Ikegami

OPERATING INSTRUCTIONS & SERVICE MANUAL

Model PM-206 CCTV PICTURE MONITOR

OUTDOOR USE WARNING
WARNING-TO PREVENT FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

SAFETY PRECAUTIONS

WARNING: The chassis is fully isolated from the mains supply.

The following precautions should be observed:

1. Do not install, remove, or handle the picture tube in any manner unless shatter-proof goggles are worn. People not so equipped should be kept away while picture tubes are handled. Keep picture tube away from the body while handling.

2. When replacing a chassis in the cabinet, always ensure that all the protective devices are put back in place, such as, barriers, non-metallic knobs, adjustment and compartment cover or shields, isolation resistor capacitor, etc.

3. When service is required, observe the original lead dress. Extra precaution should be taken to ensure correct lead dress in the high voltage circuitry area.

4. Always use the manufacturer's replacement component. Especially critical components as indicated on the circuit diagram should not be replaced by other makes. Furthermore where a short circuit has occurred, replace those components that indicate evidence of overheating.

5. Before returning a serviced receiver to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the instrument by the manufacturer has become defective, or inadvertenly defeated during servicing. Therefore, the following checks are recommended for the continued protection of the customers and service technicians.

INSULATION

Insulation resistance should not be less than 50MΩ at 500 VDC between the mains poles and any accessible metal parts. Also, no flashover or breakdown should occur during the dielectric strength test, to apply 1200 VAC for one second between the mains poles and accessible metal parts.

HIGH VOLTAGE

High voltage should always be kept at rated value of the chassis-no-higher. Operating at higher voltage may cause a failure of the picture tube or high voltage supply and, also, under certain circumstances could produce X-radiation moderately in excess of design levels. The high voltage must not, under any circumstances, exceed 18 kV on the chassis.

X-RADIATION

TUBES: The primary source of X-radiation in this monitor is the picture tube. The tube utilized for the above mentioned function in this chassis is specially constructed to limit X-radiation.

For continued X-radiation protection, the replacement tube must be the same type as the original, IKEGAMI approved type.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

IMPORTANT SAFEGUARDS

- Read all of these instructions.
- Save these instructions for later use.
- Unplug this television monitor from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for clenaing.
- Do not use attachments not recommended as they may cause hazards.
- Do not use this television monitor near water-for example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, etc.
- Do not place this television monitor on an unstable cart, stand, or table. The television monitor may fall, causing serious injury to a child or adult, and serious damage to the appliance. Use only with a cart or stand recommended, or sold with the television monitor.
  Wall or shelf mounting should follow the manufacturer's instructions, and should use a mounting kit approved.
- Slots and openings in the cabinet and the back or bottom are provided for ventilation, and to ensure reliable operation of the television monitor and to protect it from overheating, these openings must not be blocked or covered. The openings should never be blocked by placing the television monitor on a bed, sofa, rug, or other similar surface. This television monitor should never be placed near or over a radiator or heat register. This television monitor should not be placed in a built-in installation such as a bookcase unless proper ventilation is provided.
- This television monitor should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your home, consult your television dealer or local power company. For television monitor designed to operate from battery power, refer to this operating instructions.

- This television is equipped with a grounding alternating-current line plug (a plug having one blade wider than the other) or with a 3-wire grounding type plug (a plug having a third grounding pin). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

- Do not allow anything to rest on the power cord. Do not locate this television monitor where the cord will be abused by persons walking on it.

- Follow all warnings and instructions marked on the television monitor.

- For added protection for this television monitor during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet. This will prevent damaged to the receiver due to lighting and powerline surges.

- Do not overload wall outlets and extension cords as this can result in fire or electric shock.

- Never push objects of any kind into this television monitor through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the television monitor.

- Do not attempt to service this television monitor yourself as opening on removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

- Unplug this television monitor from the wall outlet and refer servicing to qualified service personnel under the following conditions.

  a. When the power cord or plug is damaged or frayed.

  b. If liquid has been spilled into the television monitor.

  c. If the television monitor has been exposed to rain on water.

  d. If the television monitor does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the television monitor to normal operation.

  e. If the television monitor has been dropped or the cabinet has been damaged.

  f. When the television receivers exhibits a distinct change in performance-this indicates a need for service.

- When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

- Upon completion of any service or repairs to this television monitor, ask the service technician to perform routine safety checks to determine that the television is in safe operating condition.

INTRODUCTION

Model PM-206 20-inch Picture Monitor incorporates a number of the latest technologies for picture monitoring. Except for the CRT, the entire circuits are packaged in IC's, or are all silicon semiconductor devices. The Model is of rugged construction to resist vibration and shock, and is a highly reliable performance monitor.

To facilitate handling and operation, all circuits of this monitor are mounted on one main printed-circuit board, which is easily dismounted or remounted.

The frame and signal grounds are separately provided.

In terms of the electrical performance, aiming at reproducing high-quality pictures, a wide band video amplification circuit for 45 MHz $\pm\frac{1}{1}$dB or less assures a horizontal center resolution of better than 1000 lines. It features excellent performance of linearity restricting deflection distortion and raster distortion.

For ease of operation, the front control panel has only two control knobs - one for brightness and the other for contrast. H and V synchronous control is adjusted by the driver so that they are not changed by any error.

Additionally, front control panel is quipped with the power supply switch, LED lamps, and tally lamp panel (optional provision). The black front panel suppresses undesired reflection and glare, and the outward appearance is in keeping with the high performance picture monitor model PM-206.

As standard, internal-external switchable synchronization and DC restoration are provided.

Optional provisions are: a tally function

Full precautionary measures have been incorporated to satisfy DHHS standards regarding X-ray radiation from the CRT.

As described, although the monitor is well designed and constructed regarding safety, there is high voltage in certain sections. Always turn off the power supply, or be very careful if the power cannot be turned off, when inside of the equipment is accessed for servicing or repair.

FEATURES

1. This monitor has offers stable performance by adopting high reliable silicon transistors and ICs.

2. An external sync. signal input terminal on the unit permits operation of the unit not only by the video composite sync. signal (VS), but also by video signal (V) and sync. signal (SYNC).

3. BP clamp is adopted in Direct Current (DC) restoration circuit. Therefore black level will not fluctuate even if any level of sync. signal is applied.

4. The ABL circuit prevents an excessive cathode current even when a video signal of increased brightness is supplied.

5. Under scan (-10% under) and over scan (+5% over) switch is provided on front panel for easy operation.

6. A flyback transformer (F.B.T.) used in this monitor is applicable to 4 deflection frequencies shown in general.

7. High breeder resistor is put in F.B.T. to supply stable high voltage.

8. This monitor has internal control volumes to adjust the picture position by $\pm$5 mm against the center vertically and horizontally.

9. Dynamic focus circuit is adopted to display the performance of CRT.

10. Wideband AMP (frequency characteristic: 45 MHz or more) is adopted to monitor high precision picture.

11. Contrast is DC control.

12. This monitor is designed with due regard to use of VTR.

13. High resolution CRT is used.

RATINGS

1. Input level

   Video: VS 1.0 Vp-p or V 0.7 Vp-p (positive)
   sync: 4.0 Vp-p (negative)

2. Input impedance

   Video: 75 ohm or high (Switchable)
   sync.: 75 ohm or high (switchable)
   (changing - over switch)

3. Output level

   Video: 30 Vp-p

4. Scanning rates

   Spec. 1; Hf = 25.575 kHz Vf = 50 Hz (Type B)
   Spec. 2; Hf = 30.69 kHz Vf = 60 Hz (Type A)
   Spec. 3; Hf = 28.125 kHz Vf = 50 Hz (Type D)
   Spec. 4; Hf = 33.75 kHz Vf = 60 Hz (Type C)
   Spec. 5; Hf = 31.225 kHz Vf = 50 Hz (Type E)

   Scanning rate has to be specified.

5. Power requirement

   1) AC 100V 50 Hz or 60 Hz
   2) AC 120V 60 Hz
   3) AC 220V/AC 240V 50 Hz
   (selection of 220 V/240 V is made by changing of tapping connection)

   Power requirement has to be specified.

6. Power consumption

   Approx. 85 W

7. Tally power requirement

   AC/DC 24 V 65 mA (PM-206 L)

8. Connector

   BNC type

9. Brightness

   30 FL (peak value of white level)

10. CRT

1) Type: 20 inch diagonal
2) Deflection angle: 114° diagonal
3) Neck diameter: 28.6 ϕmm
4) Implosion protection: Tention band protection, with monting rug

CONSTRUCTION

External Dimensions:	488 (W) x 463.2 (H) x 374 (D) mm
Weight:	Approx. 21.5 kg (Standard type)

PERFORMANCE

General Performance

Resolution:	More than 1200 lines horizontal (at center)
Brightness:	More than 30 FL continuously variable against rated input white signal
Power Supply Voltage: Variation	Satisfactory operation shall be assured even when the input voltage varies ±10% of rated value during operation.
Spot Killer:	Prevents spot burn-in of CRT with loss of power
Isolation:	More than 50 MΩ when measured by 500 V Megger between the AC input terminal and cabinet.
Voltage Withstanding:	There shall be no abnormality after impressing AC 1500 V for one minute between the AC input plug and cabinet.
Vibration:	No parts shall loosen by dropping, or damaging after vibrating the equipment in an operating state at 1000 cps (16.7 Hz) at an acceleration of 2 G for 30 minutes vertically and horizontally.

Picture Amplification Circuit

Maximum Gain:	38 dB or more
Frequency Characteristic:	Refer to 100 kHz. 60 Hz to 45 MHz Within $^{+1}_{-6}$ dB Below 60 Hz over 45 MHz: falling down characteristic
Waveform Distortion:	Sag: Less than 5% (against 60 Hz square wave) Overshoot: Under 10% (against 250 kHz square wave) Ringing greater than 15 MHz shall be excluded.

Linearity: ±5% or below (by DG method)

Signal to Noise: Refer to input signal.
Output signal is as follows.
Hum noise: Less than -60 dB
Synchronous noise: Less than -40 dB

DC Restoration: Fluctuations of DC components at APL 10 to 90% shall be less than 3% of rated output.

