

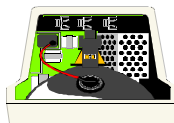


555 S. Kirk Road St.Charles, Il 60174
630-443-1290 630-443-1390FAX

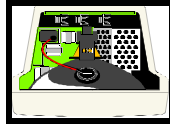


SERVICE MANUAL

Color Monitors



1428 - 30K Series



COLOR DATA DISPLAY by KRISTEL, ISO-9001 CERTIFIED

1428 - 30K series

COLOR SPECIFICATIONS

CRT

- From 10" to 28" diagonal measure
- P22 phosphor
- Polished faceplate standard (dark - tint, light transmission: 57%, none glare, deflection angle 90 degree, dot pitch: 0.28 - 0.82. Optional finer pitches available.

INPUT SIGNALS

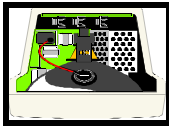
- Video: Red, Green, Blue separate input Impedance: 75 ohm, amplitude: 0.7Vp-p
- Horizontal scan: 31.5 KHz / 35.5 KHz, TTL positive or negative
- Vertical signal: 50-70Hz

VIDEO CHARACTERISTICS

- Video bandwidth: 45MHz
- Power supply: universal (90-250vAC)
- Resolution: VGA /sVGA
- Linear distortion: 10% max.
- Geometric distortion: 3,0mm max. top/bottom, 4.0mm max. left/right

ENVIRONMENTAL CONDITIONS

- Operating temp. 0-55 degree C. Complies with UL, CSA and TUVradiation performance standard.



1428-30k series

MECHANICAL

- The 14" monitor is also available in universal mount brackets. The monitor can be mounted in the user's cabinet horizontally or vertically.
- All the models are available also as a kit - without a frame. Custom frames can be furnished also available in the chassis form adaptable to individual customer requirements.

USER ADJ. CONTROLS AND ADJUSTMENTS

- HORIZONTAL size, VERTICAL size
- CONTRAST BRIGHTNESS
- VERTICAL center HORIZONTAL phase

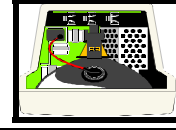
- SUB-BRIGHTNESS RASTER center
- SUB-SIZE VERTICAL lin.
- SUB.HORIZ.size X-RAY prot.
- HORIZONTAL hold B+ adj.
- PINCUSHION GAIN

- R,G,B bias R,B Gain

PRODUCT SAFETY NOTICE

WARNING: FOR CONTINUED SAFETY REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER RECOMMENDED PARTS

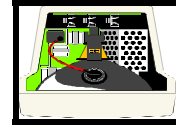
AVERTISSEMENT: POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT.



SAFETY PRECAUTION

NOTICE: Comply with all cautions and safety related notes located on or inside the chassis or picture tube. The following precautions should be observed:

- 1.The design of this product contains special hardware, many circuits and components especially for safety purposes.
2. For continous protection, no changes should be made to the original design unless authorized in writing by manufacturer.
- 3.Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting there from.
4. Many electrical and mechanical parts in display sets have special safety related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, current etc.
5. If severe arcing occurs, remove AC power immediately and determine the cause by visual inspection (incorect installation, cracked or melted HV harness, poor soldering, broken wires etc.)
6. No modification of any circuit should be attempted. Service work should only performed after you are throughly familiar with all of the safety check.
- 7.Do not place the monitor on unstable surface. If the product should fall, it may become seriously damaged and, more importantly, may cause injuries to the user.
- 8.Follow all wanings and instructions marked on the product.



IMPORTANT

Do not check high voltage by drawing an arc. Use a high voltage meter or a high voltage probe with a digital voltage meter.

When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use original components.

NOTE: Make sure to turn power switch off before making the connection to the Anode Button.

WARNING

X-RADIATION. Operation of this color monitor under normal conditions will not exceed the 0.5 mR/h iso-exposer-rate. Be sure that the anode voltage and other tube voltages are adjusted to the recommended values.

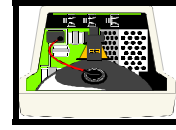
SHOCK HAZARD. To remove any residual charge, short the anode contact button, located in the funnel of the tube, to the external conductive coating before handling the tube.

TUBE HANDLING. Tube assembly should never be handled by the tube neck, deflection yoke or other neck components. If suspending the tube assembly from the mounting lugs, ensure that a minimum of two are used.

Under no circumstances suspend the tube assembly from one lug.

To protect the screen when placing the tube face-down, ensure that the tube face rests on a cushion kept free from abrasive substances / or foreign parts.

TUBE REPLACEMENT. This monitor tube incorporates integral X-radiation and implosion protection and must be replaced with the same type number or recommended replacement to assure continued safety.



MAIN PCB, 1428-30K

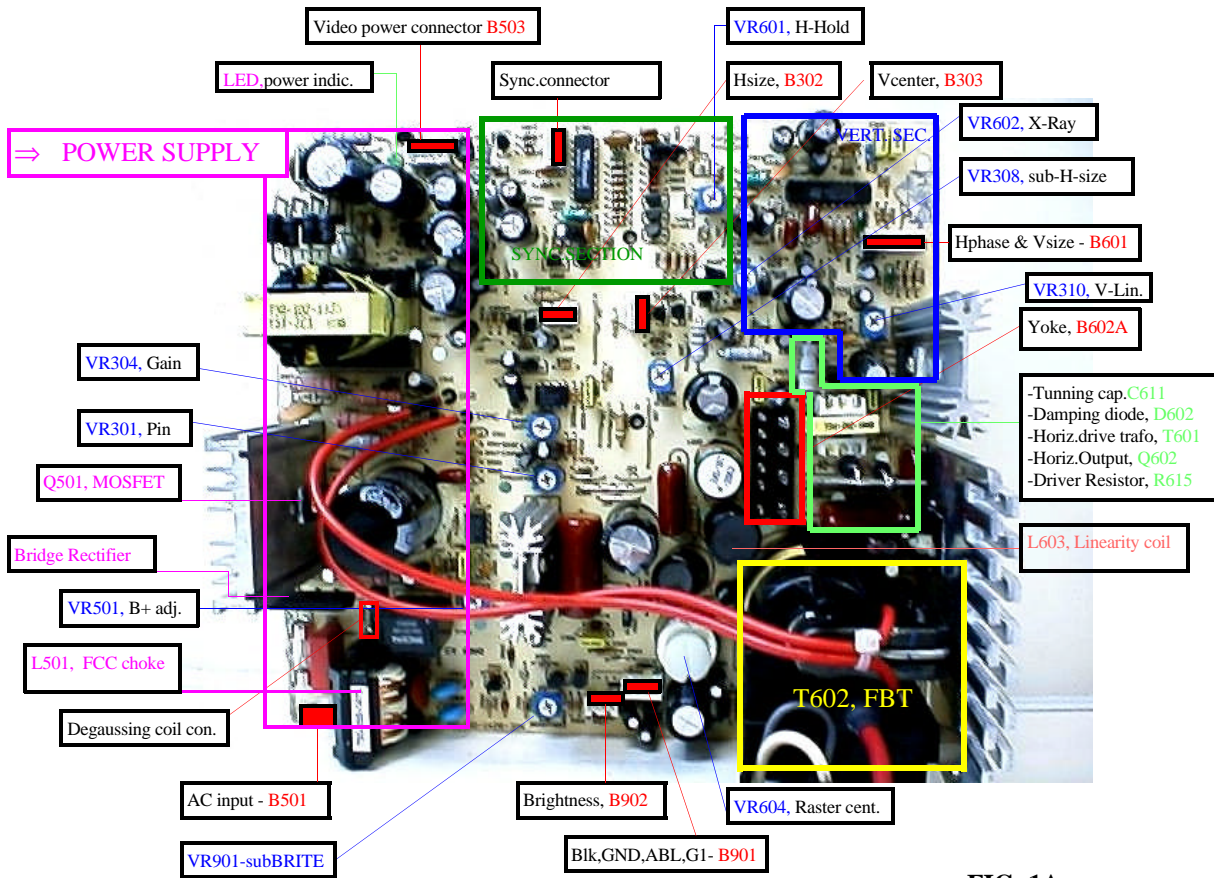
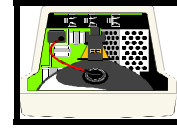


FIG. 1A

- * VR CONTROL INFORMATION
 - * CONNECTORS INFORMATION
 - * PRINCIPAL SECTIONS AREA
- KRISTEL 100-100-1428-30K PCB rev.A with blanking circuit incorporated.**



MAIN PCB, 1428-30K

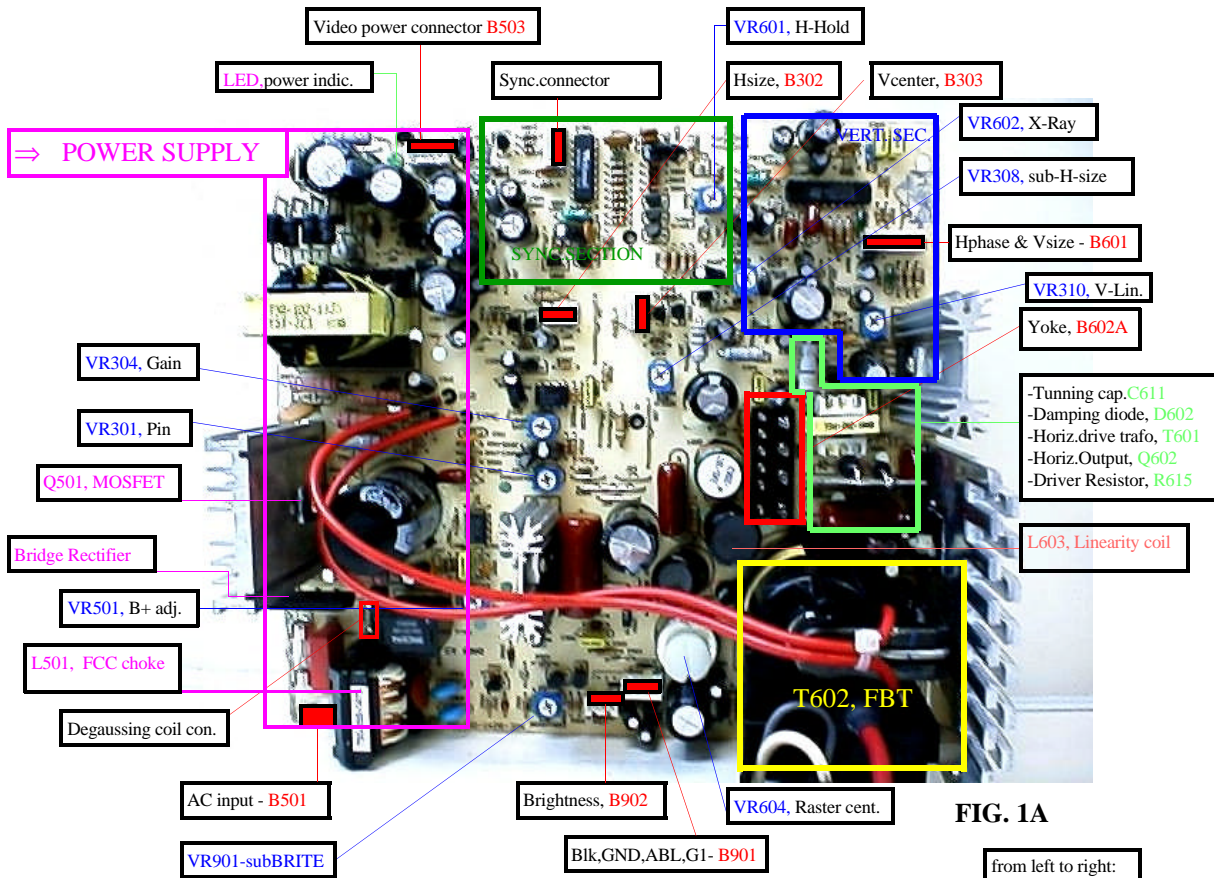


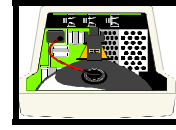
FIG. 1A

KRISTEL 100-100-1428-30K PCB rev.A

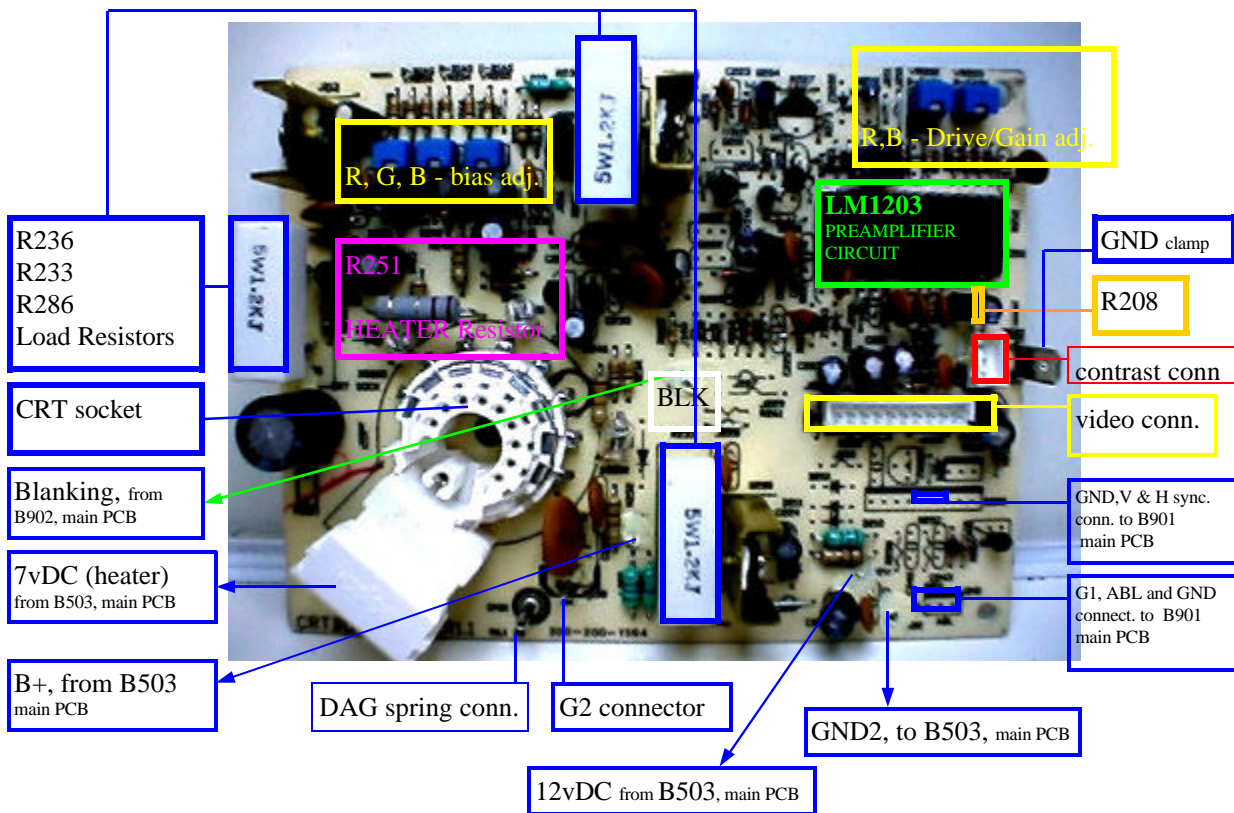
NOTE: for AutoBias optional configuration, B902 is NOT used, and B901 is like in fig.2A



