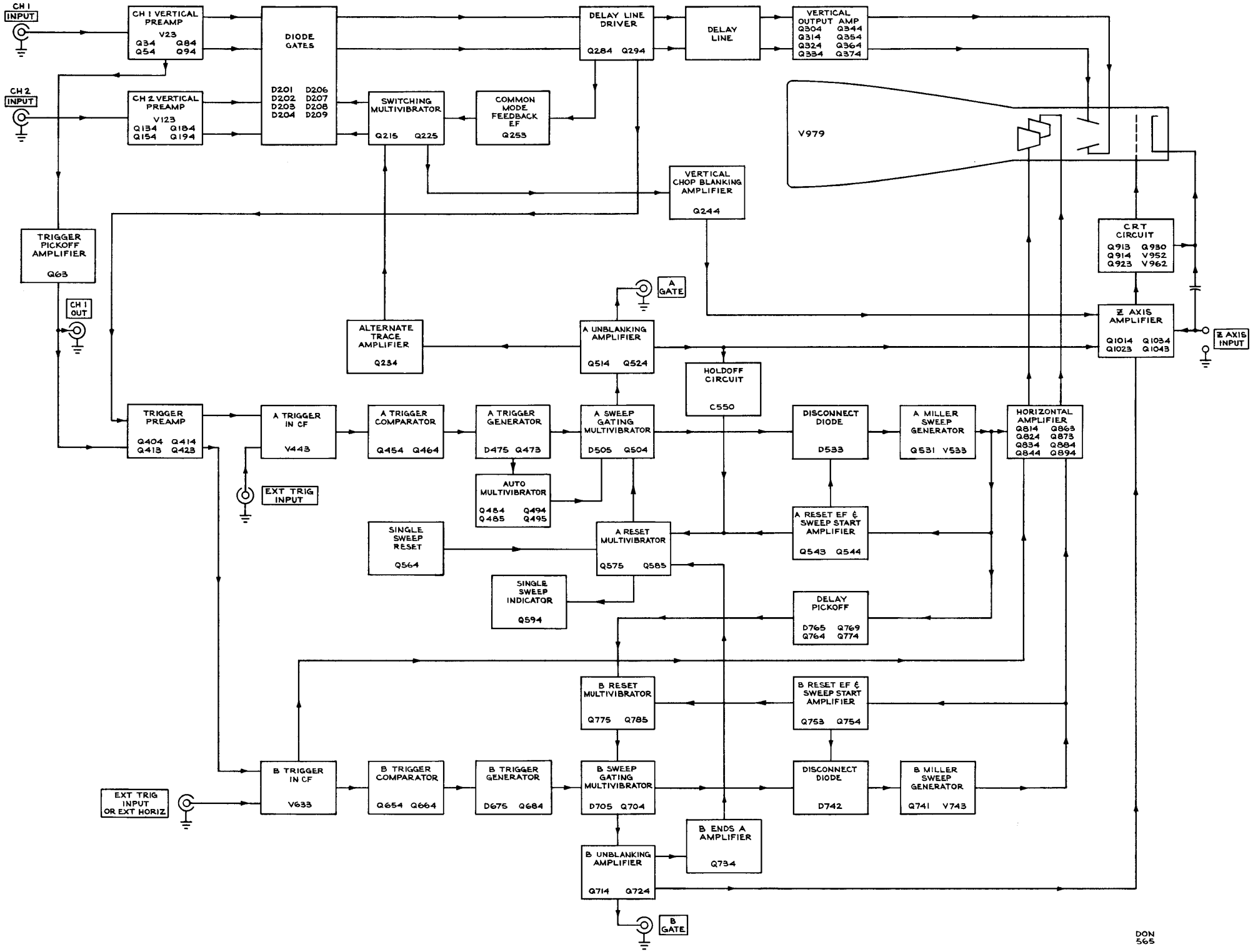


DON 565

TYPE 453 OSCILLOSCOPE

A

BLOCK DIAGRAM

IMPORTANT

VOLTAGE AND WAVEFORM CONDITIONS

Circuit voltages measured with a 20,000 Ω/volt VOM. All readings in volts. Voltages are measured with respect to chassis ground unless otherwise noted.

Waveforms shown are actual waveform photographs taken with a Tektronix Oscilloscope Camera System and Projected Graticule.

Voltages and waveforms on the schematics (shown in blue) are not absolute and may vary between instruments. Any apparent differences between voltage levels measured with the voltmeter and those shown on the waveforms are due to circuit loading of the voltmeter.

The test oscilloscope used had the following characteristics: Minimum deflection factor, 0.2 volts/division using a 10X probe; frequency response, dc to 40 Mc. Dc input coupling was used except as noted otherwise. To indicate true time relationship between signals, the test oscilloscope was externally triggered.

Voltage readings and waveforms were obtained under the following conditions unless otherwise noted on the individual diagrams:

Crt controls

INTENSITY	Midrange
FOCUS	Adjust for focused display
SCALE ILLUM	As desired

Vertical controls (both channels if applicable)

VOLTS/DIV	20 mV
VARIABLE	CAL
POSITION	Midrange
AC GND DC	GND
MODE	CH 1
TRIGGER	NORM
INVERT	Pushed in

Triggering controls (both A and B if applicable)

LEVEL	0
SLOPE	+
COUPLING	AC
SOURCE	INT

(Continued on diagram ◇2◇)

Sweep controls

DELAY-TIME MULTIPLIER	0.50
A TIME/DIV	1 mSEC
B TIME/DIV	1 mSEC
A VARIABLE	CAL
A SWEEP MODE	AUTO TRIG
B SWEEP MODE	B TRIGGERABLE AFTER DELAY TIME
HORIZ DISPLAY	A
MAG	OFF
A SWEEP LENGTH	FULL
POSITION	Midrange
POWER	ON

Side-panel controls

B TIME/DIV VARIABLE	CAL
CALIBRATOR	1 V

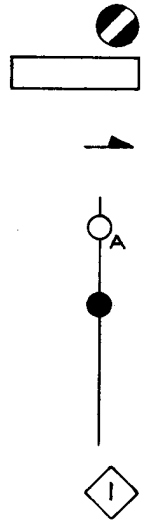
Rear-panel controls

LINE VOLTAGE RANGE	HIGH

Line voltage	115 volts
Signal applied	None
Trace position	Centered

Schematic Symbols

The following symbols are used on the schematics:



Screwdriver adjustment

Front-panel control or connector.

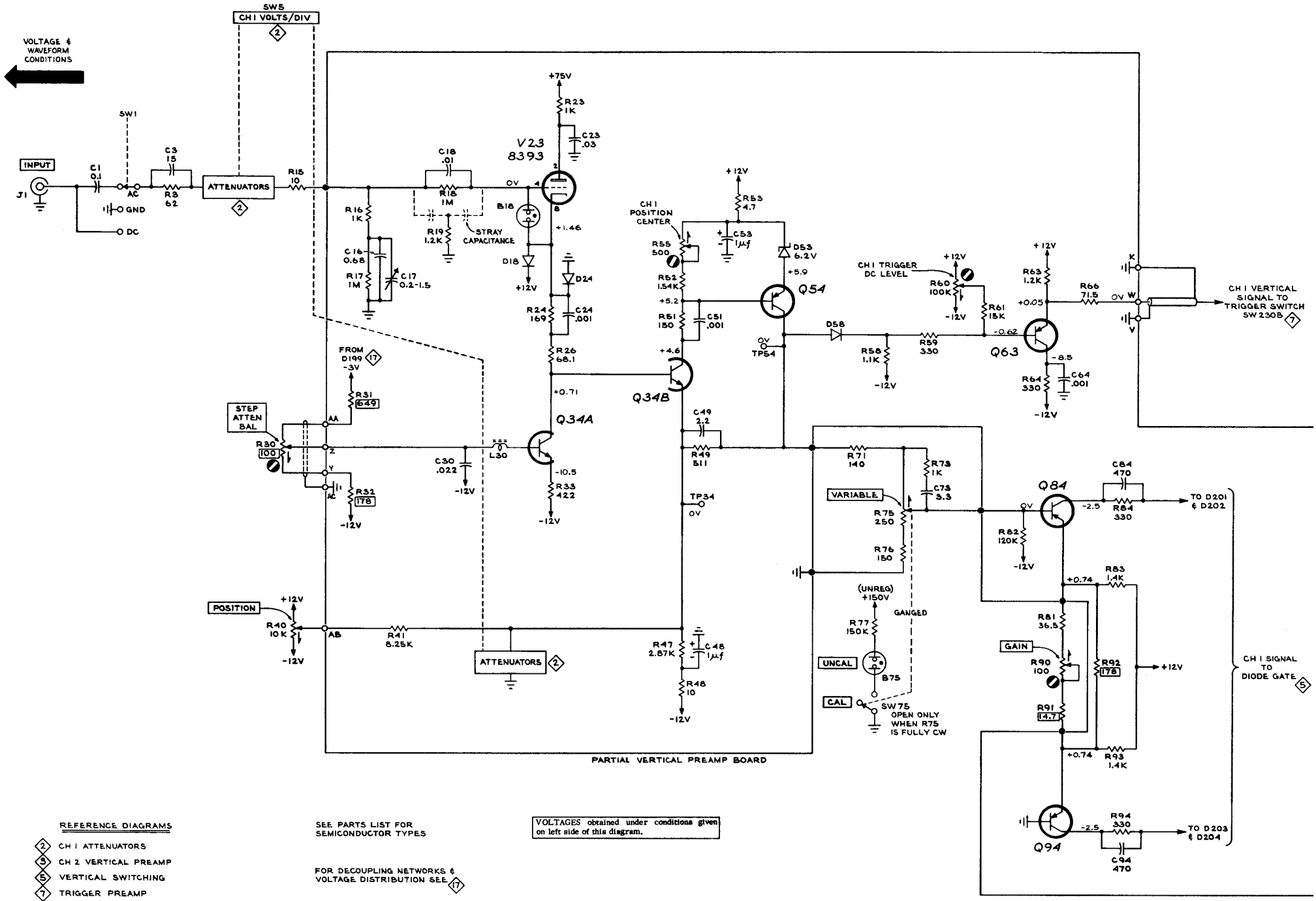
Clockwise control rotation in direction of arrow.

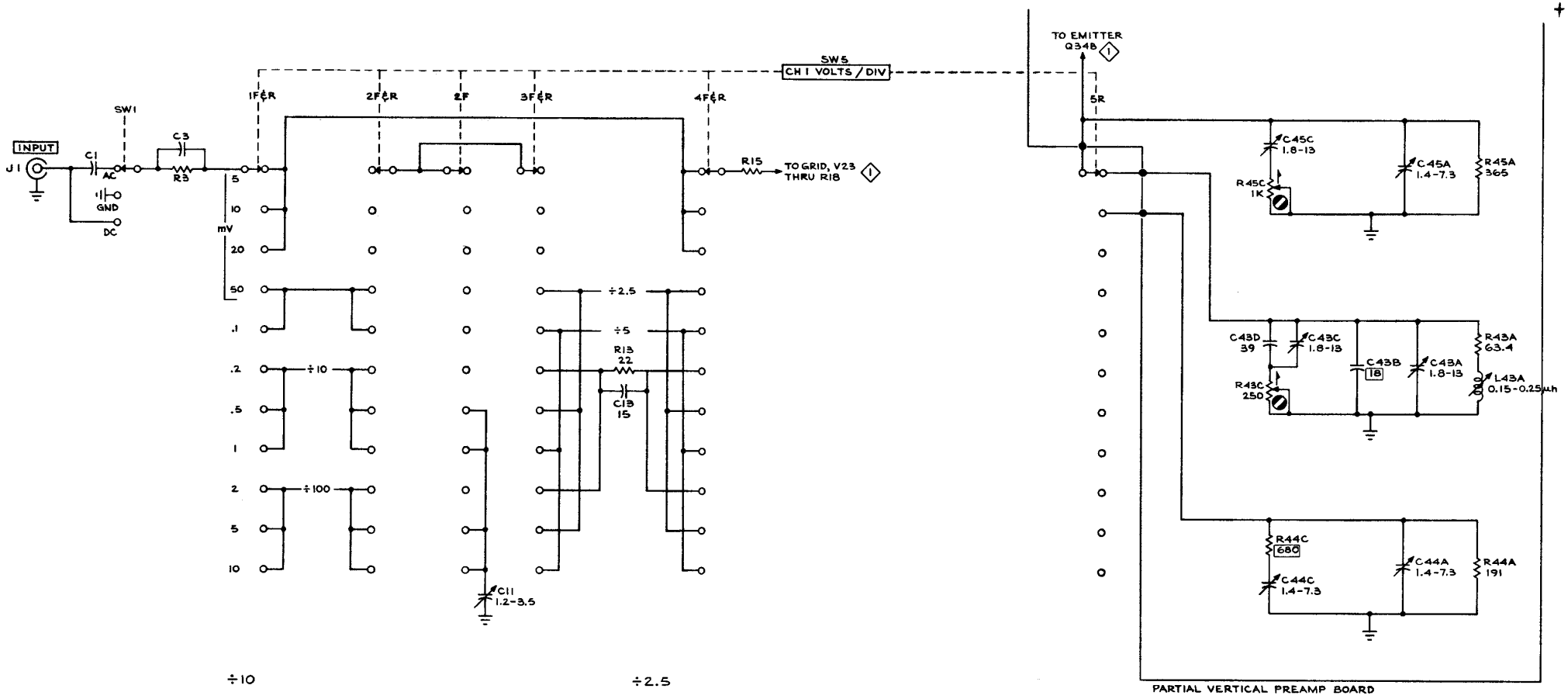
Connection made at indicated pin on etched-wiring board.

