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| PREPARED BY: _____ | DATE: _____ | SHARP APPLIANCE SYSTEMS GROUP SHARP CORPORATION SPECIFICATION | FILE NO. YH-7888-03 |
| APPROVED BY: _____ | DATE: _____ | | ISSUE Aug. 5, 1996 |
| | | | PAGE 11 Pages |
| | | | APPLICABLE DIVISION YAO PLANT APPLIANCE SYSTEMS GROUP |

Model No.

SPECIFICATION FOR COLOR CCD CAMERA

- YH-7B58 ; NTSC
- YH-7B68 ; NTSC (with microphone)
- YH-8B58 ; PAL
- YH-8B68 ; PAL (with microphone)

CUSTOMER'S APPROVAL

DATE _____

PRESENTED

BY _____

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General Manager

House Electronics Business Promotion Dept.

Appliance Systems Group

SHARP CORPORATION

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 - Aerospace equipment
 - Communications equipment for trunk lines
 - Control equipment for the nuclear power industry
 - Medical equipment related to life support, etc.
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RECORDS OF REVISION

| SPEC No. | DATE | REVISED No. | PAGE | SUMMARY | NOTE |
|------------|-------------|----------------|------|--|-----------|
| | | | | | |
| YH-7787-01 | | 01 | | | 1st issue |
| YH-7787-02 | Feb.28.1996 | 02 | 1 | 1. Adding of YH-7B67/YH-8B67 2.4) same as above 2.8) Adding of audio spec. | |
| | | | 2 | Deletion of maximum illumination DC power supply ≤ 500mA to ≤ 2W weight TBD to approx. 190g Horizontal resolution 300TV lines to 310 TV lines | |
| | | | 7 | Changing of drawings | |
| | | | 8 | Packaging spec. change | |
| YH-7787-03 | May.10.1996 | 03 | 1 | Iris control Adding of electric shutter time 1/100 sec. (YH-7B57/YH-7B67) 1/120 sec. (YH-8B57/YH-8B67) | |
| | | | 2 | Iris control Adding of electric shutter time Case size Deletion of (excluding tilt stand) 74(w)×28(H)×87(D) mm →74(W)×58(H)×93(D) mm | |
| | | | 8 | Changing of drawing | |
| | | | 9 | Changing of drawing | |
| | | | 10 | Master carton Weight 7.0kg→5.5kg Size 171(H)→181(H) | |
| YH-7787-04 | May.23.1996 | 04 | 1 | 2.8) audio spec. change | |

1. Application

This document describes the specifications of Color CCD Camera to be supplied to _____.

All figures described in this document are based on the conditions that the camera is used under *normal operating temperature, normal operating humidity.

*Normal operating temperature ; +20 ~ +25°C

*Normal operating humidity ; 65 ± 5%RH

The monitor to be used shall be standard monitor.

| Model No. | TV system | Output signal | Iris control | Built-in microphone |
|-----------|-----------|---------------|--------------------------|---------------------|
| YH-7B57 | NTSC | Composite | Electronic Exposure (EE) | — |
| YH-7B67 | | | 1/100 sec.(fixed) | ○ |
| YH-8B57 | PAL | | Electronic Exposure (EE) | — |
| YH-8B67 | | | 1/120 sec.(fixed) | ○ |

2. General Description

This color CCD camera incorporates 1/4-inch CCD with following characteristics:

- 1) Focus ; manual adjustable
- 2) Structure ; Tilt base(up)45° ,(down)15°
- 3) Output signal; Composite
- 4) Connector (Audio,Video)

| Model No. | |
|-----------|---------------------------------|
| YH-7B57 | RCA pin jack (video) |
| YH-7B67 | RCA pin jack x 2 (video, audio) |
| YH-8B57 | RCA pin jack (video) |
| YH-8B67 | RCA pin jack x 2 (video, audio) |

DC power supply; power jack (EIAJ type A-2)
refer to see attached drawing (page YH-7787-04-7)