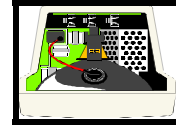
FIG. 2A



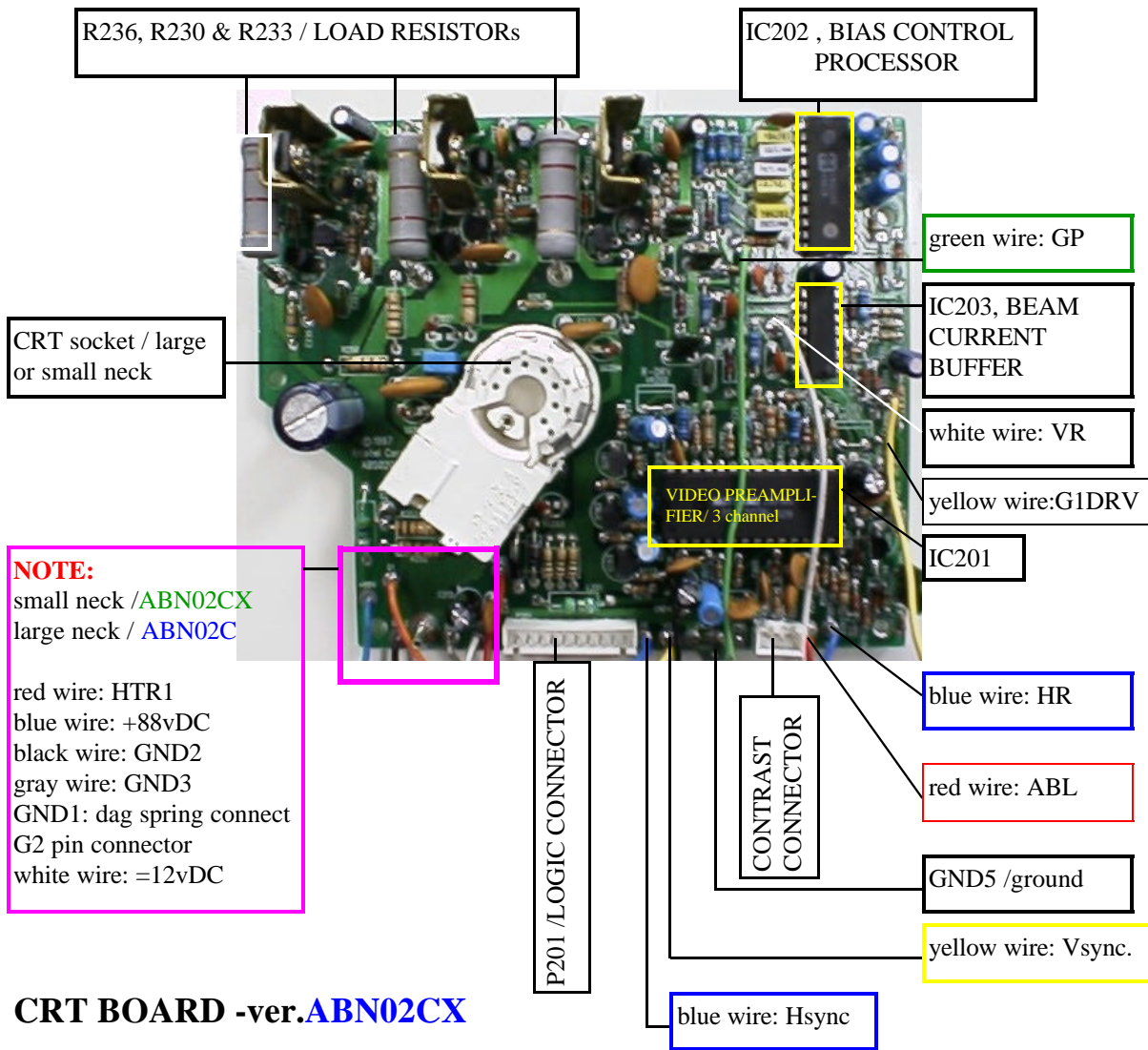
VIDEO PCB CONNECTION INFORMATION & PRINCIPAL SECTIONS AREA



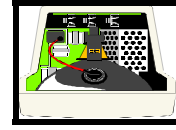
CRT BOARD - ver.1.1 200-200-1564



VIDEO PCB - ABNO2CX /autobias/ INFORMATION & PRINCIPAL SECTIONS AREA



CRT BOARD -ver.ABNO2CX



AUTOMATIC BIASING VIDEO SYSTEM

PURPOSE

The purpose of the system is to establish and maintain a constant and correct black level (cutoff level) on the CRT screen, without the need for manually adjusting the biasing of the individual video amplifiers. This has the advantage of greatly simplifying the initial setup, plus maintaining the biasing conditions throughout the life of the CRT as it ages. It also eliminates the need for individual red, green, and blue bias potentiometers, and even a brightness control. The Automatic Biasing System is integrated into the video amplifier system.

OVERVIEW OF OPERATION

The system works by sending a DC correction to each of the video amplifiers, in response to cathode current changes resulting from a fixed step in G1 voltage. During a setup and sampling period after vertical retrace, a fixed step is applied to the G1 grid, while the three cathodes are held steady. When bias conditions are correct, this voltage step results in a small step in cathode current for each gun. This step produces a faint horizontal line at the top of the screen, visible if the vertical size is set low enough.

OPERATION DESCRIPTION

Video System: The basic video system consists of a three-channel video processor IC201, and three video output stages (Q205, Q202, Q206, and Q207 comprise the Red Video Output stage). The Automatic Biasing System adds a Bias Control Processor, IC202, plus Beam Current Buffers IC203B-D, a G1 control circuit IC203A, and clamping circuits. IC201 contains three video preamplifiers with DC-controlled gain and DC clamping. IC202 contains timing circuits, sample-and-hold circuits, and buffers.

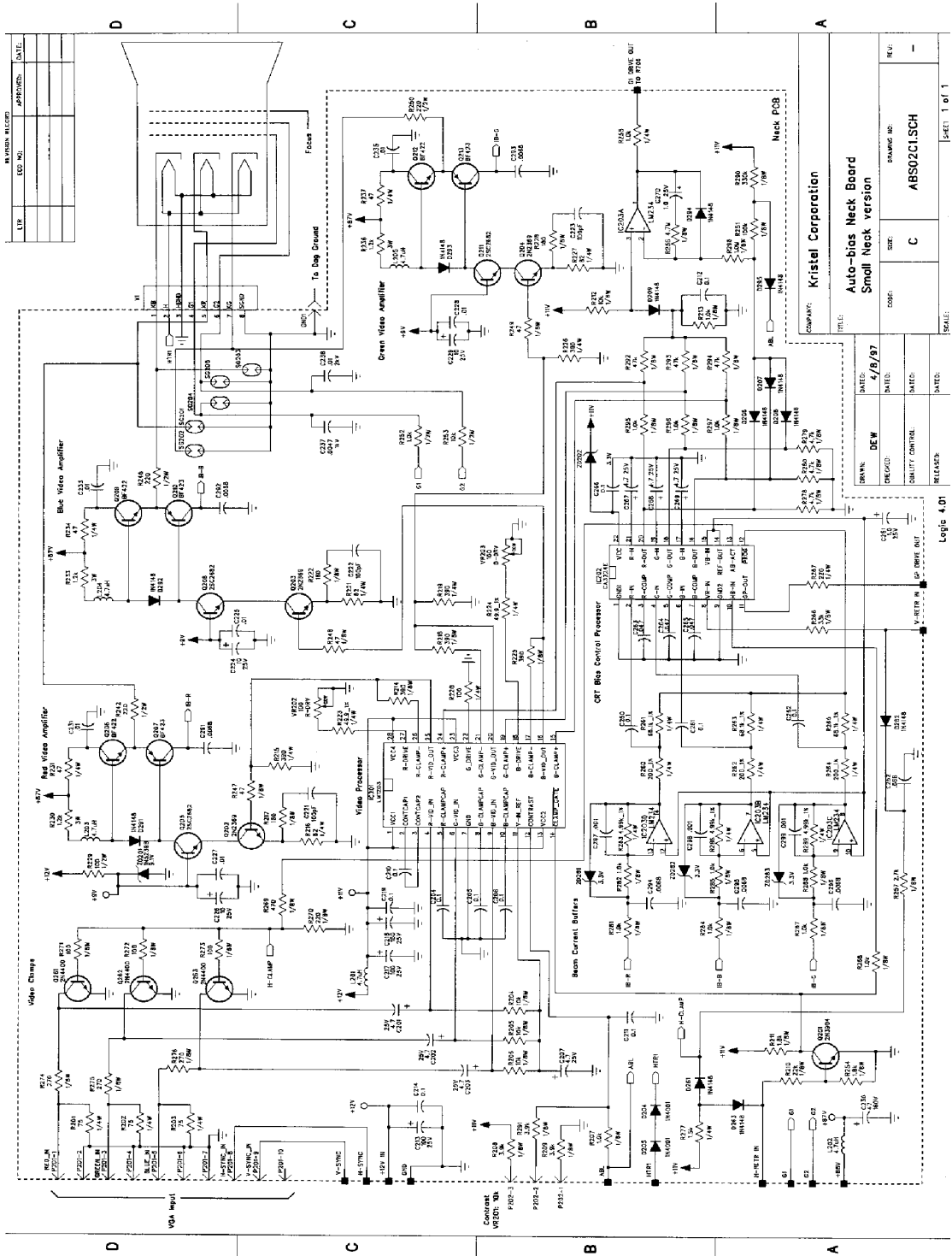
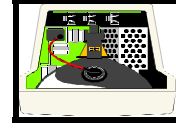
The three video channels are identical, so only the Red channel will be described in detail. The Red video input signal is terminated by R201, and is delivered to the input of IC201 at pin 4 through R274 and AC coupling capacitor C201. Pin 11 supplies a DC bias level for the video input signal through R204.

IC201 increases the 0.7V p-p nominal video input level to about 2.7V p-p at pin 25, which then drives the base of Q202. The exact amount of gain is determined by the DC level on pin 12, the Contrast control input. This DC level controls the gain of all three video channels simultaneously.

Q202 and Q205 operate as a cascode video output amplifier, with a gain of about 15. The video swing at Q205's collector is about 40V p-p. Q206 and Q207 operate as a buffer, driving the red CRT cathode through R242.

Q201 is driven by a horizontal retrace signal, and supplies a negative-going clamping pulse to IC201 pin 14. This provides DC restoration for the video signal by forcing the output of the video processor, IC201 pin 25, to the same DC voltage as on pin 24, during horizontal retrace time.

1428-30k series, AUTO BIAS



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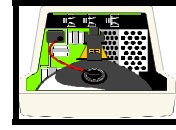
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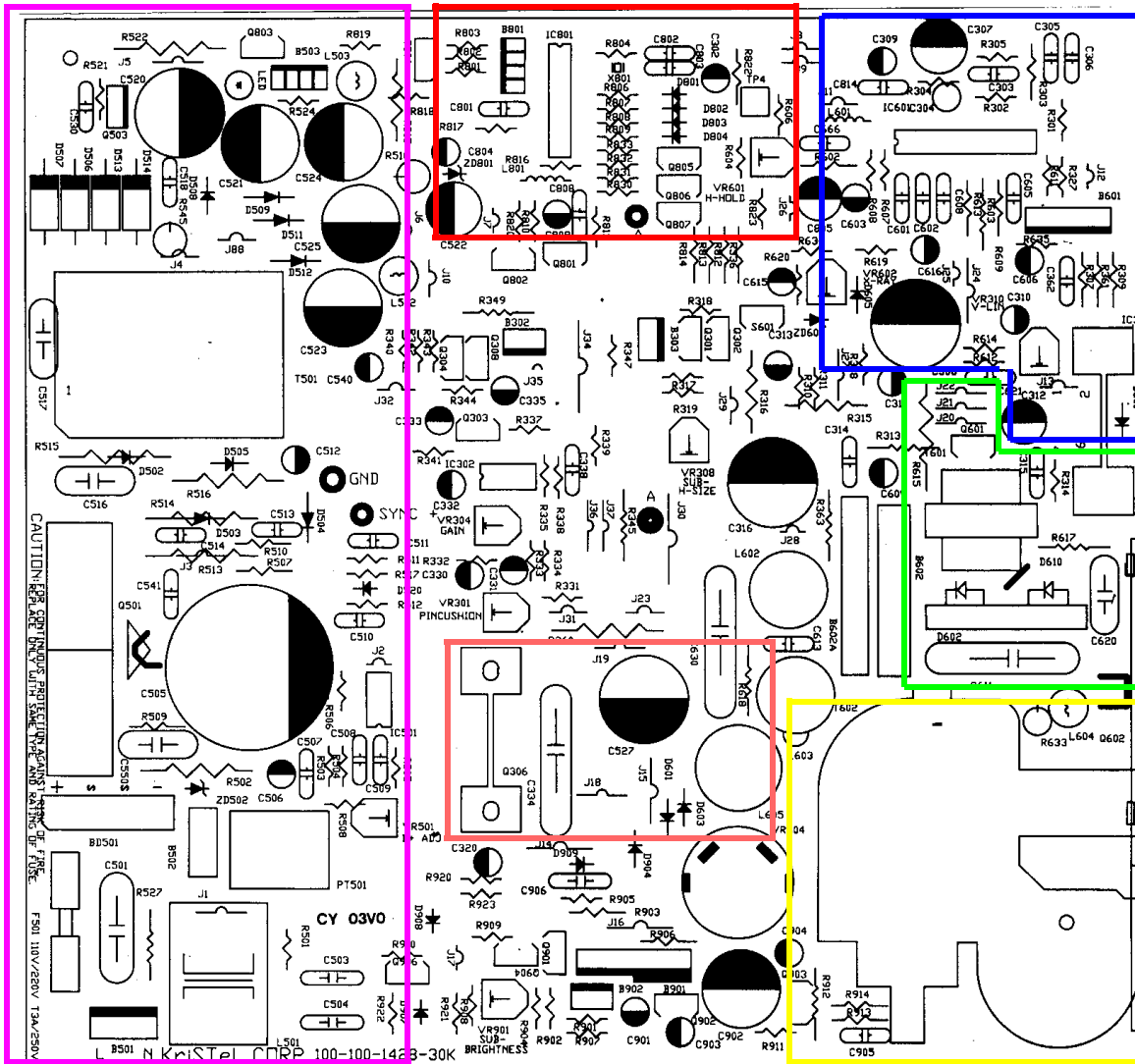
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Logic 4.01

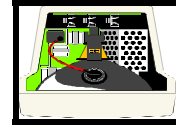


PURPLE: Power Supply Section
 RED: Sync Processing Section
 BLUE: Vertical Section

