

§ 3. ADJUSTMENT

1. GENERAL

1-1 USER CONTROL

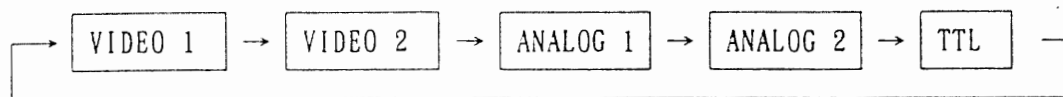
1) PUSH SWITCH

| REMOTE/FRONT | SWITCH | PURPOSE |
|-------------------------------|-------------|--|
| WIRELESS REMOTE CONTROLLER | POWER | SUB POWER SWITCH ON/OFF |
| | VIDEO 1 | SOURCE SELECTION |
| | VIDEO 2 | |
| | ANALOG 1 | |
| | ANALOG 2 | |
| | TTL | |
| | BRIGHT | BRIGHTNESS CONTROL SELECT. ADJUSTABLE BY UP/DOWN SW. |
| | CONTRAST | CONTRAST CONTROL SELECT. ADJUSTABLE BY UP/DOWN SW. |
| | VOLUME | SPEAKER SOUND CONTROL SELECT. ADJUSTABLE BY UP/DOWN SW. |
| | BALANCE | SPEAKER BALANCE CONTROL SELECT. ADJUSTABLE BY UP /DOWN SW. |
| | SET | ADJUSTMENT ITEM SELECT (REFER TO NEXT SECTION) |
| | UP/DOWN | ADJUSTMENT VALUE CONTROL |
| | NUMBER | ADDRESS NUMBER AND ADJUSTMENT ITEM SET UP |
| | ENTER | NUMBER ENTRY |
| | DEGAUSS | TO OPERATE THE MANUAL DEGAUSSING IN APPROX. 5sec. |
| FRONT PANEL | CALL/CLEAR | ADDRESS, SOURCE/MODE DISPLAY CALL |
| | DISPLAY OFF | SOURCE/MODE DISPLAY ON/OFF |
| | POWER | SUB POWER SWITCH ON/OFF |
| | SOURCE | SOURCE SELECTION(REFER TO NEXT SECTION) |
| | BRIGHT | BRIGHTNESS CONTROL SELECT. ADJUSTABLE BY UP/DOWN SW. |
| | CONTRAST | CONTRAST CONTROL SELECT. ADJUSTABLE BY UP/DOWN SW. |
| | VOLUME | SPEAKER SOUND CONTROL SELECT. ADJUSTABLE BY UP/DOWN SW. |
| | BALANCE | SPEAKER BALANCE CONTROL SELECT. ADJUSTABLE BY UP/DOWN SW. |
| | SET | ADJUSTMENT ITEM SELECT(REFER TO NEXT SECTION) |
| | CALL/CLEAR | ADDRESS NUMBER AND ADJUSTMENT ITEM SET UP |
| | DISPLAY OFF | SOURCE/MODE DISPLAY ON/OFF |
| | DEGAUSS | TO OPERATE THE MANUAL DEGAUSSING IN APPROX. 5sec. |
| | UP/DOWN | ADJUSTMENT VALUE CONTROL |

2) SOURCE AND ADJUSTMENT ITEM SELECTION

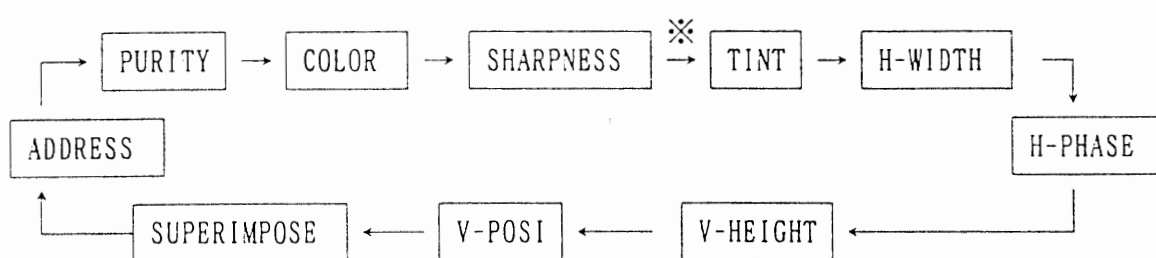
SOURCE AND ADJUSTMENT ITEMS CAN SELECT BY PUSH SWITCH WHICH IS CYCLICALLY DISPLAYED THE MENU ON SCREEN TO FOLLOWING.

(1) THE "SOURCE" SWITCH OF FRONT PANEL IS SELECTABLE TO FOLLOWING MENU AT ONE PUSH.