Connection soldered to etched-wiring board.

Blue line encloses components located on etched-wiring board.

Input from, or output to indicated schematic.

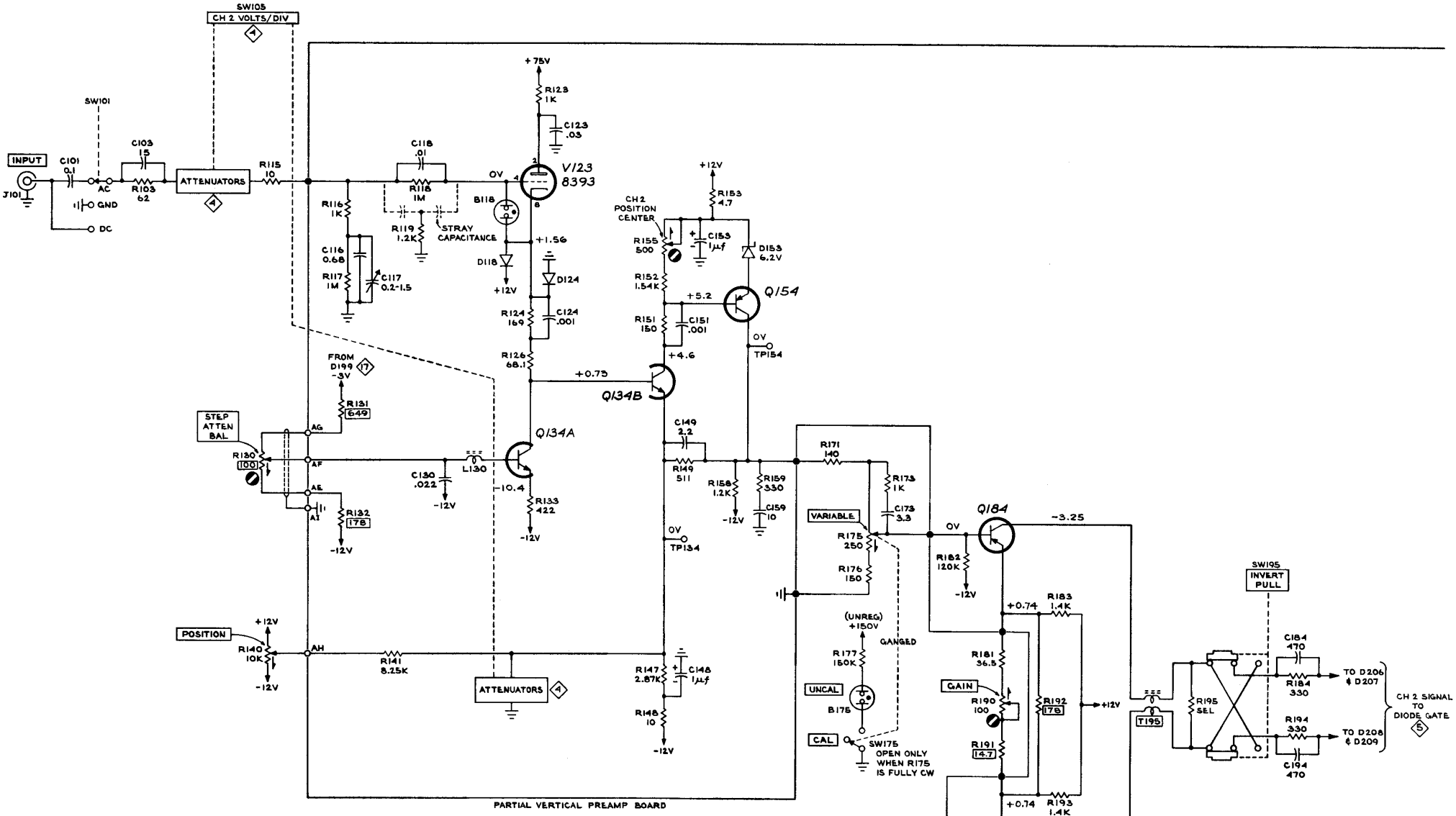

VOLTAGE & WAVEFORM CONDITIONS
SW5
CH 1 VOLTS/DIV
2
SW1
INPUT
J1
C1 0.1
C3 15
R3 62
AC
GND
DC
ATTENUATORS
2
R15 10
+75V
R23 1K
C23 .03
V23 8393
C18 .01
R18 1M
R19 1.2K
STRAY CAPACITANCE
R16 1K
C16 0.68
R17 1M
C17 0.2-1.5
B18
D18
D24
+1.46
+12V
R24 169
C24 .001
R26 68.1
+0.71
Q34A
Q34B
FROM D199 17
-3V
R31 649
STEP ATTEN BAL
R30 100
R32 178
-12V
C30 .022
L30
-10.5
R33 422
C49 2.2
R49 511
TP34
0V
+12V
R53 4.7
C53 1μf
CH 1 POSITION CENTER
R55 500
R52 1.54K
R51 150
C51 .001
+5.2
+4.6
+5.9
Q54
D53 6.2V
TP54
D58
R58 1.1K
R59 330
CH 1 TRIGGER DC LEVEL
R60 100K
R61 15K
-0.62
Q63
-8.5
R63 1.2K
+0.05
R66 71.5
R64 330
C64 .001
K
W
V
CH 1 VERTICAL SIGNAL TO TRIGGER SWITCH SW 230B 7
R71 140
R73 1K
C73 3.3
VARIABLE
R75 250
R76 150
Q84
C84 470
R84 330
TO D201 & D202
-2.5
R82 120K
+0.74
R83 1.4K
R81 36.5
GAIN
R90 100
R92 178
R91 14.7
R93 1.4K
Q94
R94 330
C94 470
TO D203 & D204
CH 1 SIGNAL TO DIODE GATE 5
(UNREG) +150V
R77 150K
GANGED
UNCAL
B75
CAL
SW75
OPEN ONLY WHEN R75 IS FULLY CW
POSITION
R40 10K
R41 8.25K
AB
R47 2.87K
C48 1μf
R48 10
ATTENUATORS
2
PARTIAL VERTICAL PREAMP BOARD
REFERENCE DIAGRAMS
2 CH 1 ATTENUATORS
3 CH 2 VERTICAL PREAMP
5 VERTICAL SWITCHING
7 TRIGGER PREAMP
17 POWER SUPPLY & DISTRIBUTION
SEE PARTS LIST FOR SEMICONDUCTOR TYPES
FOR DECOUPLING NETWORKS & VOLTAGE DISTRIBUTION SEE 17
VOLTAGES obtained under conditions given on left side of this diagram.



REFERENCE DIAGRAMS

◇1 CH 1 VERTICAL PREAMP

SEE PARTS LIST FOR EARLIER VALUES AND SERIAL NUMBER RANGES OF PARTS MARKED WITH BLUE OUTLINE.



REFERENCE DIAGRAMS

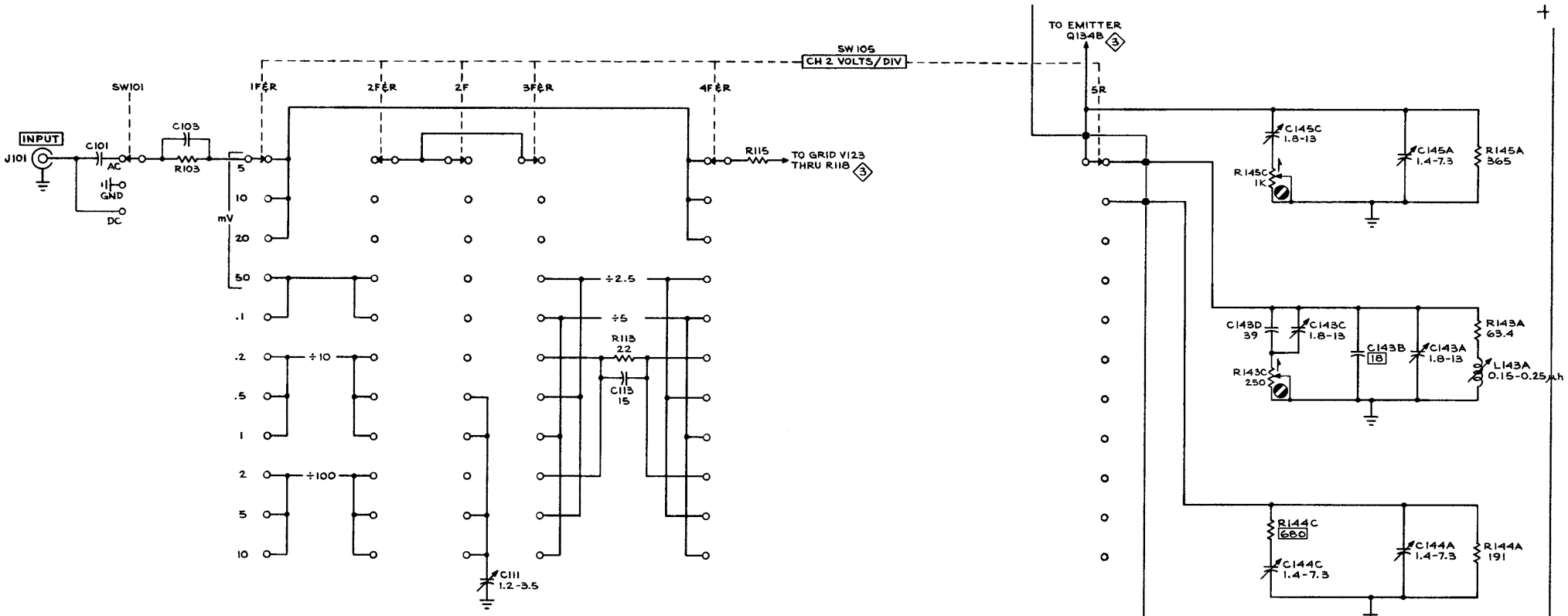
- 1 CH 1 VERTICAL PREAMP
- 4 CH 2 ATTENUATORS
- 5 VERTICAL SWITCHING
- 17 POWER SUPPLY & DISTRIBUTION

SEE PARTS LIST FOR SEMICONDUCTOR TYPES

FOR DECOUPLING NETWORKS & VOLTAGE DISTRIBUTION SEE 17

VOLTAGES obtained under conditions given on diagram 1.