GREEN: Horizontal Output Section
 YELLOW: HV Section (FBT)
 CORAL: Electronic Width Control



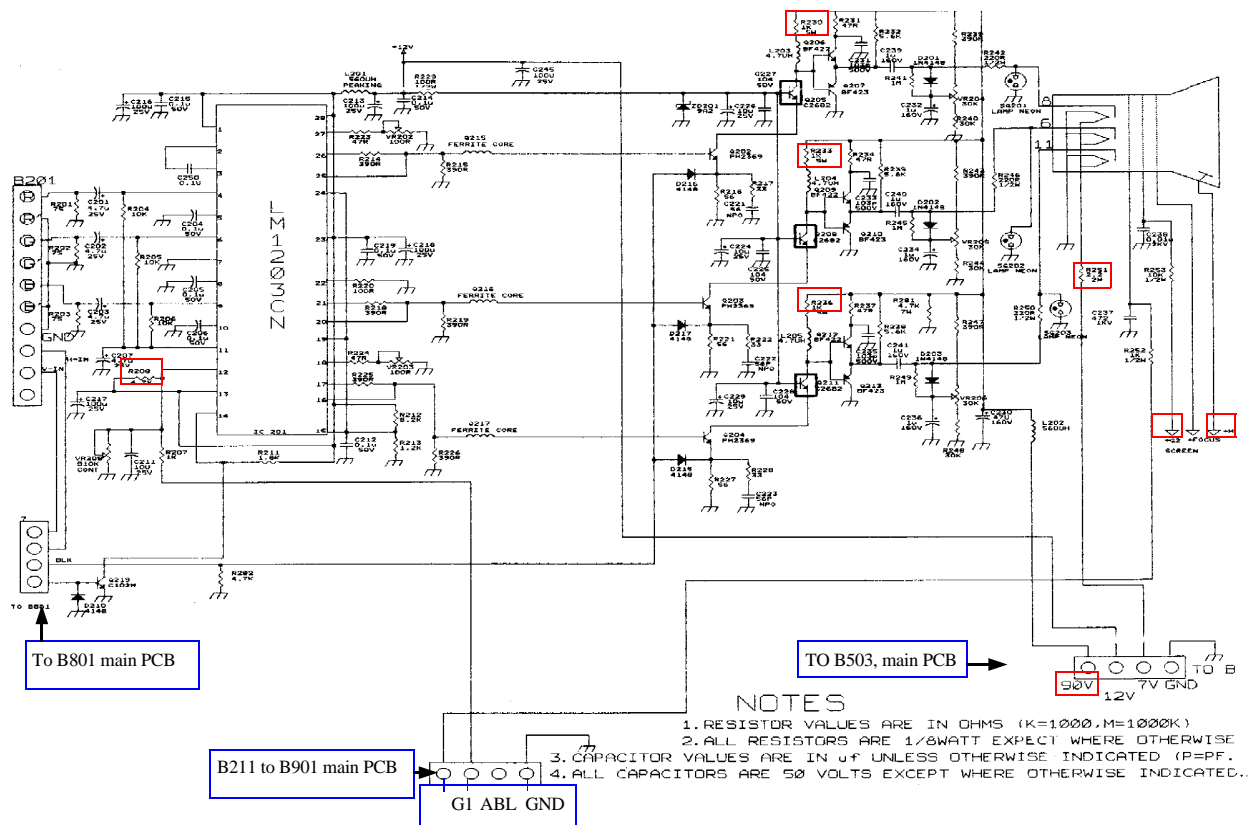
TOP OVERLAY KRISTEL / 100-100-1428-30K PCB



SCHEMATIC DIAGRAM CRT BOARD

model: 200-200—1564

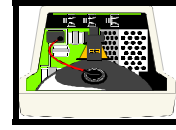
USED IN CONJUNCTION WITH 1428-30k pcb



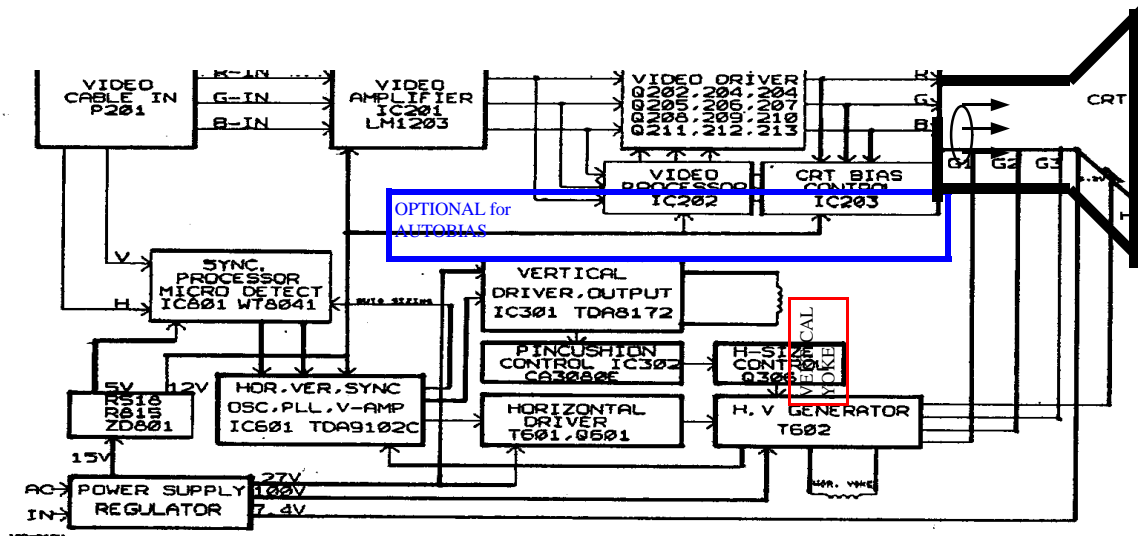
NOTE

All marked area with red square is subject to be changed accordingly with the model of the CRT and the characteristics of the deflection yoke existing on the CRT.

Actual schematics is not referred as autobias video board.



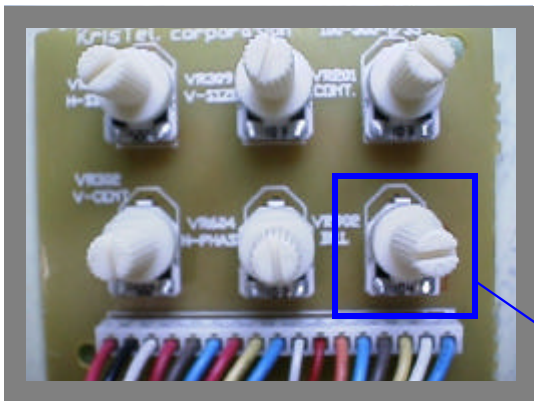
BLOCK DIAGRAM 100-100-1428-30K



110 - 240 vAC

HORIZONTAL
YOKE

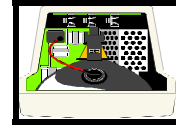
CHARACTERISTICS of potentiometers:



NOT USED in AB configuration

REMOTE CONTROL BLOCK / SIX CONTROLS or FIVE CONTROLS (AB)

Hsize=VR307=5Kohm; Vsize=VR309=10Kohm; Contrast=VR201=10Kohm
Vcent=VR302=5Kohm; Hphase=VR604; Brightness=VR901=100kohm

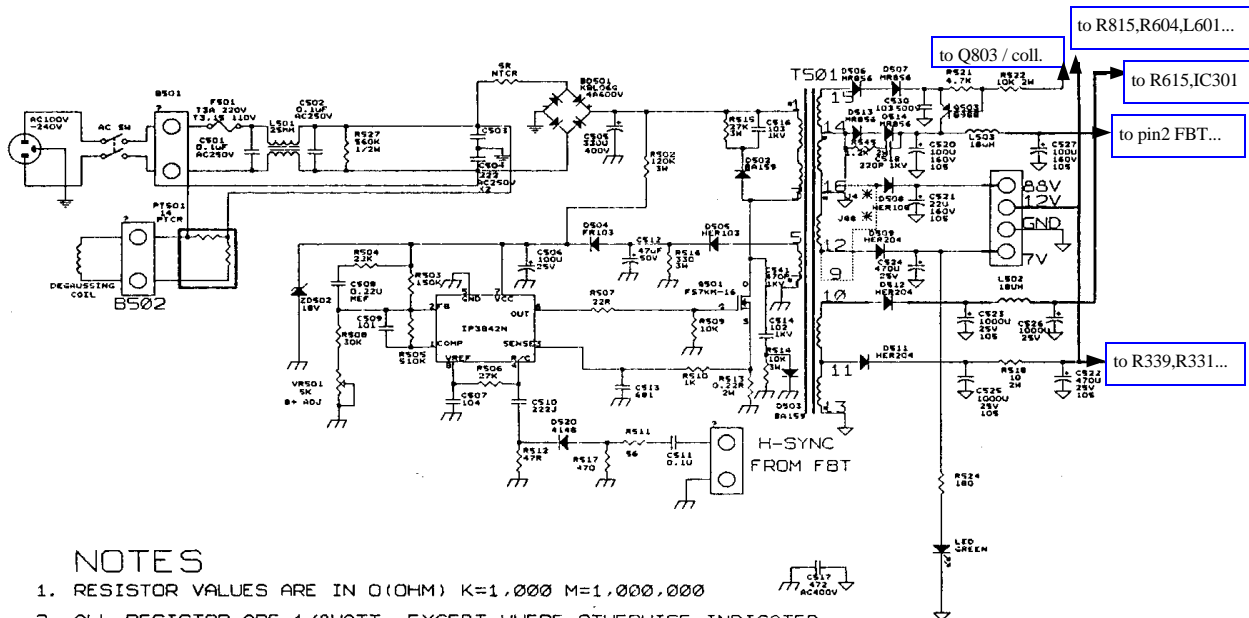
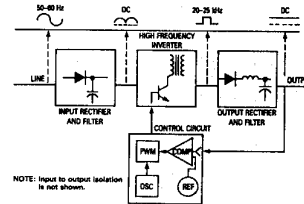


POWER SUPPLY - CIRCUIT DESCRIPTION / guide for switching power supply and components.

1. POWER CIRCUIT

FUNCTIONAL BLOCK DIAGRAM Switching Power Supply

The power circuit includes the lines filter, input rectifier circuit, start up, current-mode control and OVP. Please refer to the circuit diagram.



NOTES

1. RESISTOR VALUES ARE IN Ω(OHM) K=1,000 M=1,000,000
2. ALL RESISTOR ARE 1/8WATT. EXCEPT WHERE OTHERWISE INDICATED
3. CAPACITOR VALUES ARE IN uF UNLESS OTHERWISE INDICATED P=p f
4. ALL CAPACITOR ARE 50 VOLTS EXCEPT WHERE OTHERWISE INDICATED
5. J88:15" USE J4:14" USE.



1.1 LINE FILTER CIRCUIT

The line filter circuit is comprised of C501, C502 and L501. This line filter tends to reduce the noise of conducted EMI from monitor into the power line.

1.2 INPUT RECTIFIER CIRCUIT

The input rectifier circuit is comprised of BD501 and C505. BD501 and C505 is a full - wave mode rectifier. L501 is used to reduce the surge current while the power supply is turned on.

1.3 START UP CIRCUIT

The resistor R502 provides the start-up current of IC501. The turn-on and turn-off thresholds of under voltage lockout circuit in IC501 are set up internally at 16vDC respectively. To start up, C506 must be charged to 16vDC with a current of 0.3mA - 0.5mA which depends on the IC501 start-up current characteristics and R502 resistor value.

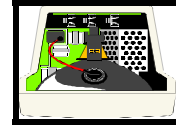
1.4 CURRENT MODE CONTROL OPERATION

When Vcc of IC501 pin 7 is charged to more than 16V, there is a square wave on the output pin 6 which can be adjusted to peak +/- Amp. for driving the gate of Q501. The current-mode sensing resistor R513 senses the primary current wave in order to control the current-mode PWM and limit the total output power. Pin 2 and pin 1 is an error AMP section. IC501 detects the output voltage while the line voltage and load current change.

1.5 OVP CIRCUIT

ZD502 is the OVP circuit (over voltage protection). If an over voltage condition exists the ZD502 will shut down IC501.

Per above related considerations a switching power supply is a relatively complex circuit (see functional block diagram). It is apparent here that the heart of the supply is really the high frequency inverter. It is here that the work of chopping the rectified line at the high frequency (20-200kHz) is done. Also the line voltage is transformed down to the correct output level. The 60 Hz input line is rectified and filtered by one block and after the inverter steps this voltage down, the output is again rectified and filtered by another. The task of regulating the output voltage is left to the control circuit which closes the loop from the output to the inverter.



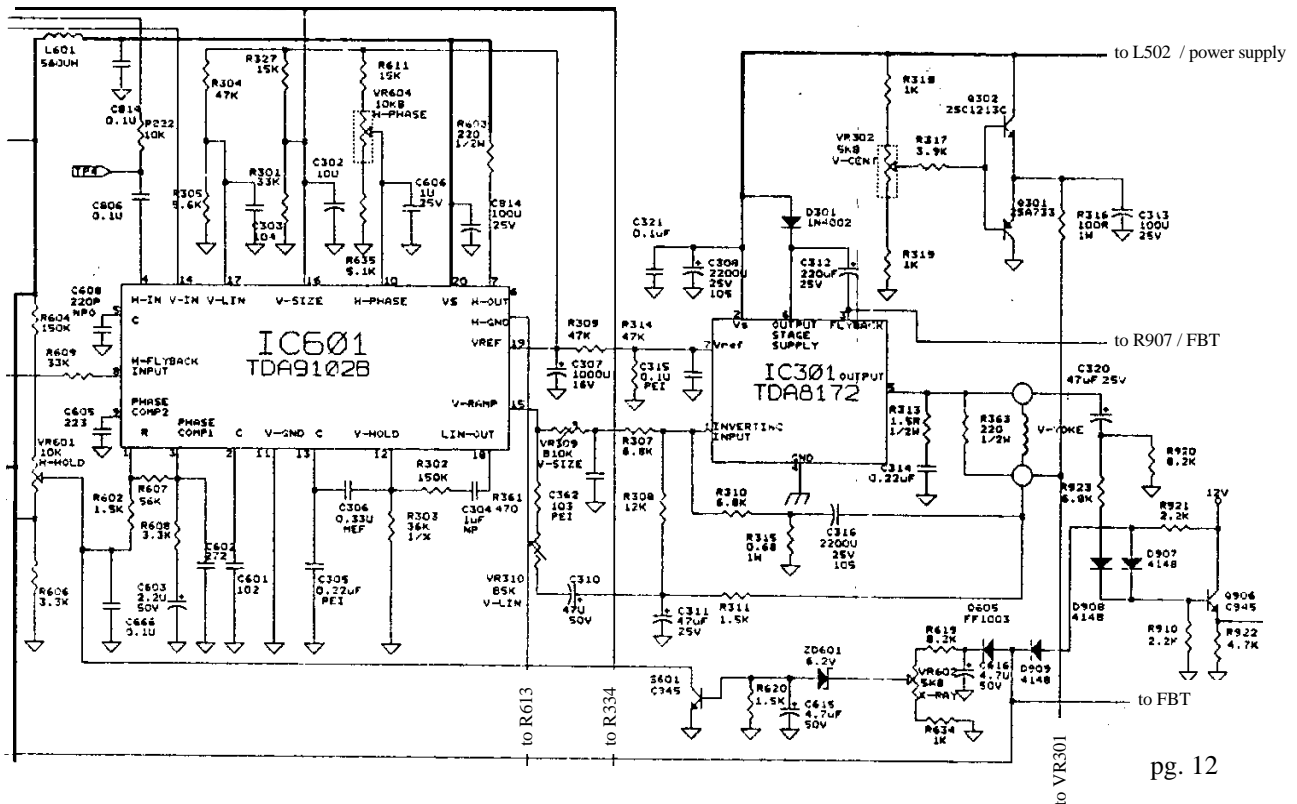
2. SYNCHRONOUS PROCESSING CIRCUIT

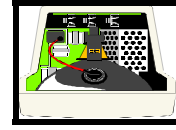
IC 801 circuit (WT8041), a synchronous signal processor of multi-sync, is capable of many functions such as the horizontal and vertical frequency discrimination, display mode selection and synchronous pulse polarity detection. Pin 15 and pin 16 work as a clock generating circuit. Output pin 4 is active high while pin 5 is active low, fixed polarity and have the same pulse width as the original horizontal and vertical sync. signal. Pin 7 works as a frequency discrimination which is active low. Pin 9 and 14 work as mode selector which controls output. These output pins are to control Vsize, Hphase and Hosc of every display mode.