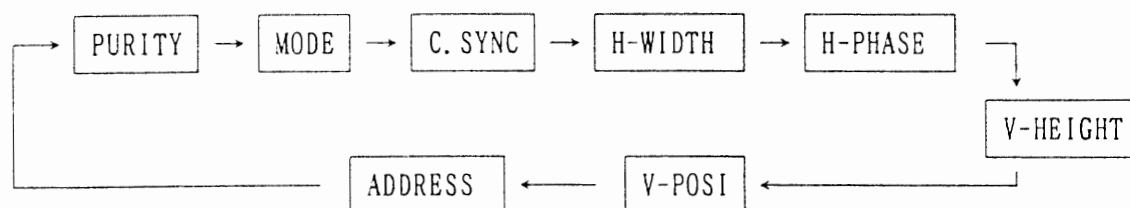
(2) THE "SET" SWITCH OF FRONT PANEL AND WIRELESS REMOTE CONTROLLER IS SELECTABLE TO FOLLOWING MENU IN EVERY SOURCE AT ONE PUSH.

< VIDEO >

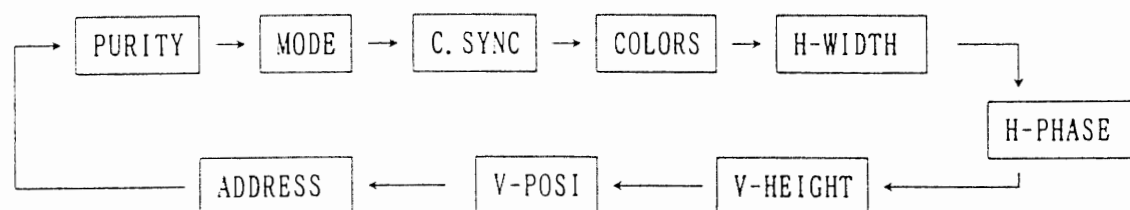


*MARK IS AVAILABLE ONLY NTSC.

< ANALOG >



< TTL >



(3) ADJUSTMENT ITEM

- ① PURITY : CANCEL COIL ADJUSTMENT FOR COLOR PURITY
- ② COLOR : LIGHT OR SHADE CONTROL OF RASTER
- ③ SHARPNESS : SHARP OR SOFT CONTROL OF RASTER
- ④ TINT : COLOR TONE CONTROL OF RASTER
- ⑤ H-WIDTH : HORIZONTAL RASTER SIZE CONTROL
- ⑥ H-PHASE : HORIZONTAL RASTER POSITION CONTROL
- ⑦ V-HEIGHT : VERTICAL RASTER SIZE CONTROL
- ⑧ V-POSI : VERTICAL RASTER POSITION CONTROL
- ⑨ SUPERIMPOSE : SUPERIMPOSE ON/OFF
- ⑩ ADDRESS. : ADDRESS NUMBER SET UP
- ⑪ MODE : MODE SELECTION
- ⑫ C. SYNC : AVAILABLE AT COMPOSITE SYNC. SIGNAL
- ⑬ COLORS : 8/PASTEL16/SATURATED16/64 COLOR SELECTABLE

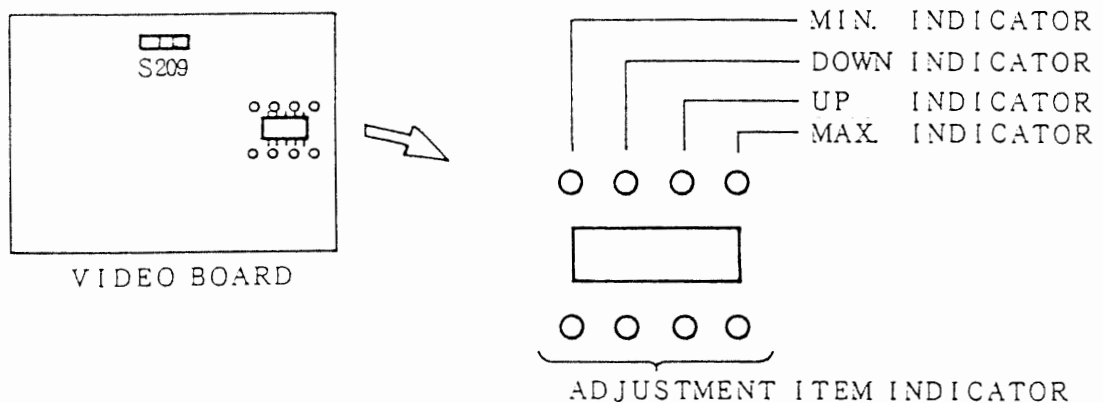
1-2 INTERNAL ADJUSTMENT

1) ACCESS TO INTERNAL ADJUSTMENT

(1) IN NORMALLY, USER CONTROL IS ACCESSABLE BY OPERATION OF FRONT PANEL SWITCHES OR WIRELESS REMOTE CONTROLLER, WHICH IS DISPLAYED THE MENU ON SCREEN.