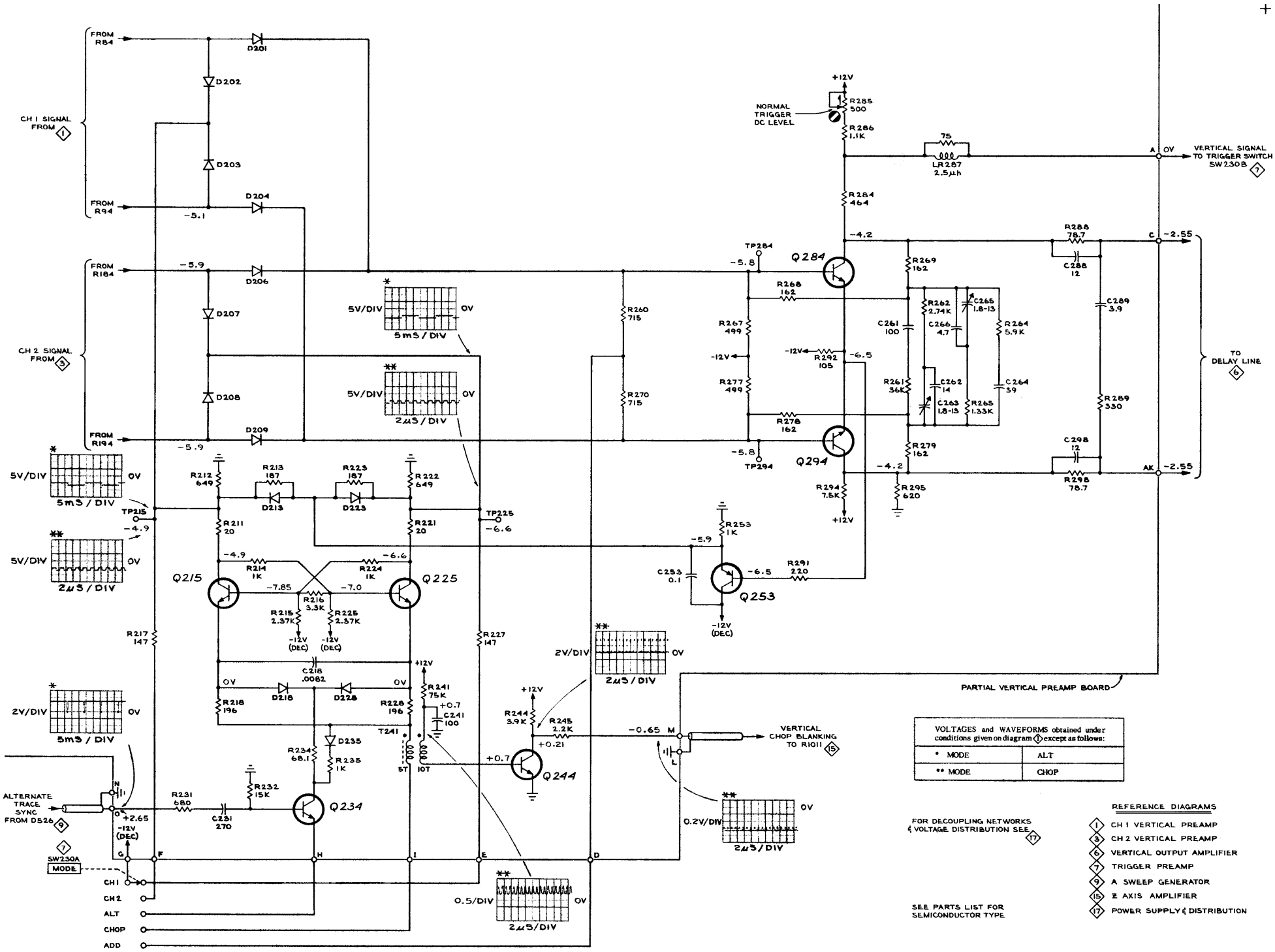
CMD 866

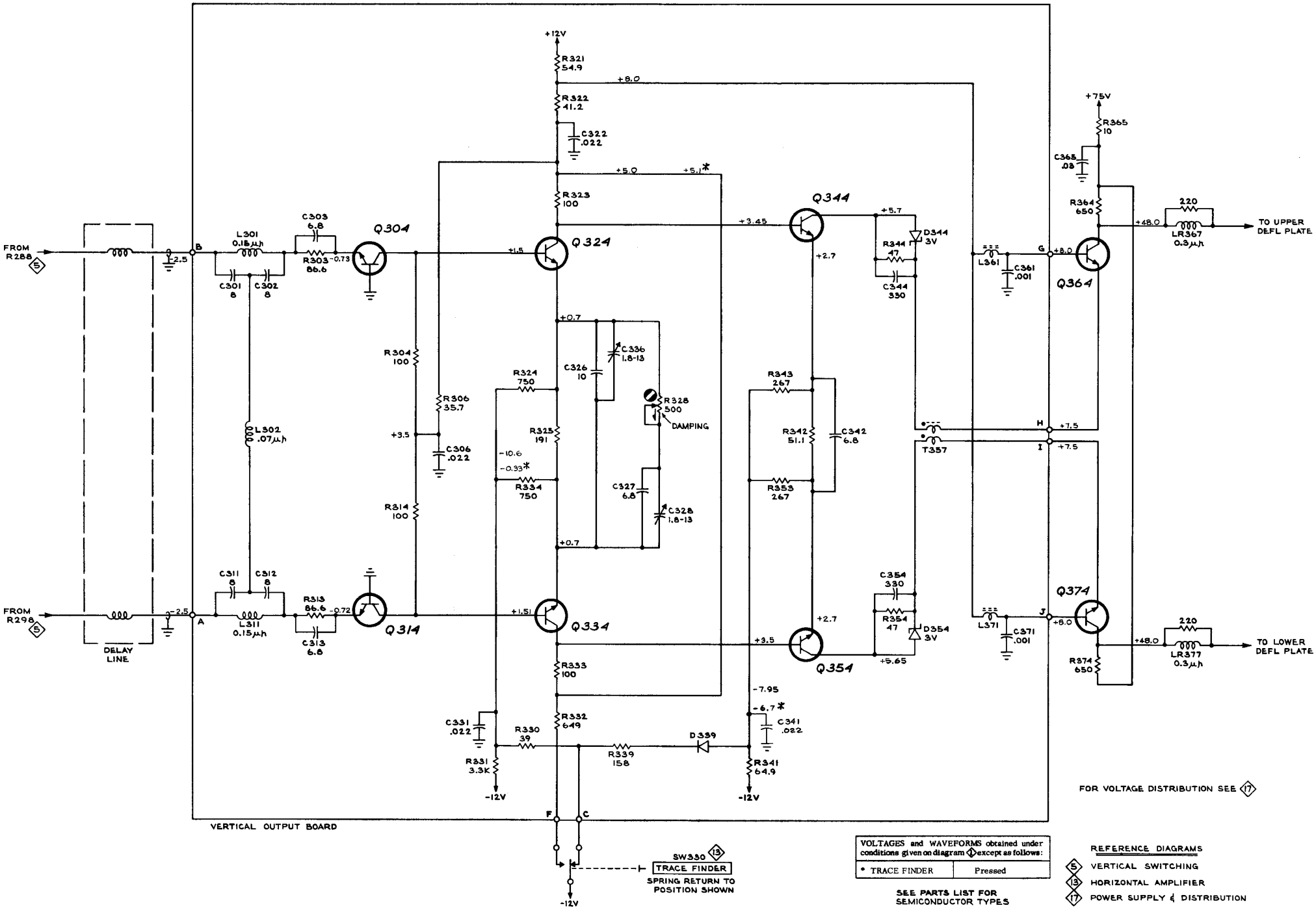


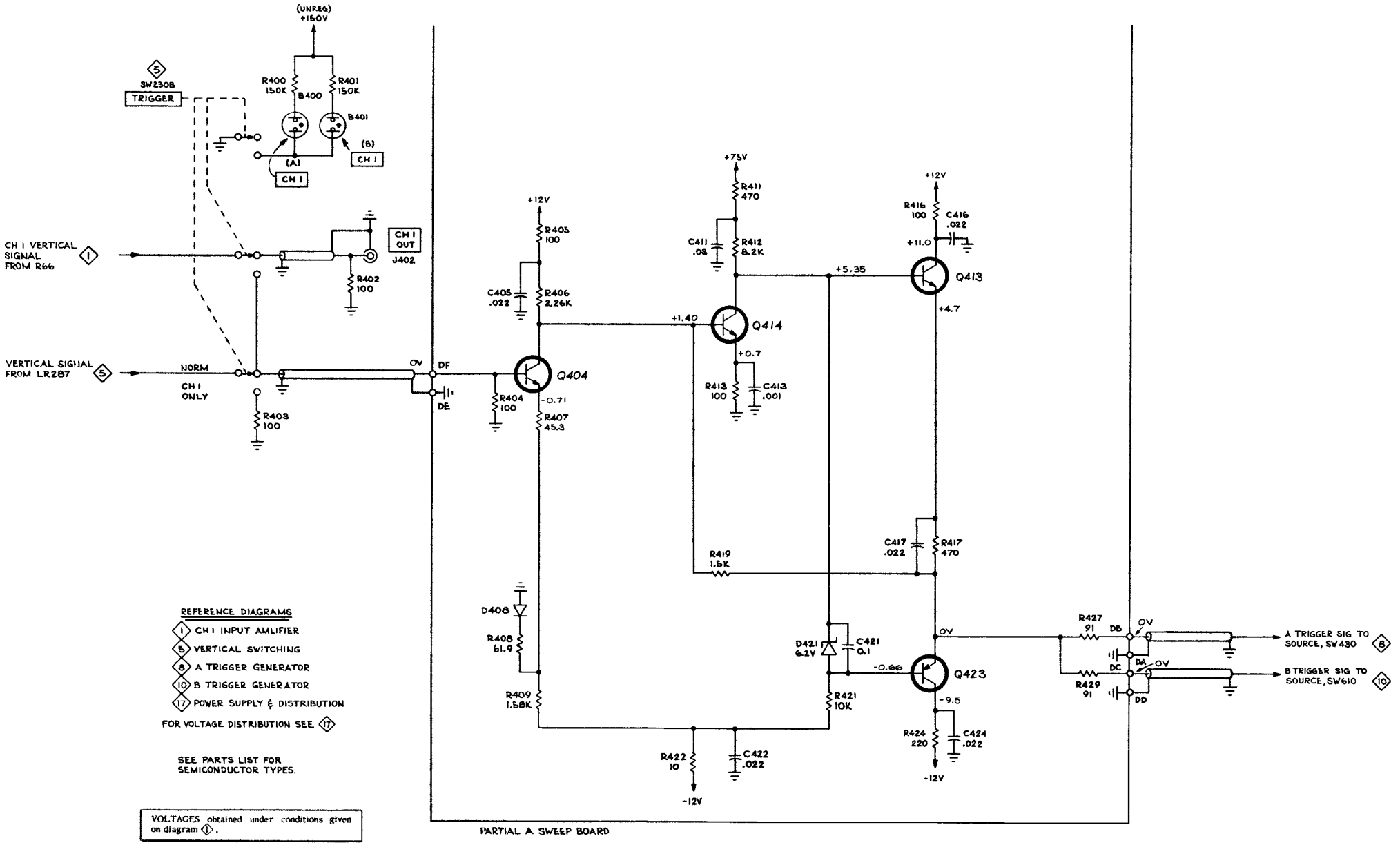
REFERENCE DIAGRAMS

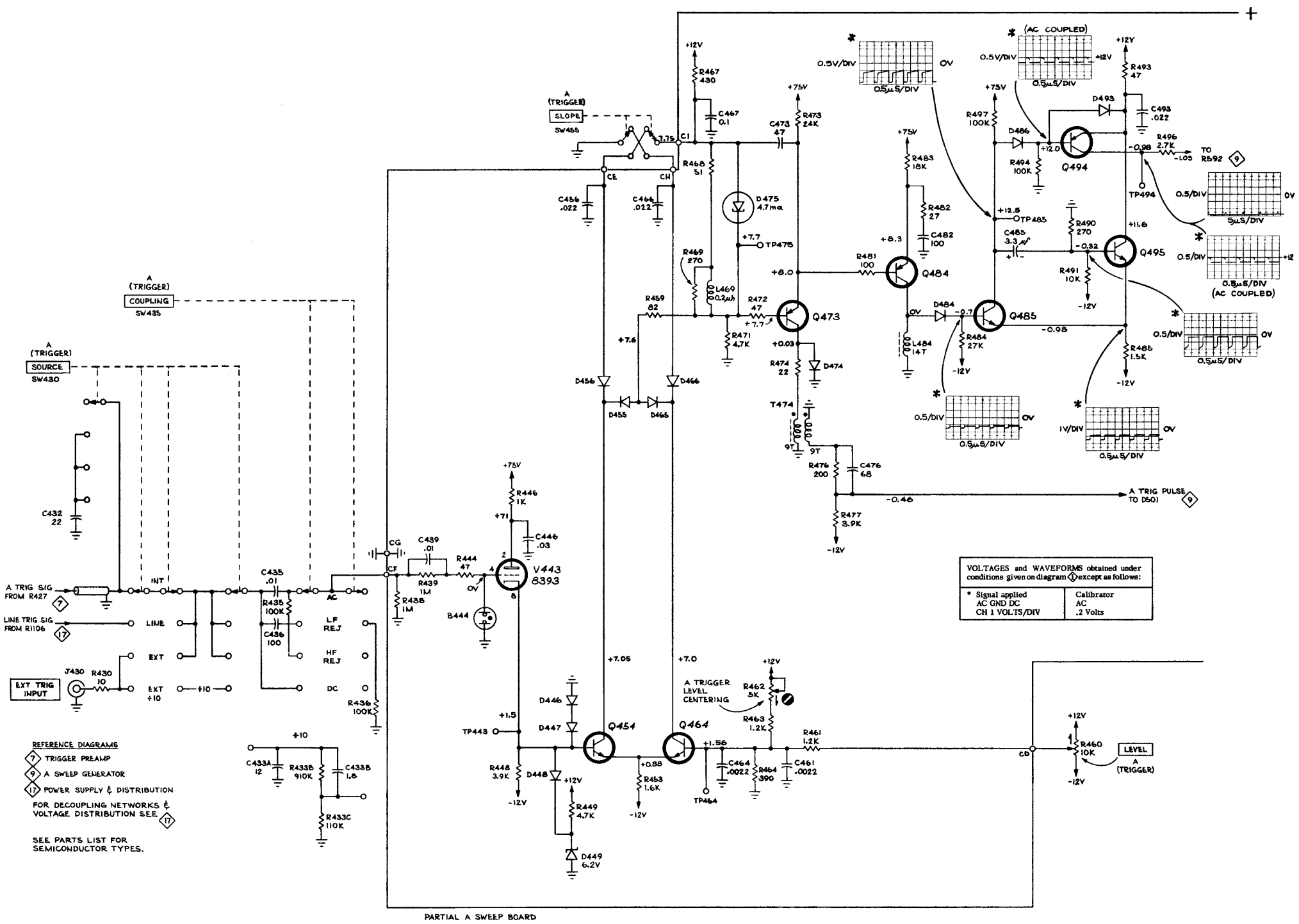
3 CH 2 VERTICAL PREAMP

SEE PARTS LIST FOR EARLIER VALUES AND SERIAL NUMBER RANGES OF PARTS MARKED WITH BLUE OUTLINE.


