIMUS  
 AND 1 MILLION FOR PUBLIC OR PRIVATE  
 CONSUMPTIONS FOR THE PURPOSE OF  
 ACQUIRING CAPITAL.~~

~~THE 1-MILLION-BLOCK SHARES WILL BE SOLD TO  
 MESSRS WRIGHT, EBY, AND ULTIMUS FOR ONE  
 DOLLAR (U.S.)~~

~~THE CORPORATE STRUCTURE, INITIALLY  
 WILL BE:~~

LEE HARRISON III PRESIDENT



~~HOWARD WRIGHT VICE PRESIDENT IN  
CHARGE OF SALES AND MANAGEMENT~~

~~ROBERT EBY VICE PRESIDENT IN CHARGE  
OF PRODUCTION~~

~~WILLIAM ULTIMUS VICE PRESIDENT IN CHARGE  
OF RESEARCH AND DEVELOPMENT.~~

### THE ANIMATION DEVICE

THE ANIMATION DEVICE, IN ITS PRESENT FORM, IS THE RESULT OF 4 YEARS OF WORK, BY ME, AND REPRESENTS TO THIS CORPORATION, ITS MAJOR INTEREST AND REASON FOR BEING. THE TECHNIQUES USED FOR THE DEVELOPMENT OF A MOVING IMAGE ARE PROPERTY OF THE CORPORATION, AND REPRESENT ITS ONLY CAPITAL AT THIS TIME.

THE OPERATION OF THE DEVICE WILL BE DESCRIBED IN AN APPENIX TO THIS TABLET,

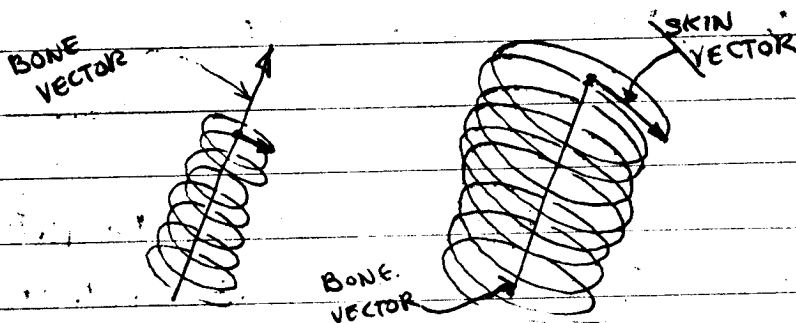
THIS DOCUMENT WAS CONCEIVED IN ITS PRESENT FORM IN THE PAST FEW WEEKS, AND IS WRITTEN DOWN THIS TWENTY EIGHTH DAY OF AUGUST, NINETEEN HUNDRED AND SIXTY ONE

*W. H. Harrison III*

## SUMMARY

IN BLOCKING OUT OUR PATENT AREA THERE ARE CERTAIN BASIC IDEAS WHICH, IF WE COULD CLAIM AS OUR OWN, WOULD GIVE US THE ROOM WE NEED TO WORK IN. <sup>THE PATENTING OF</sup> COMBINATIONS OF COMPONENTS RATHER THAN SPECIFIC CIRCUITS WOULD SEEM TO BE THE ANSWER, FOR THE CIRCUITS USED ARE SO COMMON THAT THERE ARE MANY POSSIBLE DESIGNS.

A. THE VECTOR ADDITION OF THE SKIN VECTOR ~~AND~~ TO THE BONE VECTOR.



### a. FULL BASIC FORMAT

B. THE BASIC IDEA OF USING A SCANNER TO MODULATE THE LENGTH OF THE SKIN VECTOR.

C. THE IDEA THAT THE SKIN VECTOR IS ORTHOGONAL (AT RIGHT ANGLES), OR AT ANY PARTICULAR ANGLE TO THE BONE VECTOR. WE MAY WANT TO CHANGE THIS ANGLE ~~FOR~~ BRIEFLY IN CERTAIN PLACES IN ORDER TO PRODUCE PLASTIC EFFECTS IN THE SKIN - AS IN LIP OR EYE MOTION,