HOWEVER, THE OTHER ADJUSTMENT ITEMS ARE NECESSARY TO SET UP THE INTERNAL SWITCH OF S209 ON VIDEO BOARD, WHICH WILL BE CHANGE THE FUNCTION OF FRONT SWITCHES FOR INTERNAL ADJUSTMENT.

(2) IT IS NECESSARY TO CONFIRM THE ADJUSTMENT STATUS BY LED ON VIDEO BOARD WHEN SET UP S209.



※ WHEN INDICATE THE BOTH LED OF MAX. AND MIN., IT MEANS CENTER.

2) COMPARISION TABLE BETWEEN FRONT SWITCHES AND INTERNAL ADJUSTMENTS

|  S209 CENTER |  S209 LEFT |  S209 RIGHT | INDICATION OF LOWER LED |
|---|---|---|----------------------------|
| POWER | H-POSITION | DBF H-PARA | ○ ● ● ● |
| SOURCE | CUT-OFF-R | DBF V-GAIN | ● ○ ● ● |
| BRIGHT | CUT-OFF-G | B4 | ○ ○ ● ● |
| CONTRAST | CUT-OFF-B | HIGH VOLT. (HV) | ● ● ○ ● |
| VOLUME | DRIVE-R | (V-LIN. C) | ○ ● ○ ● |
| BALANCE | DRIVE-G | _____ | ● ○ ○ ● |
| SET | DRIVE-B | PCC-GAIN | ○ ○ ○ ● |
| CALL/CLEAR | SUB-CONT. VIDEO | PCC-PHASE | ● ● ● ○ |
| DISPLAY OFF | SUB-CONT. TTL | H-HOLD | ○ ● ● ○ |
| DEGAUSS | SUB-WIDTH | V-HOLD | ● ○ ● ○ |
| DOWN | DOWN | DOWN | |
| UP | UP | UP | |

NOTE)

(1) IT IS NECESSARY TO SELECT THE CENTER POSITION OF S209 FOR DATA ENTRY AFTER EACH ADJUSTMENT.

(2) THE DIRECTION OF S209 IS SEE FROM BACK COVER SIDE OF MONITOR.

(3) INDICATION OF LED : ○...ON, ●...OFF

2. ADJUSTMENT PROCEDURE

(CAUTION)

- 1) THE ADJUSTMENT DATA MAKES AN ENTRY TO E²PROM, WHEN SELECT THE CENTER POSITION OF S209.

THEREFORE, IT IS NECESSARY TO SELECT THE CENTER POSITION OF S209 AT EVERY ADJUSTMENT.

- 2) TIMING DATA IS REFER TO SECTION 3.

2.1 B4 VOLTAGE ADJUSTMENT

- 1) INPUT SIGNAL : TIMING NO. ①, INPUT ONLY SYNC.

2) PROCEDURE :

- (1) SELECT "TTL" BY "SOURCE" SWITCH OF FRONT PANEL.
- (2) SELECT "MODE 2" BY "SET" SWITCH OF FRONT PANEL.
- (3) SET S209 TO RIGHT POSITION ON VIDEO BOARD.
- (4) SELECT "B4" ADJUSTMENT BY "BRIGHT" OF FRONT PANEL.
- (5) CONNECT DC VOLTMETER BETWEEN "TP-3" AND CHASSIS GROUND(OR LEAD OF C940).
- (6) ADJUST DC VOLTAGE FOR A DC $27.8 \pm 0.3V$ BY UP/DOWN SWITCH OF FRONT PANEL.
- (7) AFTER ADJUSTMENT, SET S209 TO CENTER POSITION FOR DATA ENTRY.

2.2 HIGH VOLTAGE(HV) ADJUSTMENT

- 1) INPUT SIGNAL : TIMING NO. ①, INPUT ONLY SYNC.

2) PROCEDURE :

- (1) SELECT "TTL" BY "SOURCE" SWITCH OF FRONT PANEL.
- (2) SELECT "MODE 2" BY "SET" SWITCH OF FRONT PANEL.
- (3) SET S209 TO RIGHT POSITION ON VIDEO BOARD.
- (4) SELECT "HV" BY "CONTRAST" SWITCH OF FRONT PANEL.
- (5) CONNECT HIGH VOLTMETER BETWEEN CRT ANODE AND CHASSIS GROUND.
- (6) ADJUST HIGH VOLTAGE FOR A $32 \pm 0.3KV$ BY UP/DOWN SWITCH OF FRONT PANEL.
- (7) AFTER ADJUSTMENT, SET S209 TO CENTER POSITION FOR DATA ENTRY.