FROM R84
D201
D202
D203
D204
CH 1 SIGNAL FROM 1
FROM R94
-5.1
FROM R184
-5.9
D206
D207
D208
D209
CH 2 SIGNAL FROM 3
FROM R194
-5.9
5V/DIV
0V
5mS / DIV
2μS / DIV
TP215
-4.9
TP225
-6.6
R211 20
R221 20
R212 649
R213 187
R223 187
R222 649
D213
D223
Q215
Q225
R214 1K
R224 1K
-7.85
-7.0
R216 3.3K
R215 2.37K
R225 2.37K
-12V (DEC)
R217 147
R227 147
C218 .0082
D218
D228
R218 196
R228 196
+12V
R241 75K
+0.7
C241 100
T241
5T
10T
D235
R234 68.1
R235 1K
R232 15K
Q234
R231 680
C231 270
ALTERNATE TRACE SYNC FROM D526 9
+2.65
-12V (DEC)
SW230A MODE
CH1
CH2
ALT
CHOP
ADD
R260 715
R270 715
R267 499
R277 499
-12V
R292 105
-6.5
R268 162
R278 162
TP284
-5.8
TP294
Q284
Q294
R269 162
R279 162
R262 2.74K
C265 1.8-13
C261 100
C266 4.7
R264 5.9K
R261 36K
C262 14
C264 39
C263 1.8-13
R265 1.33K
R284 464
R285 500
NORMAL TRIGGER DC LEVEL
+12V
R286 1.1K
75
LR287 2.5μh
A 0V
VERTICAL SIGNAL TO TRIGGER SWITCH SW230B 7
-4.2
R288 78.7
C288 12
C 2.55
C289 3.9
R289 330
TO DELAY LINE 6
C298 12
R298 78.7
AK -2.55
R294 7.5K
R295 620
R253 1K
C253 0.1
R291 220
Q253
-12V (DEC)
2V/DIV
2μS / DIV
PARTIAL VERTICAL PREAMP BOARD
R244 3.9K
R245 2.2K
+0.21
+0.7
Q244
-0.65 M
L
VERTICAL CHOP BLANKING TO R1011 15
0.2V/DIV
0.5/DIV
VOLTAGES and WAVEFORMS obtained under conditions given on diagram 1 except as follows:
* MODE ALT
** MODE CHOP
FOR DECOUPLING NETWORKS & VOLTAGE DISTRIBUTION SEE 17
SEE PARTS LIST FOR SEMICONDUCTOR TYPE
REFERENCE DIAGRAMS
1 CH 1 VERTICAL PREAMP
3 CH 2 VERTICAL PREAMP
6 VERTICAL OUTPUT AMPLIFIER
7 TRIGGER PREAMP
9 A SWEEP GENERATOR
15 Z AXIS AMPLIFIER
17 POWER SUPPLY & DISTRIBUTION

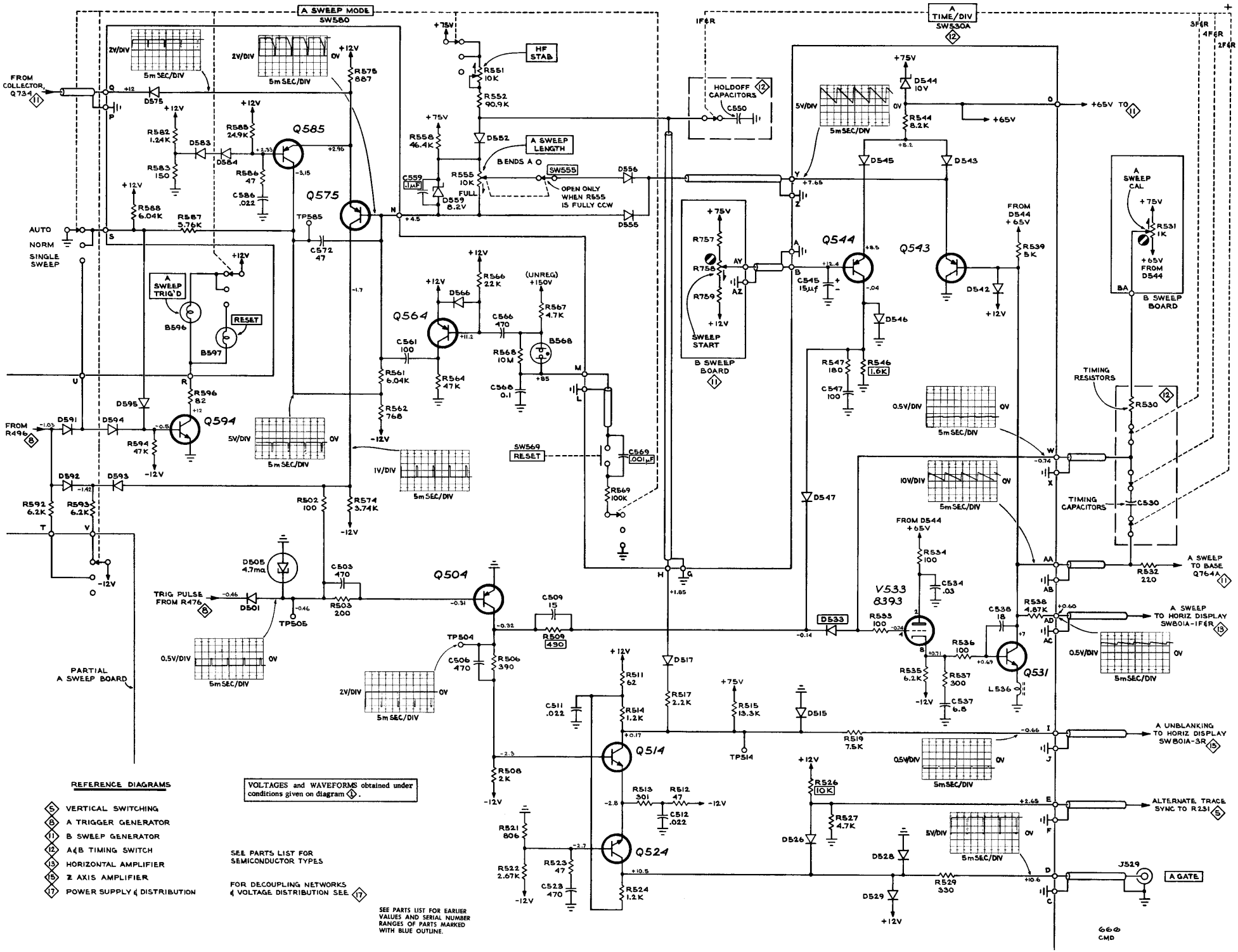

+12V
R321 54.9
+8.0
R322 41.2
C322 .022
+5.0
+5.1*
R323 100
+3.45
Q344
+5.7
D344 3V
R344 47
C344 330
+2.7
+75V
R365 10
C365 .03
R364 650
220
LR367 0.3µh
TO UPPER DEFL PLATE
FROM R288 (5)
B
+2.5
L301 0.15µh
C303 6.8
R303 86.6 -0.73
Q304
Q324
+1.5
C301 8
C302 8
L361
C361 .001
G
+8.0
Q364
+0.7
C336 1.8-13
C326 10
R328 500
DAMPING
R324 750
R325 191
-10.6
-0.33*
R334 750
C327 6.8
C328 1.8-13
R304 100
R306 35.7
+3.5
C306 .022
R314 100
L302 .07µh
R343 267
R342 51.1
C342 6.8
R353 267
H
+7.5
T357
I
+7.5
C311 8
C312 8
R313 86.6 -0.72
Q314
Q334
+1.51
C313 6.8
L311 0.15µh
FROM R298 (5)
-2.5
A
DELAY LINE
C354 330
R354 47
D354 3V
+5.65
Q354
+3.5
+2.7
L371
C371 .001
J
+8.0
Q374
R374 650
220
LR377 0.3µh
TO LOWER DEFL PLATE
R333 100
-7.95
-6.7*
C341 .022
R332 649
C331 .022
R330 39
R339 158
D339
R331 3.3K
R341 64.9
-12V
-12V
F
C
VERTICAL OUTPUT BOARD
SW330 (13)
TRACE FINDER
SPRING RETURN TO POSITION SHOWN
-12V
FOR VOLTAGE DISTRIBUTION SEE (17)
VOLTAGES and WAVEFORMS obtained under conditions given on diagram (1) except as follows:
* TRACE FINDER | Pressed
SEE PARTS LIST FOR SEMICONDUCTOR TYPES
REFERENCE DIAGRAMS
(5) VERTICAL SWITCHING
(13) HORIZONTAL AMPLIFIER
(17) POWER SUPPLY & DISTRIBUTION

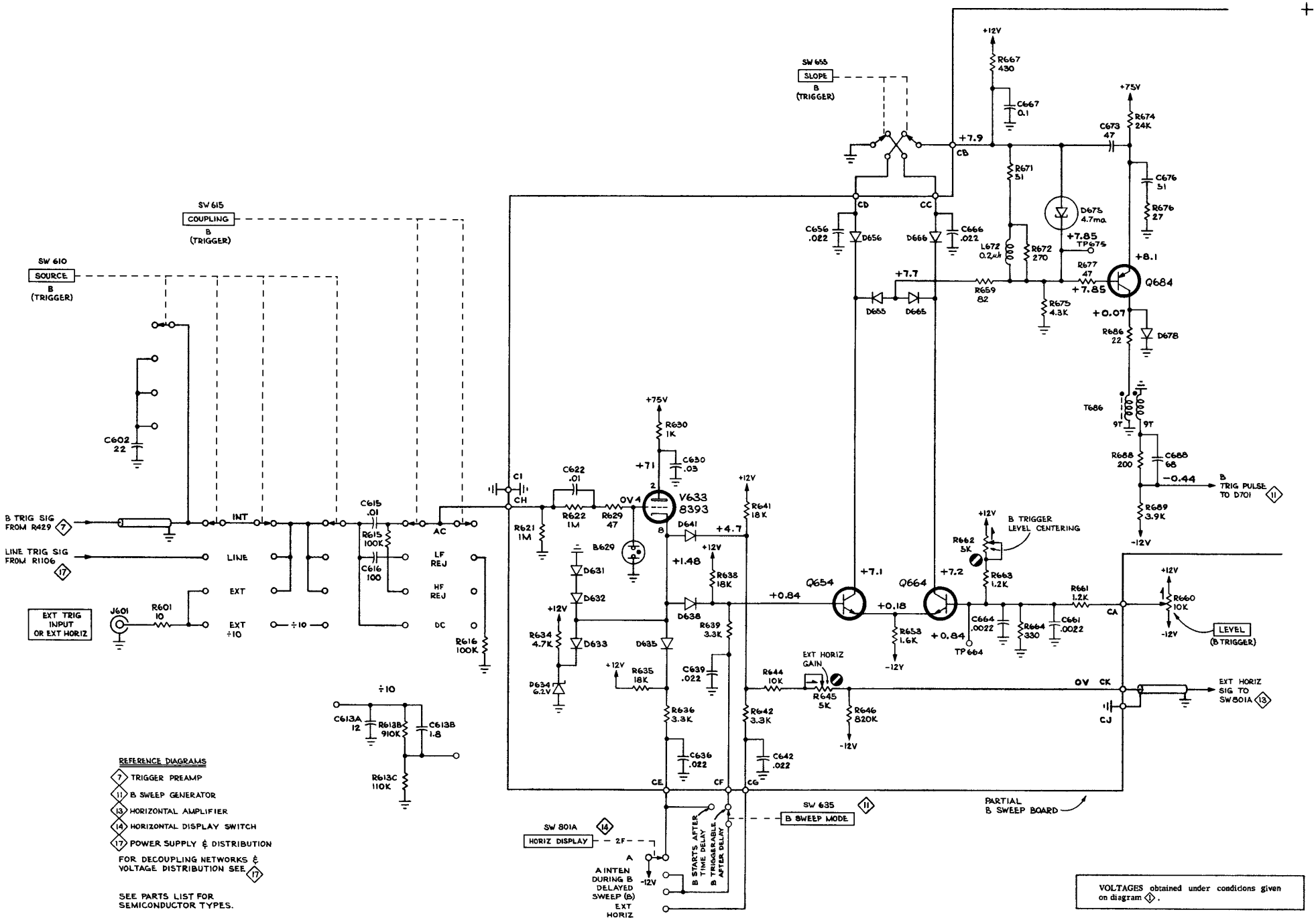

(UNREG) +150V
SW230B
TRIGGER
R400 150K
R401 150K
B400
B401
(B)
CH 1
(A)
CH 1
CH 1 VERTICAL SIGNAL FROM R66
CH 1 OUT
J402
R402 100
VERTICAL SIGNAL FROM LR287
NORM
CH 1 ONLY
R403 100
0V
DF
DE
+12V
R405 100
C405 .022
R406 2.26K
R404 100
-0.71
R407 45.3
+75V
R411 470
C411 .08
R412 8.2K
+1.40
Q414
+0.7
R413 100
C413 .001
+12V
R416 100
C416 .022
+11.0
+5.35
Q413
+4.7
R419 1.5K
C417 .022
R417 470
D408
R408 61.9
R409 1.58K
D421 6.2V
C421 0.1
-0.66
Q423
-9.5
R421 10K
R424 220
C424 .022
-12V
R422 10
C422 .022
-12V
R427 91
DB
0V
DA
DC
0V
R429 91
DD
A TRIGGER SIG TO SOURCE, SW430
B TRIGGER SIG TO SOURCE, SW610
REFERENCE DIAGRAMS
1 CH 1 INPUT AMLIFIER
5 VERTICAL SWITCHING
8 A TRIGGER GENERATOR
10 B TRIGGER GENERATOR
17 POWER SUPPLY & DISTRIBUTION
FOR VOLTAGE DISTRIBUTION SEE 17
SEE PARTS LIST FOR SEMICONDUCTOR TYPES.
VOLTAGES obtained under conditions given on diagram 1.
PARTIAL A SWEEP BOARD