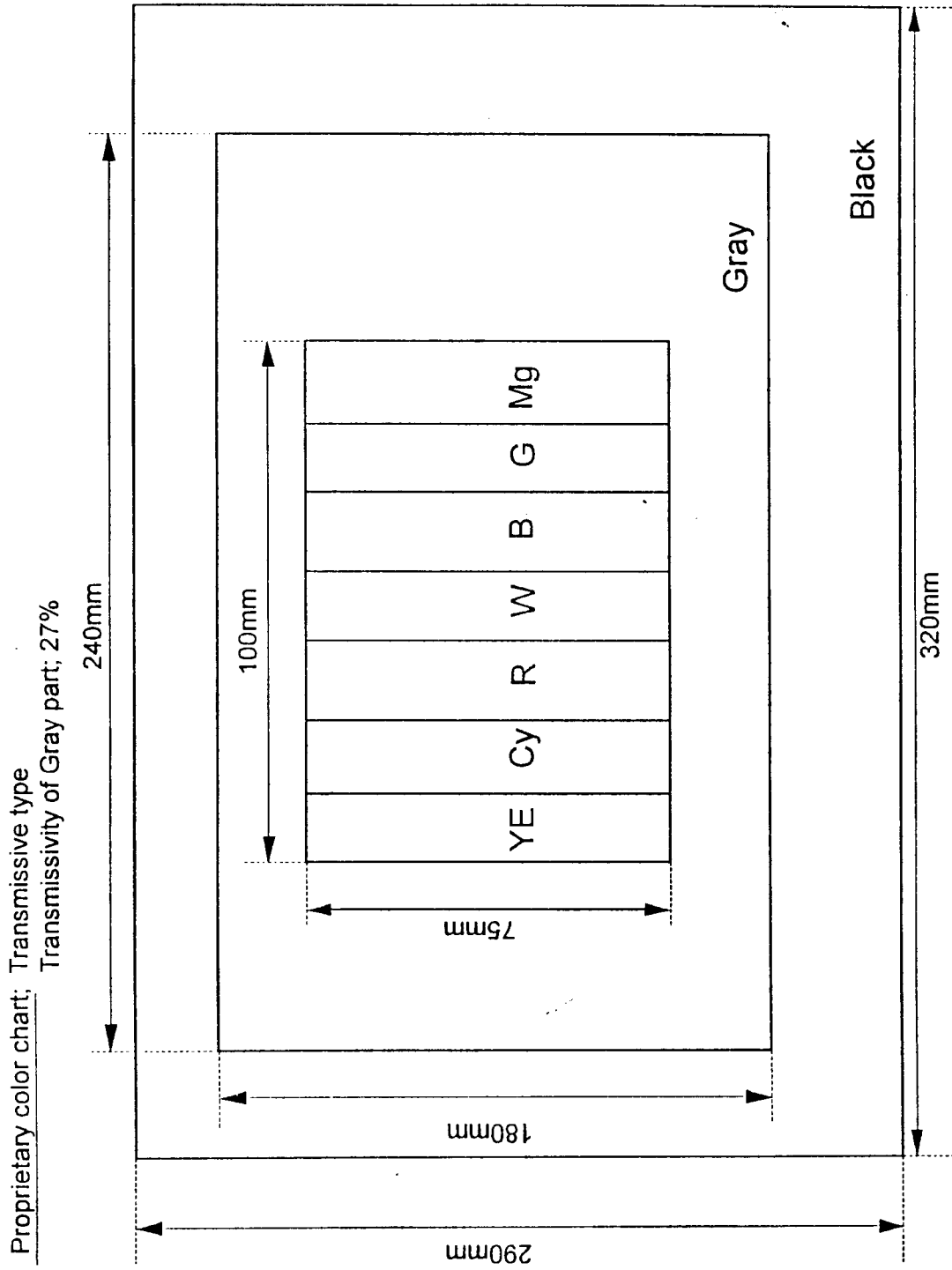
- 5) Iris control; EE type
- 6) White balance; Auto (TTL auto tracing white balance)
- 7) Contrast control; Adjustable contrast (up/down), Backlight compensation
 - When power on, contrast level comes to factory preset level.
(NTSC;714mV,PAL;700mV)
 - Push "UP" button for level up.
 - Push "DOWN" button for level down.
- 8) Built-in microphone
 - Microphone type; No-directivity electret condenser microphone
 - Output voltage(built-in); 150mVrms ± 6dB (input;0.1 Pa at 1KHz)
 - Output impedance; 1K Ω ± 30%
 - S/N ratio (built-in); ≥ 36dB(input;0.2 Pa at 1KHz,weighting filter A)

