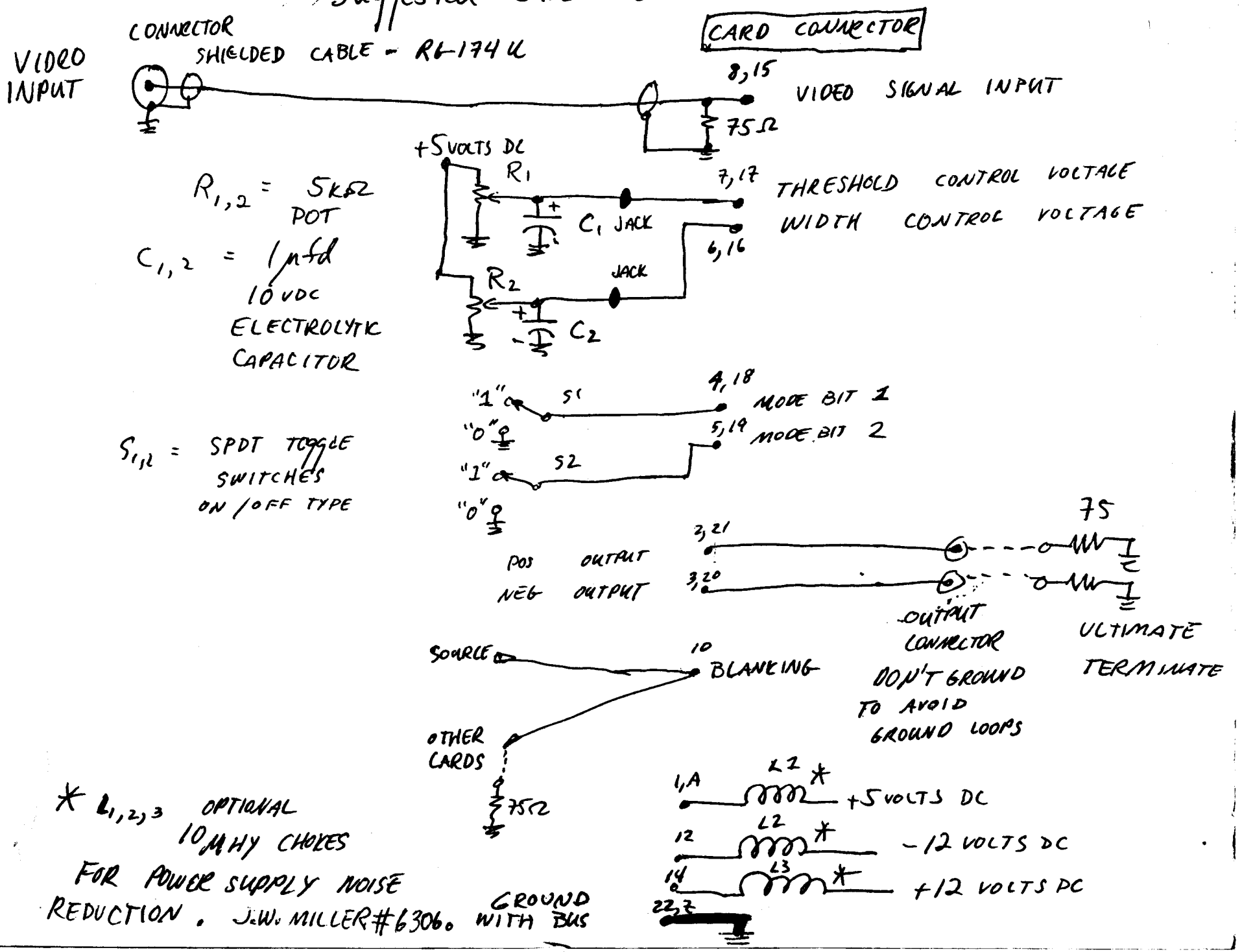
VIDEO OUTLINER

EDGE CONNECTOR PIN FUNCTIONS

OUTLINE CARD

PIN	FUNCTION
1 - A	+5 VOLTS DC (± .25 volt)
2	WHITE ON BLACK OUTLINE OUTPUT A
3	BLACK ON WHITE OUTLINE OUTPUT A
4	MODE BIT 1 } CONTROL WORD A
5	MODE BIT 2 } CONTROL WORD A
6	LINE WIDTH CONTROL VOLTAGE INPUT - A
7	THRESHOLD CONTROL VOLTAGE INPUT - A
8	VIDEO SIGNAL INPUT A
9	-
10	SYSTEMS BLANKING INPUT - LOOP THRU
11	-
12	- 12 VOLT D.C. SUPPLY
