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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 H. Madono

H. Madono
 General Manager
 House Electronics Business Promotion Dept.
 Appliance Systems Group

SHARP CORPORATION

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 - 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)

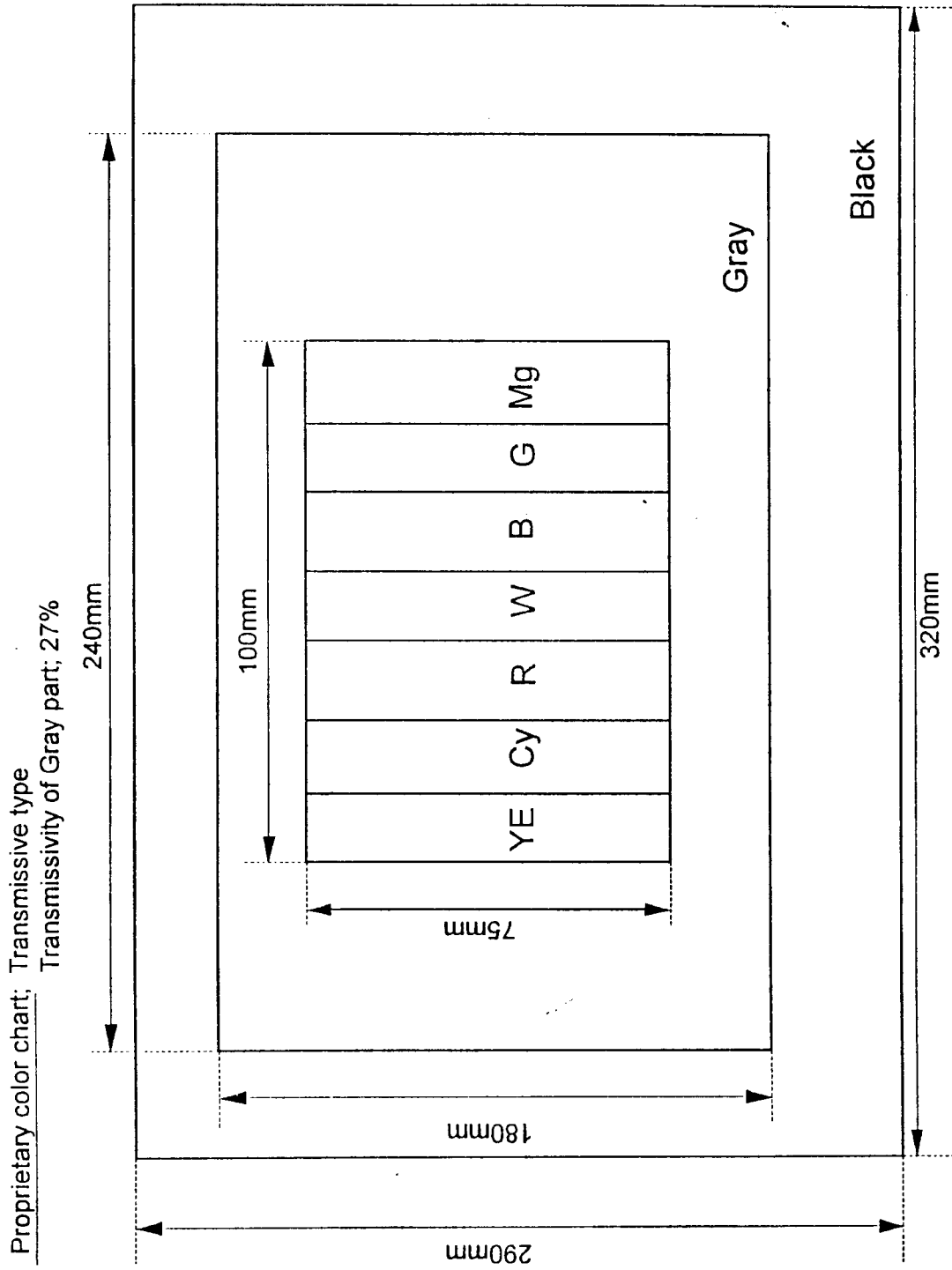
- 5) Iris control; EE type
- 6) White balance; Auto (TTL auto tracing white balance)
- 7) Contrast control; Adjustable contrast (up/down), Backlight compensation
 - When power on, contrast level comes to factory preset level.
(NTSC;714mV,PAL;700mV)
 - Push "UP" button for level up.
 - Push "DOWN" button 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 Distance from chart to camera : 70cm	Horizontal : 310 TV lines Vertical : 280 TV lines	Horizontal : 310 TV lines Vertical : 350 TV lines
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 *(Condition 1)	714mV \pm 100mV	700mV \pm 100mV
• 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