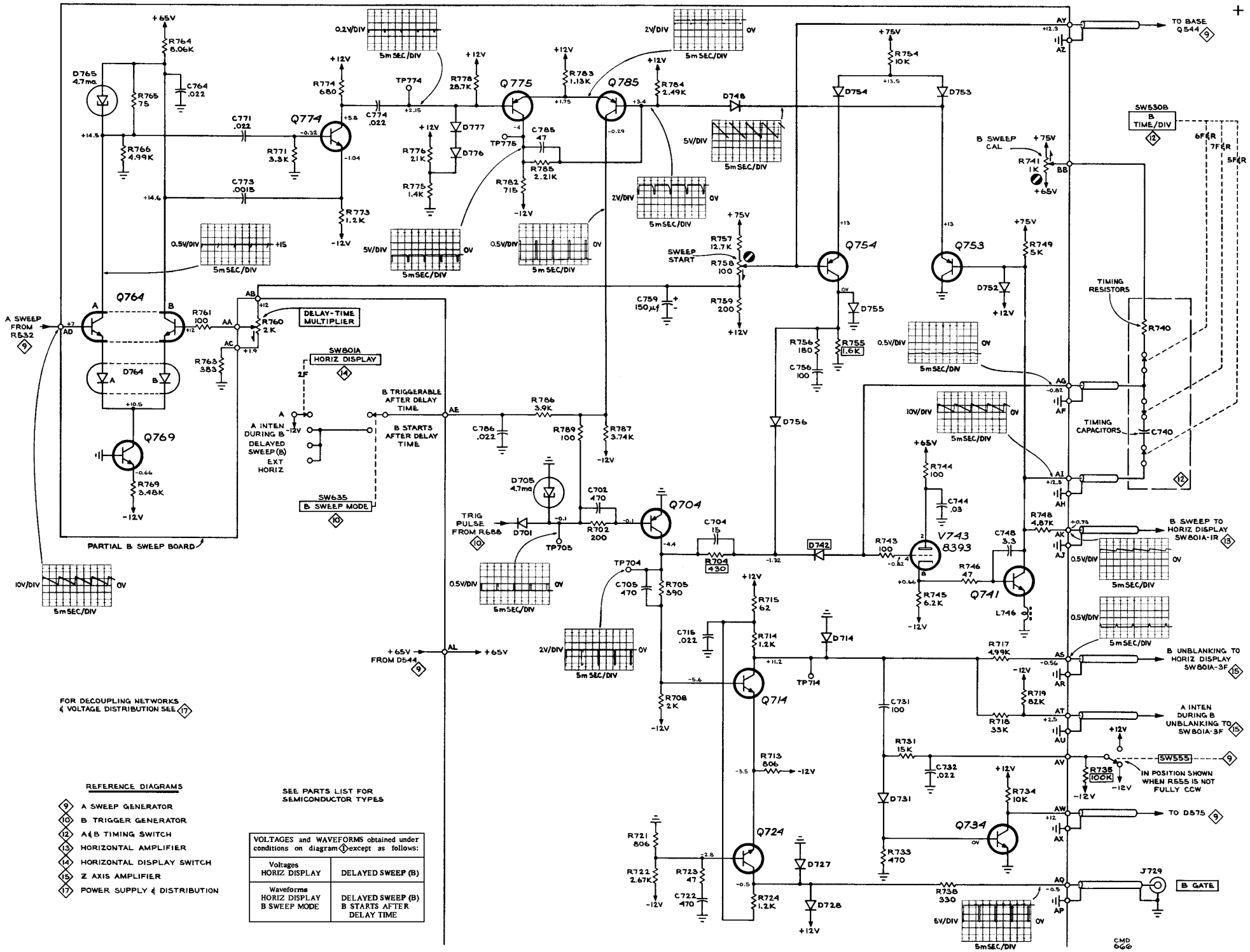


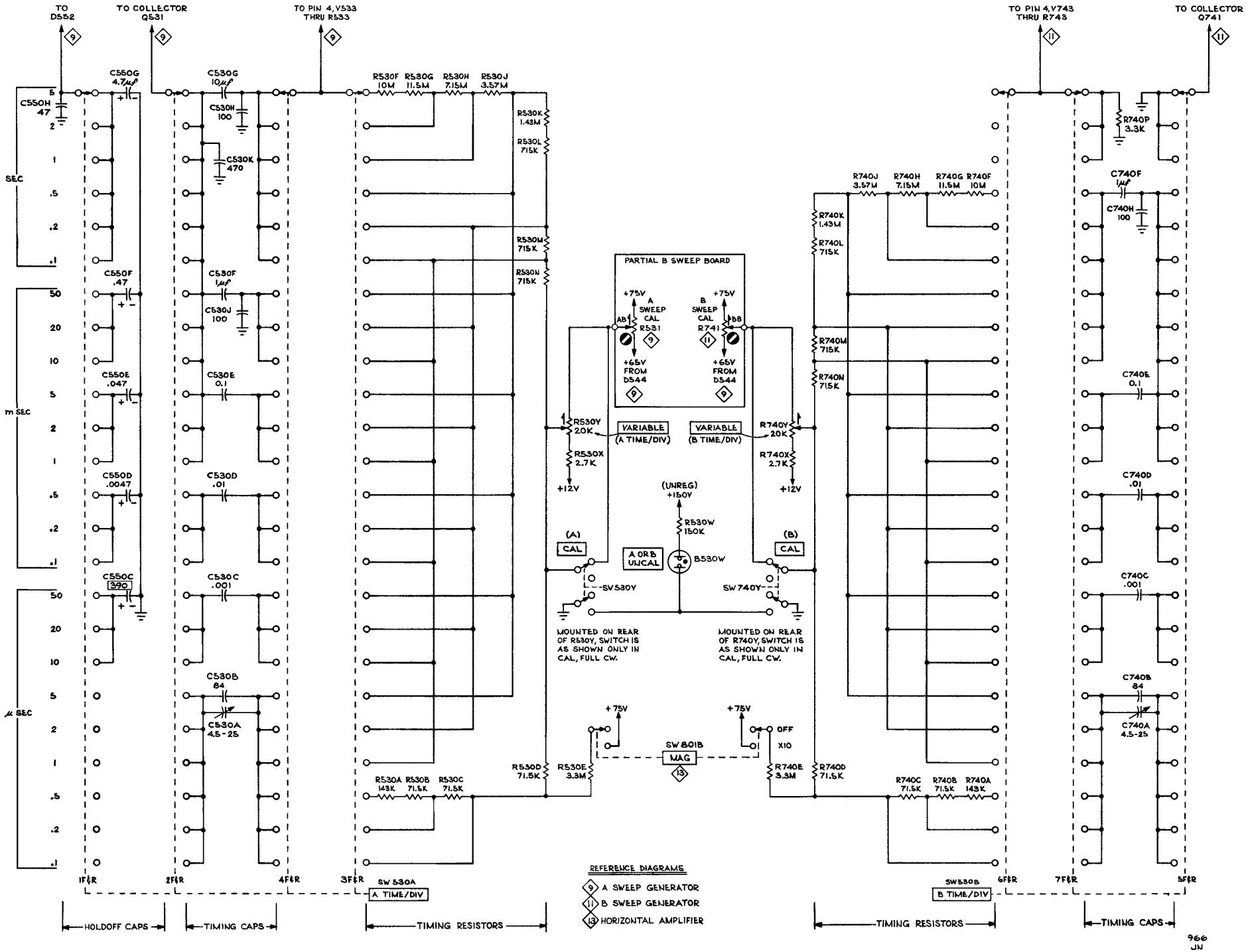
VOLTAGES and WAVEFORMS obtained under conditions given on diagram 1 except as follows:

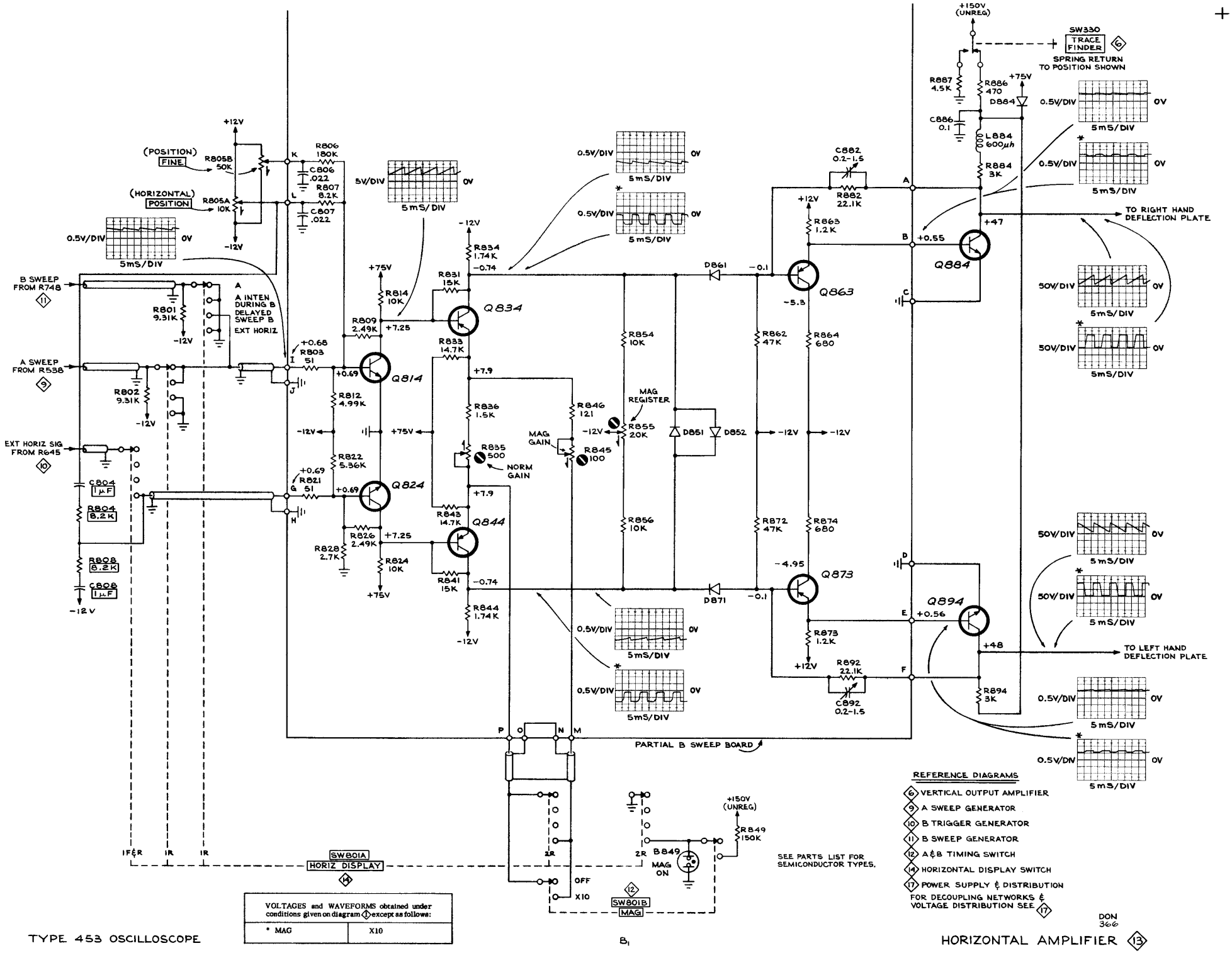
* Signal applied AC GND DC CH 1 VOLTS/DIV	Calibrator AC .2 Volts