4. Specification

| TV system | NTSC | PAL |
|--------------------------------------|--|--|
| Image sensor | 1/4" Inter-line transfer CCD | |
| Total pixels | 542(H)x492(V)(Total;270K) | 542(H)x582(V)(Total;320K) |
| Effective pixels | 512(H)x492(V)(Total;250K) | 512(H)x582(V)(Total;300K) |
| Resolution | Horizontal : 310 TV lines Vertical : 280 TV lines | Horizontal : 310 TV lines Vertical : 350 TV lines |
| Distance from chart to camera : 70cm | | |
| Focus | manual adjustable (50mm to infinity) | |
| S/N ratio | $\geq 46\text{dB}$ Condition: AGC off High pass filter 10KHz Fsc trap Weighting filter on Low pass filter(NTSC;4.2MHz,PAL;5.0KHz) Light shield | |
| Minimum illumination | $\leq 20\text{ lx}$ Condition: ITE gray scale chart(Gamma=1.0) Y signal amplitude 350mV | |
| White balance | TTL auto tracing white balance, Range;2,800 to 6,800° K | |
| Iris control | EE, 1/100 sec. (fixed) | EE, 1/120 sec. (fixed) |
| Gamma correction | approx.0.6 | |
| Auto gain control | auto only | |
| Sub-carrier frequency | 3.57945MHz \pm 200Hz | 4.43361875MHz \pm 200Hz |
| Sync. system | Internal only | |
| Output video signal | | |
| Composite type | 1.0Vp-p/75 Ω | 1.0Vp-p/75 Ω |
| • Y signal amplitude | 714mV \pm 100mV | 700mV \pm 100mV |
| *(Condition 1) | | |
| • Color signal*(Condition 2) | | |
| R amplitude | 88.25 IRE \pm 25% | 94.8 IRE \pm 25% |
| R phase | 103.4° \pm 15 | 103.4° \pm 15 |
| B amplitude | 62.2 IRE \pm 25% | 67.2 IRE \pm 25% |
| B phase | 347.1° \pm 15 | 347.1° \pm 15 |
| • Sync.amplitude | 286mV \pm 80mV | 300mV \pm 80mV |
| • Burst amplitude | 286mV \pm 90mV | 300mV \pm 90mV |
| Lens | | |
| focal length | approx.4.3mm(fixed) | |
| F number | approx.2.4 | |
| viewing angle | Horizontal:approx.46° | Vertical :approx.35° |
| TV distortion | approx.2% | |
| DC power supply | DC 4.5V - DC7.0V, $\leq 2\text{W}$ | |
| Operating temperature | -10 to +40° C | |
| Storage temperature | -20 to +60° C | |
| Case size | 74(W) x58(H) x93(D)mm (without connector) | |
| Weight | approx.190g | |

*Condition 1: ITE_gray scale chart(Gamma=1.0)

*Condition 2: Exclusive color chart (YH-7787-03-4)
Line select ; 141 lines (NTSC),166lines(PAL)
Y (white) amplitude ; 714mV (NTSC),700mV(PAL)
Color temp ; 5,100° K



5. Reliability Tests

Unless otherwise stated, the following reliability tests are conducted (sampling base) to confirm the reliability of the camera in the testing room kept in normal temp. and humidity.

1) Low temp. storage test

To prove that the camera shows no abnormal operation and function after it is stored at ambient temp. of -20°C for 24H and then left at room temp. for 2H min.

2) Low temp. operation test

To prove that the camera normally operates for continuously 5H at the ambient temp. of -10°C .

3) High temp. storage test

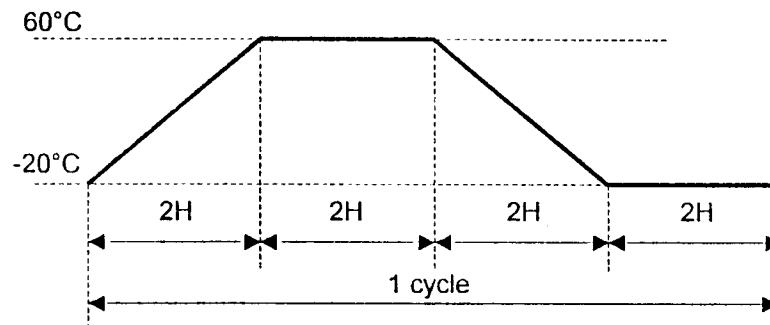
To prove that the camera shows no abnormal operation and function after it is stored at ambient temp. of 60°C for 24H and then left at room temp. for 2H min.

4) High temp. operation test

To prove that the camera normally operates for continuously 5H at the ambient temp. of 40°C .