D. THE METHOD OF GENERATING THE SKIN <sup>OF ORTHOGONAL INFORMATION.</sup> FILM WHICH MAY BE SCANNED. RIGHT NOW WE ARE CONTEMPLATING USING

ARE:

TO KEEP IN MIND HOWEVER

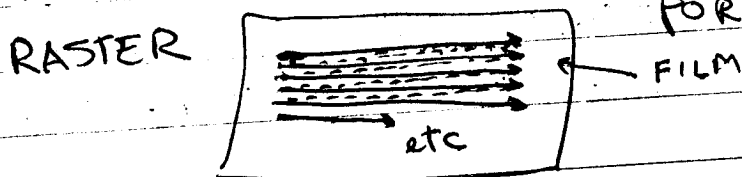
IDEAS

SOME BASIC

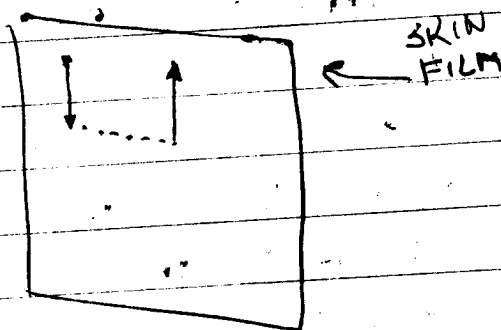
⊕ ⊗

THE FILM-DENSITY AS THE STORAGE MEDIUM WHICH HOLDS THE INFORMATION OF THE SKIN-THICKNESS. THERE ARE OTHER WAYS TO HOLD THIS INFORMATION, (AS IN A MEMORY DEVICE). RATHER THAN HAVE THE INFORMATION CONTAINED IN THE FILM DENSITY (WITH DENSITY VARIATIONS FROM BLACK TO WHITE, THE INFORMATION COULD BE ENCODED IN A DIGITAL FASHION WITH BLACK & WHITE DOTS.

E. WE ALSO NEED LEEWAY IN THE METHODS WE USE FOR SCANNING THE SKIN-FILM. RIGHT NOW WE CONTEMPLATE USING A NORMAL RECTANGULAR RASTER FOR THE FULL BASIC FORMAT.