Deflection Circuit

Synchronous stability: Stable operation within following input signal; VS 0.5 ∿ 1.5 Vp-p in internal sync. mode, S 2.0 ∿ 6.0 Vp-p in external sync. mode.

Raster distortion: 2% or less on effective screen amplitude

Deflection distortion (by the internal variation index method):
Horizontal: 7% or less
Vertical: 5% or less

Retrace time

- Spec. 1 and 2 (Type A and B, E)
  Horizontal: 5.5 µS or less
  Vertical: 1 mS or less

- Spec. 3 (Type D)
  Horizontal: 4.98 µS or less
  Vertical: 1 mS or less

- Spec. 4 (Type C)
  Horizontal: 4.14 µS or less
  Vertical: 1 mS or less

Deflection amplitude
Under scan: -10% under
Over scan: +5% over
(Over scan and under scan can be selected by a changing - over switch.)
Deflection amplitude variable range: ±10% or more against rated raster size at under and over scans
Adjustment of picture position: Picture position can be controlled by ±5 mm against the center vertically and horizontally
Picture fluctuation: 0.2 mm or less.
Dynamic focus. G4 of CRT is available for dynamic focus horizontally and vertically.

High Voltage Power Supply Circuit
High voltage: 17 kV ±1 kV
High voltage fluctuation: 200 V or less at IK=0 to 150 µA

Others

X-Ray Radiation: Less than 0.5 mR/HR

HANDLING PRECAUTIONS

(1) This equipment can be installed in any position. Monitoring of good pictures will be possible by paying attention to the following:

(a) There should be no nearby source to cause vibration.

(b) The surface of the CRT is free from direct sunshine and light.

(c) When using adjacent to other equipment, ensure good ventilation by keeping a space greater than 50 mm in all directions between the monitor and other equipment.

(d) Avoid moisture as much as possible.

(e) Avoid dusty locations.

(f) There is no equipment nearby generating a stroing magnetic field.

(g) Extremes of hot and cold temperature should be avoided.

(2) The picture disappears when the contrast (CONT) and brightness (BRIGHT) controllers are rotated fully counterclockwise. However, this is not a unit failure.

(3) The equipment comes suitable to both 50 and 60 Hz in supply frequency. Vertical amplitude changes when a combination with different frequencies is used.

(4) A high voltage, 17 kV, is generated inside the equipment, and persons except servicing staff should not open the case.

(5) Regularly check the connection cables, which are prone to damage. The cable should always be handled with care, kept free from sharp bends and kinks, and relieved from strain near the connectors. Checking of the connectors for full insertion and tightness is also recommended, especially where the same set up is used for a long time.

NAME OF EACH SECTION

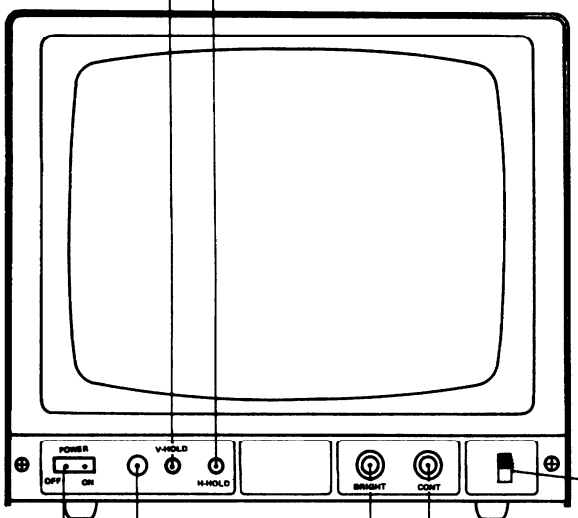
(1) **Front Panel Operation**

V. HOLD

The control knob to adjust vertical synchronization. The oscillation frequency increases by turning the knob clockwise when the pictures flow from top to bottom and vice versa.

H. HOLD

The control knob to adjust horizontal frequency. The screen flows towards the right when knob is turned clockwise.



SCAN SIZE switch

The screen size can be made smaller by setting this switch at UNDER.

LED Lamp

Lights when the power supply is turned on

CONTRAST

The control knob for contrast adjustment. Contrast intensifies when knob is turned clockwise.

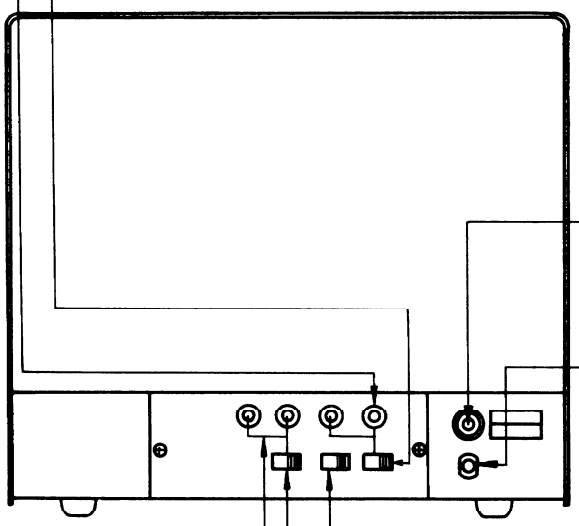
POWER

The on-off switch for the power supply

BRIGHTNESS

The control knob to adjust the brightness. Screen brightens when knob is turned clockwise.

(2) Rear Panel Operation



VIDEO IN, OUT

The video signal input and output connector. Connect input signals to IN. When bridge-connecting monitors, connect from the OUT side to IN on the next monitor.

VIDEO Termination Switch

The termination switch for video signals. Set the switch at 75Ω except when bridge-connecting the monitors.

Fuse Holder

Always use the specified fuse when making replacement.

Power Supply Cord

Connect to the specified power supply.

SYNC IN, OUT

Input and output connector for external synchronizing signals. Connect input signals to IN. When bridge-connecting monitors, connect from the OUT side to IN on the next monitor.

SYNC Termination Switch

The termination switch for the external synchronizing signal.

EXT-INT selector

The switch to select monitor synchronizing signals. Set at EXT when using the monitors in the external synchronizing mode and at INT, when using in the internal synchronizing mode.

SERVICE AND MAINTENANCE

(1) Overall Description

The equipment has been designed to provide fully continuous operation. To assure satisfactory performance, attention should be given to the following items, and periodic inspection is necessary.

(a) Check for knob positions and bad contacts.

(b) Check for connector connections.

(c) Check for short circuits in input and output circuits.

(d) Be careful about any rise in internal temperature.

(e) Check for soldering.

(f) Clean inside the equipment.

(2) General Precautions

(a) Do not disconnect or reconnect connectors while the power is switched on.

(b) Dust on the monitor CRT anode will easily cause discharge. After cleaning, apply an insulating silicone oil.

(c) In many instances, high voltage is present at the anode and anode cap. The monitor CRT should always be exchanged only after discharging it.

(3) Precautions When Handling Transistors

With the exception of the CRT, all active devices used in the equipment are transistors. Compared with conventional vacuum tubes, the following items require precautions:

(a) Transistors, which are very strong against mechanical shock, are weak to electrical shock. Carefully inspect the circuits when an inspection has to be made with the equipment in operation. Do not cause short-circuiting by tips of test leads, etc.

(b) Do not dismount or remount circuit components without switching the power off.

(c) Do not connect a capacitor to a circuit in operation by error. (Large-capacitance capacitors require particular attention)

Connecting a large-capacitance capacitor which is not charged, not only transistors on that particular printed circuit board, but also in other circuits may be damaged.

(d) Be careful not to transmit unnecessary heat when soldering transistors.

(e) Under no circumstance should a soldering iron with an AC leak be used.

(f) When using an oscilloscope to check waveforms, a high-impedance terminal should always be used.

(g) When measuring various sections in a transistor circuit, it is preferred to use a vacuum tube voltmeter instead of a tester.

(h) When there is a possibility a transistor may have been damaged by error, forward and inverse resistances between the collector and emitter should be measured by using a tester to obtain approximate details, or ICO shall be measured by a transistor checker.

CAUTIONS

(1) The face of the picture tube is a part of a high vacuum. Score, scratch or applying undue pressure may result in implosion of the picture tube, and serious personal injury may be caused.

(2) The components marked with in parts list and schematic diagram are critical ones of X-ray radiation. Replacement of these critical components should check +85 V line to +85 V $\pm$0.5 V and anode voltage of CRT to 18 kV or less.

(3) This monitor provides integral protection type picture tube against implosion and X-ray radiation. Use the same type picture tube in case of replacement.

PM-206 PARTS LIST

❖ MARKED VALUES ARE SUBJECT TO CHANGE WITHOUT NOTICE.
★ MARKED PARTS ARE CRITICAL COMPONENTS OF X-RAY RADIATION.
⚠ MARKED PARTS HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY.
IN CASE OF REPLACING THESE PARTS, USE THE PARTS SPECIFIED BY IKEGAMI.