2.3 H-HOLD ADJUSTMENT

1) INPUT SIGNAL : TIMING NO. ⑬, FULL WHITE RASTER

2) PROCEDURE :

(1) SELECT "TTL" BY "SOURCE" SWITCH OF FRONT PANEL.

(2) SELECT "MODE 2" BY "SET" SWITCH OF FRONT PANEL.

(3) SET S209 TO RIGHT POSITION ON VIDEO BOARD.

(4) SELECT "H-HOLD" BY "DISPLAY OFF" SWITCH OF FRONT PANEL.

(5) CONNECT OSCILLOSCOPE TO ⑫ PIN(OR TP-1) OF IC510, THEN MEASURING THE VOLTAGE. ALSO, CONNECT OSCILLOSCOPE TO ④ PIN(OR TP-2) OF IC510, THEN MEASURING THE VOLTAGE.

ADJUST ④ PIN(OR TP-2) VOLTAGE OF IC510 TO SAME VOLTAGE VALUE AS ⑫ PIN (OR TP-1) $\pm 0.05V$ (IN NORMALLY, APPROX. 2.8V) BY UP/DOWN SWITCH.

(6) AFTER ADJUSTMENT, SET S209 TO CENTER POSITION FOR DATA ENTRY.

2.4 V-HOLD ADJUSTMENT

1) INPUT SIGNAL : TIMING NO. ⑬, FULL WHITE RASTER

2) PROCEDURE :

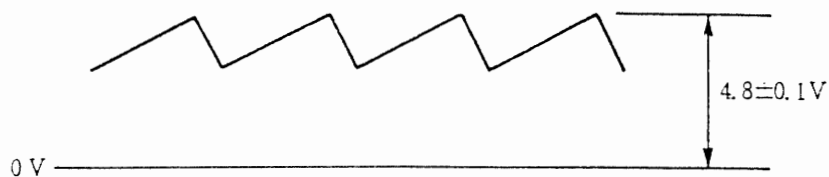
(1) SELECT "TTL" BY "SOURCE" SWITCH OF FRONT PANEL.

(2) SELECT "MODE 2" BY "SET" SWITCH OF FRONT PANEL.

(3) SET S209 TO RIGHT POSITION ON VIDEO BOARD.

(4) SELECT "V-HOLD" BY "DEGAUSS" SWITCH OF FRONT PANEL.

(5) CONNECT OSCILLOSCOPE TO ③ PIN(OR TP-3) OF IC406 AND ADJUST TO OBTAIN THE FOLLOWING WAVE FORM BY UP/DOWN SWITCH.



(6) AFTER ADJUSTMENT, SET S209 TO CENTER POSITION FOR DATA ENTRY.

2.5 H-POSITION ADJUSTMENT

- 1) INPUT SIGNAL : TIMING NO. ⑭, FULL WHITE RASTER
- 2) PROCEDURE :
 - (1) SELECT "TTL" BY "SOURCE" SWITCH OF FRONT PANEL.
 - (2) SELECT "MODE 2" BY "SET" SWITCH OF FRONT PANEL.
 - (3) SET S209 TO LEFT POSITION ON VIDEO BOARD.
 - (4) SELECT "H-POSITION" BY "POWER" SWITCH OF FRONT PANEL.
 - (5) ADJUST THE HORIZONTAL RASTER POSITION BY UP/DOWN SWITCH OF FRONT PANEL TO CENTER OF SCREEN.
 - (6) AFTER ADJUSTMENT, SET S209 TO CENTER POSITION FOR DATA ENTRY.

2.6 PCC-PHASE/PCC-GAIN ADJUSTMENT

- 1) INPUT SIGNAL : TIMING NO. ③, FULL WHITE RASTER
- 2) PROCEDURE :
 - (1) SELECT "TTL" BY "SOURCE" SWITCH OF FRONT PANEL.
 - (2) SELECT "MODE 2" BY "SET" SWITCH OF FRONT PANEL.
 - (3) SET S209 TO RIGHT POSITION ON VIDEO BOARD.
 - (4) SELECT "PCC-PHASE" BY "CALL/CLEAR" SWITCH AND "PCC-GAIN" BY "SET" SWITCH OF FRONT SWITCH.
 - (5) ADJUST TO CORRECT THE RASTER DISTORTION BY UP/DOWN SWITCH OF FRONT PANEL.
 - (6) AFTER ADJUSTMENT, SET S209 TO CENTER POSITION FOR DATA ENTRY.