3 HORIZONTAL / VERTICAL PROCESSOR

The IC 601 is a combination horizontal and vertical processor.

The vertical SYNC is applied to pin 14 of IC601. Oscillation is determined by C306, R303 and C305. The saw-tooth pulse generator built inside the IC can generate saw-tooth signal through a buffer stage to pin 15.

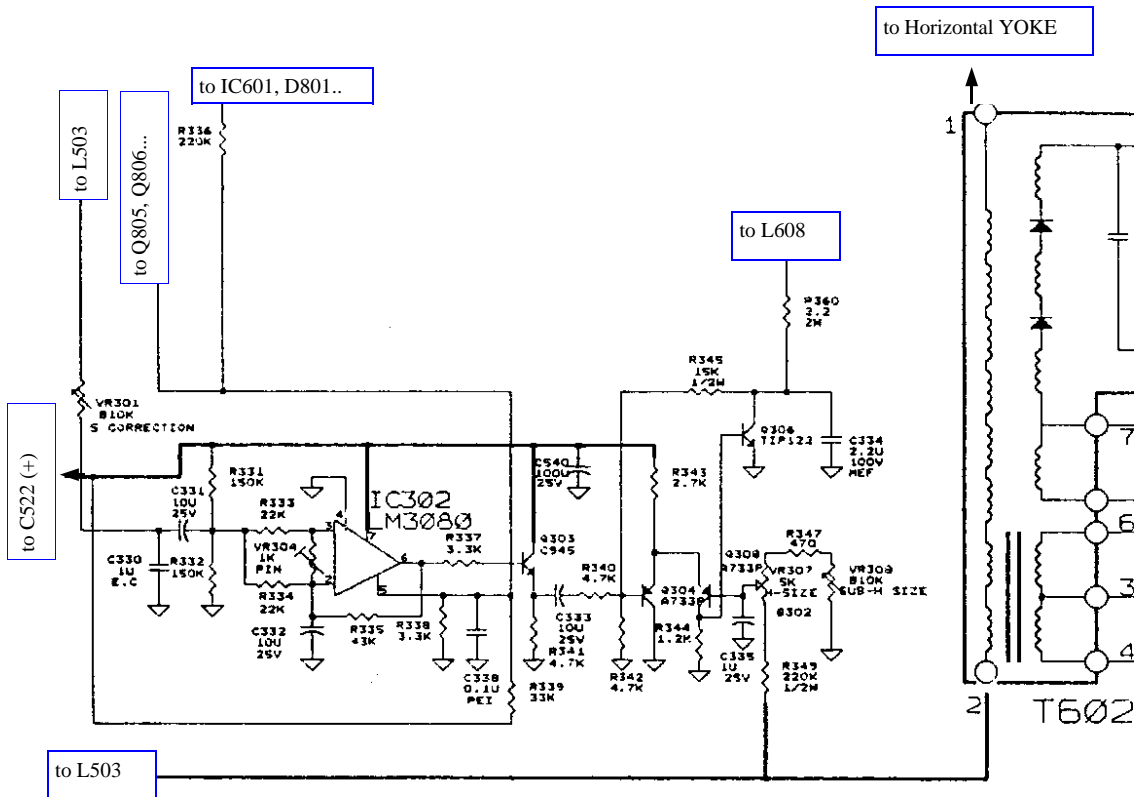




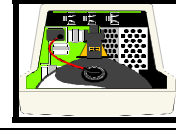
6. H-SIZE CONTROL and PIN COMPENSATION

The control of picture width and side pincushion compensation is achieved through changing the source voltage of the horizontal deflection circuit. There's need for some components to build a diode modulator. This circuit consist of C620, L602, C611, D602, D610 and H-DY.

The parabolic wave is fed to the base of Q303 via double integrated circuit wich can generate a side pincushion compensation wave. The H-width control voltage and parabolic wave are amplified by Q304 and Q306, then they are fed to the diode modulator for controlling the source voltage of the horizontal deflection circuit.



ELECTRONIC WIDTH CONTROL / schematic.



7. VIDEO AMPLIFIER CIRCUIT

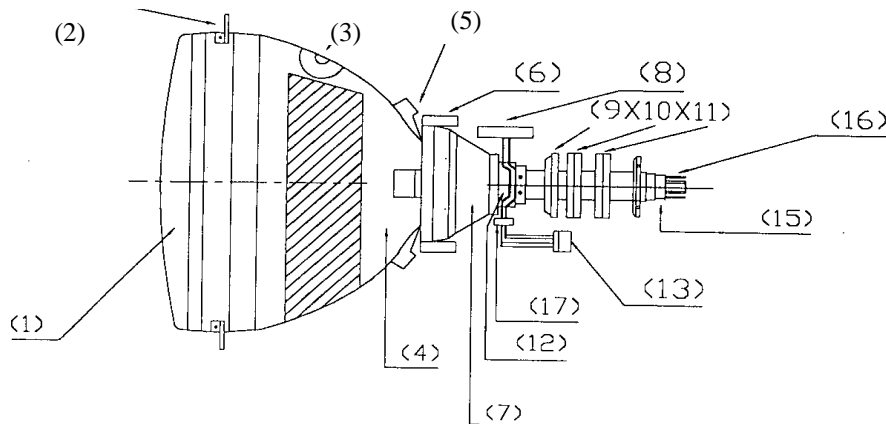
The video circuit includes: video processing IC201 and video amplifier circuit (Q211, Q205 and Q208). The analog video processor IC201 includes gain control and DC restoration. Video signals RGB are input through the coupling capacitors C206, C205, C204 and then sent to IC201.

A cascode circuit is used to amplify each R,G,B channel. The value for channel gain is calculated by collector and emitter resistances. The L205, L204 and L205 are series peaking inductors.

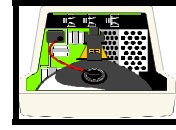
The output amplifier circuit stage, consisting of Q202, Q205, Q206 and Q205 is used to amplify video signal to 40Vp-p and is represent one of the R,G, B channels.

SG202, SG201 and SG203 respectively R252 and R253 are arc protection components which protect electrical components when CRT arc condition occurs.

8. CRT TECHNICAL DATA / CHUNGHWA 14" /



- | | |
|-----------------------------------|--------------------------------------|
| (1) PANEL | (9) 2-POLE PURITY MAGNET |
| (2) SHRINKING BAND | (10) 4-POLE CONVERGENCE MAGNET (R/B) |
| (3) ANODE | (11) 6-POLE CONVERGENCE MAGNET (R/G) |
| (4) FUNNEL | (12) LEAD WIRE LENGTH |
| (5) RUBBER WEDGE | (13) PLUG |
| (6) CANCELLATION COIL(MPRII TYPE) | (14) NECK |
| (7) DEFLECTION YOKE | (15) BASE |
| (8) & (17) TERMINAL BOARD | (16) PIN |



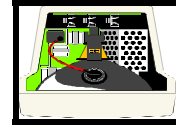
ELECTRICAL DATA AND RATINGS / CHUNGHWA 14" /

1. MAXIMUM AND MINIMUM RATINGS (Design maximum values)

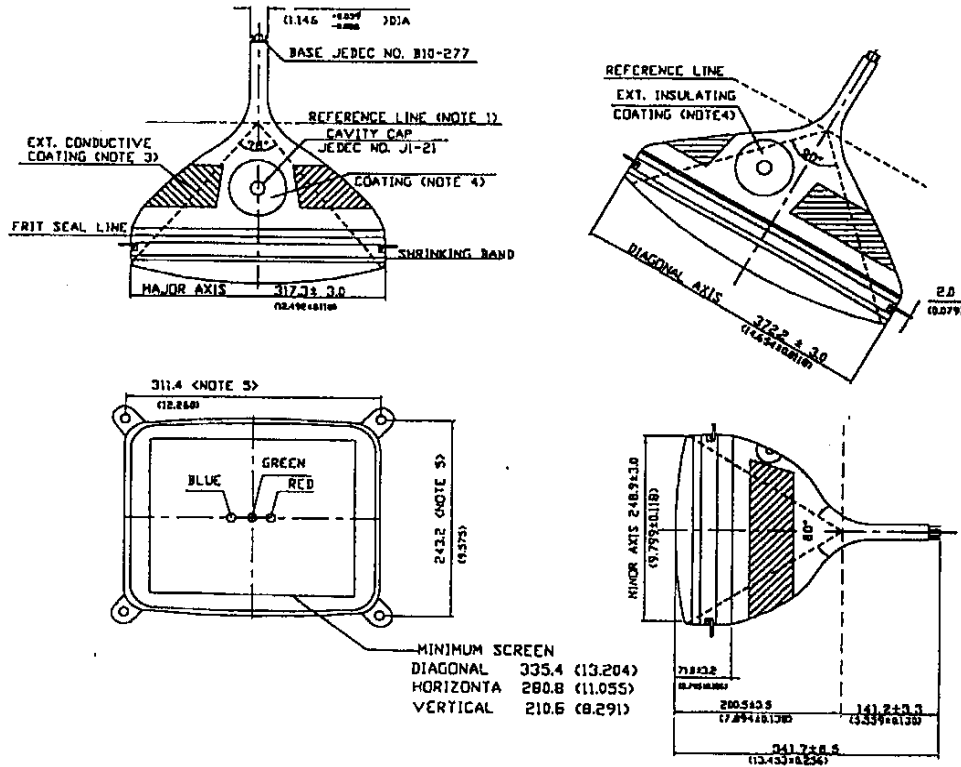
Unless otherwise specified, voltage values are for each gun and are positive with respect to Grid No.1.

| | |
|---|------------------------------|
| Anode voltage | Max. 27.5 KV |
| | Min. 20.0 KV |
| Total anode current, long-term average | Max. 450 uA |
| Grid No.3 (focusing eletrode) voltage | Max. 10 KV |
| Grid No.2 peak voltage, including video signal voltage | Max. 1,000 V |
| Cathode voltage | |
| Positive bias value | Max. 400 V |
| Positive operating cutoff value | Max. 200 V |
| Negative bias value | Max. 0 V |
| Negative peak value | Max. 2 V |
| Heater voltage (AC or DC) | |
| Under operating conditions | 6.3 V |
| Heater current | 600 mA ± 10% |
| Peak heater cathode voltage | |
| Heater negative respect to cathode | |
| During equipment warm-up period not exceeding 15 seconds | Max. 350 V |
| After equipment warm-up period | Max. 200 V |
| Heater positive with respect to cathode | AC max. 200 V DC max. 0 V |

- NOTE: a. Absolute maximum rating system.
 b. For optimum emission stability and cathode life, it is recommended that the heater supply be regulated at 6.3 V.

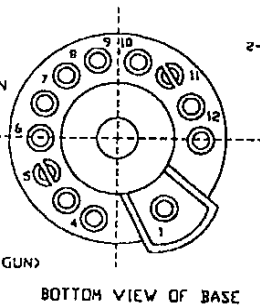


DIMENTIONAL OUTLINE / CHUNGHWA 14" CRT /



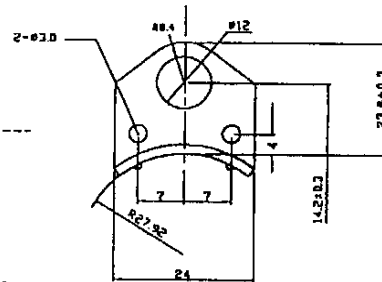
BASE SPECIFICATIONS

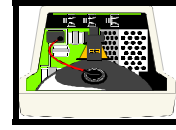
- PIN 1 : GRID NO.3
- PIN 4 : IC (GRID NO.1)
- PIN 5 : GRID NO.1
- PIN 6 : CATHODE OF GREEN GUN
- PIN 7 : GRID NO.2
- PIN 8 : CATHODE OF RED GUN
- PIN 9 : HEATER
- PIN 10 : HEATER
- PIN 11 : CATHODE OF BLUE GUN
- PIN 12 : IC (CATHODE OF BLUE GUN)



BOTTOM VIEW OF BASE

MOUNTING LUG





GENERAL ADJUSTMENT

FACTORY SPECIFICATION

Unless being specified, "Factory spec." means the final adjustment made by the operator in the factory. This adjustment is intended to be close to the standard display characteristics.

TEST SIGNAL

R,G,B video signals are identical and specified signals for standard VGA mode of 480 lines.

WARM-UP TIME

Minimum 15 minutes is required for warming up the monitor. Direction CRT faces East.
Ambient lighting environment: 400 to 600 lux.