(1) MAIN CHASSIS

No.	PARTS	DESCRIPTION
CN401	Connector Housing	171822-2
	Contact	170262-1 or 170204-1
CN402	Faston Tab	43031-2 or 17001-3
CN403	Connector Housing	TS-80H-04-A1
	Contact	005T-1100
CN404	Connector Housing	TS-80H-02-A1
	Contact	005T-1100
CN405	Connector Housing	171822-6
	Contact	170262-1 or 170204-1
CN406	Connector Housing	W-A5002-1N#02
	Contact	W-T0504
CN407	Connector Housing	W-A5003-1N#02
	Contact	W-T0504
CN408	Connector Housing	TS-80H-03-A1
	Contact	005T-1100
CN409	Connector Housing	350865-1
	Contact	350561-3 or 350690-3
D401	LED	GLMD31AR
D402	Diode	RM-1A
⚠ F401	Fuse	1.5 A ----- 100 V ∿ 120 V
		1.0 A ----- 220 V ∿ 240 V
F401-a	Fuse Holder	S-N1301 --- 100 V ∿ 120 V
		S-N2250#01 - 220 V ∿ 240 V
★ ⚠ L401	Deflection Yoke	ST4-B0380-1 -- Type A, B, E
		ST4-B0379-1 -- Type C, D
⚠ PC401	Power Cord	SPT-2 Cord or SJT Cord or CEE Cord

No.	PARTS	DESCRIPTION
Q401	Transistor	2SC3482
⚠ Q402	Transistor	2SC1829
R401	Cement Filled Fixed Resistor	220 ohms 20W
RL401	Relay	HC-3-TM-DC24V
⚠ SW401	Power Switch	SDE-3
SW402	Slide Switch	SW-76B
★ ⚠ T401	Power Transformer	ST4-B95028-A;100V
		ST4-B95083-B;120V
		ST4-B95028-C;220V/240V
★ ⚠ V401	Cathode Ray Tube	500TB4(HG) or equ.
	Insulock-Tie	BK-1
	Insulock-Tie	T-30R

(2) MAIN P.W.B. MODULE

No.	PARTS	DESCRIPTION	
C1	Electrolytic Capacitor	22μF	25WV
C2	Electrolytic Capacitor	470μF	25WV
C3	Polyester Film Capacitor	0.1μF	50WV
C4	Electrolytic Capacitor	3.3μF	50WV
C5	Electrolytic Capacitor	10μF	50WV
C6	Electrolytic Capacitor	100μF	25WV
C7	Electrolytic Capacitor	100μF	25WV
C8	Not used		
C9	Electrolytic Capacitor	47μF	16WV
C10	Electrolytic Capacitor	1μF	50WV
C11	Electrolytic Capacitor	10μF	50WV
C12	Polyester Film Capacitor	0.1μF	50WV
C13	Electrolytic Capacitor	220μF	25WV
C14	Polyester Film Capacitor	0.1μF	50WV
C15	Polyester Film Capacitor	0.001μF	50WV
C16	Electrolytic Capacitor	1μF	50WV
C17	Polyester Film Capacitor	0.1μF	50WV
C18	Not used		
C19	Electrolytic Capacitor	3.3μF	50WV
C20	Ceramic Capacitor	120pF	50WV

No.	PARTS	DESCRIPTION	
C21	Polyester Film Capacitor	0.033μF	50WV
C22	Electrolytic Capacitor	2.2μF	50WV
C23	Electrolytic Capacitor	100μF	25WV
C24	Not used		
C25	Not used		
C26	Electrolytic Capacitor	1000μF	16WV
C27	Polyester Film Capacitor	0.01μF	50WV
C28	Polyester Film Capacitor	0.1μF	50WV
C29	Tantalum Capacitor	1.5μF	25WV
C30	Ceramic Capacitor	470pF	50WV
C31	Electrolytic Capacitor	330μF	63WV
C32	Electrolytic Capacitor	330μF	63WV
C33	Electrolytic Capacitor	1μF	50WV
C34	Polyester Film Capacitor	0.047μF	50WV
C35	Ceramic Capacitor	220pF	50WV
C36	Polyester Film Capacitor	0.01F	50WV
C37	Electrolytic Capacitor	100μF	35WV
C38	Polyester Film Capacitor	0.047μF	200WV
C39	Electrolytic Capacitor	100μF	35WV
C40	Polyester Film Capacitor	0.1μF	50WV
C41	Electrolytic Capacitor	100μF	35WV
C42	Ceramic Capacitor	22pF	50WV (Type A, B, E)
		56pF	50WV (Type C)
C43	Polyester Film Capacitor	0.1μF	50WV
C44	Ceramic Capacitor	22pF	50WV
C45	Electrolytic Capacitor	220μF	25WV
C46	Polyester Film Capacitor	0.1μF	50WV
C47	Polyester Film Capacitor	0.001μF	50WV
C48	Polyester Film Capacitor	0.033μF	50WV
C49	Polyester Film Capacitor	0.001μF	50WV
C50	Polypropylene Film Capacitor	0.0047μF	50WV
C51	Polyester Film Capacitor	0.01μF	50WV
C52	Tantalum Capacitor	1μF	50WV
C53	Electrolytic Capacitor	1μF	50WV
C54	Electrolytic Capacitor	470μF	16WV

No.	PARTS	DESCRIPTION	
C55	Polyester Film Capacitor	0.1μF	50WV
❖ C56	Polyester Film Capacitor	0.1μF	50WV
❖ C57	Ceramic Capacitor	220pF	500WV (Type A, B, C)
		330pF	500WV (Type E)
C58	Ceramic Capacitor	330pF	2000WV
C59	Electrolytic Capacitor	220μF	35WV
C60	Electrolytic Capacitor	10μF	50WV
C61	Polyester Film Capacitor	0.001μF	50WV
C62	Polyester Film Capacitor	0.022μF	50WV
C63	Polyester Film Capacitor	0.0022μF	50WV
C64	Electrolytic Capacitor	470μF	16WV
C65	Not used		
C66	Not used		
C67	Electrolytic Capacitor	100μF	16WV
C68	Ceramic Capacitor	680pF	1000WV
C69	Electrolytic Capacitor	47μF	160WV
★ ⚠ C70	Metallized Polypropylene Film Capacitor	0.0015μF ∿ 0.0022μF	1500WV (Type A, E)
		0.0018μF	1500WV (Type B)
		0.0012μF	1500WV (Type C)
★ ⚠ C71	Metallized Polypropylene Film Capacitor	0.0018μF	1500WV
★ ⚠ C72	Metallized Polypropylene Film Capacitor	0.0015μF	1500WV
★ ⚠ C73	Metallized Polypropylene Film Capacitor	0.0015μF	150WV
★ ⚠ C74	Polypropylene Film Capacitor	0.047μF	630WV
C75	Electrolytic Capacitor	100μF	35WV
C76	Metallized Polyester Film Capacitor	0.1μF	1250WV
C77	Metallized Polyester Film Capacitor	0.1μF	1250WV
C78	Metallized Polyester Film Capacitor	0.22μF	400WV (Type A, C, E)
		0.33μF	400WV (Type B)

No.	PARTS	DESCRIPTION
C79	Metallized Polyester Film Capacitor	0.22μF 400WV (Type A, E) 0.33μF 400WV (Type B, C)
C80	Electrolytic Capacitor	100μF 160WV
C81	Metallized Polyester Film Capacitor	0.1μF 1250WV
C82	Polypropylene Film Capacitor	0.0047μF 630WV
C83	Polypropylene Film Capacitor	0.0068μF 630WV
C84	Electrolytic Capacitor	22μF 25WV
C85	Metallized Polyester Film Capacitor	0.1μF 1250WV
C86	Electrolytic Capacitor	470μF 50WV
C87	Electrolytic Capacitor	10μF 160WV
C88	Electrolytic Capacitor	470μF 25WV
C89	Not used	
C90	Electrolytic Capacitor	100μF 160WV
C91	Ceramic Capacitor	680pF 50WV
C92	Metallized Polyester Film Capacitor	0.22μF 250WV
C93	Electrolytic Capacitor	10μF 63WV
★ ⚠ C94	Ceramic Capacitor	680pF 2000WV
C95	Metallized Polyester Film Capacitor	0.1μF 1000WV (Type A, B, C, D)
C96	Electrolytic Capacitor	100μF 16WV
C97	Electrolytic Capacitor	100μF 160WV
C98	Electrolytic Capacitor	1μF 50WV
C99	Electrolytic Capacitor	10μF 50WV
C100	Electrolytic Capacitor	100μF 16WV
C101	Polyester Film Capacitor	0.1μF 100WV
C102	Polyester Film Capacitor	0.1μF 100WV
C103	Not used	
C104	Polyester Film Capacitor	0.1μF 50WV
C105	Not used	
C106	Polyester Film Capacitor	0.1μF 50WV
C107	Polyester Film Capacitor	0.1μF 100WV
C108	Electrolytic Capacitor	470μF 25WV
C109	Electrolytic Capacitor	100μF 25WV

No.	PARTS	DESCRIPTION
C110	Polyester Film Capacitor	0.022μF 50WV
C111	Polyester Film Capacitor	0.1μF 50WV
C112	Not used	
C113	Not used	
C114	Not used	
C115	Ceramic Capacitor	39pF 50WV
C116	Ceramic Capacitor	47pF 50WV
C117	Ceramic Capacitor	150pF 50WV
C118	Electrolytic Capacitor	10μF 50WV
C119	Electrolytic Capacitor	1μF 50WV
C120	Electrolytic Capacitor	10μF 25WV
C121	Ceramic Capacitor	150pF 2000WV (Type E only)
CN1	Connector Plug	171825-8
CN2	Coaxial Receptacle	BNC-BR-D or BNC-RB3-8A
CN3	Coaxial Receptacle	BNC-BR-D or BNC-RB3-8A
CN4	Connector Plug	TS-80P-03-V1
CN5	Connector Plug	171825-2
CN6	Connector Plug	W-P3503#02
CN7	Connector Plug	TS-80P-04-V1
CN8	Connector Plug	TS-80P-02-V1
CN9	Connector Plug	171825-6
CN10	Not used	
CN11	Connector Plug	TS-80P-06-V1
CN12	Connector Cap Contact	350866-1 350570-3
CN13	Faston Receptacle	STO-41T-187N or 170037-2
CN14	Coaxial Receptacle	BNC-BR-D or BNC-RB3-8A
CN15	Coaxial Receptacle	BNC-BR-D or BNC-RB3-8A
D1	Diode	1S1585
D2	Diode	1S1588
D3	Zener Diode	HZ-5C-2
D4	Zener Diode	HZ-6C-1
D5	Diode	1S1588
D6	Diode	1S1588

No.	PARTS	DESCRIPTION
D7	Zener Diode	HZ-6C-2
D8	Zener Diode	HZ-6C-2
D9	Diode	EM-1Z
D10	Diode	EM-1Z
D11	Diode	1S1588
D12	Diode	1S1588
D13	Diode	1S1588
D14	Not used	
D15	Diode	RH-1B
D16	Diode	RH-1B
D17	Zener Diode	HZ-5C-2
D18	Diode	1S1588
D19	Diode	RU-4D
★ ⚠ D20	Zener Diode	HZ-24-2
D21	Not used	
D22	Diode	RF-01F or ES-01F
D23	Diode	RF-1A
D24	Diode	RU-1A
D25	Diode	RF-1A
D26	Diode	RU-1A
D27	Diode	RU-2 (Type A, E)
D28	Diode	1S1588
D29	Diode	1S1588
D30	Diode	1S1588
D31	Zener Diode	HZ-6C-2
D32	Diode	RU-4D (Type E only)
D33	Diode	1S1588
D34	Diode	RU-1A
IC1	Integrated Circuit	CA3102E or equ.
IC2	Integrated Circuit	TL082CP or equ.
IC3	Integrated Circuit	HA11235
IC4	Integrated Circuit	AN5512 or equ.
IC5	Integrated Circuit	HD14011BP or equ.
★ IC6	Integrated Circuit	HA11235
IC7	Integrated Circuit	SN74LS123 or equ.