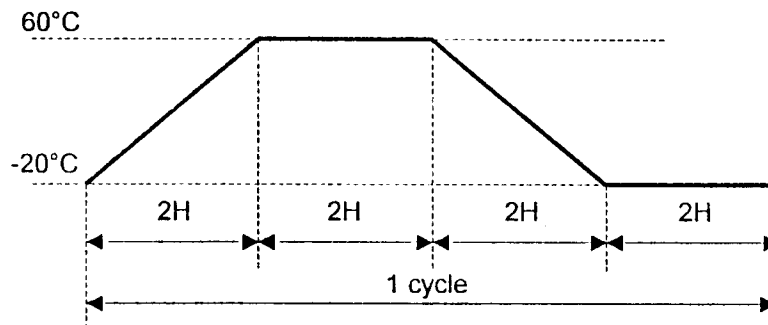
To prove that the camera shows no abnormal operation and function after it is stored at ambient temp. of 60°C for 24H and then left at room temp. for 2H min.

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.

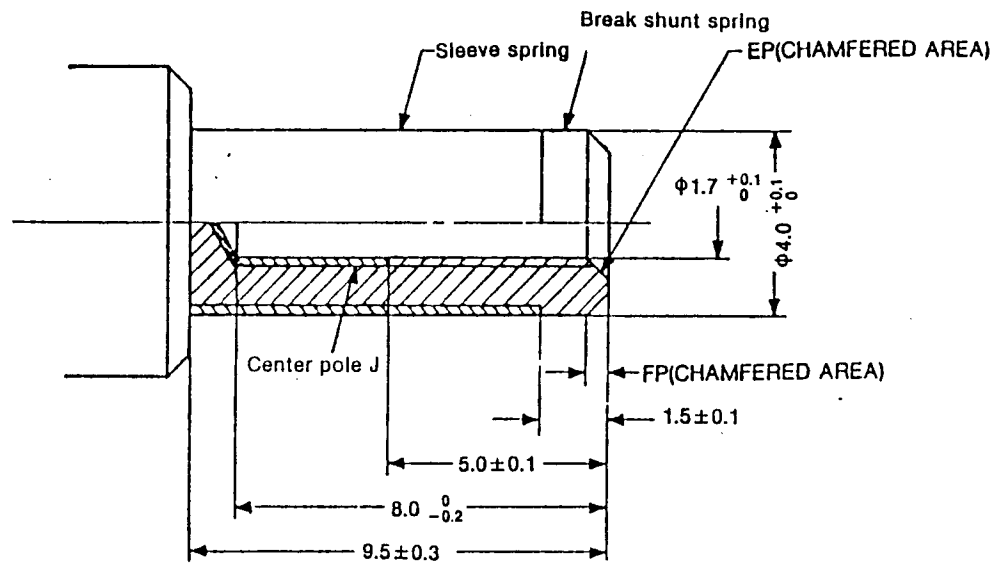
3) These products are made specifically for indoor use.
(Office and ordinary home-use environment.)