2.7 SUB-WIDTH ADJUSTMENT

- 1) INPUT SIGNAL : TIMING NO. ⑪, FULL WHITE RASTER
- 2) PROCEDURE :
 - (1) SELECT "ANALOG 2" BY "SOURCE" SWITCH OF FRONT PANEL.
 - (2) SELECT "MODE 2" BY "SET" SWITCH OF FRONT PANEL.
 - (3) SELECT "H-WIDTH" BY "SET" SWITCH OF FRONT PANEL, AND ADJUST TO OBTAIN THE MAX. HORIZONTAL RASTER BY UP/DOWN SWITCH OF FRONT PANEL.
 - (4) SET S209 TO LEFT POSITION ON VIDEO BOARD.
 - (5) SELECT "SUB-WIDTH" BY "DEGAUSS" SWITCH OF FRONT PANEL.

- (6) ADJUST HORIZONTAL RASTER SIZE FOR A $680 \pm 10\text{mm}$ BY UP/DOWN SWITCH OF FRONT PANEL.
- (7) AFTER ADJUSTMENT, SET S209 TO CENTER POSITION FOR DATA ENTRY.

2.8 WHITE BALANCE ADJUSTMENT

- 1) INPUT SIGNAL : TIMING NO. ⑨, WINDOW PATTERN
- 2) PROCEDURE :
 - (1) SELECT "ANALOG 2" BY "SOURCE" SWITCH OF FRONT PANEL.
 - (2) SELECT "MODE 2" BY "SET" SWITCH OF FRONT PANEL.
 - (3) ADJUST "BRIGHT" SWITCH TO CENTER VALUE(INDICATE "0") AND "CONTRAST" SWITCH TO MAX. VALUE(INDICATE "MAX") BY UP/DOWN SWITCH OF FRONT PANEL.
 - (4) ADJUST SCREEN CONTROL ON FBT TO OBTAIN DIMLY BACK RASTER.
 - (5) SET S209 TO LEFT POSITION ON VIDEO BOARD.
 - (6) SELECT "CUT-OFF-R", "CUT-OFF-G", "CUT-OFF-B" BY "SOURCE", "BRIGHT", "CONTRAST" SWITCH OF FRONT PANEL.
 - (7) ADJUST "CUT-OFF-R, G, B" TO MIN. VALUE BY UP/DOWN SWITCH OF FRONT PANEL.
 - (8) DISCONNECT THE RGB VIDEO SIGNAL. (INPUT ONLY SYNC. SIGNAL.)
 - (9) SET S209 TO CENTER POSITION.
 - (10) ADJUST "BRIGHT" SWITCH TO OBTAIN APPROX. 3nits BY UP/DOWN SWITCH OF FRONT PANEL.
 - (11) SET S209 TO LEFT POSITION.
 - (12) SELECT "CUT-OFF-R, G, B" AND ADJUST TO OBTAIN THE PURE WHITE OF $X=0.283/Y=0.297$ OF COLOR COORDINATION BY UP/DOWN SWITCH.
 - (13) AFTER ABOVE ADJUSTMENT, SET S209 TO CENTER POSITION.
 - (14) ADJUST "BRIGHT" SWITCH TO CENTER VALUE (INDICATE "0") BY UP/DOWN SWITCH.
 - (15) INPUT ONLY GREEN VIDEO SIGNAL.

- (16) SET S209 TO LEFT POSITION, THEN SELECT "DRIVE-G" BY "BALANCE" SWITCH OF FRONT PANEL.
- (17) ADJUST "DRIVE-G" TO OBTAIN APPROX. 110nits LUMINANCE BY UP/DOWN SWITCH OF FRONT PANEL.
- (18) INPUT R, G, B VIDEO SIGNAL AND SELECT "DRIVE-R, G, B" BY "VOLUME", "BALANCE", "SET" SWITCH OF FRONT PANEL THEN ADJUST TO OBTAIN THE PURE WHITE OF $X=0.283/$
 $Y=0.297$ OF COLOR COORDINATION BY UP/DOWN SWITCH.
- (19) AFTER ADJUSTMENT, SET S209 TO CENTER POSITION FOR DATA ENTRY.