5) Temp. cycle test

To prove that the camera shows no abnormal operation and function during 5 cycles as stipulated in the following pattern and, then 2H storage at room temp.



6) High humidity test

To prove that the camera shows no abnormal operation and function after the camera has been operated for 24H at ambient temp. of 30°C and relative humidity of 90%RH, and take out from test chamber with water drop removed.

7) Vibration test for unpackaged unit

To prove that the camera shows no abnormal operation and function after vibration test under the condition of $10\sim 55\sim 10\text{Hz}/\text{min}$. at acceleration speed 3.6G and up/down for 4H and left/right for 2H and back/forward for 2H.

8) Shock test

Three successive shocks shall be applied in both direction of 3 mutually perpendicular axes (a total of 18 shocks).

Peak acceleration : 50G , Duration of pulse : 10msec

6. Pixel Defect

Number of defective pixels

not more than 10

Condition:

Temperature 25 °C

Shield the light

AGC off

Standard monitor (NTSC/PAL)

*10 pixels in both horizontal edges and 9 pixels in both vertical edges shall be disregarded as a void area.

7. Operating manual; Not included

8. Precautions & Notes

1) Do not shoot at direct sunlight.

The display picture disappears in case of shooting at direct sunlight.

2) Care shall be used not to damage the camera during installation or removed of the extension cable.

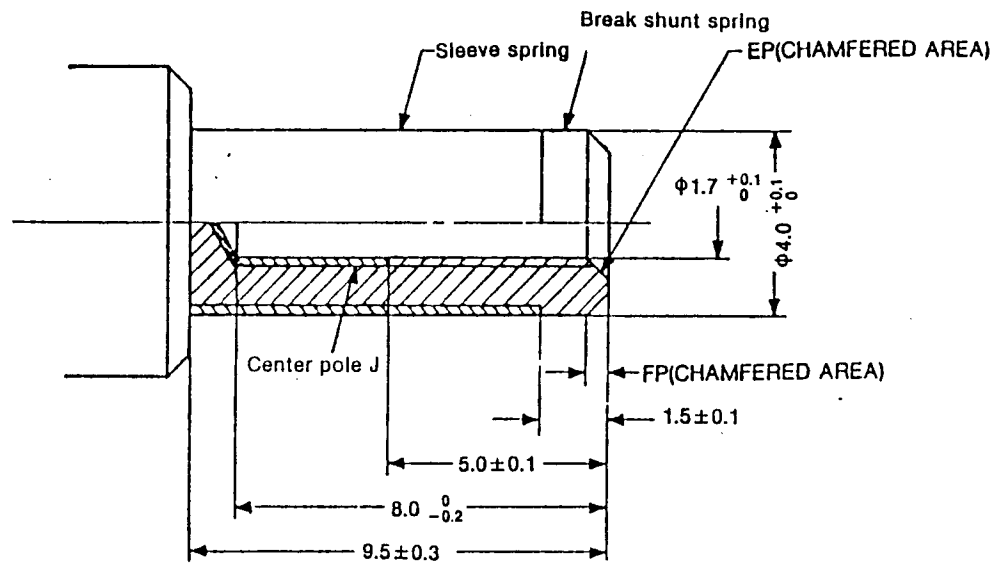
3) These products are made specifically for indoor use.
(Office and ordinary home-use environment.)