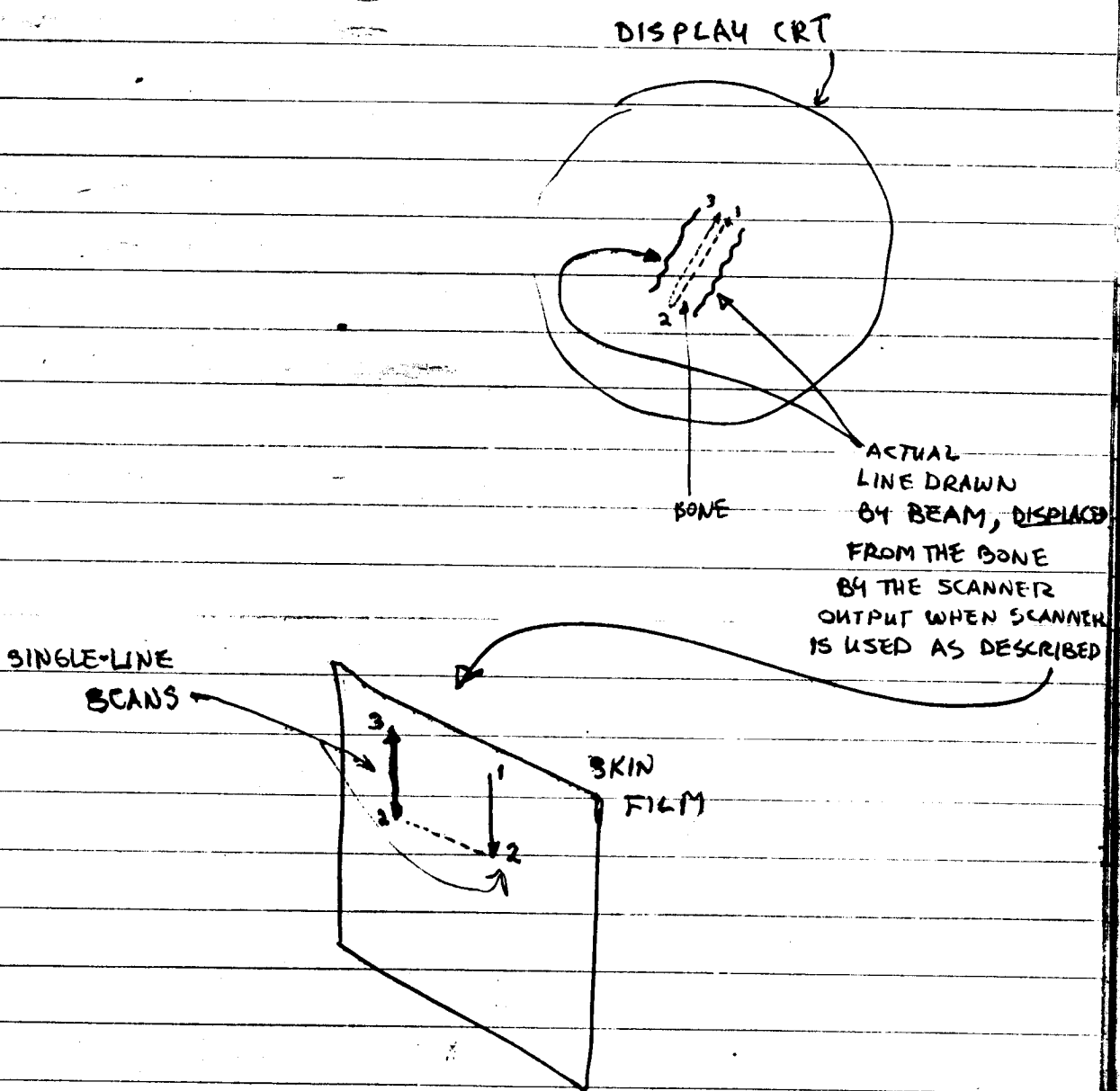
BUT WE MAY WANT TO USE A DIFFERENT RASTER AS



WHERE THE OUTPUT OF THE SCANNER IS USED MERELY TO DISPLACE THE BONE VECTOR TO ONE SIDE ~~OR~~ THE OTHER SO THAT WE DRAW A BONE TWICE, THEREBY DRAWING ON THE DISPLAY ONLY



THE OUTLINE OF THE PARTICULAR OBJECT BEING DRAWN,



WE CALL THIS "SINGLE LINE FORMAT"

F. WE ALSO NEED LEEWAY IN CIRCUIT DESIGN IN SUCH A WAY THAT WE MAY <sup>a)</sup> TRANSISTORIZE OR <sup>b)</sup> DIGITALIZE ~~OUR~~ <sup>THE</sup> SYNCHRONIZING AND MULTIPLEXING TECHNIQUES

G. WE NEED LOTS OF ROOM IN THE CONTROL END OF THE DEVICE. <sup>AT PRESENT</sup> WE CREATE ELECTRONIC INPUTS TO THE BONE GATES BY THE HAND-MANIPULATION OF A POTENTIOMETER, ~~A POTENTIOMETER~~. HOWEVER, WE HAVE MANY IDEAS FOR IMPROVEMENTS, AND AS WE ~~MANIPULATE~~ <sup>THE</sup> GET MORE EXPERIENCE WITH OPERATION OF THE DEVICE, WE WILL ADD NEW CIRCUITS AND DEVELOPE NEW TECHNIQUES, TO MAKE CONTROL AS AUTOMATIC AS POSSIBLE

H. INTEGRATION OF MULTIPLE SIGNALS.