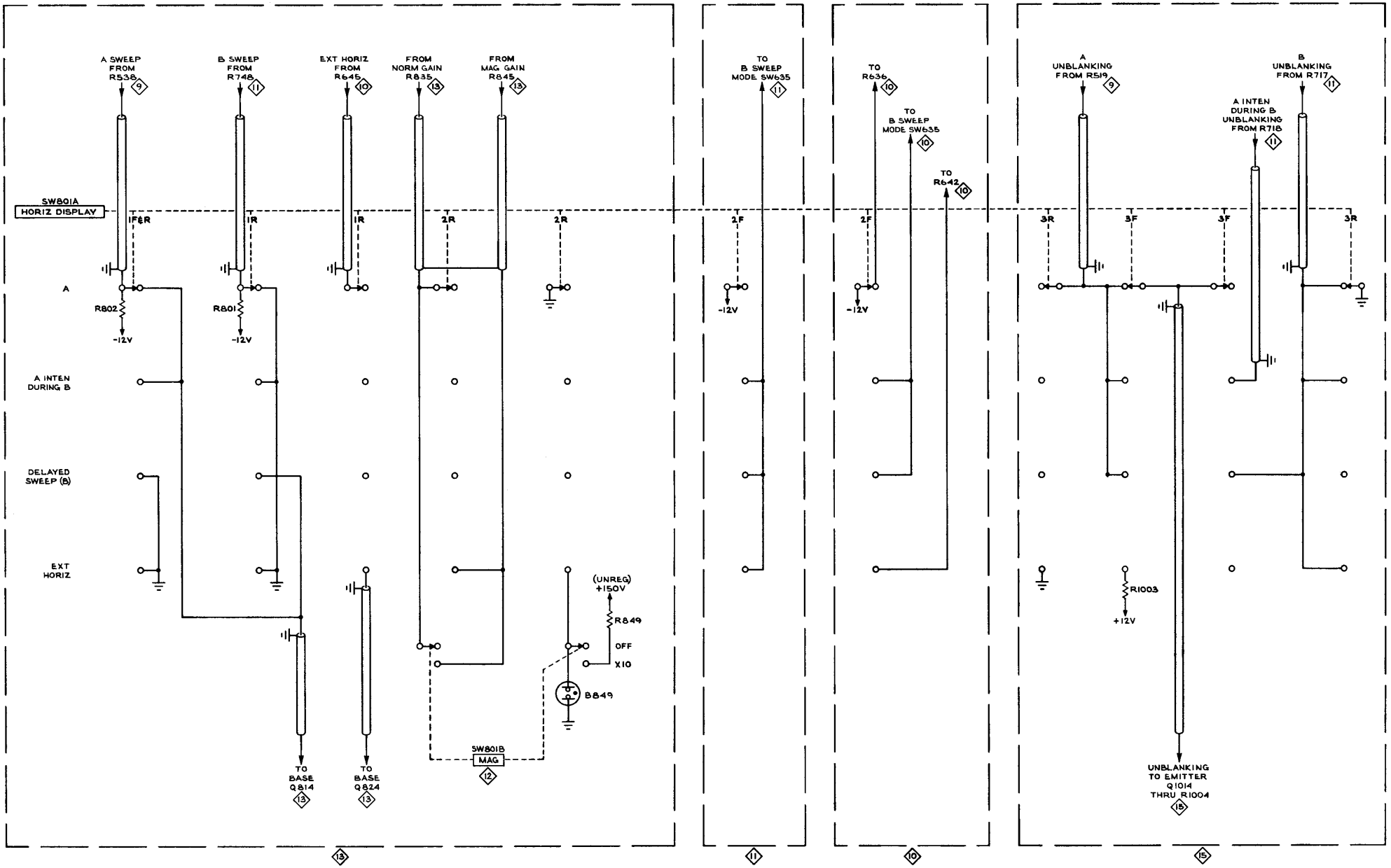

A SWEEP MODE SW580
A TIME/DIV SW530A
HF STAB
R551 10K
R552 90.9K
A SWEEP LENGTH
B ENDS A O
SW555
OPEN ONLY WHEN R555 IS FULLY CCW
R555 10K FULL
HOLDOFF CAPACITORS
C650
FROM COLLECTOR, Q734
AUTO
NORM
SINGLE SWEEP
A SWEEP TRIG'D
RESET
B596
B597
Q585
Q575
Q564
Q594
Q544
Q543
Q504
Q514
Q524
Q531
TIMING RESISTORS
TIMING CAPACITORS
B SWEEP BOARD
SWEEP START
A SWEEP CAL
SW569 RESET
TRIG PULSE FROM R476
TP505
TP504
TP514
V533 8393
A SWEEP TO BASE Q764A
A SWEEP TO HORIZ DISPLAY SW801A-1F6R
A UNBLANKING TO HORIZ DISPLAY SW801A-3R
ALTERNATE TRACE SYNC TO R231
A GATE
J529
PARTIAL A SWEEP BOARD
REFERENCE DIAGRAMS
5 VERTICAL SWITCHING
8 A TRIGGER GENERATOR
11 B SWEEP GENERATOR
12 A&B TIMING SWITCH
13 HORIZONTAL AMPLIFIER
15 Z AXIS AMPLIFIER
17 POWER SUPPLY & DISTRIBUTION
VOLTAGES and WAVEFORMS obtained under conditions given on diagram 1.
SEE PARTS LIST FOR SEMICONDUCTOR TYPES
FOR DECOUPLING NETWORKS & VOLTAGE DISTRIBUTION SEE 17
SEE PARTS LIST FOR EARLIER VALUES AND SERIAL NUMBER RANGES OF PARTS MARKED WITH BLUE OUTLINE.
666 CMD


SW 655
SLOPE
B
(TRIGGER)
SW 615
COUPLING
B
(TRIGGER)
SW 610
SOURCE
B
(TRIGGER)
B TRIG SIG
FROM R429
LINE TRIG SIG
FROM R1106
EXT TRIG
INPUT
OR EXT HORIZ
INT
LINE
EXT
EXT
÷10
AC
DC
LF
REJ
HF
REJ
÷10
÷10
V633
8393
PARTIAL
B SWEEP BOARD
B TRIGGER
LEVEL CENTERING
LEVEL
(B TRIGGER)
EXT HORIZ
GAIN
B TRIG PULSE
TO D701
EXT HORIZ
SIG TO
SW 801A
SW 635
B SWEEP MODE
SW 801A
HORIZ DISPLAY
A INTEN
DURING B
DELAYED
SWEEP (B)
EXT
HORIZ
B STARTS AFTER TIME DELAY
B TRIGGERABLE AFTER DELAY
TP675
TP664
T686
Q654
Q664
Q684
REFERENCE DIAGRAMS
7 TRIGGER PREAMP
11 B SWEEP GENERATOR
13 HORIZONTAL AMPLIFIER
14 HORIZONTAL DISPLAY SWITCH
17 POWER SUPPLY & DISTRIBUTION
FOR DECOUPLING NETWORKS & VOLTAGE DISTRIBUTION SEE 17
SEE PARTS LIST FOR SEMICONDUCTOR TYPES.
VOLTAGES obtained under conditions given on diagram 1.


+65V
R764 8.06K
D765 4.7mo.
R765 75
C764 .022
R766 4.99K
+14.5
C771 .022
Q774
R771 3.3K
+14.6
C773 .0015
R773 1.2K
-12V
0.2V/DIV
5mSEC/DIV
+12V
R774 680
TP774
C774 .022
R778 28.7K
Q775
R783 1.13K
Q785
R784 2.49K
D777
D776
R776 2.1K
R775 1.4K
TP775
C785 47
R785 2.21K
R782 715
2V/DIV
5V/DIV
0.5V/DIV
D748
+75V
R754 10K
D754
D753
AY
AZ
TO BASE Q544 9
SW530B B TIME/DIV 12
6F&R
7F&R
5F&R
B SWEEP CAL
R741 1K
BB
+65V
Q754
Q753
R757 12.7K
SWEEP START
R758 100
R759 200
C759 150µf
R749 5K
D752
D755
R756 180
C756 100
R755 1.6K
TIMING RESISTORS
R740
TIMING CAPACITORS
C740
AG
AF
AI
AH
Q764
A SWEEP FROM R532 9
AB
AA
AC
R761 100
R760 2K
DELAY-TIME MULTIPLIER
R763 383
D764
Q769
R769 3.48K
SW801A HORIZ DISPLAY 14
2F
A INTEN DURING B DELAYED SWEEP (B) EXT HORIZ
B TRIGGERABLE AFTER DELAY TIME
B STARTS AFTER DELAY TIME
SW635 B SWEEP MODE 10
AE
R786 3.9K
C786 .022
R789 100
R787 3.74K
D705 4.7mo
C702 470
Q704
TRIG PULSE FROM R688 10
D701
R702 200
TP705
C704 15
R704 430
D742
R744 100
C744 .03
V743 8393
R743 100
R746 47
Q741
L746
C748 3.3
R748 4.87K
B SWEEP TO HORIZ DISPLAY SW801A-1R 13
AK
AJ
PARTIAL B SWEEP BOARD
10V/DIV
5mSEC/DIV
TP704
C705 470
R705 390
+65V FROM D544 9
AL
+65V
R715 62
R714 1.2K
D714
TP714
C715 .022
Q714
R708 2K
R717 4.99K
B UNBLANKING TO HORIZ DISPLAY SW801A-3F 15
AS
AR
R719 82K
R718 33K
A INTEN DURING B UNBLANKING TO SW801A-3F 15
AT
AU
R731 15K
C732 .022
D731
SW555 9
AV
R735 100K
IN POSITION SHOWN WHEN R555 IS NOT FULLY CCW
R734 10K
Q734
TO D575 9
AW
AX
R733 470
R713 806
R721 806
R722 2.67K
R723 47
C722 470
Q724
D727
D728
R724 1.2K
R738 330
J729
B GATE
AQ
AP
CMD 666
FOR DECOUPLING NETWORKS & VOLTAGE DISTRIBUTION SEE 17
REFERENCE DIAGRAMS
9 A SWEEP GENERATOR
10 B TRIGGER GENERATOR
12 A & B TIMING SWITCH
13 HORIZONTAL AMPLIFIER
14 HORIZONTAL DISPLAY SWITCH
15 Z AXIS AMPLIFIER
17 POWER SUPPLY & DISTRIBUTION
SEE PARTS LIST FOR SEMICONDUCTOR TYPES
VOLTAGES and WAVEFORMS obtained under conditions on diagram except as follows:
Voltages HORIZ DISPLAY — DELAYED SWEEP (B)
Waveforms HORIZ DISPLAY, B SWEEP MODE — DELAYED SWEEP (B), B STARTS AFTER DELAY TIME


TO D552
TO COLLECTOR Q531
TO PIN 4, V533 THRU R533
TO PIN 4, V743 THRU R743
TO COLLECTOR Q741
SEC
m SEC
μ SEC
C550G 4.7μf
C550H 47
C550F .47
C550E .047
C550D .0047
C550C 390
C530G 10μf
C530H 100
C530K 470
C530F 1μf
C530J 100
C530E 0.1
C530D .01
C530C .001
C530B 84
C530A 4.5-25
R530F 10M
R530G 11.5M
R530H 7.15M
R530J 3.57M
R530K 1.43M
R530L 715K
R530M 715K
R530N 715K
R530P 3.3K
R740J 3.57M
R740H 7.15M
R740G 11.5M
R740F 10M
R740K 1.43M
R740L 715K
R740M 715K
R740N 715K
C740F 1μf
C740H 100
C740E 0.1
C740D .01
C740C .001
C740B 84
C740A 4.5-25
PARTIAL B SWEEP BOARD
+75V
A SWEEP CAL R531
B SWEEP CAL R741
AB
BB
+65V FROM D544
R530Y 20K
VARIABLE (A TIME/DIV)
R530X 2.7K
+12V
R740Y 20K
VARIABLE (B TIME/DIV)
R740X 2.7K
(UNREG) +150V
R530W 150K
A OR B UNCAL
B530W
(A) CAL
(B) CAL
SW530Y
SW740Y
MOUNTED ON REAR OF R530Y, SWITCH IS AS SHOWN ONLY IN CAL, FULL CW.
MOUNTED ON REAR OF R740Y, SWITCH IS AS SHOWN ONLY IN CAL, FULL CW.
SW801B MAG
OFF
X10
R530A 143K
R530B 71.5K
R530C 71.5K
R530D 71.5K
R530E 3.3M
R740E 3.3M
R740D 71.5K
R740C 71.5K
R740B 71.5K
R740A 143K
1F&R
2F&R
4F&R
3F&R
SW530A A TIME/DIV
SW530B B TIME/DIV
6F&R
7F&R
5F&R
HOLDOFF CAPS
TIMING CAPS
TIMING RESISTORS
TIMING RESISTORS
TIMING CAPS
REFERENCE DIAGRAMS
9 A SWEEP GENERATOR
11 B SWEEP GENERATOR
13 HORIZONTAL AMPLIFIER
966 JN