AMBIENT TEMPERATURE

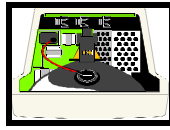
25°C (77° F)

TESTING MODE

640x480 / 800x600 upon request;

TOOLS and TEST EQUIPMENT Required

- miniature flat screw driver
- plastic Hex wrench
- ass't clips and 1 μ F/50v capacitor
- external degaussing coil
- color analyzer / recommended: MINOLTA CA-100 /
- IBM / PC compatible
- digital multimeter

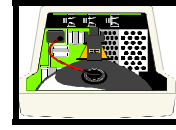


1428-30k series

- CRT diagnostic software included in Kristel 3.5" diskette
- hipot tester
- video generator
- TEST Bezel - fixture model / depending on customer availability

PROCEDURE

- ⇒ Apply AC recommended power and video signal from customer supplied generator or use IBM compatible computer
- ⇒ Adjust screen control (FBT) to be able to view screen & focus control to best possible setting.
- ⇒ Convergence: some fine adjustment with pre-mated yokes to CRT can be achieved with magnetic tabs (see instructions and theoretical considerations - how to provide a best convergence.
- ⇒ Adjust B+ from VR501 / per CRT requirement:
 - connect the positive lead of multimeter to D508, negative to chassis
 - adjust VR 501 to obtain the voltage resulted from the spec. of the CRT
- ⇒ Select crosshatch pattern from video source / 31.5KHz (640x480)
- ⇒ Vertical linearity adjustment: adjust VR310 to allow no more than 3.0mm max. misadjustment.
- ⇒ Vertical size is performed from VR309 remote control potentiometer
- ⇒ Width size adj. is performed from VR307 and VR501. maximum attention for heater voltage / maximum permissible value must be between 5.9 - 6.5vDC /
- ⇒ Horizontal raster centering is performed from VR604
- ⇒ Horizontal Phase adjustment:
 - input 31.5kHz timing with crosshatch pattern
 - adjust VR604 to center the picture per specs.
- ⇒ Pincushion adjustment: VR304 and VR301
 - input 31.5 kHz (640x480) timing with crosshatch pattern
 - adjust VR304 and 301 to obtain the best pincushion pattern
- ⇒ Focus adjustment:
 - display any character all over the screen, set contrast in max. and brightness in cut off position. Adjust focus for best resolution possible.
- ⇒ Horizontal Oscillating Frequency, connect a capacitor 10 μ F/50volt, to Hsync from video PCB to GND, than adjust VR601 till the sync slash blanking bar is vertically stable possible after that remove the jumper



⇒ **Background white balance adjustment:**

- set all bias VR's (204, 205 and 206) to max. and let the raster to be invisible
- display black pattern (all video signals are disable) and adjust SCREEN VR,
- as soon as the raster appears, check out which color (red, green or blue) comes out first
- adjust bias VR of the other 2 colors to get gray raster
- adjust SCREEN (from FBT) to let the gray raster no larger than 1FT - L

⇒ **White balance adjustment:**

- use color analyzer photometer, display center block pattern, set the brightness to minimum than adjust the contrast VR to let brightness to be 35 FL and RGB balanced per Minolta reading.

⇒ **X-RAY protection setting: VR602**

- input 31.5 kHz (640x489) with crosshatch pattern
- connect the positive lead of multimeter to ZD601 (+)
- adjust VR 604 to obtain a 3.5 - 5.4vDC reading

⇒ **Purity adjustment:**

- is associated with convergence alignment / see procedure - required previous experience/
- display magenta color pattern
- adjust the purity magnet so that the picture is in magenta color. By turning two overlapping pawls in opposite directions, move them until they are at the same angle, 9 o'clock and 3 o'clock respectively. / as shown in fig.1 /
- for static convergence adj. / as shown in fig.2 and fig.3 / follow the next steps:

a/ display magenta crosshatch pattern

b/ open the two pawls of the 4-pole magnets to allow the red and blue vertical line to unite

c/ open and rotate the two pawls at a constant angle so that the red and blue horizontal lines can unite

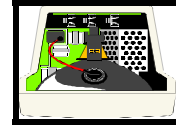
d/ if the vertical line deviates, open the two pawls at the deviation position and make a minor adjustment by changing its angle.

e/ display cross hatch pattern

f/ make the red and blue vertical lines at the center unite with the green by opening the two 6-pole pawls.

g/ rotate the two pawls at constant angle so that red and blue horizontal lines can unite with the green.

f/ if the vertical lines deviate, change the angle of pawls from the deviation pos.



CONVERGENCE and PURITY

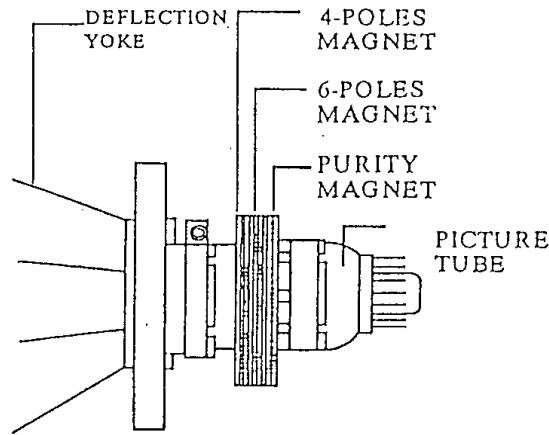


FIG. 1

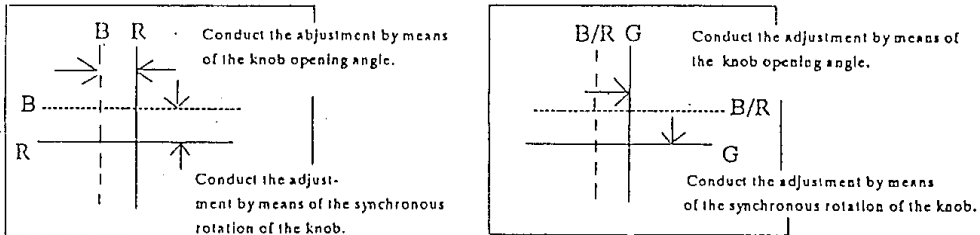
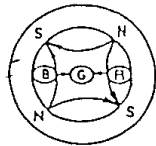
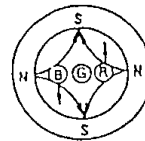


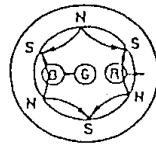
FIG. 2



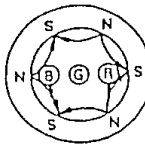
Beam migration in application of 4-pole magnets.



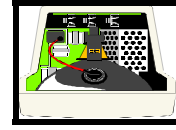
Beammigration in application of 4-pole magnets rotated.



Beammigration in application of 6-pole magnets.



Beam migration in application of 6-pole magnets rotated.



MORE INFORMATION regarding convergence and purity:

All of the following procedures have been performed at the factory and should require no further attention. If the monitor is serviced for any reason, it should be observed afterward to determine whether any of these procedures need to be performed again.

OUTLINE OF CONVERGENCE AND SET-UP PROCEDURE

DEGAUSSING: Demagnetize the shadow mask and all surrounding metal parts with an external degaussing coil.

PURITY: Adjust the purity magnets and the yoke position.

STATIC CONVERGENCE: Converge Red and Blue on Green in the center of the screen.

DYNAMIC CONVERGENCE: Converge Red and Blue at the edges of the screen.

WHITE BALANCE: Set Gray and White brightness tracking.

NOTE: Purity and convergence adjustment interact.

DEGAUSSING

The monitor is equipped with an automatic degaussing circuit. However, if the CRT shadow mask has become excessively magnetized, it may be necessary to degauss it with a manual coil. Do not switch the coil OFF while the raster shows any effect from the coil.

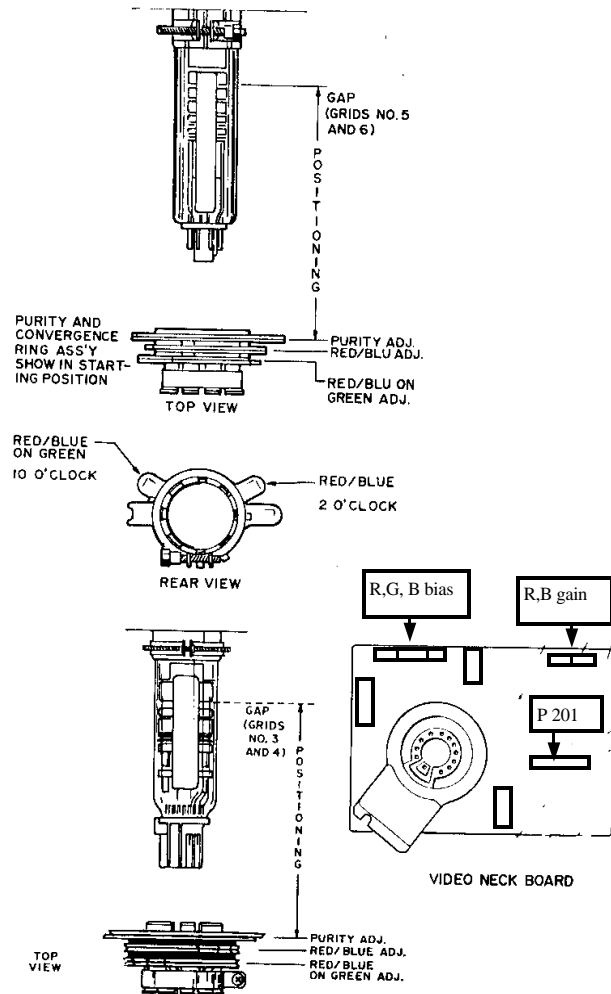
COLOR PURITY ADJUSTMENT

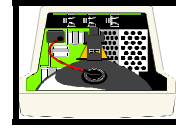
- 1 For best results, it is recommended that the purity adjustment be made in the final monitor location. If the monitor will be moved, perform this adjustment with it facing west or east. The monitor must have been operating 15 minutes prior to this procedure.
- 2 On picture tubes with a 22.5 mm neck diameter, set the ring assembly on the CRT neck with the center line of the purity ring-pair over the gap between grids No. 5 and 6.

- 3 Make certain that the magnetic ring-pairs are in their correct starting positions before beginning this procedure. The correct starting position for the purity ring-pair is not necessarily

The correct starting position will vary from ring assemblies from one manufacturer to another. It will be necessary to determine the correct starting position—also known as the zero correction position.

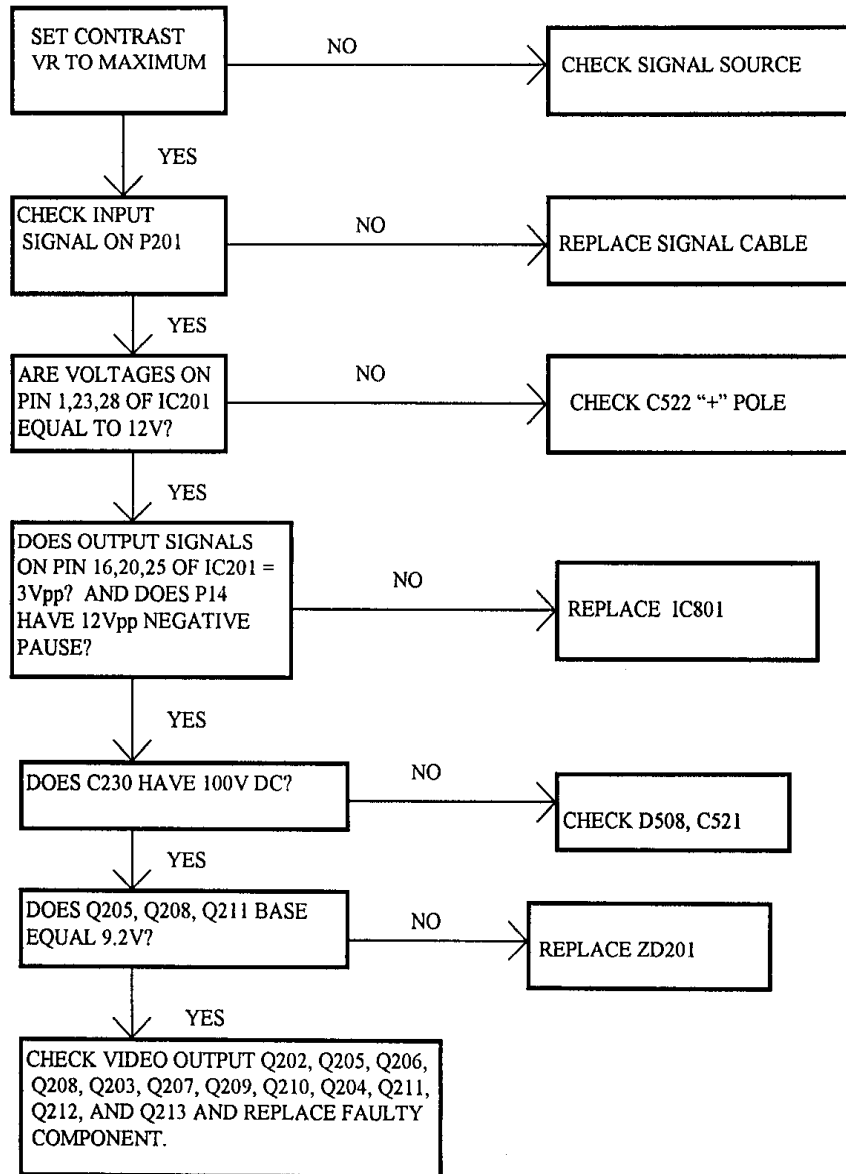
Figure shows a ring assembly in which each of the rings of the purity ring-pair has two tabs—one long and one short. With some ring assemblies of this type, the zero correction position is with the long tab of one ring aligned with the short tab of the other ring. On other ring assemblies of this type, the zero correction position is with the long tab of one ring aligned with the long tab of the other ring. The way to determine which is which is by trying one of these orientations and then rotating the two rings together, as a pair, without changing their orientation with respect to each other. If this rotation of the ring-pair causes no change in the purity, then it is the zero correction position. If the purity does change, then try the other orientation.