No.	PARTS	DESCRIPTION
★ L1	Chork Coil	ST4-B95029-1 (Type A, B, E) ST4-B95127 (Type C)
★ L2	H. Linearity Coil	ST4-B0383A-1 (Type A, B, E) ST4-B95128 (Type C)
★ L3	Width Coil	ST4-B0382-2 (Type A, B, E) ST4-B95126 (Type C)
L4	Chork Coil	ST4-B95037-2
L5	Dynamic Focus Coil	ST4-B95040-1
Q1	Transistor	2SA1015(Y)
Q2	Transistor	2SC1815(Y)
Q3	Transistor	2SC1815(Y)
Q4	Transistor	2SC1815(Y)
Q5	Transistor	2SC1815(Y)
Q6	Transistor	2SC1260
Q7	Transistor	2SC1260
Q8	Transistor	2SC1365
Q9	Transistor	2SC1815(Y)
Q10	Transistor	2SC1815(Y)
Q11	Transistor	2SA1015(Y)
Q12	Transistor	2SD789
Q13	Transistor	2SB740
Q14	Transistor	2SC2899
Q15	Transistor	2SD1390
Q16	Transistor	2SC2611
Q17	Transistor	2SC2611
Q18	Transistor	2SD1390
Q19	Transistor	2SC1815(Y)
Q20	Transistor	2SA1015(Y)
Q21	Transistor	2SC1815(Y)
Q22	Transistor	2SC1815(Y)
R1	Carbon Film Resistor	75 ohms 1/4W
R2	Not used	
R3	Carbon Film Resistor	47K ohms 1/4W
R4	Carbon Film Resistor	100 ohms 1/4W
R5	Carbon Film Resistor	15K ohms 1/4W

No.	PARTS	DESCRIPTION
R6	Carbon Film Resistor	1K ohms 1/4W
R7	Carbon Film Resistor	22 ohms 1/4W
R8	Carbon Film Resistor	1K ohms 1/4W
R9	Carbon Film Resistor	1.8K ohms 1/4W
R10	Carbon Film Resistor	2.2K ohms 1/4W
R11	Carbon Film Resistor	470 ohms 1/4W
R12	Carbon Film Resistor	470 ohms 1/4W
R13	Carbon Film Resistor	22 ohms 1/4W
R14	Carbon Film Resistor	470 ohms 1/4W
R15	Metal Film Resistor	470 ohms 1/4W
R16	Carbon Film Resistor	75 ohms 1/4W
R17	Metal Film Resistor	470 ohms 1/4W
R18	Carbon Film Resistor	470 ohms 1/4W
R19	Carbon Film Resistor	22 ohms 1/4W
R20	Carbon Film Resistor	1K ohms 1/4W
R21	Carbon Film Resistor	1K ohms 1/4W
R22	Carbon Film Resistor	47 ohms 1/4W
R23	Carbon Film Resistor	1K ohms 1/4W
R24	Carbon Film Resistor	390 ohms 1/4W
R25	Carbon Film Resistor	470 ohms 1/4W
R26	Carbon Film Resistor	22 ohms 1/4W
R27	Carbon Film Resistor	1K ohms 1/4W
R28	Carbon Film Resistor	22 ohms 1/4W
R29	Carbon Film Resistor	220 ohms 1/4W
R30	Carbon Film Resistor	390 ohms 1/4W
R31	Carbon Film Resistor	47 ohms 1/4W
R32	Carbon Film Resistor	470 ohms 1/4W
R33	Carbon Film Resistor	390 ohms 1/4W
R34	Carbon Film Resistor	470 ohms 1/4W
R35	Not used	
R36	Carbon Film Resistor	22K ohms 1/4W
R37	Carbon Film Resistor	6.8K ohms 1/4W
R38	Carbon Film Resistor	560 ohms 1/4W
R39	Carbon Film Resistor	3.9K ohms 1/4W
R40	Carbon Film Resistor	5.6K ohms 1/4W
R41	Carbon Film Resistor	10K ohms 1/4W

No.	PARTS	DESCRIPTION
R42	Carbon Film Resistor	1.5K ohms 1/4W
R43	Carbon Film Resistor	750 ohms 1/4W
R44	Metal Film Resistor	100 ohms 1/4W
R45	Carbon Film Resistor	560 ohms 1/4W
R46	Carbon Film Resistor	10 ohms 1/4W
R47	Carbon Film Resistor	4.7K ohms 1/4W
R48	Carbon Film Resistor	6.8K ohms 1/4W
R49	Carbon Film Resistor	10K ohms 1/4W
R50	Carbon Film Resistor	4.7K ohms 1/4W
R51	Carbon Film Resistor	75 ohms 1/4W
R52	Carbon Film Resistor	1K ohms 1/4W
R53	Carbon Film Resistor	10K ohms 1/4W
R54	Carbon Film Resistor	22K ohms 1/4W
R55	Carbon Film Resistor	56K ohms 1/4W
R56	Carbon Film Resistor	1K ohms 1/4W (Type A, B, C) 120 ohms 1/4W (Type E)
R57	Carbon Film Resistor	47 ohms 1/4W
R58	Carbon Film Resistor	47K ohms 1/4W (Type A, B, C) 18K ohms 1/4W (Type E)
R59	Carbon Film Resistor	470K ohms 1/4W (Type A, B, C) 220K ohms 1/4W (Type E)
R60	Carbon Film Resistor	150 ohms 1/4W
R61	Carbon Film Resistor	2.2K ohms 1/4W
R62	Carbon Film Resistor	1.5K ohms 1/2W
R63	Carbon Film Resistor	4.7K ohms 1/4W
R64	Carbon Film Resistor	3.9K ohms 1/4W
※ R65	Carbon Film Resistor	82 ohms 1/4W
R66	Carbon Film Resistor	22K ohms 1/4W
R67	Carbon Film Resistor	33K ohms 1/4W
R68	Carbon Film Resistor	33K ohms 1/4W
R69	Metal Oxide Film Resistor	5.6 ohms 1W
R70	Carbon Film Resistor	39K ohms 1/4W
R71	Carbon Film Resistor	100 ohms 1/4W

No.	PARTS	DESCRIPTION
R72	Carbon Film Resistor	56 ohms 1/4W
R73	Carbon Film Resistor	330 ohms 1/4W
R74	Carbon Film Resistor	33K ohms 1/4W
R75	Metal Oxide Film Resistor	470 ohms 1W
R76	Metal Oxide Film Resistor	220 ohms 1W
R77	Metal Oxide Film Resistor	100 ohms 1W
R78	Metal Oxide Film Resistor	100 ohms 1W
R79	Carbon Film Resistor	1K ohms 1/4W
R80	Carbon Film Resistor	15K ohms 1/4W
R81	Carbon Film Resistor	10K ohms 1/4W
R82	Carbon Film Resistor	10K ohms 1/4W
R83	Carbon Film Resistor	22K ohms 1/4W
R84	Carbon Film Resistor	39K ohms 1/4W
R85	Metal Oxide Film Resistor	6.8K ohms 3W
R86	Carbon Film Resistor	18K ohms 1/4W
R87	Carbon Film Resistor	1K ohms 1/4W
R88	Carbon Film Resistor	4.7K ohms 1/4W
R89	Carbon Film Resistor	33K ohms 1/4W
R90	Carbon Film Resistor	6.8K ohms 1/4W
R91	Carbon Film Resistor	18K ohms 1/4W
※ R92	Carbon Film Resistor	4.7K ohms 1/4W (Type A, B, C)
		5.6K ohms 1/4W (Type E)
R93	Carbon Film Resistor	120K ohms 1/4W
R94	Carbon Film Resistor	470K ohms 1/4W
R95	Carbon Film Resistor	10K ohms 1/4W (Type A, B, C)
		6.8K ohms 1/4W (Type E)
R96	Carbon Film Resistor	10K ohms 1/4W (Type A, B, C)
		6.8K ohms 1/4W (Type E)
R97	Carbon Film Resistor	680 ohms 1/2W (Type A, B, C)
		560 ohms 1/2W (Type E)
R98	Metal Oxide Film Resistor	820 ohms 1W
★ R99	Carbon Film Resistor	470 ohms 1/4W

No.	PARTS	DESCRIPTION
★ R100	Carbon Film Resistor	4.7K ohms 1/4W
R101	Not used	
R102	Carbon Film Resistor	2.2K ohms 1/2W
R103	Carbon Film Resistor	100 ohms 1/4W
R104	Carbon Film Resistor	56K ohms 1/4W
R105	Carbon Film Resistor	470 ohms 1/4W
R106	Carbon Film Resistor	5.6K ohms 1/4W
R107	Carbon Film Resistor	1.5K ohms 1/2W
R108	Carbon Film Resistor	10 ohms 1/2W
R109	Metal Oxide Film Resistor	2.2K ohms 1W
R110	Metal Oxide Film Resistor	330 ohms 3W
R111	Metal Graze Film Resistor	2M ohms 1W
R112	Carbon Film Resistor	270K ohms 1/2W (Type A, B, E)
		220K ohms 1/2W (Type C)
⚠ R113	Fusing Resistor	22 ohms 2W (Type A, E)
		3.3 ohms 2W (Type B)
		5.6 ohms 2W (Type C)
⚠ R114	Fusing Resistor	1K ohms 1/4W
⚠ R115	Not used	
⚠ R116	Carbon Film Resistor	10 ohms 2W (Type A, E)
		3.3 ohms 2W (Type B)
		2.7 ohms 2W (Type C)
R117	Carbon Film Resistor	100K ohms 1/4W
R118	Carbon Film Resistor	150K ohms 1/4W
R119	Carbon Film Resistor	1.5K ohms 1/4W
R120	Carbon Film Resistor	22K ohms 1/4W
R121	Carbon Film Resistor	12K ohms 1/4W
R122	Carbon Film Resistor	47K ohms 1/4W
R123	Carbon Film Resistor	47K ohms 1/4W
R124	Carbon Film Resistor	1K ohms 1/4W
R125	Not used	
R126	Metal Graze Film Resistor	1M ohms 1/2W
R127	Carbon Film Resistor	47K ohms 1/4W
R128	Carbon Film Resistor	10K ohms 1/4W
※ R129	Carbon Film Resistor	33K ohms 1/4W