13	-
14	+12 VOLT D.C. SUPPLY
15	VIDEO SIGNAL INPUT B
16	LINE WIDTH CONTROL VOLTAGE INPUT - B
17	THRESHOLD CONTROL VOLTAGE INPUT - B
18	MODE BIT 1 } CONTROL WORD B
19	MODE BIT 2 } CONTROL WORD B
20	BLACK ON WHITE OUTLINE OUTPUT B
21	WHITE ON BLACK OUTLINE OUTPUT B
22-Z	GROUND

Suggested CARD WIRING

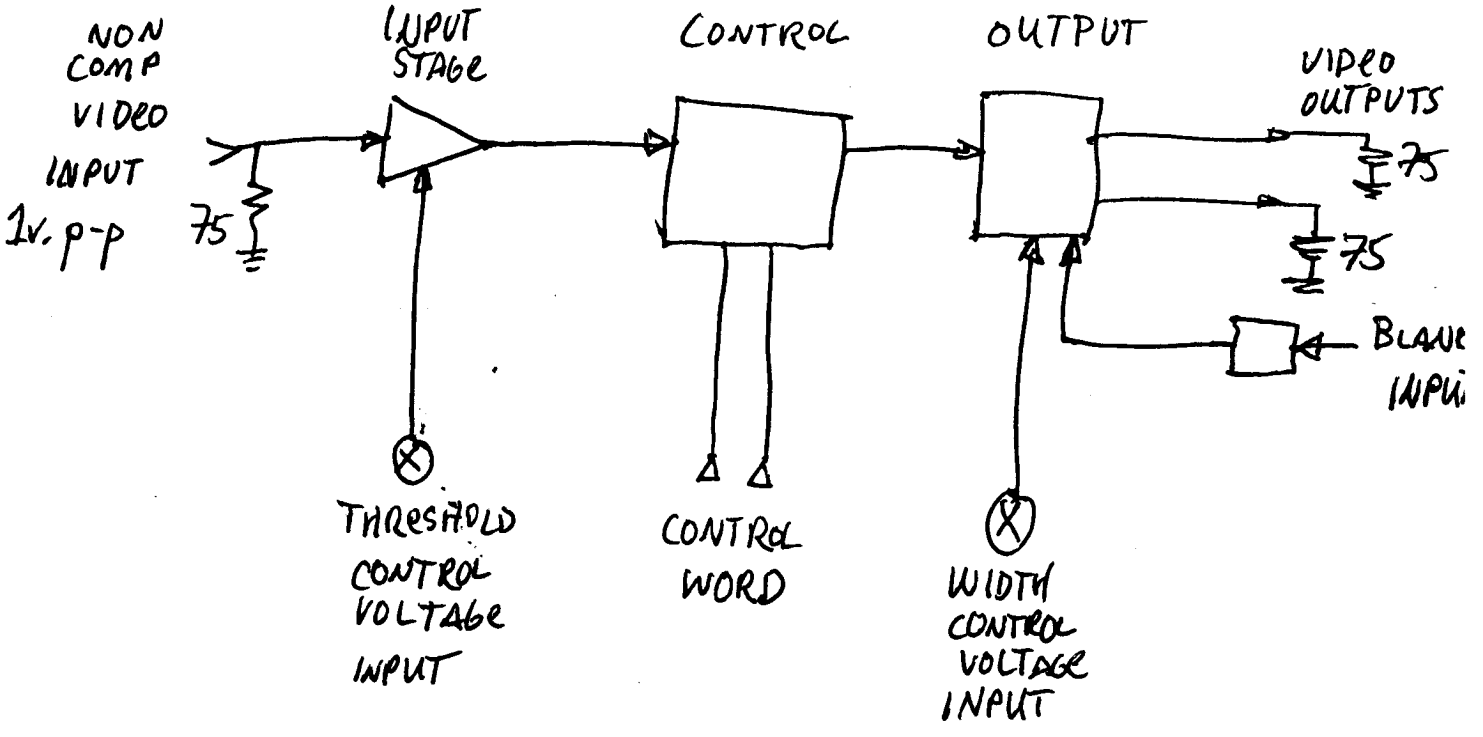


* L1,2,3 OPTIONAL 10 MHY CHOKES FOR POWER SUPPLY NOISE REDUCTION. J.W. MILLER #6306.