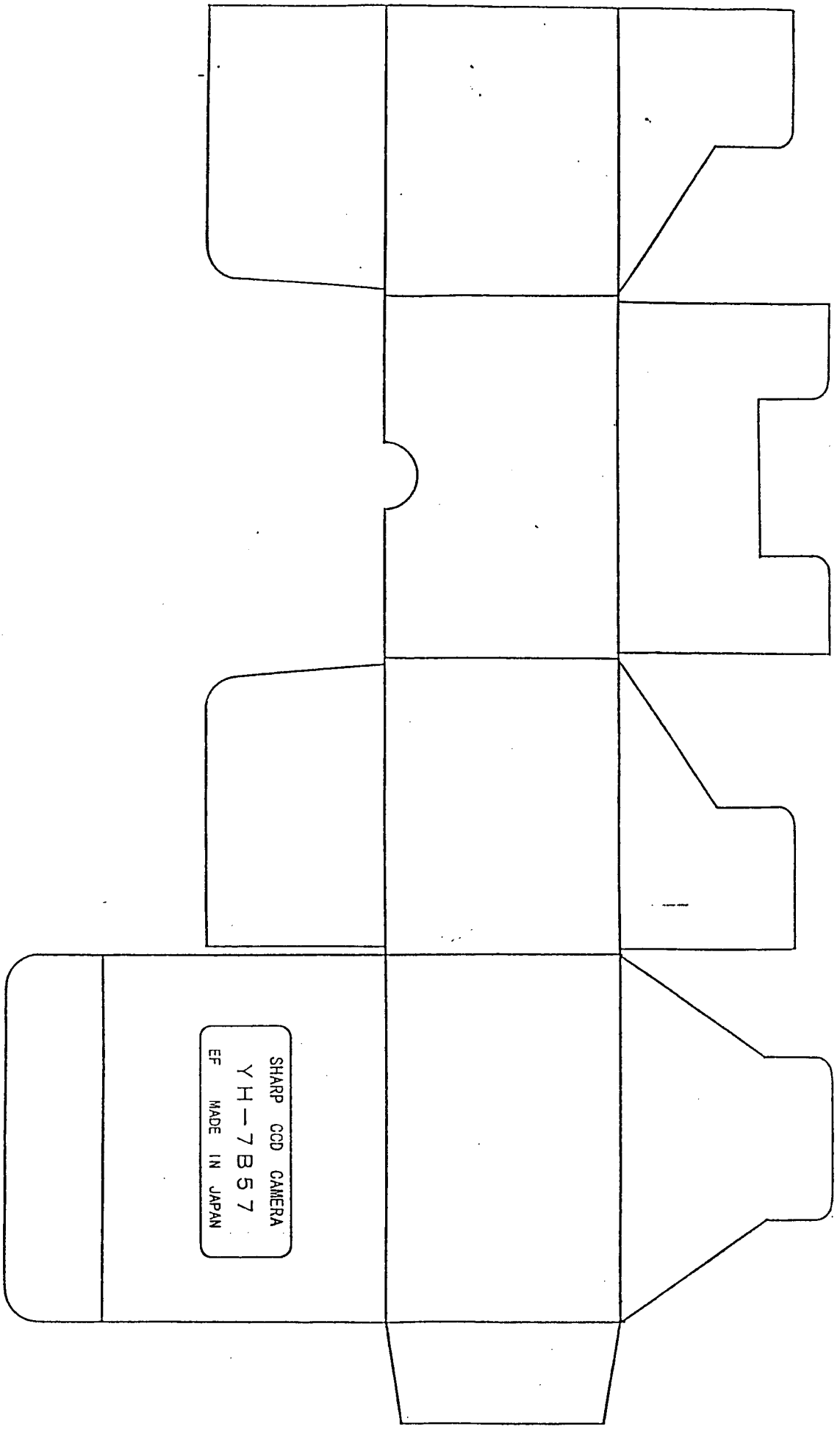
4) Since EMI and CE vary depending on various systems, these agency approvals need to be taken at customer side.

5) Any agency approval for safety is not applicable to this color CCD camera.

Please note that Sharp cannot guarantee the performance and quality under any use other than the conditions stated above, such as circumstances where vibrations are constant as in a moving vehicle, where shocks may occur as in a moving vehicle or where shocks exceed ordinary house-hold or office use.