No.	PARTS	DESCRIPTION
R130	Carbon Film Resistor	10K ohms 1/4W
R131	Not used	
R132	Carbon Film Resistor	12K ohms 1/4W
R133	Carbon Film Resistor	10K ohms 1/4W
R134	Carbon Film Resistor	1K ohms 1/4W
R135	Carbon Film Resistor	10K ohms 1/4W
R136	Metal Oxide Film Resistor	470 ohms 1W
R137	Carbon Film Resistor	150 ohms 1/4W
R138	Carbon Film Resistor	82K ohms 1/4W
R139	Carbon Film Resistor	12K ohms 1/4W
R140	Carbon Film Resistor	1K ohms 1/4W
R141	Carbon Film Resistor	220 ohms 1/4W
R142	Carbon Film Resistor	82 ohms 1/4W
R143	Carbon Film Resistor	270 ohms 1/4W
R144	Carbon Film Resistor	1K ohms 1/4W
R145	Carbon Film Resistor	1K ohms 1/4W
R146	Not used	
R147	Carbon Film Resistor	470 ohms 1/4W
R148	Carbon Film Resistor	22K ohms 1/4W
R149	Carbon Film Resistor	10K ohms 1/4W
R150	Carbon Film Resistor	33K ohms 1/4W
R151	Carbon Film Resistor	22 ohms 1/4W
R152	Carbon Film Resistor	150K ohms 1/4W
R153	Carbon Film Resistor	220 ohms 1/4W
R154	Carbon Film Resistor	1K ohms 1/4W
R155	Carbon Film Resistor	220 ohms 1/4W
R156	Carbon Film Resistor	1M ohms 1/2W (Type A, B, C)
R157	Carbon Film Resistor	22 ohms 1/4W
R158	Carbon Film Resistor	68 ohms 1/4W
R159	Carbon Film Resistor	1K ohms 1/4W
R160	Carbon Film Resistor	33K ohms 1/4W
R161	Not used	
R162	Metal Oxide Film Resistor	2.2K ohms 5W (Type E only)
R163	Carbon Film Resistor	10 ohms 1/4W
R164	Carbon Film Resistor	180 ohms 1/4W

No.	PARTS	DESCRIPTION
R165	Carbon Film Resistor	1K ohms 1/4W
R166	Carbon Film Resistor	12K ohms 1/4W
★ R167	Carbon Film Resistor	1.2K ohms 1/4W (Type A, E)
		1.8K ohms 1/4W (Type B)
		2.7K ohms 1/4W (Type C)
R168	Carbon Film Resistor	470 ohms 1/4W
R169	Metal Oxide Film Resistor	1 ohms 1W
SW1	Slide Switch	SLP-2-1022F
SW2	Slide Switch	SLP-2-1022F
SW3	Slide Switch	SLP-2-1022F
T1	H.Drive Transformer	TLH-15454
★ ⚠ T2	Flyback Transformer	ST4-B0381-1
TH1	Thermistor	ERT-D2FGL332S
VR1	Variable Resistor	5K ohms lin. taper
VR2	Variable Resistor	500 ohms lin. taper
VR3	Variable Resistor	100 ohms lin. taper
VR4	Variable Resistor	1K ohms lin. taper
VR5	Variable Resistor	100 ohms lin. taper
VR6	Variable Resistor	20K ohms lin. taper
VR7	Variable Resistor	20K ohms lin. taper
VR8	Variable Resistor	3K ohms lin. taper
VR9	Variable Resistor	10K ohms lin. taper
VR10	Variable Resistor	2K ohms lin. taper
VR11	Not used	
VR12	Variable Resistor	100K ohms lin. taper
VR13	Variable Resistor	100K ohms lin. taper
VR14	Variable Resistor	50 ohms lin. taper
E1	P.W.B.	PMP-206-13

(3) POWER P.W.B. MODULE

No.	PARTS	DESCRIPTION
C201	Electrolytic Capacitor	100μF 160WV
⚠ C202	Electrolytic Capacitor	470μF 200WV
C203	Not used	
C204	Electrolytic Capacitor	10μF 350WV
C205	Electrolytic Capacitor	3.3μF 160WV
C206	Electrolytic Capacitor	1μF 50WV
C207	Ceramic Capacitor	100pF 500WV
C208	Ceramic Capacitor	1000pF 400WV (Type E only)
C209	Ceramic Capacitor	1000pF 400WV (Type E only)
C210	Ceramic Capacitor	1000pF 400WV (Type E only)
C211	Ceramic Capacitor	1000pF 400WV (Type E only)
C212	Metallized Polyester Film Capacitor	6800pF 250WV (Type E only)
C213	Metallized Polyester Film Capacitor	6800pF 250WV (Type E only)
CN201	Connector Plug	W-P3002#02 or W-P3502#02
CN202	Connector Plug	W-P3003#02 or W-P3503#02
CN203	Connector Housing Contact	W-A5003-1N#02 W-T0504
⚠ D201	Diode	RM-1A
⚠ D202	Diode	RM-1A
⚠ D203	Diode	RM-1A
⚠ D204	Diode	RM-1A
D205	Diode	RM-1A
D206	Not used	
★ D207	Zener Diode	HZ-7B-2
D208	Zener Diode	HZ-5B-3
D209	Diode	RM-1A

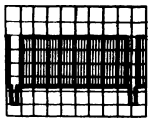
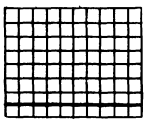
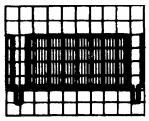
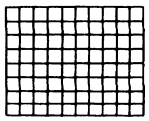
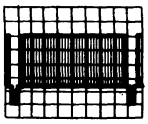
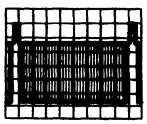
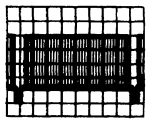
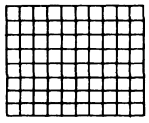
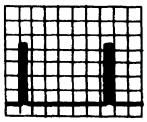
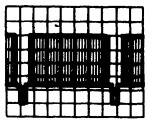
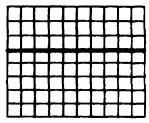
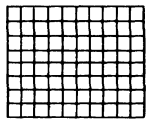
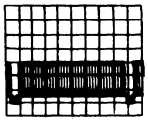
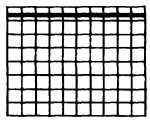
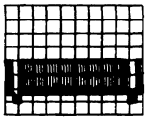
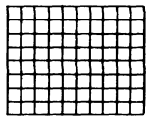
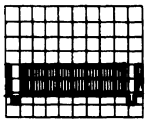
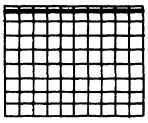
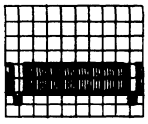
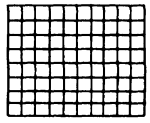
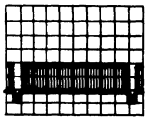
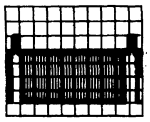
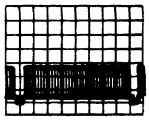
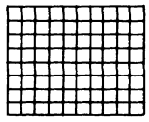
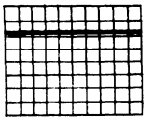
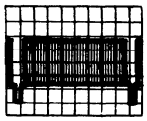
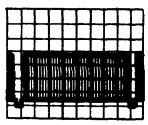
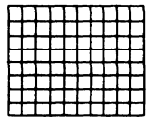
No.	PARTS	DESCRIPTION
F201	Fuse	1.5A
Q201	Transistor	2SD669A
★ R201	Carbon Film Resistor	4.7K ohms 1/4W
R202	Carbon Film Resistor	100 ohms 1/2W
R203	Metal Oxide Film Resistor	4.7K ohms 1W
R204	Metal Oxide Film Resistor	3.3K ohms 1W
R205	Metal Oxide Film Resistor	10K ohms 1W
R206	Metal Oxide Film Resistor	10K ohms 2W
R207	Carbon Film Resistor	100 ohms 1/4W
R208	Carbon Film Resistor	470K ohms 1/4W
R209	Carbon Film Resistor	1K ohms 1/4W
★ R210	Carbon Film Resistor	47K ohms 1/2W
★ R211	Carbon Film Resistor	33K ohms 1/4W
★ VR201	Variable Resistor	1K ohms lin. taper
VS201	Varistor	SNR-14A150K
VS202	Varistor	ERZ-C10DK820
E201	P.W.B.	PMP-206-30

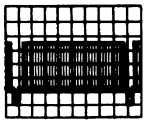
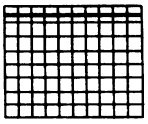
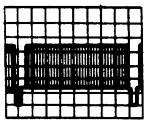
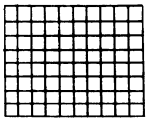
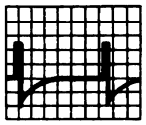
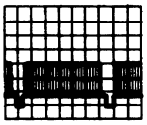
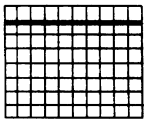
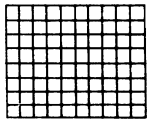
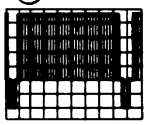
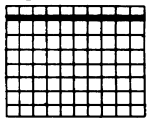
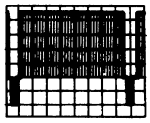
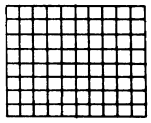
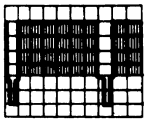
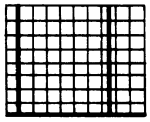
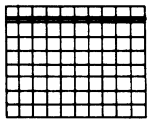
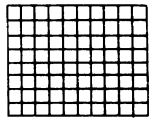
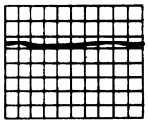
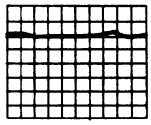
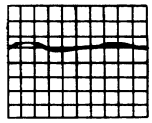
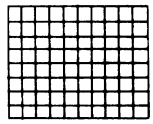
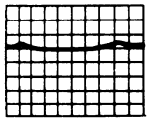
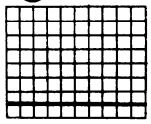
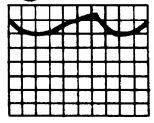
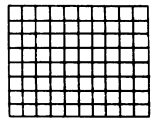
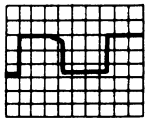
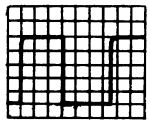
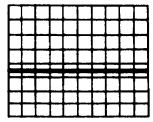
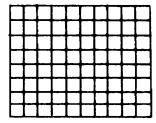
(4) CRT SOCKET P.W.B. MODULE