+150V (UNREG)
SW330 TRACE FINDER
SPRING RETURN TO POSITION SHOWN
R887 4.5K
R886 470
+75V
D884
C886 0.1
L884 600µh
R884 3K
0.5V/DIV
0V
5mS/DIV
(POSITION) FINE
R805B 50K
(HORIZONTAL) POSITION
R805A 10K
+12V
-12V
R806 180K
C806 .022
R807 8.2K
C807 .022
5V/DIV
0.5V/DIV
C882 0.2-1.5
R882 22.1K
TO RIGHT HAND DEFLECTION PLATE
+47
+0.55
Q884
R863 1.2K
Q863
-5.3
D861
-0.1
B SWEEP FROM R748
A SWEEP FROM R538
EXT HORIZ SIG FROM R645
A INTEN DURING B DELAYED SWEEP B
EXT HORIZ
R801 9.31K
R802 9.31K
R803 51
+0.68
+0.69
R809 2.49K
+7.25
R814 10K
R831 15K
R833 14.7K
R834 1.74K
-0.74
Q834
Q814
R812 4.99K
+7.9
R836 1.5K
R835 500
NORM GAIN
R846 121
MAG GAIN
R845 100
MAG REGISTER
R855 20K
R854 10K
R856 10K
D851
D852
R862 47K
R864 680
R872 47K
R874 680
C804 1µF
R804 8.2K
R808 8.2K
C808 1µF
R822 5.36K
R821 51
Q824
R826 2.49K
R828 2.7K
R824 10K
R843 14.7K
Q844
R841 15K
R844 1.74K
Q873
-4.95
Q894
+0.56
+48
R873 1.2K
R892 22.1K
C892 0.2-1.5
R894 3K
TO LEFT HAND DEFLECTION PLATE
50V/DIV
PARTIAL B SWEEP BOARD
P O N M
SW801A HORIZ DISPLAY
SW801B MAG
OFF
X10
MAG ON
B849
R849 150K
SEE PARTS LIST FOR SEMICONDUCTOR TYPES.
REFERENCE DIAGRAMS
6 VERTICAL OUTPUT AMPLIFIER
9 A SWEEP GENERATOR
10 B TRIGGER GENERATOR
11 B SWEEP GENERATOR
12 A&B TIMING SWITCH
14 HORIZONTAL DISPLAY SWITCH
17 POWER SUPPLY & DISTRIBUTION
FOR DECOUPLING NETWORKS & VOLTAGE DISTRIBUTION SEE 17
VOLTAGES and WAVEFORMS obtained under conditions given on diagram 1 except as follows:
* MAG
X10
DON 366
TYPE 453 OSCILLOSCOPE
B1
HORIZONTAL AMPLIFIER 13



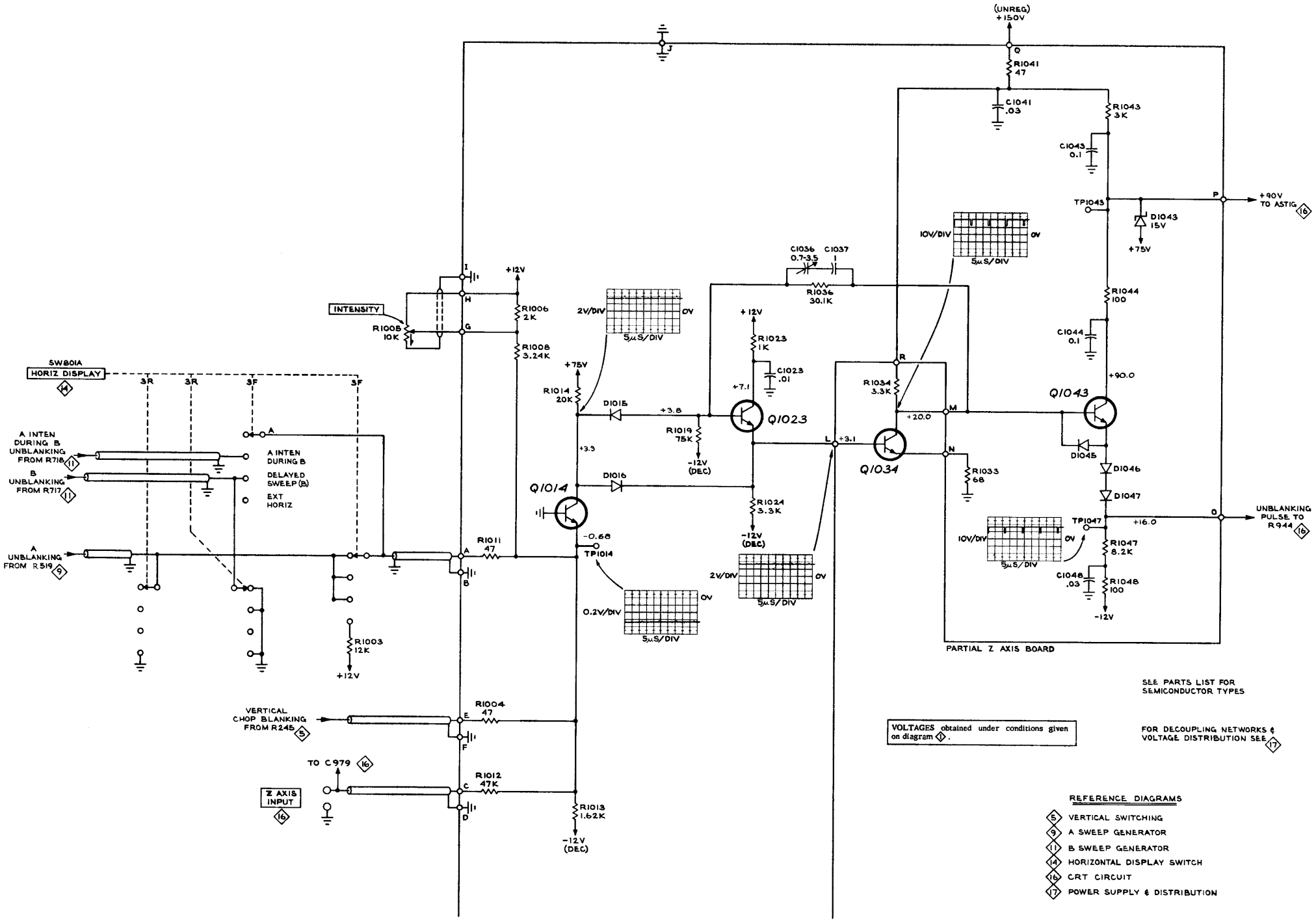
REFERENCE DIAGRAMS

- 9 A SWEEP GENERATOR
- 10 B TRIGGER GENERATOR
- 11 B SWEEP GENERATOR
- 13 HORIZONTAL AMPLIFIER
- 15 Z AXIS AMPLIFIER
- 12 A&B TIMING SWITCH