2.9 SUB-CONTRAST ADJUSTMENT

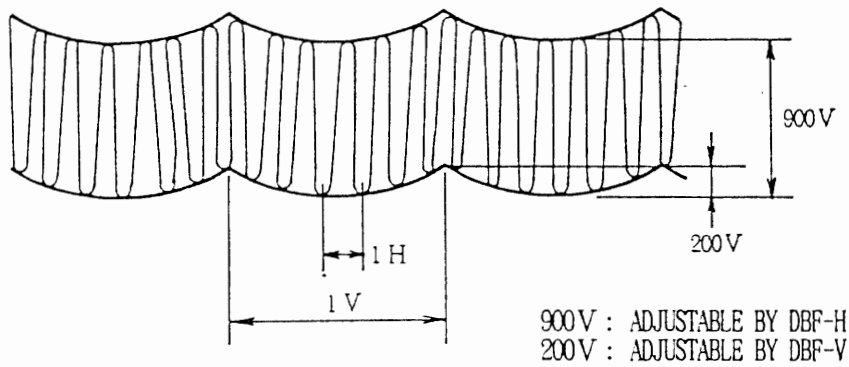
- 1) INPUT SIGNAL : TIMING NO. ⑨, WINDOW PATTERN
- 2) PROCEDURE :
 - (1) SELECT "TTL" BY "SOURCE" SWITCH.
 - (2) SELECT "MODE 1" BY "SET" SWITCH.
 - (3) SET S209 TO LEFT POSITION AND SELECT "SUB-CONT" BY "DISPLAY-OFF" SWITCH OF FRONT PANEL, THEN ADJUST TO OBTAIN APPROX. 150nits LUMINANCE BY UP/DOWN SWITCH OF FRONT PANEL.
 - (4) AFTER ADJUSTMENT, SET S209 TO CENTER POSITION FOR DATA ENTRY.

NOTE) IF NECESSARY, IT IS AVAILABLE TO USE THE LUMINANCE METER OR COLOR ANALYZER, REGARDING ITEM 2.8 AND 2.9.

2.10 DBF-H, DBF-V ADJUSTMENT

- 1) INPUT SIGNAL : TIMING NO. ⑩, WINDOW PATTERN
- 2) PROCEDURE :
 - (1) SELECT "ANALOG 2" BY "SOURCE" SWITCH.
 - (2) SELECT "MODE 2" BY "SET" SWITCH.
 - (3) SET S209 TO RIGHT POSITION AND TO SELECT "DBF-H" AND "DBF-V" BY "POWER" AND "SOURCE" SWITCH OF FRONT PANEL.

- (4) CONNECT OSCILLOSCOPE WITH HIGH VOLTAGE PROBE TO "DF" TERMINAL ON DBF BOARD,
THEN ADJUST TO OBTAIN THE FOLLOWING WAVE FORM BY UP/DOWN SWITCH.



- (5) AFTER ADJUSTMENT, SET S209 TO CENTER POSITION FOR DATA ENTRY.

2.11 RASTER ADJUSTMENT

1) INPUT SIGNAL : REFER TO THE FOLLOWING TABLE.

2) PROCEDURE :

(1) SELECT "H-PHASE" BY "SET" SWITCH, THEN ADJUST THE HORIZONTAL RASTER POSITION BY UP/DOWN SWITCH TO CENTER POSITION.

(2) SELECT "H-WIDTH" BY "SET" SWITCH, THEN ADJUST THE HORIZONTAL RASTER SIZE FOR A 645 ± 10 mm BY UP/DOWN SWITCH.

(3) SELECT "V-POS" BY "SET" SWITCH, THEN ADJUST THE VERTICAL RASTER POSITION BY UP/DOWN SWITCH.

(4) SELECT "V-SIZE" BY "SET" SWITCH, THEN ADJUST THE VERTICAL RASTER SIZE FOR A 485 ± 10 mm BY UP/DOWN SWITCH.

(5) AFTER ADJUSTMENT ITEM (1) TO (4), TO PUSH THE BOTH SWITCHES OF "CALL/CLEAR" AND "DEGAUSS" THEN CONFIRM TO THE "MEMORIZED" DISPLAY ON EACH TIMING OF THE FOLLOWING TABLE.

(6) ADJUSTMENT CONDITION ... BRIGHT : CENTER(0)

CONTRAST : MAX.

| DESCRIPTION | TIMING | PATTERN | SOURCE | MODE | S209 |
|-------------|--------|-------------|----------|------|--------|
| CGA | ① | FULL WHITE | TTL | 2 | CENTER |
| EGA | ③ | | TTL | | |
| PGA 400L | ⑤ | | ANALOG 2 | | |
| PGA 480L | ⑥ | | | | |
| VGA 350L | ⑦ | | | | |
| VGA 400L | ⑧ | | | | |
| VGA 480L | ⑨ | | | | |
| VGA 1024L | ⑩ | | | | |
| MAC II | ⑫ | | | | |
| ANALOG 1 | ⑨ | | ANALOG 1 | 1 | |
| ANALOG 1 | ⑨ | | ANALOG 1 | 2 | |
| ANALOG 2 | ⑨ | | ANALOG 2 | 1 | |
| TTL | ⑨ | | TTL | 1 | |
| VIDEO | NTSC | CROSS HATCH | VIDEO 1 | — | |
| VIDEO | PAL | CROSS HATCH | VIDEO 2 | — | |

※ IN CASE OF VIDEO SIGNAL, IT SHOULD BE CONTROLLED TO OBTAIN OPTIMUM OVER SCANNING RASTER BY "H-WIDTH" AND "V-SIZE" SWITCHES.