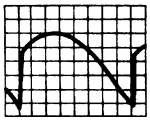
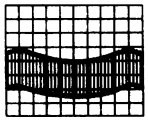
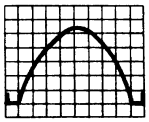
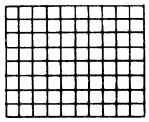
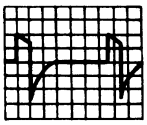
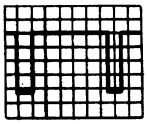
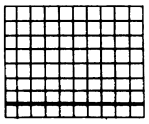
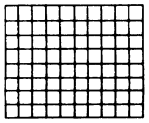
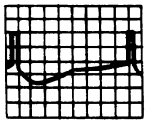
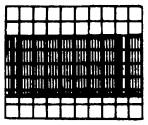
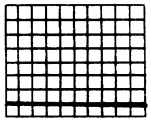
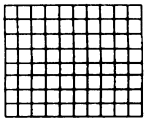
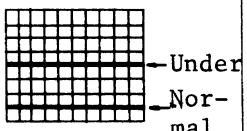
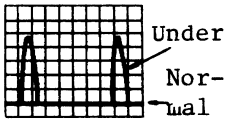
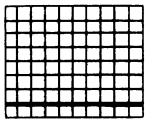
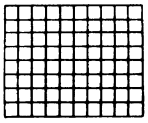
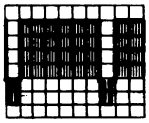
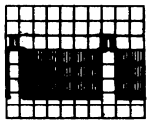
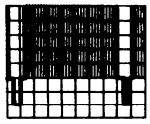
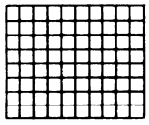
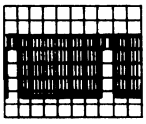
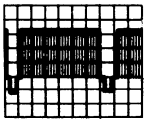
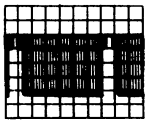
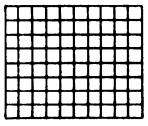
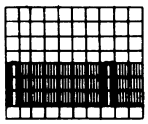
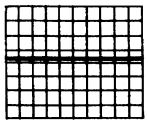
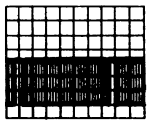
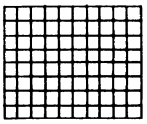
No.	PARTS	DESCRIPTION	
C301	Electrolytic Capacitor	47μF	16WV
C302	Polyester Film Capacitor	0.1μF	50WV
※ C303	Ceramic Capacitor	120pF	50WV
C304	Ceramic Capacitor	47pF	50WV
C305	Polyester Film Capacitor	0.22μF	200WV
C306	Electrolytic Capacitor	22μF	160WV
C307	Metallized Polyester Film Capacitor	0.47μF	250WV
C308	Polyester Film Capacitor	0.1μF	200WV
C309	Polyester Film Capacitor	0.1μF	200WV

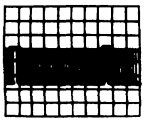
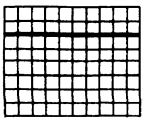
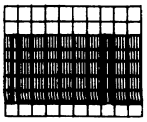
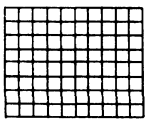
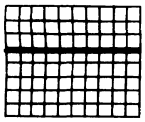
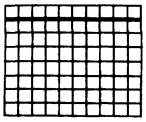
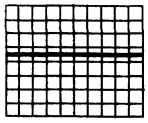
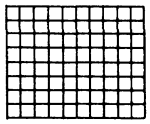
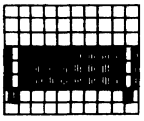
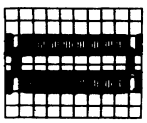
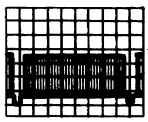
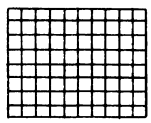
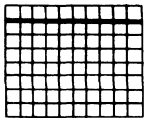
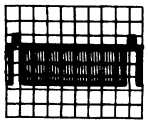
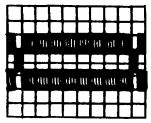
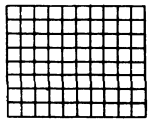
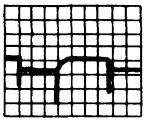
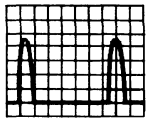
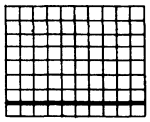
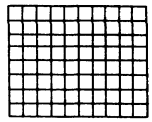
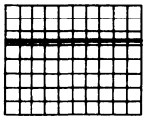
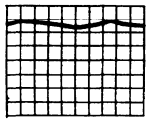
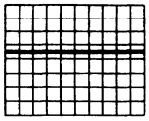
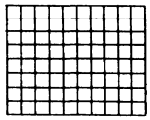
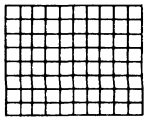
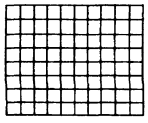
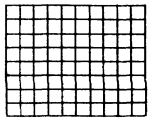
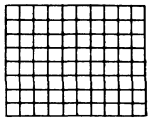
No.	PARTS	DESCRIPTION
C310	Not used	
C311	Metallized Polyester Film Capacitor	0.068μF 1250WV
C312	Metallized Polyester Film Capacitor	0.01μF 1250WV
C313	Not used	
C314	Not used	
C315	Not used	
C316	Not used	
C317	Not used	
※ C318	Ceramic Capacitor	22pF 50WV
C319	Ceramic Capacitor	22pF 500WV
C320	Ceramic Capacitor	150pF 50WV
C321	Polyester Film Capacitor	0.0015μF 50WV
CN301	Connector Housing	171822-8
	Contact	170262-2
CN302	CRT Socket	S8-503B-03
CN303	Connector Housing	TS-80H-06-A1
	Contact	005T-1100
D301	Zener Diode	HZ-12A-2
D302	Diode	1SS82
D303	Diode	RU-1A
D304	Diode	RH-1B
L301	Micro Inductor	3.3μH
L302	Micro Inductor	1.8μH
Q301	Transistor	2SC3595
Q302	Transistor	2SC3782
R301	Carbon Film Resistor	470 ohms 1/2W
R302	Carbon Film Resistor	100 ohms 1/4W
R303	Carbon Film Resistor	47 ohms 1/4W
R304	Carbon Film Resistor	100 ohms 1/4W

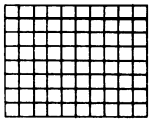
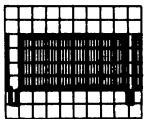
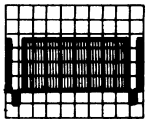
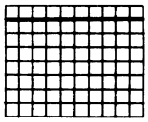
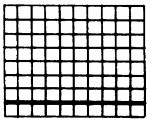
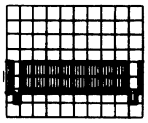
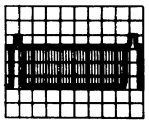
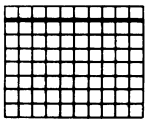
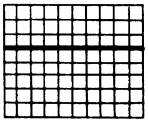
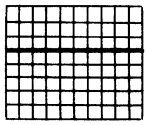
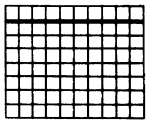
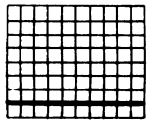
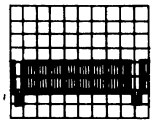
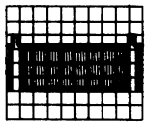
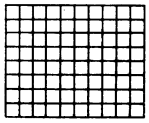
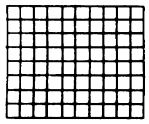
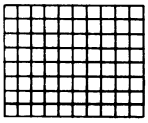
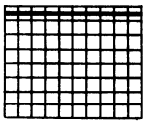
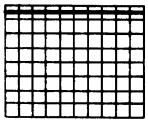
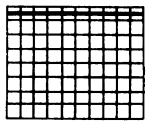
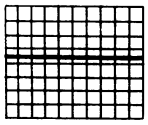
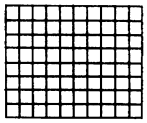
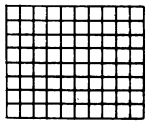
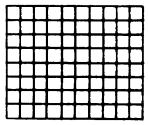
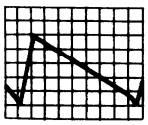
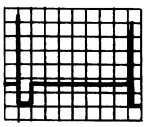
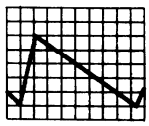
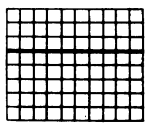
No.	PARTS	DESCRIPTION
R305	Cement Filled Fixed Resistor	1.8K ohms 7W
R306	Cement Filled Fixed Resistor	2.2K ohms 7W
R307	Carbon Film Resistor	680 ohms 1/4W
R308	Carbon Film Resistor	10K ohms 1/4W
R309	Carbon Film Resistor	100 ohms 1/4W
R310	Carbon Film Resistor	1M ohms 1/2W
R311	Carbon Film Resistor	1M ohms 1/2W
R312	Carbon Film Resistor	1M ohms 1/2W
R313	Carbon Film Resistor	470K ohms 1/2W
R314	Carbon Film Resistor	100K ohms 1/2W
R315	Carbon Film Resistor	1M ohms 1/2W
R316	Carbon Film Resistor	270K ohms 1/2W
R317	Not used	
⚠ R318	Fusing Resistor	8.2 ohms 2W (Type A, E)
		6.8 ohms 2W (Type B, C)
R319	Carbon Film Resistor	22 ohms 1/4W
R320	Carbon Film Resistor	1K ohms 1/2W
R321	Carbon Film Resistor	1.8K ohms 1/4W
R322	Carbon Film Resistor	4.7K ohms 1/4W
SG301	Spark Gap	GD626-300V
SG302	Spark Gap	GD626-200V
SG303	Spark Gap	GD626-1KV
SG304	Spark Gap	GD626-1KV
VR301	Variable Resistor	100 ohms lin. taper
VR302	Variable Resistor	1M ohms lin. taper
E301	P.W.B.	PMP-206-23