DC POWER SUPPLY MATING PLUG





SHARP CCD CAMERA
YH-7B57
EF MADE IN JAPAN

HANDLE WITH CARE

SHARP®
COLOR CCD CAMERA



SHARP®
COLOR CCD CAMERA

20PIECES



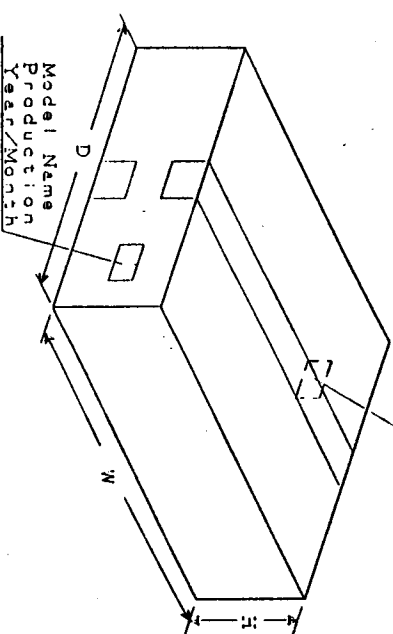
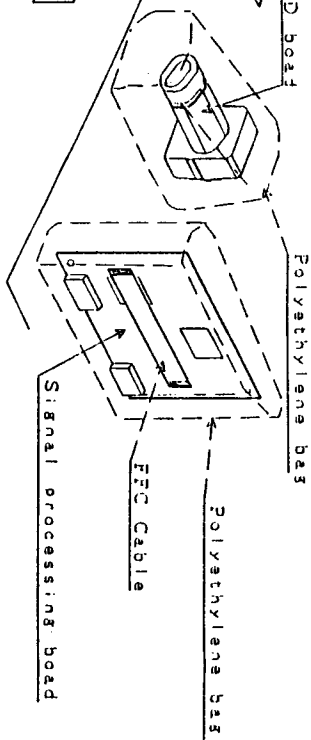
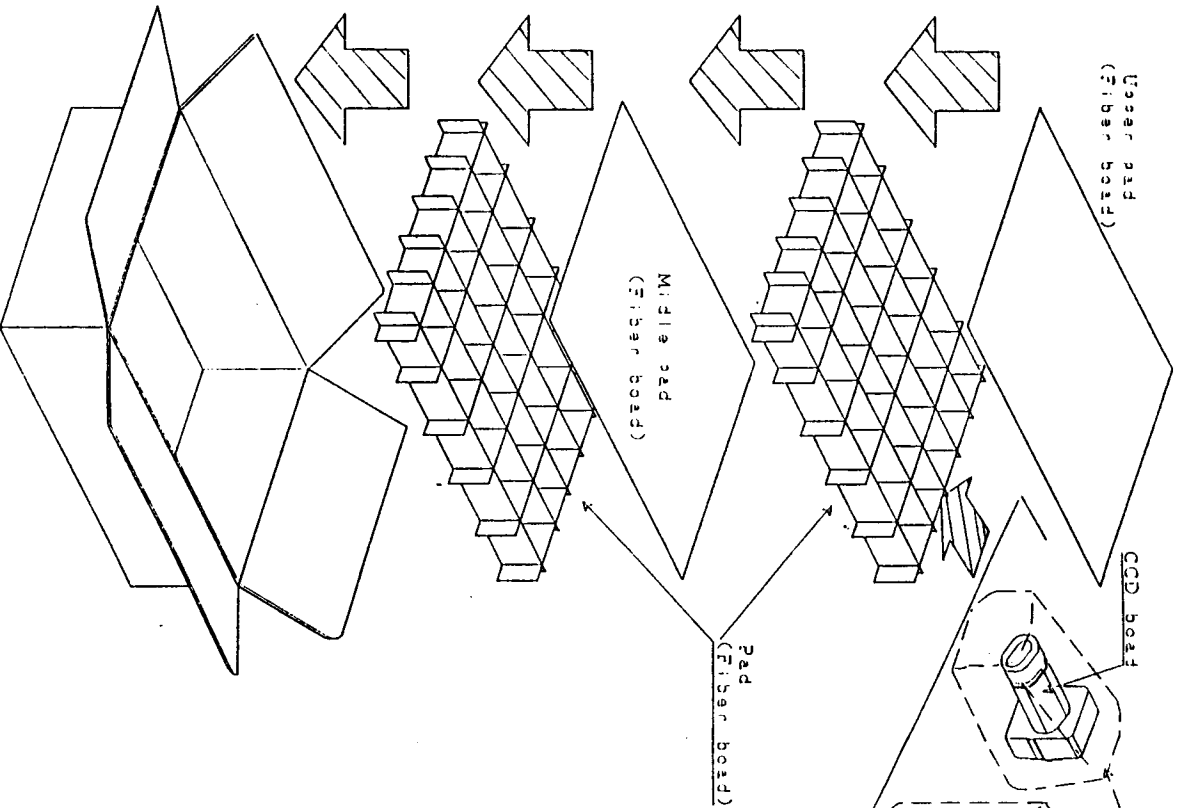
SHARP.
COLOR CCD CAMERA



20PIECES

SHARP CORPORATION
MADE IN JAPAN

PACKAGE SPECIFICATION (Color CCD camera module)