CMD 565

TYPE 453 OSCILLOSCOPE

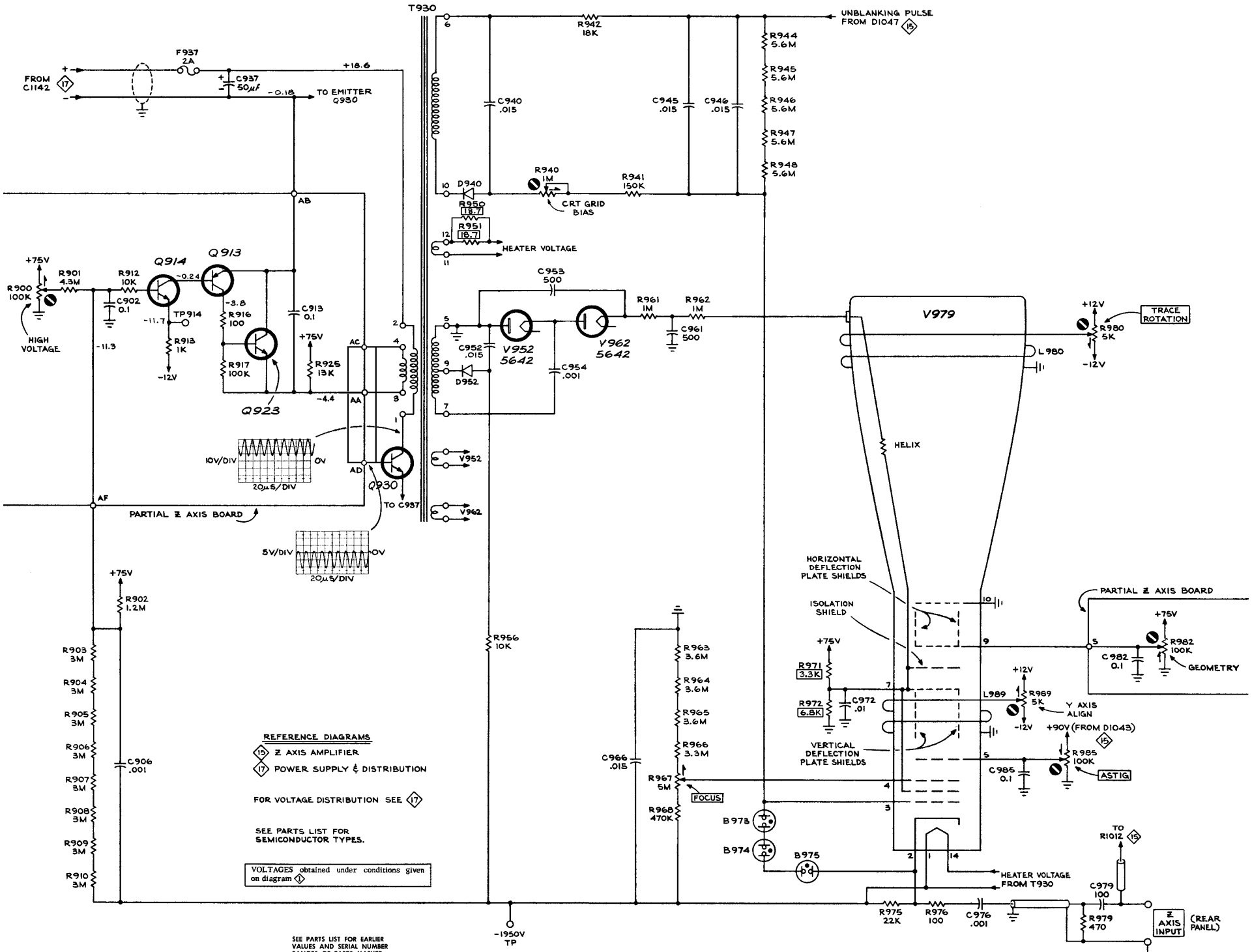
HORIZONTAL DISPLAY SWITCH 14

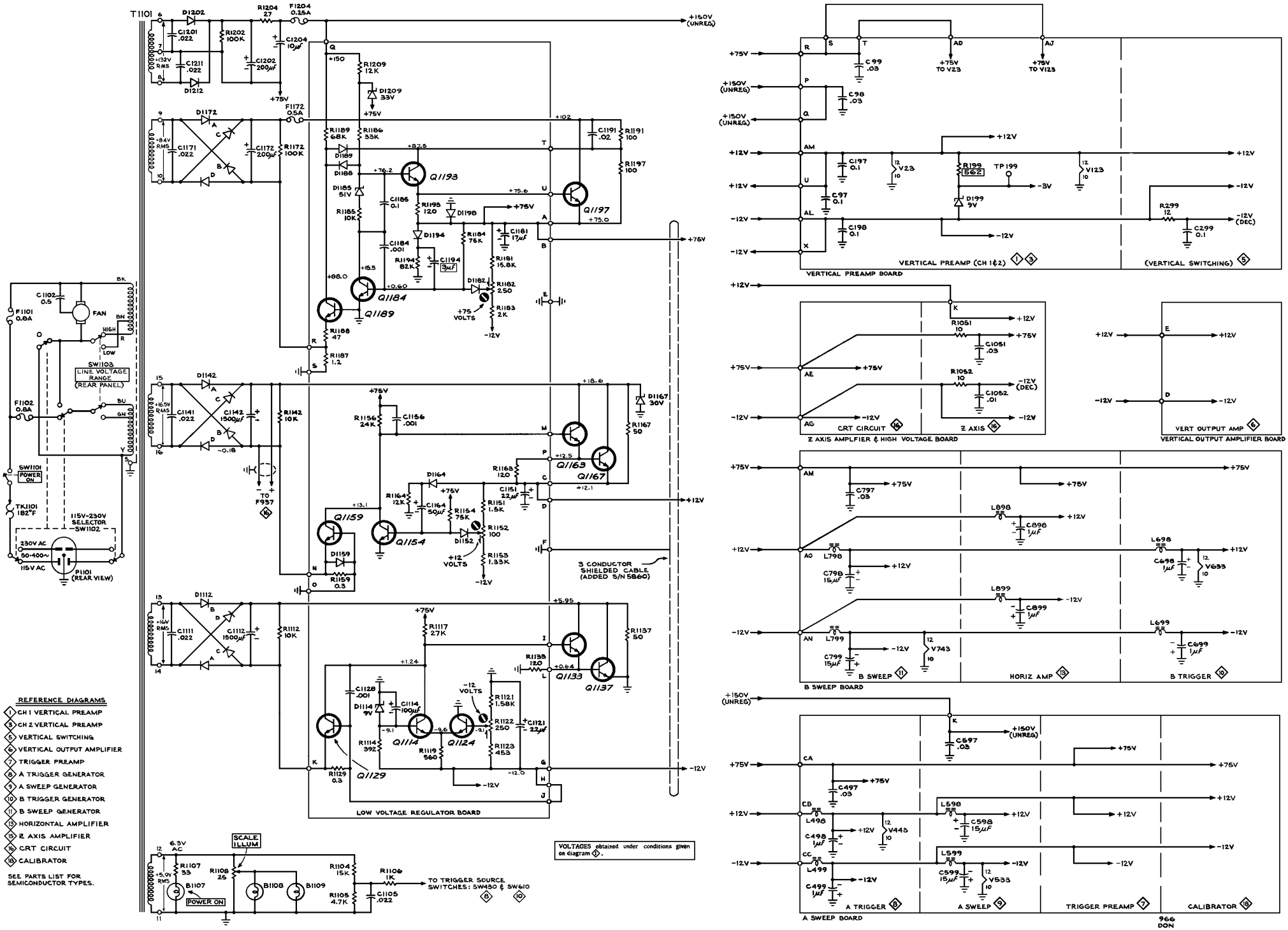


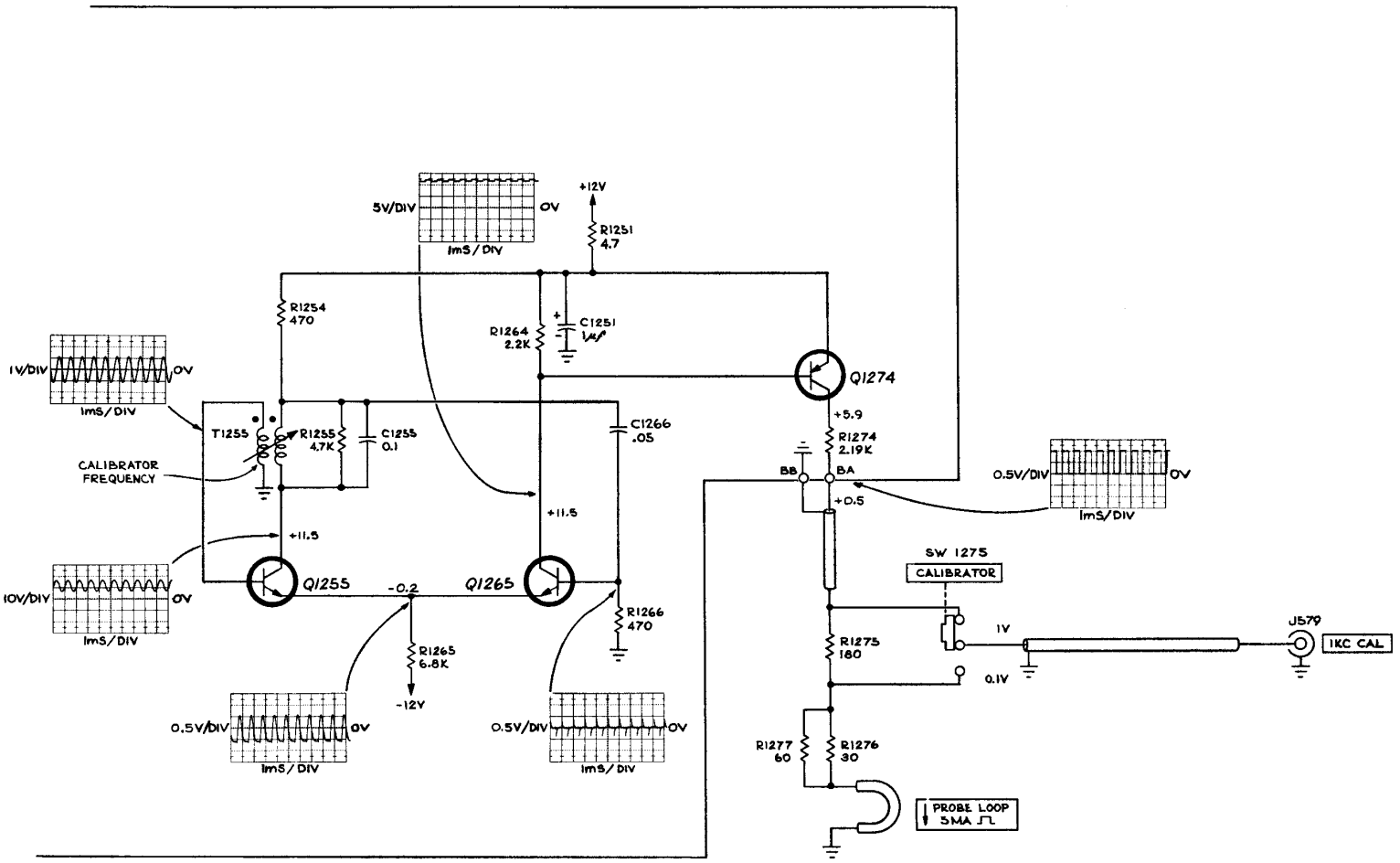
+ TYPE 453 OSCILLOSCOPE

Z AXIS AMPLIFIER 15

CMD 565


T930
UNBLANKING PULSE FROM D1047
F937 2A
FROM C1142
+18.6
C937 50μf
-0.18
TO EMITTER Q930
R942 18K
R944 5.6M
R945 5.6M
R946 5.6M
R947 5.6M
R948 5.6M
C940 .015
C945 .015
C946 .015
R940 1M
R941 150K
CRT GRID BIAS
D940
R950 18.7
R951 16.7
HEATER VOLTAGE
AB
+75V
R900 100K
HIGH VOLTAGE
R901 4.3M
R912 10K
C902 0.1
Q914
Q913
-0.24
-3.8
TP914
-11.7
-11.3
R913 1K
-12V
R916 100
R917 100K
Q923
C913 0.1
+75V
R925 13K
-4.4
AC
AA
AD
10V/DIV
0V
20μS/DIV
Q930
TO C957
PARTIAL Z AXIS BOARD
AF
5V/DIV
0V
20μS/DIV
C953 500
R961 1M
R962 1M
C961 500
C952 .015
V952 5642
V962 5642
C954 .001
D952
V952
V962
V979
+12V
TRACE ROTATION
R980 5K
-12V
L980
HELIX
HORIZONTAL DEFLECTION PLATE SHIELDS
ISOLATION SHIELD
VERTICAL DEFLECTION PLATE SHIELDS
PARTIAL Z AXIS BOARD
+75V
R982 100K
C982 0.1
GEOMETRY
+12V
L989
R989 5K
Y AXIS ALIGN
-12V
+90V (FROM D1043)
R985 100K
ASTIG
C985 0.1
R971 3.3K
R972 6.8K
C972 .01
+75V
R902 1.2M
R903 3M
R904 3M
R905 3M
R906 3M
R907 3M
R908 3M
R909 3M
R910 3M
C906 .001
R956 10K
R963 3.6M
R964 3.6M
R965 3.6M
R966 3.3M
C966 .015
R967 5M
FOCUS
R968 470K
B973
B974
B975
HEATER VOLTAGE FROM T930
TO R1012
C979 100
R975 22K
R976 100
C976 .001
R979 470
Z AXIS INPUT
(REAR PANEL)
-1950V TP
REFERENCE DIAGRAMS
Z AXIS AMPLIFIER
POWER SUPPLY & DISTRIBUTION
FOR VOLTAGE DISTRIBUTION SEE
SEE PARTS LIST FOR SEMICONDUCTOR TYPES.
VOLTAGES obtained under conditions given on diagram
SEE PARTS LIST FOR EARLIER VALUES AND SERIAL NUMBER RANGES OF PARTS MARKED WITH BLUE OUTLINE.


T1101
D1202
R1204 27
F1204 0.25A
+150V (UNREG)
C1201 .022
R1202 100K
C1204 10µF
C1211 .022
C1202 200µF
D1212
+132V RMS
+75V
D1209 33V
F1172 0.5A
D1172
C1171 .022
C1172 200µF
R1172 100K
+84V RMS
R1189 68K
R1186 33K
C1191 .02
R1191 100
R1197 100
D1189
D1188
Q1193
Q1197
D1185 5.1V
C1185 0.1
R1185 10K
R1195 120
D1198
C1181 17µF
D1194
R1184 75K
C1184 .001
R1194 82K
C1194 5µF
R1181 15.8K
D1182
R1182 250
R1183 2K
+75 VOLTS
-12V
Q1184
Q1189
R1188 47
R1187 1.2
+102
+87.5
+76.2
+75.6
+75.0
+88.0
+15.5
+0.60
+75V
+12V
-12V
BK
C1102 0.5
F1101 0.8A
FAN
BN
HIGH
R
LOW
SW1103
LINE VOLTAGE RANGE (REAR PANEL)
F1102 0.8A
BU
GN
SW1101 POWER ON
TK1101 182°F
115V-230V SELECTOR SW1102
230V AC
50-400~
115V AC
P1101 (REAR VIEW)
D1142
C1141 .022
C1142 1500µF
R1142 10K
+16.5V RMS
-0.18
TO F937
+75V
R1156 24K
C1156 .001
D1167 30V
R1167 50
Q1163
Q1167
D1164
R1163 120
R1164 12K
C1164 50µF
R1154 75K
C1151 22µF
R1151 1.5K
R1152 100
D1152
R1153 1.33K
+12 VOLTS
-12V
Q1159
Q1154
D1159
R1159 0.3
+18.6
+12.5
+12.1
+13.1
+12V
3 CONDUCTOR SHIELDED CABLE (ADDED S/N 5860)
D1112
C1111 .022
C1112 1500µF
R1112 10K
+16V RMS
+5.95
R1117 27K
R1137 50
R1138 120
Q1133
Q1137
+1.24
+0.64
C1128 .001
D1114 9V
C1114 100µF
R1114 392
R1119 560
R1129 0.3
Q1114
Q1124
Q1129
R1121 1.58K
R1122 250
R1123 453
C1121 22µF
-12 VOLTS
-9.1
-9.6
-12.0
LOW VOLTAGE REGULATOR BOARD
VOLTAGES obtained under conditions given on diagram 1.
6.3V AC
+5.9V RMS
SCALE ILLUM
R1107 33
R1108 25
R1104 15K
R1106 1K
R1105 4.7K
C1105 .022
B1107
B1108
B1109
POWER ON
TO TRIGGER SOURCE SWITCHES: SW430 & SW610
+75V (UNREG)
+150V (UNREG)
C99 .03
+75V TO V23
+75V TO V123
C98 .03
C197 0.1
V23
R199 562
TP199
-3V
V123
D199 9V
C97 0.1
C198 0.1
R299 12
C299 0.1
(DEC)
VERTICAL PREAMP (CH 1&2) 1 3
(VERTICAL SWITCHING) 5
VERTICAL PREAMP BOARD
R1051 10
C1051 .03
R1052 10
C1052 .01
CRT CIRCUIT 14
Z AXIS 16
Z AXIS AMPLFIER & HIGH VOLTAGE BOARD
VERT OUTPUT AMP 6
VERTICAL OUTPUT AMPLIFIER BOARD
C797 .03
L898
C898 1µF
L798
C798 15µF
L698
C698 1µF
V633
L899
C899 1µF
L799
C799 15µF
V743
L699
C699 1µF
B SWEEP 11
HORIZ AMP 13
B TRIGGER 10
B SWEEP BOARD
C597 .05
C497 .03
L598
C598 15µF
L498
C498 1µF
V448
L599
C599 15µF
V533
L499
C499 1µF
A TRIGGER 8
A SWEEP 9
TRIGGER PREAMP 7
CALIBRATOR 18
A SWEEP BOARD
966 DON
REFERENCE DIAGRAMS
1 CH 1 VERTICAL PREAMP
3 CH 2 VERTICAL PREAMP
5 VERTICAL SWITCHING
6 VERTICAL OUTPUT AMPLIFIER
7 TRIGGER PREAMP
8 A TRIGGER GENERATOR
9 A SWEEP GENERATOR
10 B TRIGGER GENERATOR
11 B SWEEP GENERATOR
13 HORIZONTAL AMPLIFIER
15 Z AXIS AMPLIFIER
16 CRT CIRCUIT
18 CALIBRATOR
SEE PARTS LIST FOR SEMICONDUCTOR TYPES.



PARTIAL A SWEEP BOARD

FOR DECOUPLING NETWORKS & VOLTAGE DISTRIBUTION SEE ◇17

SEE PARTS LIST FOR SEMICONDUCTOR TYPES

VOLTAGES and WAVEFORMS obtained under conditions given on diagram ◇1.