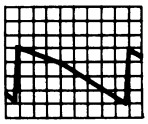
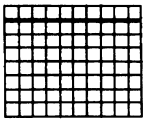
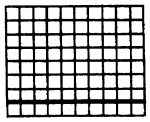
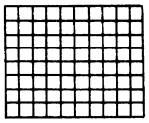
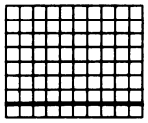
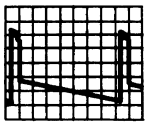
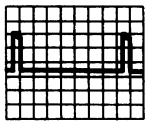
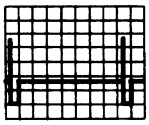
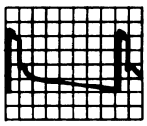
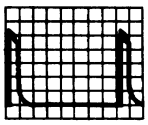
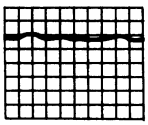
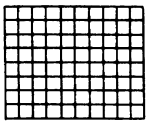
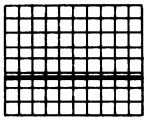
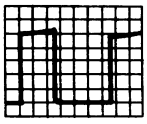
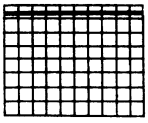
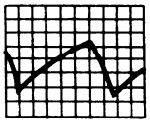
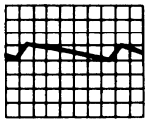
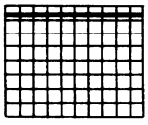
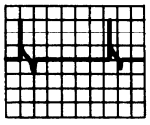
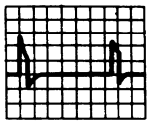
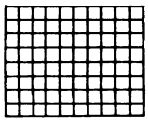
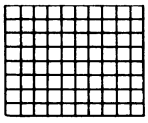
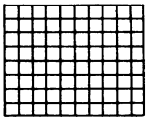
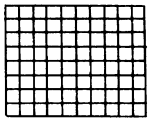
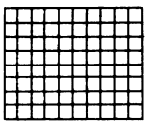
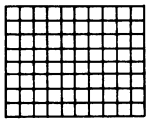
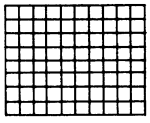
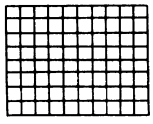
Q1-Ⓑ  0.2V, 2ms/div	Q1-Ⓒ GND  0.2V, 2ms/div	Q1-Ⓔ  0.2V, 2ms/div	
Q2-Ⓑ  0.2V, 2ms/div	Q2-Ⓒ  0.1V, 2ms/div	Q2-Ⓔ  0.2V, 2ms/div	
Q3-Ⓑ  2V, 5μs/div	Q3-Ⓒ  0.2V, 5μs/div	Q3-Ⓔ 8.0VDC  2V, 5μs/div	
Q4-Ⓑ  0.5V, 2ms/div	Q4-Ⓒ 16.7VDC  2V, 2ms/div	Q4-Ⓔ  0.5V, 2ms/div	
Q5-Ⓑ  0.5V, 2ms/div	Q5-Ⓒ 16.7VDC  2V, 2ms/div	Q5-Ⓔ  0.5V, 2ms/div	
Q6-Ⓑ  0.5V, 2ms/div	Q6-Ⓒ  1V, 2ms/div	Q6-Ⓔ  0.5V, 2ms/div	
Q7-Ⓑ 5.2VDC  1V, 2ms/div	Q7-Ⓒ  2V, 2ms/div	Q7-Ⓔ  0.1V, 2ms/div	

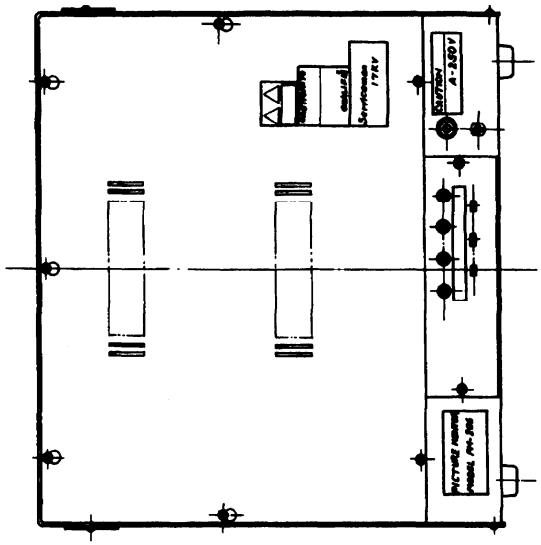
Q8-Ⓑ  2V, 2ms/div	Q8-Ⓒ 16.7VDC  2V, 2ms/div	Q8-Ⓔ  2V, 2ms/div	
Q9-Ⓑ  2V, 5μs/div	Q9-Ⓒ  0.5V, 5μs/div	Q9-Ⓔ 5.7VDC  1V, 5μs/div	
Q10-Ⓑ  0.5V, 2ms/div	Q10-Ⓒ 16.6VDC  2V, 2ms/div	Q10-Ⓔ  0.5V, 2ms/div	
Q11-Ⓑ  0.5V, 5μs/div	Q11-Ⓒ  2V, 5μs/div	Q11-Ⓔ 16.5VDC  2V, 5μs/div	
Q12-Ⓑ  2V, 2ms/div	Q12-Ⓒ  5V, 2ms/div	Q12-Ⓔ  2V, 2ms/div	
Q13-Ⓑ  2V, 2ms/div	Q13-Ⓒ GND  2V, 2ms/div	Q13-Ⓔ  2V, 2ms/div	
Q14-Ⓑ  0.5V, 5μs/div	Q14-Ⓒ  20V, 5μs/div	Q14-Ⓔ 0.24VDC  0.1V, 5μs/div	

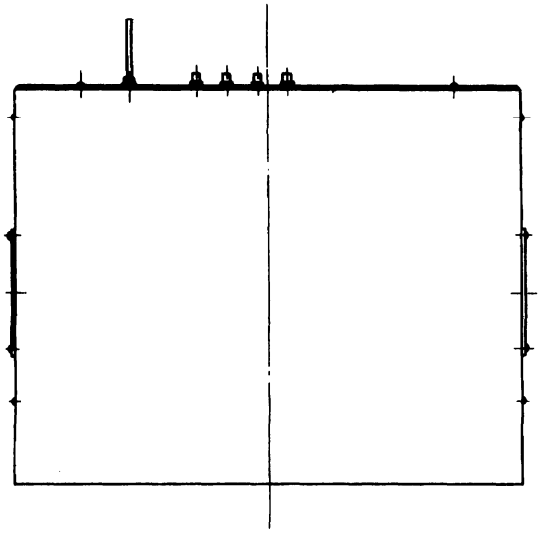
Q15-Ⓑ  0.2V, 2ms/div	Q15-Ⓒ  200V, 2ms/div	Q15-Ⓔ  0.1V, 2ms/div	
Q16-Ⓑ  0.5V, 5μs/div	Q16-Ⓒ  5V, 5μs/div	Q16-Ⓔ GND  1V, 5μs/div	
Q17-Ⓑ  0.5V, 2ms/div	Q17-Ⓒ  5V, 2ms/div	Q17-Ⓔ GND  1V, 2ms/div	
Q18-Ⓑ GND 0.6VDC  0.2V, 5μs/div	Q18-Ⓒ  200V, 5μs/div	Q18-Ⓔ GND  1V, 5μs/div	
Q19-Ⓑ  0.2V, 2ms/div	Q19-Ⓒ  0.5V, 2ms/div	Q19-Ⓔ  0.2V, 2ms/div	
Q20-Ⓑ  0.5V, 2ms/div	Q20-Ⓒ  1V, 2ms/div	Q20-Ⓔ  0.5V, 2ms/div	
Q21-Ⓑ  5V, 2ms/div	Q21-Ⓒ 16VDC  5V, 2ms/div	Q21-Ⓔ  5V, 2ms/div	

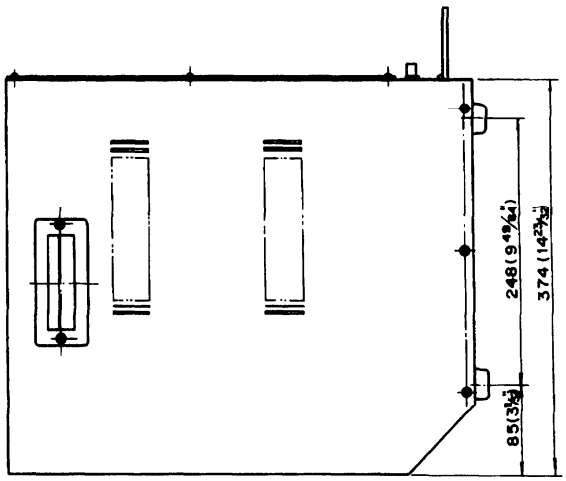
Q22-Ⓑ  5V, 2ms/div	Q22-Ⓒ 5VDC  1V, 2ms/div	Q22-Ⓔ  1V, 2ms/div	
Q201-Ⓑ 7.8VDC  2V, 2ms/div	Q201-Ⓒ 60VDC  10V, 2ms/div	Q201-Ⓔ 9.1VDC  2V, 2ms/div	
Q301-Ⓑ  2V, 2ms/div	Q301-Ⓒ  0.2V, 2ms/div	Q301-Ⓔ  2V, 2ms/div	
Q302-Ⓑ 12VDC  2V, 2ms/div	Q302-Ⓒ  20V, 2ms/div	Q302-Ⓔ  0.2V, 2ms/div	
Q401-Ⓑ  5V, 5μs/div	Q401-Ⓒ  200V, 5μs/div	Q401-Ⓔ GND  1V, 5μs/div	
Q402-Ⓑ 86VDC  20V, 5ms/div	Q402-Ⓒ  20V, 5ms/div	Q402-Ⓔ 7VDC  2V, 5ms/div	
			