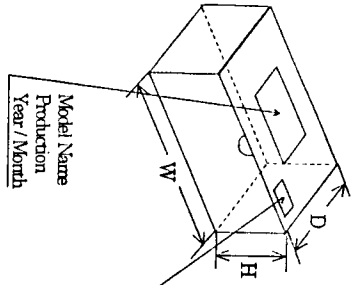
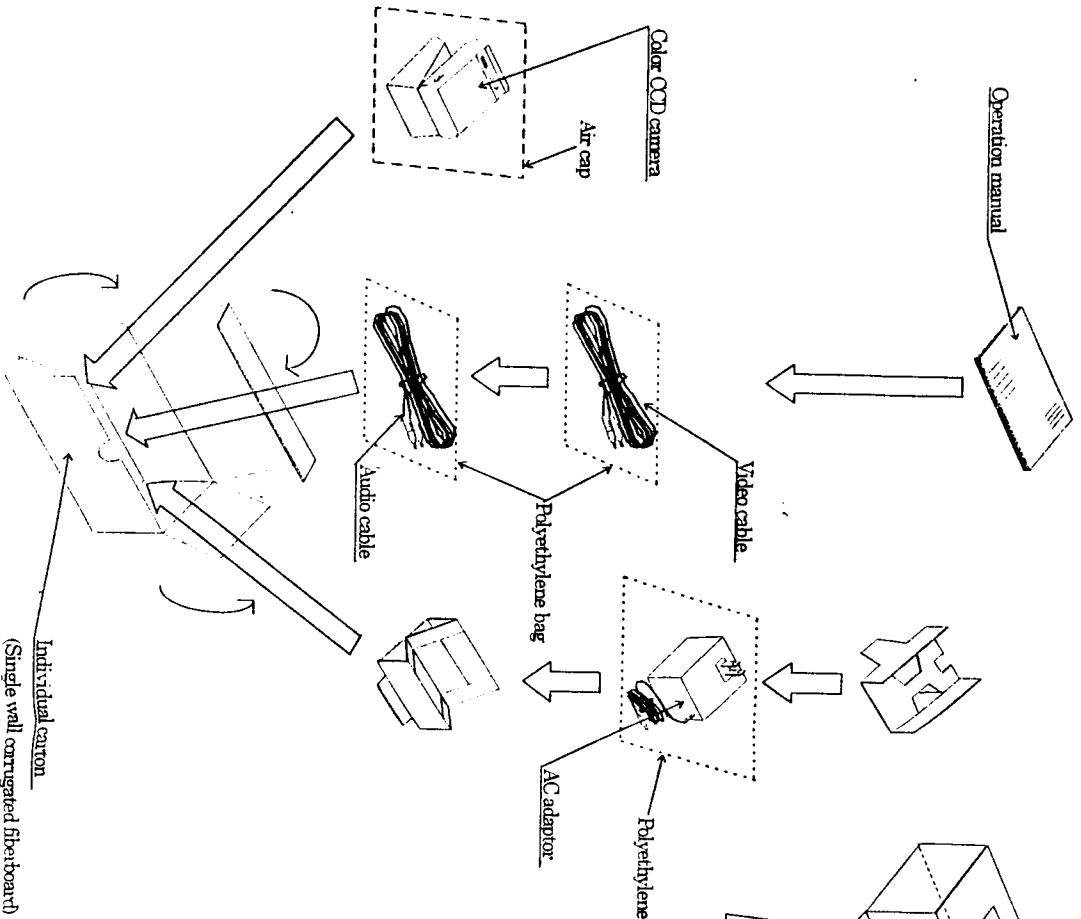
Master Carton
 A-1 type (Regular Slotted Container)
 I-Seal (Double wall corrugated fiberboard)
 Weight: approx. kg
 Size: 487(W) X 337(D) X 171(H) mm
 Quantity: 50 pieces/CTN

| PARTS CODE | PROCESS | PIECES | MATERIAL | FINISH | PACKAGE SPEC. |
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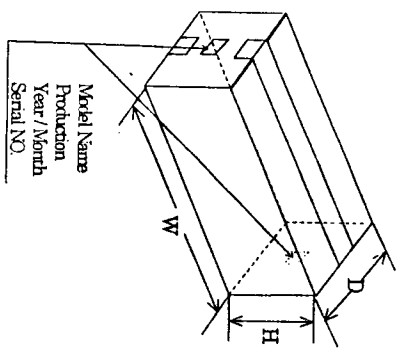
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DATE 28 FEB 1983 SECTION NO. 002 DRAWING NO. YH-7282/0512

PACKAGE SPECIFICATION (Color CCD Camera)