2.12 SUB-CONTRAST VIDEO ADJUSTMENT

1) INPUT SIGNAL : NTSC, COLOR BAR PATTERN

2) PROCEDURE :

(1) SELECT "VIDEO 1" BY "SOURCE" SWITCH.

(2) ADJUST "BRIGHT" AND "CONTRAST" TO FOLLOWING.

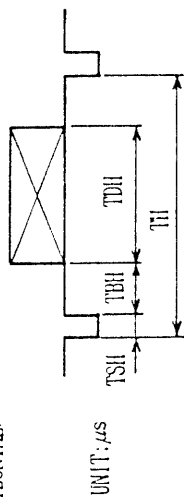
BRIGHT...CENTER(0), CONTRAST...MAX

(3) SET S209 TO LEFT POSITION AND SELECT "SUB-CONT VIDEO" BY "CALL/CLEAR" SWITCH OF FRONT PANEL.

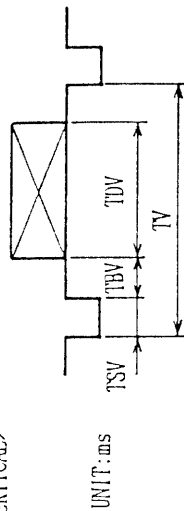
(4) ADJUST THE LUMINANCE FOR APPROX. 230nits ON CENTER OF WHITE WINDOW OF COLOR BAR PATTERN BY UP/DOWN SWITCH.

3. TIMING CHART DATA

<HORIZONTAL>



<VERTICAL>

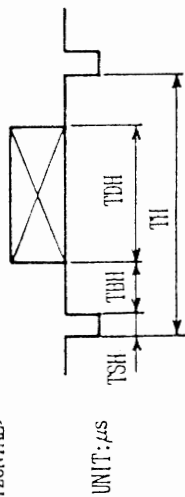


| No. | DOT IN DISPLAY | CHR. SIZE | TH | TSH | TBH | TDH | TV | TSV | TBV | TDV | H. SYNC. | V. SYNC. | I/NI | REMARKS |
|-----|-------------------|--------------|--------|-------|-------|--------|--------|-------|-------|--------|----------|----------|------|----------|
| ① | 637 | 8 × 8 | 63.500 | 4.500 | 8.950 | 44.500 | 16.640 | 0.190 | 2.159 | 12.700 | POS. | POS. | NI | CGA |
| ② | 749 | 8 × 8 | 63.500 | 4.500 | 4.500 | 52.300 | 16.640 | 0.190 | 0.762 | 15.620 | POS. | POS. | NI | CGA |
| ③ | 640 | 10 × 10 | 45.760 | 4.950 | 1.640 | 39.500 | 17.000 | 0.600 | 0.103 | 16.300 | NEG. | POS. | NI | EGA |
| ④ | 640 | 10 × 10 | 46.400 | 4.950 | 2.400 | 39.500 | 17.000 | 0.600 | 0.103 | 16.300 | NEG. | POS. | NI | EGA |
| ⑤ | 640 | 10 × 10 | 32.800 | 4.480 | 2.720 | 25.600 | 16.660 | 0.066 | 2.099 | 13.120 | POS. | POS. | NI | PGA 400 |
| ⑥ | 640 | 10 × 10 | 32.800 | 4.480 | 2.720 | 25.600 | 16.660 | 0.066 | 0.787 | 15.740 | POS. | POS. | NI | PGA 480 |
| ⑦ | 640 | 10 × 10 | 31.778 | 3.813 | 1.907 | 25.422 | 14.268 | 0.064 | 1.907 | 11.122 | NEG. | POS. | NI | VGA 350 |
| ⑧ | 640 | 10 × 10 | 31.778 | 3.813 | 1.907 | 25.422 | 14.268 | 0.064 | 1.111 | 12.711 | POS. | NEG. | NI | VGA 400 |
| ⑨ | 640 | 10 × 10 | 31.778 | 3.813 | 1.907 | 25.422 | 16.683 | 0.064 | 1.048 | 15.253 | NEG. | NEG. | NI | VGA 480 |
| ⑩ | 1024 | 10 × 10 | 28.153 | 3.920 | 1.250 | 22.800 | 11.500 | 0.113 | 0.577 | 10.810 | POS. | POS. | NI | VGA 1024 |
| ⑪ | 640 | 8 × 8 | 40.280 | 3.040 | 4.040 | 30.400 | 18.040 | 0.320 | 1.280 | 16.120 | NEG. | NEG. | NI | PC 98 |
| ⑫ | 640 | 8 × 8 | 28.571 | 2.116 | 3.157 | 21.164 | 15.000 | 0.086 | 1.114 | 13.714 | POS. | POS. | NI | MAC II |
| ⑬ | 653 | 8 × 8 | 40.000 | 3.000 | 3.000 | 31.000 | 16.666 | 0.295 | 0.739 | 14.892 | POS. | POS. | NI | TEST |
| ⑭ | 709 | 10 × 10 | 45.760 | 1.000 | 1.000 | 43.760 | 17.000 | 0.600 | 0.103 | 16.300 | NEG. | POS. | NI | TEST |