Congratulations - you now own 4 Beck Video outliners - 2 cards each containing 2 separate outliners. Features:

* - voltage control of line width from < 1 μsec to 30 μsec
* - selection of black to white and/or white to black edging
* - positive and negative polarity video outputs: .8 volt nominal into 75 Ω load.
* - internal video D.C. restorer

Each outliner may be visualized thus:



POWER SUPPLIES : +5 VOLTS D.C. @ 150 ma IS REQUIRED FOR EACH CARD. THIS VOLTAGE POWERS LOGIC I.C.'S AND CRITICALLY AFFECTS OUTLINE WIDTH. IT SHOULD NEVER EXCEED +5.25 VOLTS AS THIS MAY DAMAGE ON-BOARD I.C.'S. + and − 12 VOLTS D.C. IS ALSO REQUIRED AT 50 ma each POLARITY PER CARD.

SYSTEM NOISE CAN AFFECT THE OUTLINER THROUGH THE POWER SUPPLY LINES. I HAVE GENEROUSLY BY-PASSED ON-CARD POWER LINES SO THAT YOU SHOULD NOT HAVE INTERFERENCE FROM THIS PROBLEM (COMMONLY CAUSED BY GROUND-LOOP CURRENT NOISE). BUT IF YOU DO, TRY INSERTING 10 millihenry inductors (capable of safely passing the required CURRENT) IN SERIES WITH THE VARIOUS SUPPLY LEADS AT THE CARD EDGE CONNECTOR.

CONTROL VOLTAGES

ALL CONTROL VOLTAGES SHOULD BE FROM 0 TO +5 VOLTS AND NOT EXCEED THIS RANGE. USE FAIRLY LOW VALUE SOURCE IMPEDANCE ON CONTROL VOLTAGE SOURCES, LESS THAN 5 K Ω.

BRIEF DESCRIPTION OF OPERATING :

A NON-COMPOSITE VIDEO SIGNAL IS APPLIED TO VIDEO SIGNAL INPUT. WHEN THE INCOMING SIGNAL IS TERMINATED INTO 75Ω IT SHOULD BE 1 VOLT - PEAK TO PEAK AMPLITUDE. USING COMPOSITE VIDEO MAY RESULT IN THE SYNC TIP EDGES BEING OUTLINED. A THRESHOLD CONTROL VOLTAGE OF FROM 0 → +5 VOLTS DETERMINES THE AMPLITUDE AT WHICH OUTLINING OCCURS. WHEN INCOMING VIDEO LEVEL GOES FROM JUST BELOW THRESHOLD LEVEL TO JUST ABOVE THRESHOLD LEVEL A BLACK TO WHIR TRANSITION OCCURS (B→W). WHEN THE OPPOSITE ACTION OCCURS A WHITE TO BLACK TRANSITION OCCURS (W→B). I NOTATE THESE AS

B→W : ↑

W→B : ↓ .

BOTH TRANSITIONS CAN GENERATE AN OUTLINE AND THE 2 BIT CONTROL WORD DETERMINES WHICH IF ANY, TRANSITION IS OUTLINED. THIS IS A BINARY OR DIGITAL FUNCTION, ALLOWING ONLY 2 POSSIBLE VOLTAGES AT EACH WORD BIT PIN OF THE CONTROL WORD, NAMELY GROUND, DESIGNATED 0, AN OPEN CIRCUIT, DESIGNATED 1.

THE CONDITIONS OF OUTPUT VS. THESE WORD BIT STATES IS:

BIT 2	BIT 1	OUTPUTS
0	0	NO OUTLINES
0	1	↑ OUTLINES ONLY
1	0	↓ OUTLINES ONLY
1	1	BOTH ↑ AND ↓ OUTLINES

USE OF TOGGLE SWITCHES IS SHOWN IN THE HOOKUP DIAGRAM. OTHER LOGIC OUTPUTS CAN ALSO FUNCTION HERE PROVIDING THAT

1 = + 1.5 VOLTS OR MORE ($\leq$ 5 VOLTS) AT 40 μA

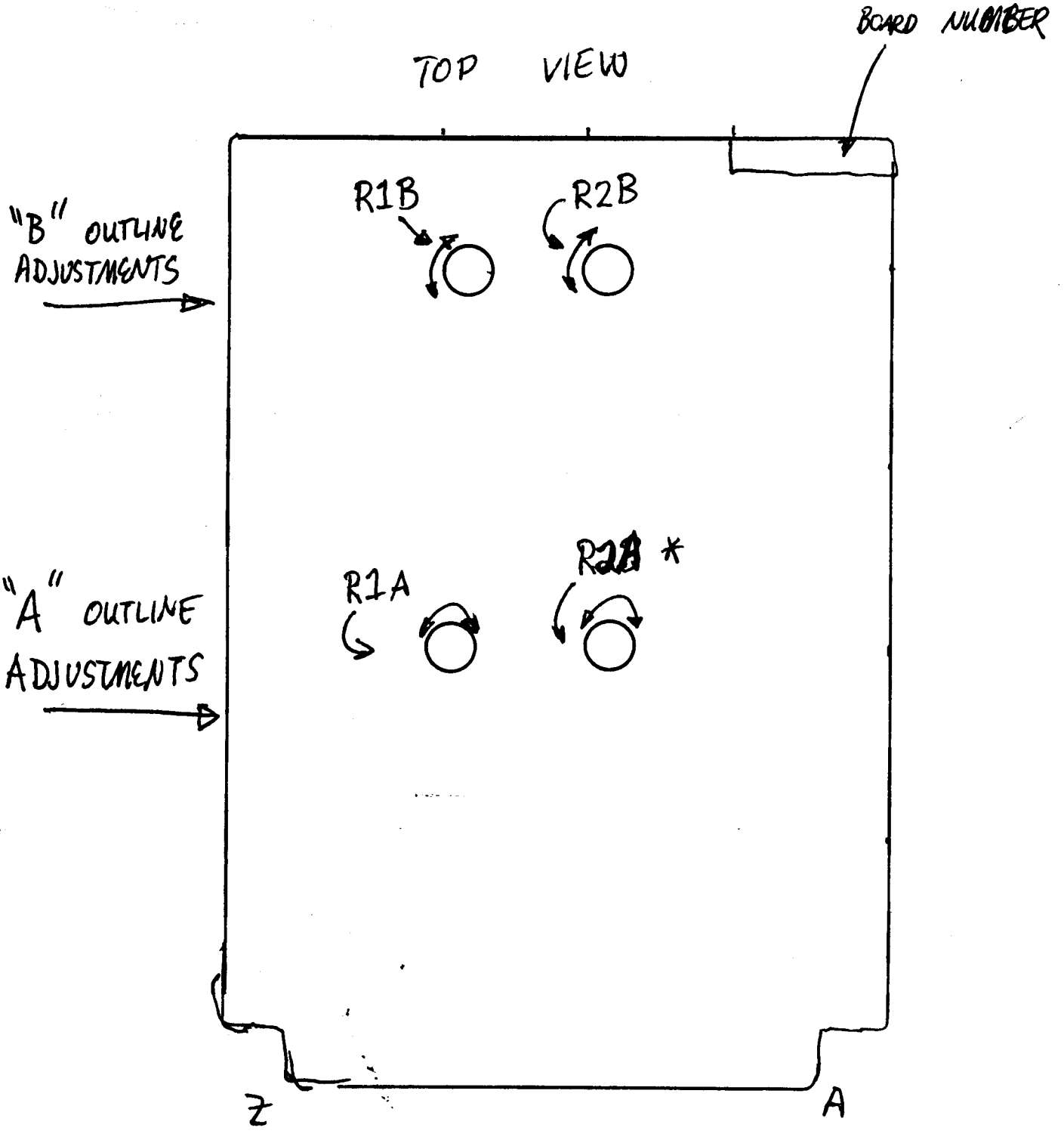
0 = < 0.8 VOLT BUT ≥ 0 VOLTS AT 1.6 ma

(These are standard TTL logic levels)

LINE WIDTH CONTROL VOLTAGE

BY VARYING VOLTAGE AT THE WIDTH CONTROL VOLTAGE PIN FROM 0 → +5 VOLTS THE RESULTANT OUTLINE WILL VARY IN WIDTH FROM 800 nsec (very thin) to 30 μsec (very thick). DUE TO CERTAIN VARIATIONS