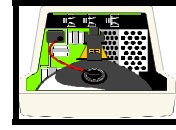




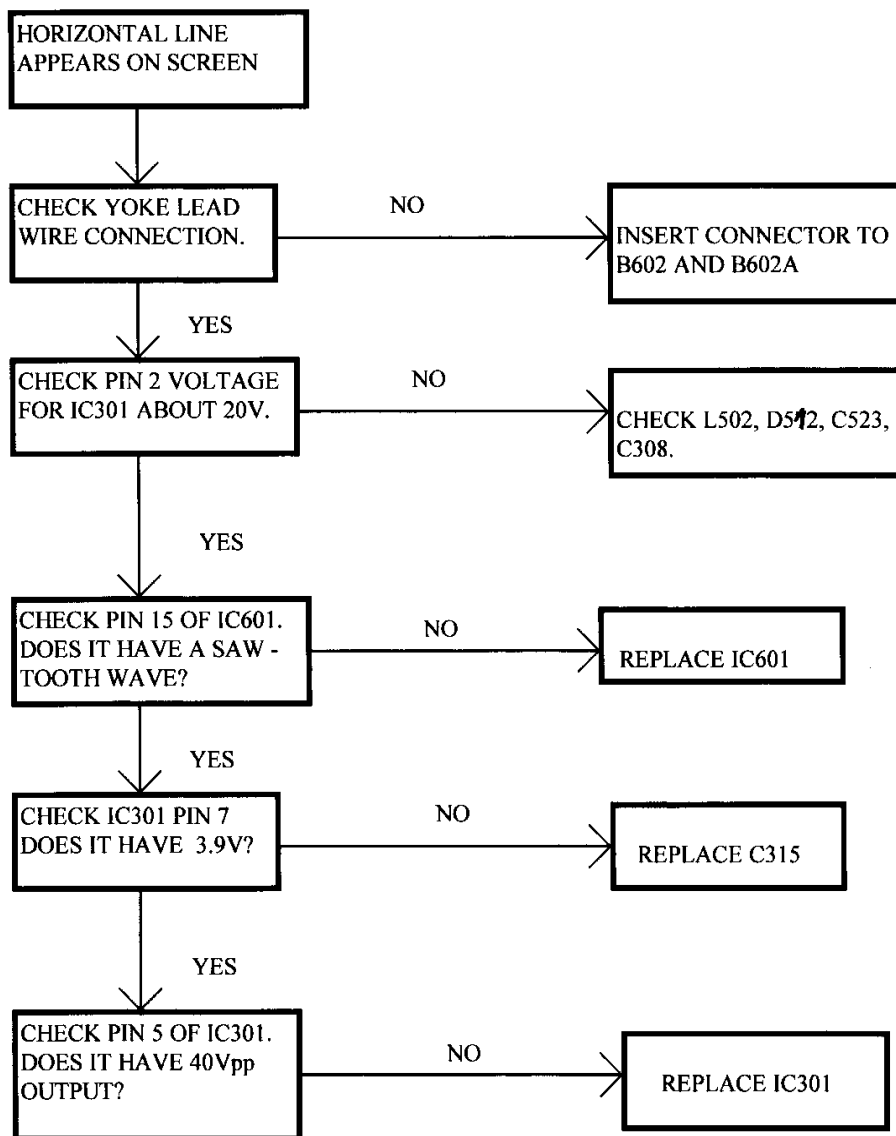
TROUBLE SHOOTING GUIDE

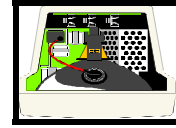
1.1 NO VIDEO



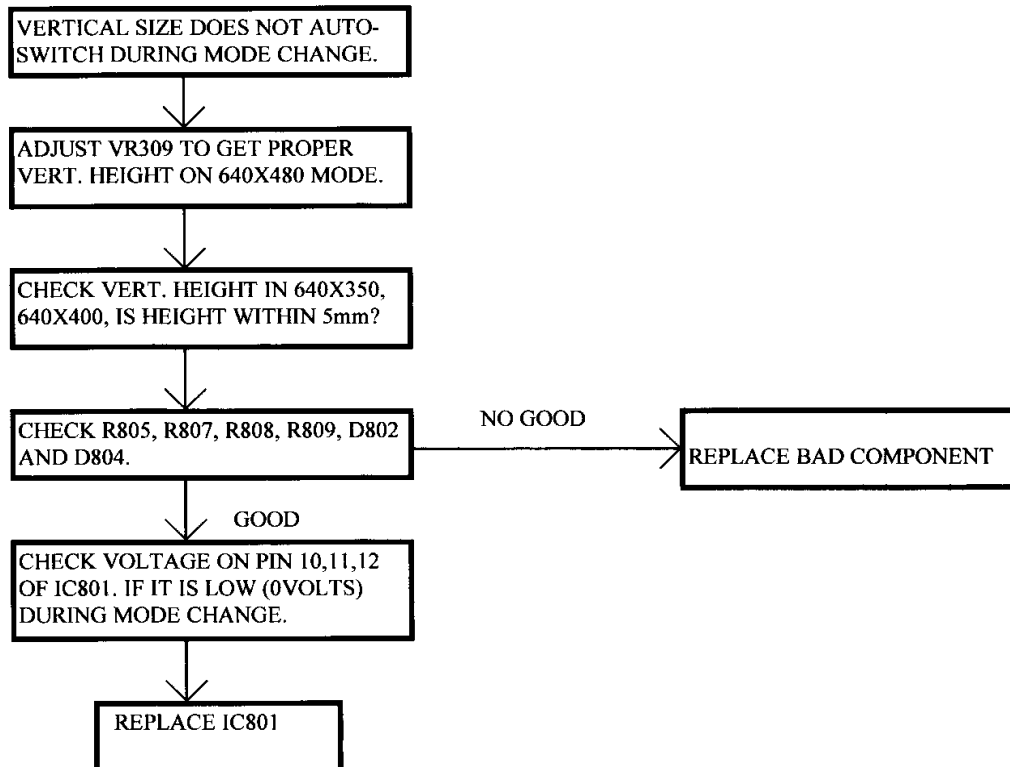


1.2 VERTICAL DEFLECTION

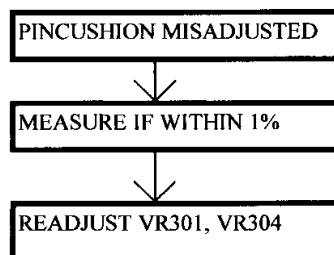


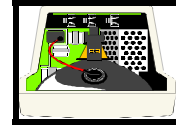


1.3 IMPROPER VERTICAL SIZE

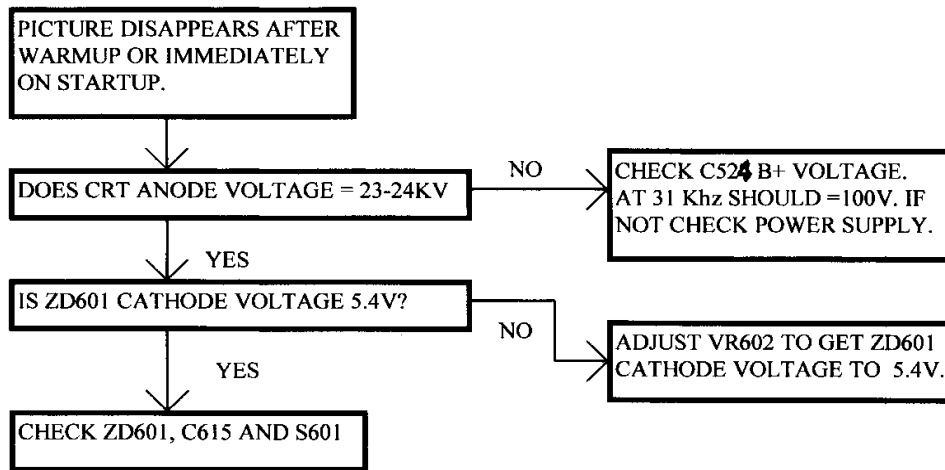


1.4 PINCUSHION ADJUSTMENT

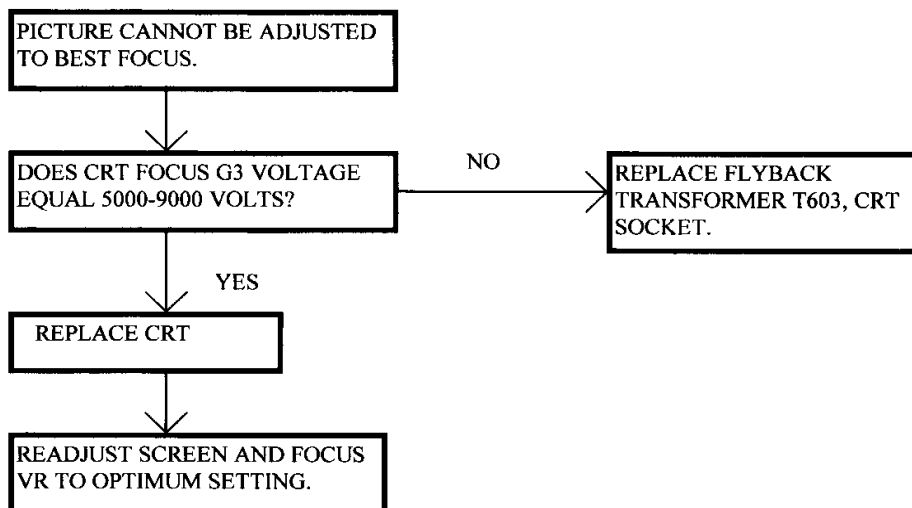


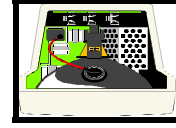


1.5 NO PICTURE



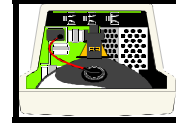
1.6 FOCUS ADJUSTMENT





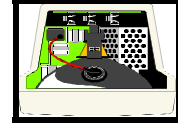
BILL OF MATERIAL

| CRT BOARD 卧式自插(850-11N-1735) | | April 09, 1997 | |
|------------------------------|-----------------------|----------------|--|
| Part No. | Description | Quantity | Location |
| 200-200-1564 | CRT BOARD | 1 | |
| 210-122-0856 | RES.1.2K1/8W,J TAP | 1 | R213 |
| 210-182-0856 | RES.1.8K1/8W,J TAP | 1 | R211 |
| 210-102-0256 | RES.1K1/2W,J TAP | 1 | R252 |
| 210-102-0856 | RES.1K1/8W,J TAP | 2 | R207,R273 |
| 210-105-0456 | RES.1M1/4W,J TAP | 3 | R241,R245,R249 |
| 210-472-0856 | RES.4.7K1/8W,J TAP | 2 | R208,R282 |
| 210-562-0456 | RES.5.6K1/4W,J TAP | 3 | R232,R235,R238 |
| 210-822-0856 | RES.8.2K1/8W,J TAP | 1 | R212 |
| 210-103-0256 | RES.10K1/2W,J TAP | 1 | R253 |
| 210-103-0856 | RES.10K1/8W,J TAP | 3 | R204,R205,R206 |
| 210-303-0456 | RES.30K1/4W,J TAP | 3 | R240,R244,R248 |
| 210-330-0856 | RES.33H1/8W,J TAP | 3 | R217,R222,R228 |
| 210-470-0456 | RES.47H1/4W,J TAP | 3 | R231,R234,R237 |
| 210-470-0856 | RES.47H1/8W,J TAP | 2 | R223,R224 |
| 210-101-0256 | RES.100H1/2W,J TAP | 1 | R229 |
| 210-101-0856 | RES.100H1/8W,J TAP | 1 | R220 |
| 210-221-0256 | RES.220H1/2W,J TAP | 3 | R242,R246,R250 |
| 210-391-0456 | RES.390H1/4W,J TAP | 3 | R239,R243,R247 |
| 210-391-0856 | RES.390H1/8W,J TAP | 8 | R214,R215,R218,R219 R225,R226,R271,R272 |
| 210-750-0856 | RES.75H1/8W,J TAP | 3 | R201,R202,R203 |
| 210-560-0856 | RES.56H1/8W,J TAP | 3 | R216,R221,R227 |
| 520-001-4148 | DIODE.1N4148 TAP | 7 | D201,D202,D203,D214 D215,D216,D217 |
| 521-005-09A2 | ZENER DIODE 9A2 TAP | 1 | ZD201 |
| 745-4R7-1062 | PEAKING 4.7UH TAP | 3 | L203,L204,L205 |
| 745-561-1062 | PEAKING 560UH TAP | 2 | L201,L202 |
| 622-106-0501 | JUMPER 0.6D*5MM TAP | 3 | J211,J212,J224 |
| 622-106-9101 | JUMPER 0.6D*7.5MM TAP | 12 | J202,J203,J204,J205, J210,J215,J218,J226 J228,J231,J240,J241 |
| 752-001-1035 | BEAT CORE 穿 PIN TAP | 3 | Q215,Q216,Q217 |
| 622-106-1001 | JUMPER 0.6D*10MM TAP | 6 | J207,J209,J213,J216 J217,J222 |

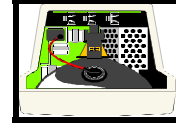


| | | | | |
|--------------|------------------------------|----|--|---|
| 2 | | | | |
| 622-106-9201 | JUMPER 0.6D*12.5MM TA | 1 | | J201 |
| 622-106-1501 | JUMPER 0.6D*15MM TAP | 1 | | J214 |
| | CRT BOARD 立式自插(850-11T-1735) | | | |
| 307-104-1580 | CC.0.1UF/50V,Z TAP | 11 | | C211,C212,C214,C215, C204,C205,C206,C250 C225,C227,C228 |
| 307-103-3570 | CC.103PF/500V,M TAP | 3 | | C231,C233,C235 |
| 308-560-1160 | CC.56PF/50V,J NPO TAP | 3 | | C221,C222,C223 |
| 300-1R0-0220 | EC.1UF/160V,85C TAP | 3 | | C232,C234,C236 |
| 300-4R7-2520 | EC.4.7UF/25V,85C TAP | 4 | | C201,C202,C203,C207 |
| 300-100-2520 | EC.10UF/25V,85C TAP | 3 | | C224,C226,C229 |
| 300-101-2520 | EC.100UF/25V,85C TAP | 4 | | C213,C216,C217,C218 |
| 302-1R0-0220 | NP.1U/160V,85C TAP | 3 | | C239,C240,C241 |
| 510-196-102M | TR.KRC102M TAP | 1 | | Q219 |
| 510-200-0422 | TR.BF422 TAP | 3 | | Q206,Q209,Q212 |
| 510-200-0423 | TR.BF423 TAP | 3 | | Q207,Q210,Q213 |
| 510-190-2369 | TR.PH2369 TAP | 3 | | Q202,Q203,Q204 |
| | CRT BOARD 手插(851-111-1735) | | | |
| 213-2R2-2059 | MOF.2.2H2W,J 臥式 | 1 | | 251 |
| 215-102-0559 | 水泥電阻 1K5W SQZ,J | 3 | | R230,R233,R236 |
| 307-103-6572 | CC.103PF/2KV,M | 1 | | C238 |
| 307-472-4572 | CC.472PF/1KV,M | 1 | | C237 |
| 300-470-0222 | EC.47UF/160V,85C | 1 | | C230 |
| 504-551-1203 | IC.TH1203 | 1 | | IC201 |
| 233-303-0673 | VR.B-30K 6mm 立式 | 3 | | VR204,VR205,VR206 |
| 233-101-0673 | VR.B-100H 6mm 立式 | 2 | | VR202,VR203 |
| 560-150-0001 | SPARK GAP 150V | 3 | | SG201,SG202,SG203 |
| 411-100-0003 | 14"15"大的 CRT SOCKET | 1 | | |
| 630-001-2001 | BASE 1.56D 1P 6X9 | 1 | | B207 |
| 630-001-3001 | BASE 2.36D 1P | 1 | | B206 |
| 630-001-6001 | BASE 2.5D 1P | 1 | | B503 |
| 630-003-4001 | BASE XH180 3P | 1 | | B203 |
| 630-010-4001 | BASE XH180 10P | 1 | | B201 |
| 631-004-1001 | CONN. 4P 400mm 紅黑白藍 | 1 | | 7V,12V,B+,GND |
| 631-004-1280 | CONN. 4P 280mm 黃綠白橙 | 1 | | FOR B211 |
| 631-003-1400 | CONN.3P 400mm 黃藍灰 | 1 | | FOR B202 |
| 560-150-0001 | 放電管 150V | 3 | | SG201,SG202,SG203 |

1428-30k series



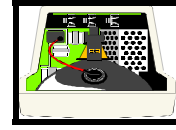
| | | | |
|--------------|----------------------------------|---|----------------|
| 3 | | | |
| 820-001-2682 | TR ASS'Y (KSC2682) | | Q205,Q208,Q211 |
| | TR. ASS'Y (KSC2682) 820-001-2682 | | |
| 510-200-2682 | TR.KSC2682(2SC1609 可代 | 3 | Q205,Q208,Q211 |
| 120-001-1428 | HEAT SINK 10*15mm | 3 | |
| 104-006-3032 | SCREW R/W3*6mm ISO | 3 | |