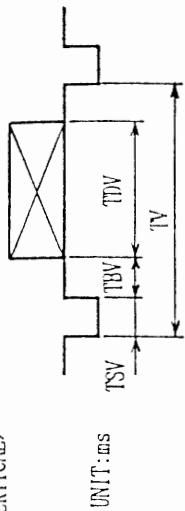
NI : NON INTERLACE

3. TIMING CHART DATA

<HORIZONTAL>



<VERTICAL>



| No | DOT IN DISPLAY | CHR. SIZE | TH | TSH | TBH | TDH | TV | TSV | TBV | TDV | H. SYNC. | V. SYNC. | I/N1 | REMARKS |
|----|-------------------|--------------|--------|-------|-------|--------|--------|-------|-------|--------|----------|----------|------|----------|
| ① | 637 | 8 × 8 | 63.500 | 4.500 | 8.950 | 44.500 | 16.640 | 0.190 | 2.159 | 12.700 | POS. | POS. | NI | CGA |
| ② | 749 | 8 × 8 | 63.500 | 4.500 | 4.500 | 52.300 | 16.640 | 0.190 | 0.762 | 15.620 | POS. | POS. | NI | CGA |
| ③ | 640 | 10 × 10 | 45.760 | 4.950 | 1.640 | 39.500 | 17.000 | 0.600 | 0.103 | 16.300 | NEG. | POS. | NI | EGA |
| ④ | 640 | 10 × 10 | 46.400 | 4.950 | 2.400 | 39.500 | 17.000 | 0.600 | 0.103 | 16.300 | NEG. | POS. | NI | EGA |
| ⑤ | 640 | 10 × 10 | 32.800 | 4.480 | 2.720 | 25.600 | 16.660 | 0.066 | 2.099 | 13.120 | POS. | POS. | NI | PGA 400 |
| ⑥ | 640 | 10 × 10 | 32.800 | 4.480 | 2.720 | 25.600 | 16.660 | 0.066 | 0.787 | 15.740 | POS. | POS. | NI | PGA 480 |
| ⑦ | 640 | 10 × 10 | 31.778 | 3.813 | 1.907 | 25.422 | 14.268 | 0.064 | 1.907 | 11.122 | NEG. | POS. | NI | VGA 350 |
| ⑧ | 640 | 10 × 10 | 31.778 | 3.813 | 1.907 | 25.422 | 14.268 | 0.064 | 1.111 | 12.711 | POS. | NEG. | NI | VGA 400 |
| ⑨ | 640 | 10 × 10 | 31.778 | 3.813 | 1.907 | 25.422 | 16.683 | 0.064 | 1.048 | 15.253 | NEG. | NEG. | NI | VGA 480 |
| ⑩ | 1024 | 10 × 10 | 28.153 | 3.920 | 1.250 | 22.800 | 11.500 | 0.113 | 0.577 | 10.810 | POS. | POS. | NI | VGA 1024 |
| ⑪ | 640 | 8 × 8 | 40.280 | 3.040 | 4.040 | 30.400 | 18.040 | 0.320 | 1.280 | 16.120 | NEG. | NEG. | NI | PC 98 |
| ⑫ | 640 | 8 × 8 | 28.571 | 2.116 | 3.157 | 21.164 | 15.000 | 0.086 | 1.114 | 13.714 | POS. | POS. | NI | MAC II |
| ⑬ | 653 | 8 × 8 | 40.000 | 3.000 | 3.000 | 31.000 | 16.666 | 0.295 | 0.739 | 14.892 | POS. | POS. | NI | TEST |
| ⑭ | 709 | 10 × 10 | 45.760 | 1.000 | 1.000 | 43.760 | 17.000 | 0.600 | 0.103 | 16.300 | NEG. | POS. | NI | TEST |

NI : NON INTERLACE