Individual carton
 • Weight : approx 650 g
 • Size : 185(W) × 120(D) × 85(H)mm



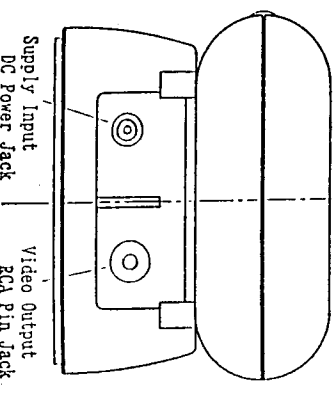
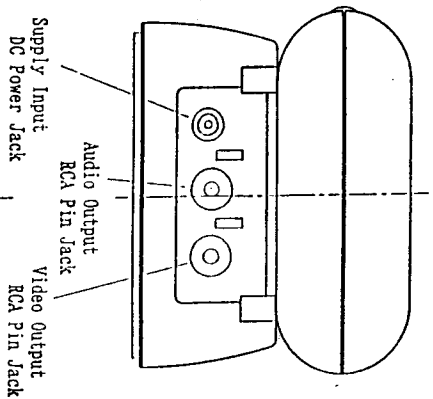
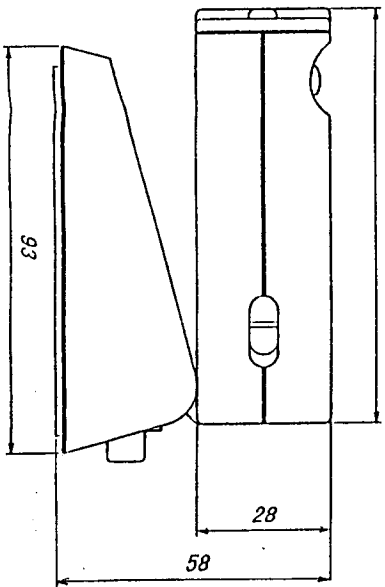
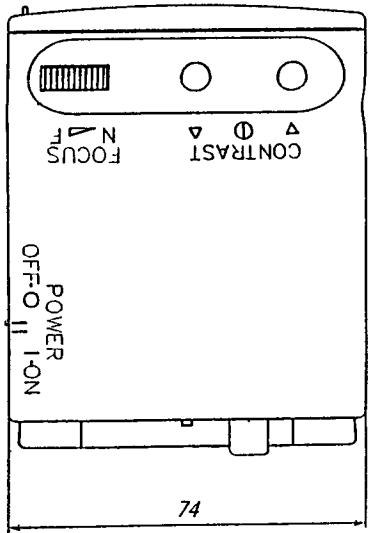
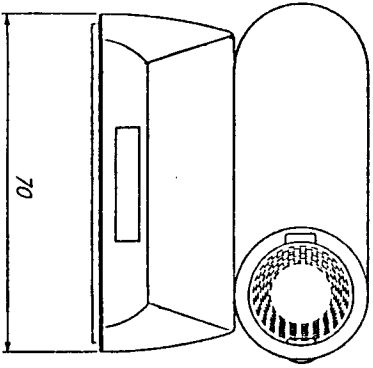
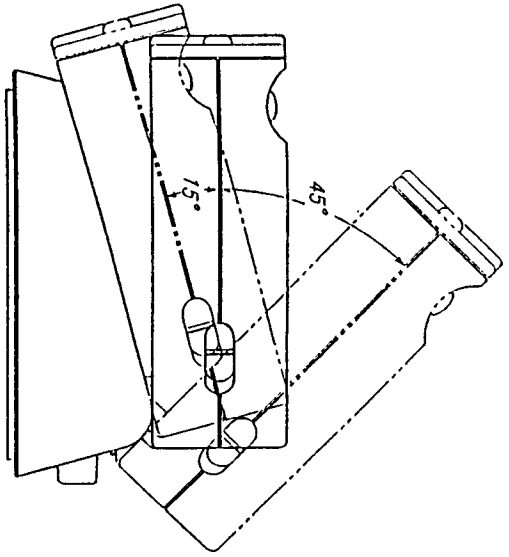
Master carton
 • A-1 type (Regular Slotted Container) (1 Seal)
 (Double wall corrugated fiberboard)
 • Weight : approx 8 Kg
 • Size : 640(W) × 210(D) × 130(H)mm
 • Quantity : 10 pieces/CTN

SHARP CORPORATION APPLIANCE SYSTEM GROUP

SHARP

19

完成面
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Camera, CCD, YH7B57, YH7B67, YH8B57, YH8B67