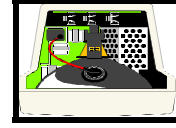
4

MAIN BOARD 臥式自插(850-00N-1735)

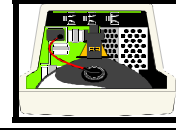
| Part No. | Description | Quantity | Location |
|---------------|--------------------|----------|---|
| 200-100-1428K | MAIN BOARD | 1 | |
| 210-122-0456 | RES.1.2K1/4W,J TAP | 1 | R344 |
| 210-152-0256 | RES.1.5K1/2W,J TAP | 2 | R342,R912 |
| 210-152-0456 | RES.1.5K1/4W,J TAP | 5 | R311,R602,R620,R802 R803 |
| 210-182-0456 | RES.1.8K1/4W,J TAP | 1 | J58 |
| 210-1R5-0256 | RES.1.5H1/2W,J TAP | 1 | R313 |
| 210-102-0456 | RES.1K1/4W,J TAP | 8 | R318,R319,R510,R511 R634,R818,R902,R921 |
| 210-105-0456 | RES.1M1/4W,J TAP | 1 | R804 |
| 210-222-0456 | RES.2.2K1/4W,J TAP | 2 | J60,R903 |
| 210-272-0456 | RES.2.7K1/4W,J TAP | 1 | R343 |
| 210-202-0456 | RES.2K1/4W,J TAP | 2 | R913,R914 |
| 210-332-0456 | RES.3.3K1/4W,J TAP | 3 | R606,R608,R801 |
| 210-392-0456 | RES.3.9K1/4W,J TAP | 2 | R317,R807 |
| 210-472-0456 | RES.4.7K1/4W,J TAP | 4 | R340,R341,R521,R816 |
| 210-472-0856 | RES.4.7K1/8W,J TAP | 5 | R830,R831,R832,R833 R922 |
| 210-562-0456 | RES.5.6K1/4W,J TAP | 1 | R305 |
| 210-682-0456 | RES.6.8K1/4W,J TAP | 4 | R307,R310,R812,R905 |
| 210-822-0456 | RES.8.2K1/4W,J TAP | 2 | R619,R908 |
| 210-822-0856 | RES.8.2K1/8W,J TAP | 1 | R920 |
| 210-103-0456 | RES.10K1/4W,J TAP | 10 | R509,R810,R811,R817 R819,R820,R822,R823 R910,R911 |
| 210-123-0456 | RES.12K1/4W,J TAP | 1 | R308 |
| 210-153-0256 | RES.15K1/2W,J TAP | 1 | R345 |
| 210-153-0456 | RES.15K1/4W,J TAP | 2 | R327,R611 |
| 210-203-0456 | RES.20K1/4W,J TAP | 1 | R808 |
| 210-223-0456 | RES.22K1/4W,J TAP | 1 | R504 |
| 210-273-0456 | RES.27K1/4W,J TAP | 2 | R506,R515 |
| 210-303-0456 | RES.30K1/4W,J TAP | 1 | R508 |
| 210-333-0456 | RES.33K1/4W,J TAP | 3 | R301,R346,R609 |
| 210-473-0456 | RES.47K1/4W,J TAP | 3 | R304,R309,R314 |
| 210-563-0456 | RES.56K1/4W,J TAP | 1 | R607 |
| 210-104-0456 | RES.100K1/4W,J TAP | 1 | R906 |



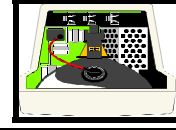
| | | | | |
|--------------|-----------------------|----|---|--|
| 5 | | | | |
| 210-154-0456 | RES.150K1/4W,J TAP | 3 | R302,R503,R604 | |
| 210-224-0256 | RES.220K1/2W,J TAP | 1 | R349 | |
| 210-224-0456 | RES.220K1/4W,J TAP | 2 | R336,R809 | |
| 210-220-0456 | RES.22H1/4W,J TAP | 1 | R507 | |
| 210-470-0256 | RES.47H1/2W,J TAP | 1 | R617 | |
| 210-470-0456 | RES.47H1/4W,J TAP | 1 | R512 | |
| 210-514-0456 | RES.510K1/4W,J TAP | 1 | R505 | |
| 210-564-0456 | RES.560K1/4W,J TAP | 1 | R907 | |
| 210-181-0456 | RES.180H1/4W,J TAP | 1 | R524 | |
| 210-221-0256 | RES.220H1/2W,J TAP | 2 | R603,R612 | |
| 210-221-0456 | RES.220H1/4W,J TAP | 1 | R613 | |
| 210-391-0456 | RES.390H1/4W,J TAP | 1 | R614 | |
| 210-471-0456 | RES.470H1/4W,J TAP | 1 | R347 | |
| 210-751-0456 | RES.750H1/4W,J TAP | 1 | R806 | |
| 210-821-0456 | RES.820H1/4W,J TAP | 1 | R909 | |
| 210-512-0456 | RES.5.1K1/4W,J TAP | 1 | R635 | |
| 221-041-3602 | RES.36K1/4W,F TAP | 1 | R303 | |
| 520-001-4148 | DIODE 1N4148 TAP | 7 | D907,D908,D909,D801 D802,D803,D804 | |
| 520-010-4002 | DIODE 1N4002 TAP | 1 | D301 | |
| 522-010-H105 | DIODE HER105 TAP | 1 | D904 | |
| 522-010-T52M | DIODE BYT52M TAP | 1 | D508 | |
| 522-010-R103 | DIODE FR103 TAP | 2 | D504,D901 | |
| 520-010-A159 | DIODE BA159 TAP | 2 | D502,D503 | |
| 520-010-1003 | DIODE FF1003 TAP | 2 | D505,D605 | |
| 522-020-H205 | DIODE HER205 TAP | 3 | D509,D510,D511 | |
| 521-005-05C2 | ZENER DIODE 5.1V TAP | 1 | ZD801 | |
| 521-005-06C2 | ZENER DIODE 6.2V TAP | 1 | ZD601 | |
| 521-005-09A2 | ZENER DIODE 9A2 TAP | 1 | ZD901 | |
| 521-005-18C2 | ZENER DIODE 18V TAP | 2 | ZD501,ZD502 | |
| 745-561-1062 | PEAKING 560UH,J TAP | 2 | L601,L801 | |
| 622-106-0501 | JUMPER 0.6D*5mm TAP | 1 | J59 | |
| 622-106-9101 | JUMPER 0.6D*7.5mm TAP | 14 | J3,J5,J6,J12,J13,J21,J23 J41,J44,J50,J51,J52,J53 J61 | |
| 622-106-1001 | JUMPER 0.6D*10mm TAP | 19 | J9,J8,J11,J14,J15,J16,J17 J18,J20,J22,J25,J36,J38 J39,J45,J47,J48,J49,J55 | |



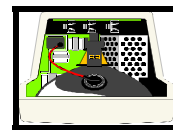
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| 6 | | | | |
| 622-106-9201 | JUMPER 0.6D*12.5mm TA | 17 | J2,J4,J10,J24,J26,J27,J28 J29,J35,J40,J42,J43,J46 J54,J56,J57,J37 | |
| 622-106-1501 | JUMPER 0.6D*15mm TAP | 4 | J1,J30,J33,J34 | |
| MAIN BOARD 立式自插(850-00T-1735) | | | | |
| 307-104-1580 | CC.0.1UF/50V,Z TAP | 8 | C303,C507,C511,C801 C806,C808,C321,C814 | |
| 307-103-1170 | CC.0.01UF/50V,K TAP | 1 | C621 | |
| 307-560-1160 | CC.56PF/50V,K TAP | 2 | C802,C803 | |
| 307-101-1160 | CC.100PF/50V,K TAP | 1 | C509 | |
| 307-221-4570 | CC.220PF/1KV,K TAP | 2 | C519,C541 | |
| 307-221-1160 | CC.220PF/50V,K TAP | 1 | C608 | |
| 307-471-4560 | CC.470PF/1KV,K TAP | 1 | C613 | |
| 307-681-1160 | CC.680PF/50V,K TAP | 1 | C513 | |
| 307-102-4570 | CC.1000PF/1KV,M TAP | 1 | C514 | |
| 305-223-0550 | PEL.0.022UF/50V,J TAP | 1 | C605 | |
| 305-222-0550 | PEL.0.0022UF/50V,J TAP | 1 | C360 | |
| 305-472-0550 | PEL.0.0047UF/50V,J TAP | 1 | C341 | |
| 318-104-6350 | MEF.0.1UF/63V,J TAP | 2 | C315,C905 | |
| 318-224-6350 | MEF.0.22UF/63V,J TAP | 3 | C305,C314,C508 | |
| 318-334-6350 | MEF.0.33UF/63V,J TAP | 1 | C306 | |
| 313-153-0150 | PPN.0.015UF/100V,J TAP | 1 | C602 | |
| 313-222-0150 | PPN.0.0022UF/100V,J TAP | 1 | C510 | |
| 313-102-0150 | PPN.102PF/100V,J TAP | 1 | C601 | |
| 300-1R0-5020 | EC.1UF/50V,85C TAP | 3 | C335,C606,C903 | |
| 300-2R2-2520 | EC.2.2UF/25V,85C TAP | 1 | C603 | |
| 300-4R7-2520 | EC.4.7UF/25V,85C TAP | 1 | C615 | |
| 300-4R7-5020 | EC.4.7UF/50V,85C TAP | 1 | C616 | |
| 300-100-2520 | EC.10UF/25V,85C TAP | 4 | C302,C333,C809,C904 | |
| 300-470-2520 | EC.47UF/25V,85C TAP | 3 | C310,C311,C320 | |
| 300-470-5020 | EC.47UF/50V,85C TAP | 1 | C512 | |
| 300-101-2520 | EC.100UF/25V,85C TAP | 5 | C309,C506,C609,C804 C805 | |
| 300-221-2520 | EC.220UF/25V,85C TAP | 1 | C312 | |
| 302-1R0-2520 | NP.1UF/25V,85C TAP | 1 | C304 | |
| 302-100-2520 | NP.10UF/25V,85C TAP | 1 | C313 | |



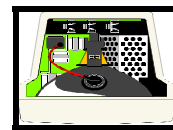
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| 7 | | | | |
| 510-000-0733 | TR.2SA733 TAP | 7 | Q301,Q304,Q308,Q805 Q806,Q807,Q902 | |
| 510-023-0945 | TR.2SC945 TAP | 6 | Q303,Q801,Q802,Q804 Q903,S601 | |
| 510-023-1213 | TR.2SC1213 TAP | 3 | Q302,Q601,Q904 | |
| 510-200-0422 | TR.BF422 TAP | 1 | Q504 | |
| 510-200-0423 | TR.BF423 TAP | 1 | Q306 | |
| MAIN BOARD 手插(851-001-1735) | | | | |
| 213-R68-1059 | MOF.0.68H/1W,J 臥式 | 1 | R315 | |
| 213-101-1059 | MOF.100H/1W,J 臥式 | 2 | R316,R815 | |
| 213-331-1059 | MOF.330H/1W,J 臥式 | 1 | R618 | |
| 213-R22-2059 | MOF.0.22H/2W,J 臥式 | 1 | R513 | |
| 213-103-2059 | MOF.10K/2W,J 臥式 | 1 | R522 | |
| 213-181-2059 | MOF.180H/2W,J 臥式 | 2 | R548,R615 | |
| 213-122-2055 | MOF.1.2K/2W,J 立式 | 1 | R520 | |
| 213-2R2-2055 | MOF.2.2H/2W,J 立式 | 1 | R339 | |
| 213-100-2055 | MOF.10H/2W,J 立式 | 1 | R518 | |
| 213-1R0-3055 | MOF.1H/3W,J 立式 | 1 | R633 | |
| 213-273-3059 | MOF.27K/3W,J 臥式 | 2 | R514,R526 | |
| 213-124-3059 | MOF.120K/3W,J 臥式 | 1 | R502 | |
| 213-331-3059 | MOF.330H/3W,J 臥式 | 1 | R516 | |
| 218-5R0-0871 | 熱敏電阻 NTC 5H | 1 | R501 | |
| 219-140-0872 | 熱敏電阻 PTC 14H | 1 | PT501 | |
| 307-103-4572 | CC.0.01UF/1KV,M | 3 | C516,C530,C550 | |
| 319-471-2062 | CC.470PF/2KVTan<0.5% | 1 | C612 | |
| 315-104-2563 | X-CAP 0.1UF/250VAC,M | 1 | C501 | |
| 317-222-2572 | Y-CAP 0.0022UF/250VAC,M | 2 | C503,C504 | |
| 317-472-4072 | Y-CAP 4700PF/400V,M | 1 | C517 | |
| 313-103-0652 | PPN.0.01UF/630V,J | 1 | C620 | |
| 309-824-0252 | MPP.0.82UF/250V,J | 1 | C630 | |
| 310-472-2052 | PHM.0.0047UF/2KV,J | 1 | C611 | |
| 300-102-2522 | EC.1000UF/25V,85C | 3 | C308,C523,C525 | |
| 300-100-0422 | EC.10UF/200V,85C 短腳 | 1 | C902 | |
| 300-220-0322 | EC.22UF/200V,85C | 1 | C521 | |
| 300-470-0222 | EC.47UF/160V,85C | 2 | C520,C527 | |
| 300-221-0522 | EC.220UF/400V,85C | 1 | C505 | |
| 300-471-2522 | EC.470UF/25V,85C | 1 | C524 | |
| 300-471-3522 | EC.470UF/35V,85C | 1 | C526 | |