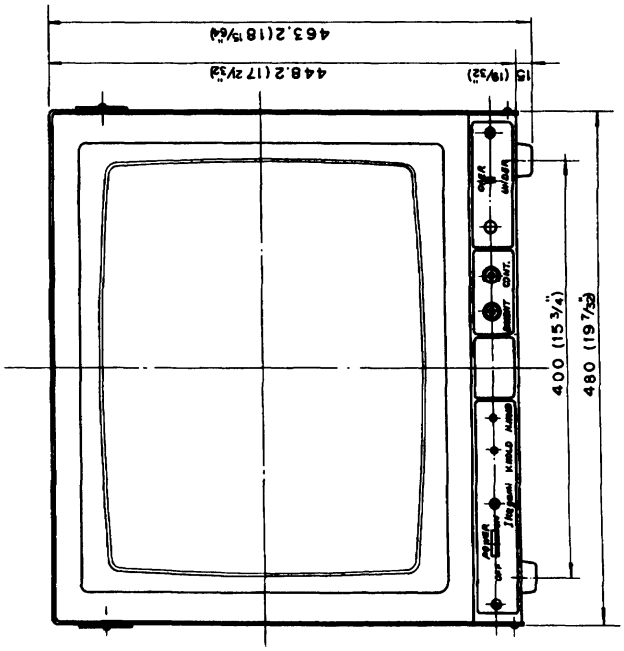
IC1-① 6.0∿6.2VDC  1V, 2ms/div	IC1-②  0.1V, 2ms/div	IC1-③  0.1V, 2ms/div	IC1-④ 6.1VDC  1V, 2ms/div
IC1-⑤ GND  1V, 2ms/div	IC1-⑥  0.5V, 2ms/div	IC1-⑦  0.5V, 2ms/div	IC1-⑧ 6.1VDC  1V, 2ms/div
IC1-⑨ 4.2VDC  1V, 2ms/div	IC1-⑩ 3.9VDC  1V, 2ms/div	IC1-⑪ 6.0∿6.2VDC  1V, 2ms/div	IC1-⑫ GND  1V, 2ms/div
IC1-⑬  0.5V, 2ms/div	IC1-⑭  0.5V, 2ms/div		
IC2-④ GND  1V, 2ms/div	IC2-⑤ 6.2V∿8.5VDC  1V, 2ms/div	IC2-⑥ 6.2∿8.5VDC  1V, 2ms/div	IC2-⑦ 6.2∿8.5VDC  1V, 2ms/div
IC2-⑧ 16.5VDC  5V, 2ms/div			
IC3-①  0.2V, 2ms/div	IC3-②  0.5V, 2ms/div	IC3-③  0.2V, 2ms/div	IC3-④ 4VDC  1V, 2ms/div

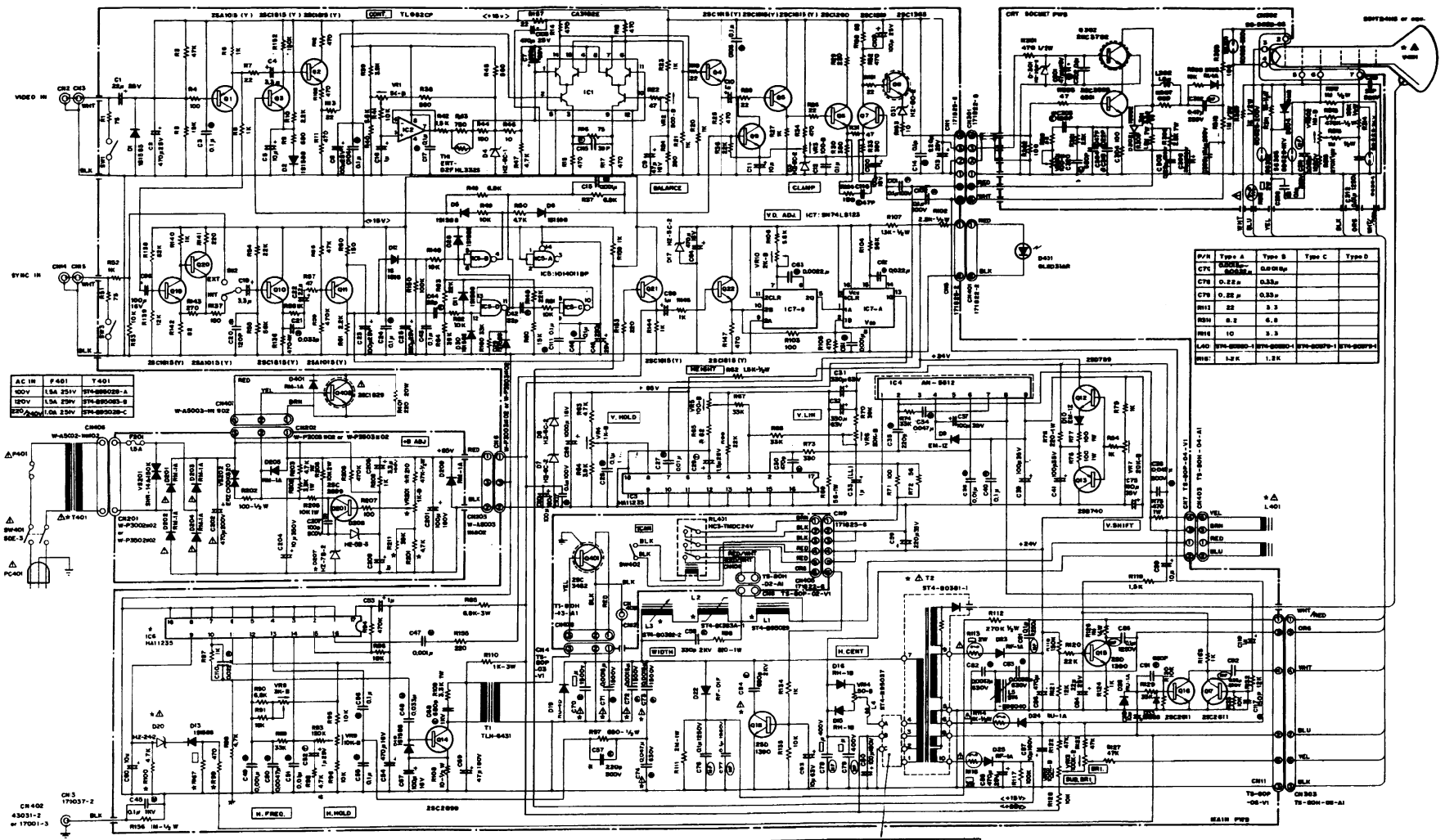
IC3-⑤  0.5V, 2ms/div	IC3-⑥ 12VDC  2V, 2ms/div	IC3-⑱ GND  1V, 2ms/div	
IC4-① GND  1V, 2ms/div	IC4-②  10V, 2ms/div	IC4-④  10V, 2ms/div	IC4-⑥  0.5V, 2ms/div
IC4-⑦  0.5V, 2ms/div	IC4-⑧  5V, 2ms/div	IC4-⑨  5V, 2ms/div	
IC6-⑨ 0.18VDC  0.1V, 5μs/div	IC6-⑩  1V, 5μs/div	IC6-⑪ 12.6VDC  2V, 5μs/div	IC6-⑫  2V, 5μs/div
IC6-⑬  1V, 5μs/div	IC6-⑭ 6.6VDC  2V, 5μs/div	IC6-⑮  0.2V, 5μs/div	IC6-⑯  5V, 5μs/div
			
			






248(9 49/64")
374(14 23/32")
85(3 3/4")


463.2(18 15/64"
448.2(17 27/32"
400(15 3/4")
480(19 7/32")



AC IN	F401	T401
100V	1.5A 250V	ST4-880028-A
120V	1.5A 250V	ST4-880083-B
220-240V	1.0A 250V	ST4-880028-C

P/N	Type A	Type B	Type C	Type D
C70	0.0018μ	0.0018μ		
C78	0.22μ	0.33μ		
C79	0.22μ	0.33μ		
R111	22	3.3		
R214	8.2	6.8		
R216	10	3.3		
L40	ST4-880880-1	ST4-880879-1	ST4-880879-1	ST4-880879-1
R115	1.2K	1.2K		

	Type A	Type B	Type C	Type D
f_H	30.99 KHz	29.979 KHz	33.716 KHz	29.129 KHz
f_V	60HZ	50HZ	60HZ	50HZ

NOTE

1. RESISTORS ARE IN OHMS 1/4 W UNLESS OTHERWISE SPECIFIED.
   ⓕ : FUSING RESISTOR
2. CAPACITORS ARE IN FARADS 50 WV UNLESS OTHERWISE SPECIFIED.
   Ⓒ ; TANTALUM CAP. Ⓟ : POLYPROPYLEN FILM CAP.
   Ⓔ ; ELECTROLYTIC CAP Ⓢ : POLYESTER FILM CAP.
   Ⓒ ; CERAMIC CAP Ⓜ : METALLIZED POLYESTER FILM CAP.
3. ⊕ MARKED VALUES ARE SUBJECT TO CHANGE WITHOUT NOTICE.
4. ★ MARKED PARTS ARE CRITICAL COMPONENTS OF X-RAY RADIATION.
5. △ MARKED PARTS ARE SPECIAL PARTS FOR SAFETY REQUIREMENT.
   IN CASE OF REPLACING THESE PARTS, USE THE PARTS SPECIFIED BY HITACHI.
6. THE CAPACITY OF C70 IS CHANGING BETWEEN 0.0018μF AND 0.0022μF,
   BECAUSE IT IS THE CAPACITOR FOR ADJUSTMENT OF HIGH VOLTAGE.

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