OUTLINE ADJUSTMENT LOCATIONS



* NOTE: ON BOARD #101 R2A WILL BE FOUND UNDER-NEATH THE TOP SIDE

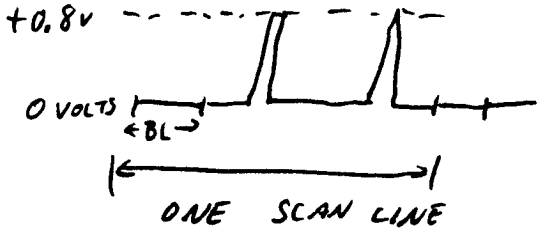
IN POWER SUPPLY VOLTAGE, CIRCUIT OPERATING ENVIRONM. AND DESIRED RANGE OR OUTLINE WIDTH THERE ARE TWO CIRCUIT ADJUSMENTS FOR EACH OUTLINE GENERATOR, DESIGNATED R1 AND R2. THESE ADJUST MINIMUM AND MAXIMUM LINE WIDTH RESPECTIVELY. TO ADJUST THEM SET WIDTH CONTROL VOLTAGE (WCV) AT +5 VOLTS (OR WHATEVER MAXIMUM USED) AND ADJUST R2 FOR WIDEST EDGE DESIRED. THEN SET WCV = 0 VOLTS AND ADJUST R1 FOR THINNEST LINE. THIS WILL AFFECT THE WIDEST VALUE, SO JOCKY BACK AND FORTH TO OBTAIN GOOD RANGE.

I HAVE ADJUSTED FOR +5.00 VOLT SUPPLY BUT YOU MAY WANT TO TRIM THEM FOR YOUR SUPPLY. NOTE: IF R2 IS NOT SET LOW ENOUGH A +5V. WCV WILL CAUSE OSCILLATING OUTPUT, INSTEAD OF OUTLINE, AND THEN CLAMP OFF.

IT'S EASY TO DO!

OUTPUTS.

THE TWO OUTPUTS ARE OF OPPOSITE POLARITIES, AND ARE IN NON-COMPOSITE FORM ONLY WHEN BLANKING IS APPLIED TO THE CARD. THE OUTPUTS ARE DESIGNED TO TERMINATE INTO 75 Ω AND DELIVER +0.8 VOLTS PEAK LEVEL FOR POSITIVE OUTLINES, BLANKING REFERENCED TO GROUND:



NON-TERMINATED OUTPUT VOLTAGE CAN RISE TO +4.0 VOLTS.

BLANKING

STANDARD NEGATIVE GOING BLANKING PULSES ARE COUPLED THROUGH A MODERATE IMPEDANCE D.C. RESTORER AND PROCESSED ONE EACH CARD TO BLANK OUTPUT SIGNALS. DELAY FROM INPUT OF BLANKING EDGE TO CORRESPONDING EDGE ON OUTPUT IS 40 nsec.

BLANKING INPUT ON CARD IS 10 KΩ OR MORE, SO LOOP THROUGH IS POSSIBLE WITH MANY CARDS. BLANKING AMPLITUDE SHOULD BE 3 VOLTS peak to peak, AND 75 Ω TERMINATED AT THE END OF THE LOOP.

FINALLY,

TRY IT OUT - YOU CAN FEED THE INPUT FROM A SONY B+W CAMERA DIRECTLY, AND FEED THE OUTPUTS INTO A SEG-1, WHERE THEY WILL GET SYNC ADDED. THIS IS A POWERFUL GRAPHIC UNIT, AND, HOPEFULLY IT WILL AID YOU IN THE CREATIVE SEARCH IN IMAGES. THAT WE ARE ALL HUMAN MEDIA THROUGH WHICH THE IMAGES FIND THEIR WAY INTO COMMON REALITY IS HOW I'M VISUALIZING IT ALL THESE DAYS. SOON I'LL GET YOU THE COPY FOR MY PROPOSED TOURING "ACTS."

I HAVE TO SAY- RIGHT NOW IT SEEMS IMPORTAN TO ME THAT YOU NOT DIVULGE THIS CIRCUITRY IN ITS RAW FORM - THOUGH DEDUCTION OF ITS FUNCTI IS NOT DIFFICULT. PLAY LIKE IT IS A MAGICAL APPARATUS - PLEASE USE IT WELL.

SEND BREAD WHEN YOU CAN, SOONER THE BETTER FOR ME; PRINTED CIRCUIT

VERSION COMING ALONG SOON. VERY MINUTE !!

Best to you & when do we rendezvous in VENEZUELA.

Stephen

Jan 8 1973 Berkeley, California