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| 8 | | | |
| 300-102-1622 | EC.1000UF/16V,85C | 1 | C307 |
| 300-222-1622 | EC.2200UF/16V,85C | 1 | C316 |
| 316-4R7-5072 | BP.4.7UF/50V | 1 | C334 |
| 523-030-6001 | BRIDGE DIODE KBL06 4A | 1 | BD501 |
| 522-020-H306 | DIODE HER306 | 1 | D610 |
| 522-020-H307 | DIODE HER307 3A/800 | 2 | D602,D609 |
| 522-020-H308 | DIODE HER308 3A/1KV | 2 | D506,D507 |
| 510-010-0988 | TR.2SB988Y | 1 | Q503 |
| 233-302-0677 | VR.B-3K 6mm 臥式 | 1 | VR310 |
| 233-502-0677 | VR.B-5K 6mm 臥式 | 2 | VR501,VR602 |
| 233-103-0677 | VR.B-10K 6mm 臥式 | 1 | VR601 |
| 233-104-0677 | VR.B-100K 6mm 臥式 | 1 | VR901 |
| 234-202-0877 | VR.B-2K 8mm 臥式 | 1 | VR305 |
| 745-180-2063 | CHOKE 18UH | 3 | L502,L503,L604 |
| 745-181-2063 | CHOKE 180UH 14*17 | 1 | L602 |
| 740-9R9-3083 | H-LINEARITY 9.9UH | 1 | L603 |
| 750-255-1415 | LINE FILTER 25MH(EI-28) | 1 | L501 |
| 730-202-1448 | TRANSFORMER H-DRIVER | 1 | T601 |
| 730-102-1735 | TRANSFORMER EI40 | 1 | T501 |
| 531-358-1436 | RESONATOR 3.58MHZ | 1 | X801 |
| 730-302-1436 | FBT | 1 | T602 |
| 120-002-1436 | 大的 FBT 固定具 | 1 | FOR FBT |
| 100-008-3032 | SCREW R3*8mm ISO | 1 | FOR FBT 固定具 |
| 104-008-4012 | SCREW T4*8mm TP1 | 1 | FOR FBT 固定具 |
| 550-141-3000 | FUSE 3A/250V 20mm | 1 | F501 |
| 551-021-0001 | FUSE CLIP 20mm | 2 | FOR F501 |
| 524-002-0201 | LED GREEN 3mm 2PIN | 1 | B504 |
| 504-800-9102 | IC.TDA9102C | 1 | IC601 |
| 504-200-3842 | IC.KA3842B | 1 | IC501 |
| 504-150-4N35 | IC.T4N35(TOSHIBA) | 1 | IC501 |
| 503-100-8041 | IC.WT8041 | 1 | IC801 |
| 630-001-2001 | BASE 1.56D 1P 6X9 | 2 | TP2,TP3 |
| 630-002-2002 | BASE 1.56D 2P 6X9 | 1 | B502 |
| 630-002-5002 | WAFER 3.96 3P 抽 1P | 1 | B501 |
| 630-003-4001 | BASE XH180 3P | 3 | B302,B303,B903 |
| 630-004-4001 | BASE XH180 4P | 3 | B503,B801,B902 |
| 630-006-4001 | BASE XH180 6P | 1 | B601 |
| 630-004-3001 | BASE 2.36D 4P DY | 1 | B602 |
| 630-006-2001 | BASE 1.56D 6P 6X9 DY | 1 | B602A |



| | | | | |
|---|---------------------------|---|--|-------|
| 9 | | | | |
| 621-100-0501 | CONN. 1015#22 100mm 棕 | 1 | | TP1 |
| 620-050-0400 | WIRE 1015#18 50mm 黑 | 1 | | A-A |
| 735-014-1436 | DEGAUSSING COIL | 1 | | |
| 635-001-1428 | GROUNDING | 1 | | |
| 610-091-1003 | SIGNAL CABLE (1436) | 1 | | |
| 621-395-0212 | 1015#18 3.96D3P 抽 1,395mm | 1 | | |
| 820-001-8172 | IC ASS'Y (TDA8172) | | | IC301 |
| 820-001-2485 | MOSFET.ASS'Y(2SK2485) | | | Q501 |
| 820-001-5149 | TR.ASS'Y(2SC5149) | | | Q602 |
| 820-001-1414 | TR.ASS'Y(2SD1414) | | | Q306 |
| 830-002-1735 | VR ASS'Y | | | |
| 850-002-1735 | POWER BOARD ASS'Y | | | |
| 垂直 IC 加工組品(820-001-8172)IC ASS'Y TDA8172 | | | | |
| 504-900-8172 | IC. TDA8172 | 1 | | IC301 |
| 120-001-8172 | HEAT SINK | 1 | | |
| 100-010-3032 | SCREW R3*10mm ISO | 1 | | |
| 111-314-0032 | 3D SPRING WASHER | 1 | | |
| 110-003-2054 | NUT | 1 | | |
| 540-100-T220 | 矽膠片 TO-220 | 1 | | |
| 水平晶體加工組品(820-001-5149) TR.ASS'Y 2SC5149 | | | | |
| 510-023-5149 | TR.2SC5149 | 1 | | Q602 |
| 120-002-5250 | HEAT SINK 沒禿點 | 1 | | |
| 100-012-3032 | SCREW R3*12mm ISO | 1 | | |
| 111-314-0032 | 3D SPRING WASHER | 1 | | |
| 110-003-2054 | NUT | 1 | | |
| POWER MOSFET 加工組品(820-001-2485)TR.ASS'Y 2SK2485 | | | | |
| 511-001-2485 | MOSFET 2SK2485 | 1 | | Q501 |
| 120-001-1794 | HEAT SINK | 1 | | |
| 106-014-3032 | SCREW R3*14mm ISO | 1 | | |
| 111-314-0032 | 3D SPRING WASHER | 1 | | |
| 110-003-2054 | NUT | 1 | | |
| 540-100-1001 | 絕緣片 SRTO-3P | 1 | | |



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TR.ASS'Y TIP122(820-001-P122)

| | | | |
|--------------|--------------------|---|------|
| 510-070-0122 | TR.TIP122 | 1 | Q306 |
| 120-001-P122 | HEAT SINK 15X23X60 | 1 | |
| 104-006-3032 | SCREW R/W3*6mm ISO | 1 | |

VR ASS'Y(830-002-1735)

| | | | |
|---------------|------------------|---|-------------------|
| 200-700-1428K | VR PCB | 1 | |
| 234-103-0877 | VR.B-10K 8mm 臥式 | 3 | VR201,VR309,VR604 |
| 234-502-0877 | VR.B-5K 8mm 臥式 | 2 | VR302,VR307 |
| 234-104-0877 | VR.B-100K 8mm 臥式 | 1 | VR902 |
| 631-017-1735 | CONNECTOR 17-18P | 1 | |

POWER BOARD ASS'Y(850-002-1735)臥式自插

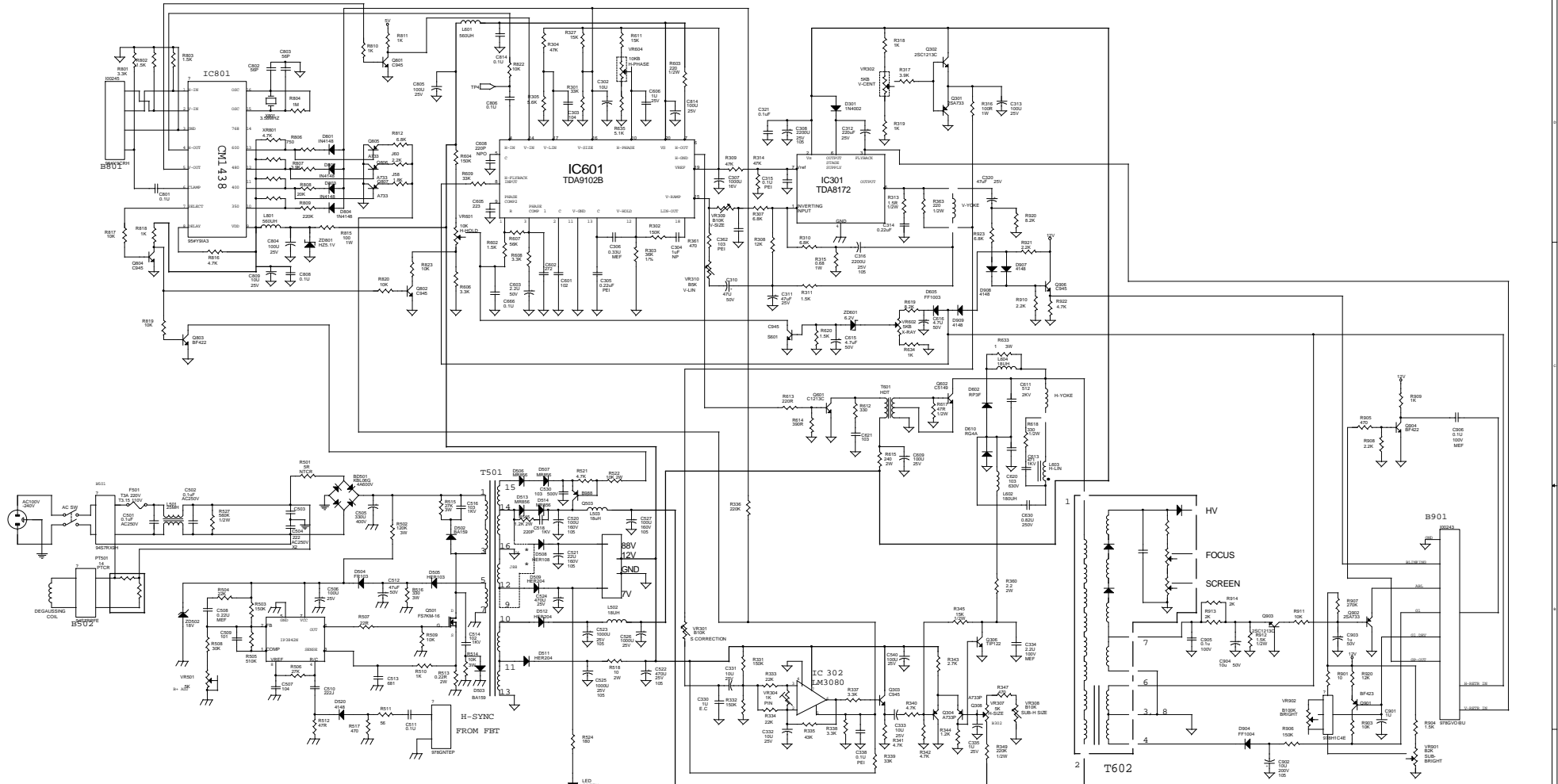
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|---------------|--------------------|---|-----------|
| 200-300-1428K | POWER PCB | 1 | |
| 210-154-0456 | RES.150K1/4W,J TAP | 2 | R331,R332 |
| 210-223-0456 | RES.22K1/4W,J TAP | 2 | R333,R334 |
| 210-332-0456 | RES.3.3K1/4W,J TAP | 2 | R337,R338 |
| 210-433-0456 | RES.43K1/4W,J TAP | 1 | R335 |

POWER BOARD ASS'Y(850-22T-1735)立式自插

| | | | |
|--------------|----------------------|---|-----------|
| 318-104-6350 | MEF.0.1UF/63V,J TAP | 1 | C338 |
| 300-100-2520 | EC.10UF/25V 85C TAP | 2 | C331,C332 |
| 300-R47-5020 | EC.0.47U/50V 85C TAP | 1 | C330 |

POWER BOARD ASS'Y(851-002-1735)手插件

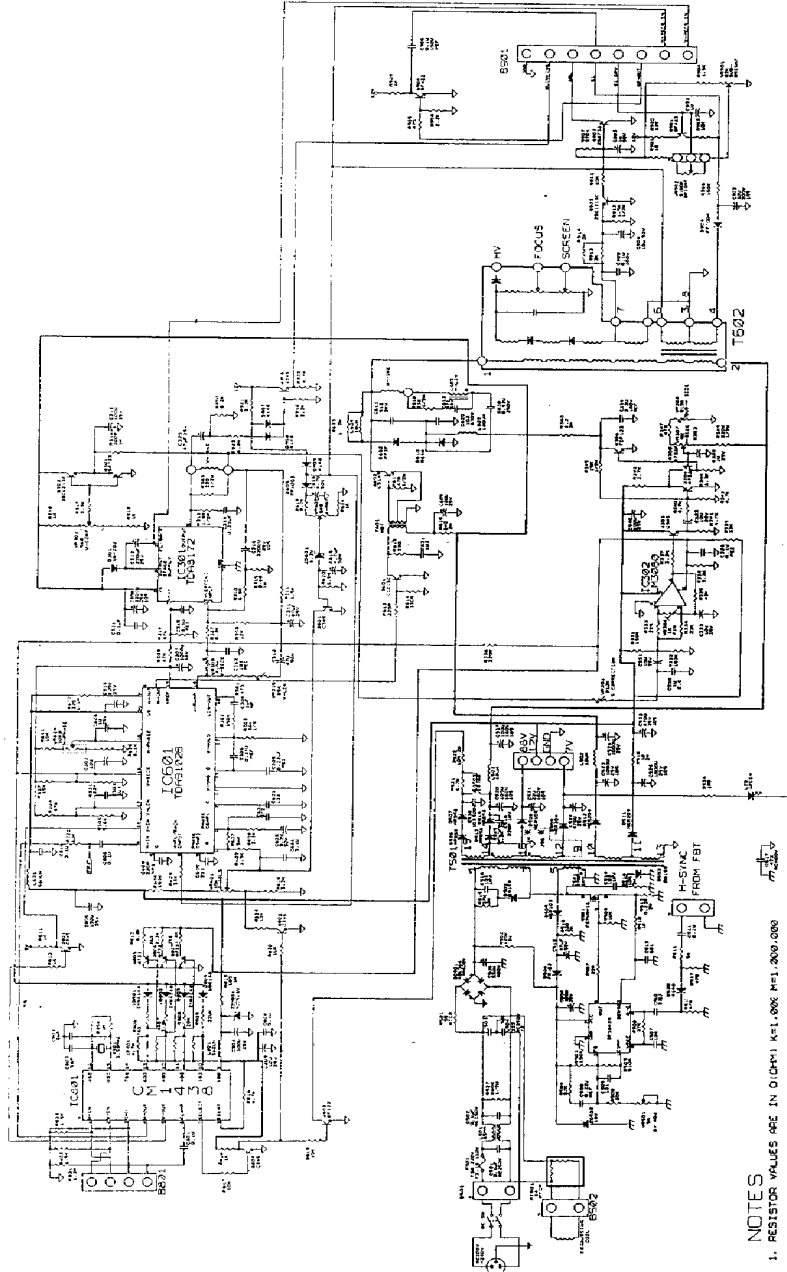
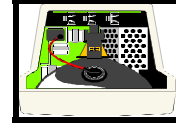
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|--------------|----------------------|---|-------|
| 233-103-0677 | VR.B-10K 6mm 臥式 | 1 | VR301 |
| 233-102-0677 | VR.B-1K 6mm 臥式 | 1 | VR304 |
| 504-200-3080 | IC.CA3080E H9627 | 1 | IC302 |
| 630-009-4001 | WAFER 9P2.54 插 PCB90 | 1 | P301 |



NOTES

1. RESISTOR VALUES ARE IN Ω (OHM) K=1,000 M=1,000,000
2. ALL RESISTOR ARE 1/8WATT. EXCEPT WHERE OTHERWISE INDICATED
3. CAPACITOR VALUES ARE IN μ f UNLESS OTHERWISE INDICATED p=pf
4. ALL CAPACITOR ARE 50 VOLTS EXCEPT WHERE OTHERWISE INDICATED
5. J88:15* USE J4:14* USE.

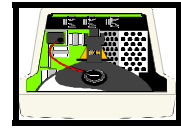
1428-30k series, AUTO BIAS



- NOTES
1. RESISTOR VALUES ARE IN OHMS UNLESS OTHERWISE INDICATED
 2. ALL RESISTOR ARE 1/8WATT, EXCEPT WHERE OTHERWISE INDICATED
 3. CAPACITOR VALUES ARE IN UF UNLESS OTHERWISE INDICATED P5/F
 4. ALL CAPACITOR ARE 50 VOLTS EXCEPT WHERE OTHERWISE INDICATED
 5. J88:15" USE JA:14" USE.

SCHEMATIC DIAGRAM
1428-30K AUTO BIAS

1428-30k series



OKA

Kristel®

CREATION, PERFECTION, TEAMWORK

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