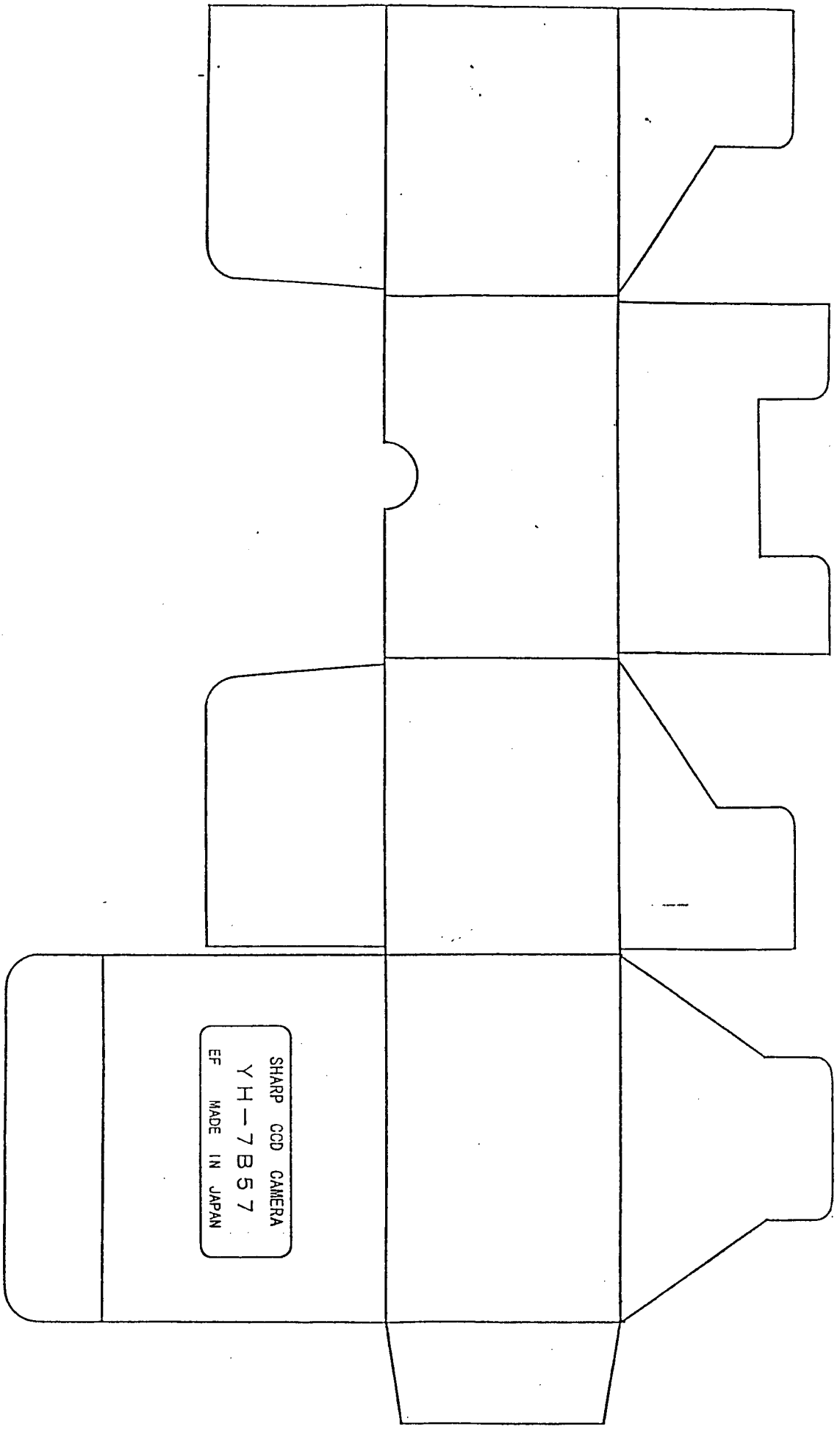
4) Since EMI and CE vary depending on various systems, these agency approvals need to be taken at customer side.

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



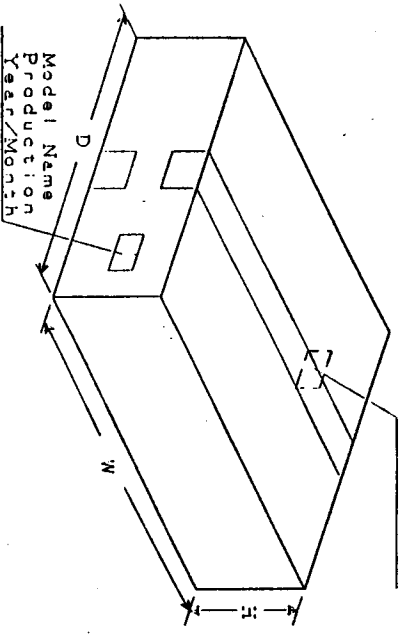
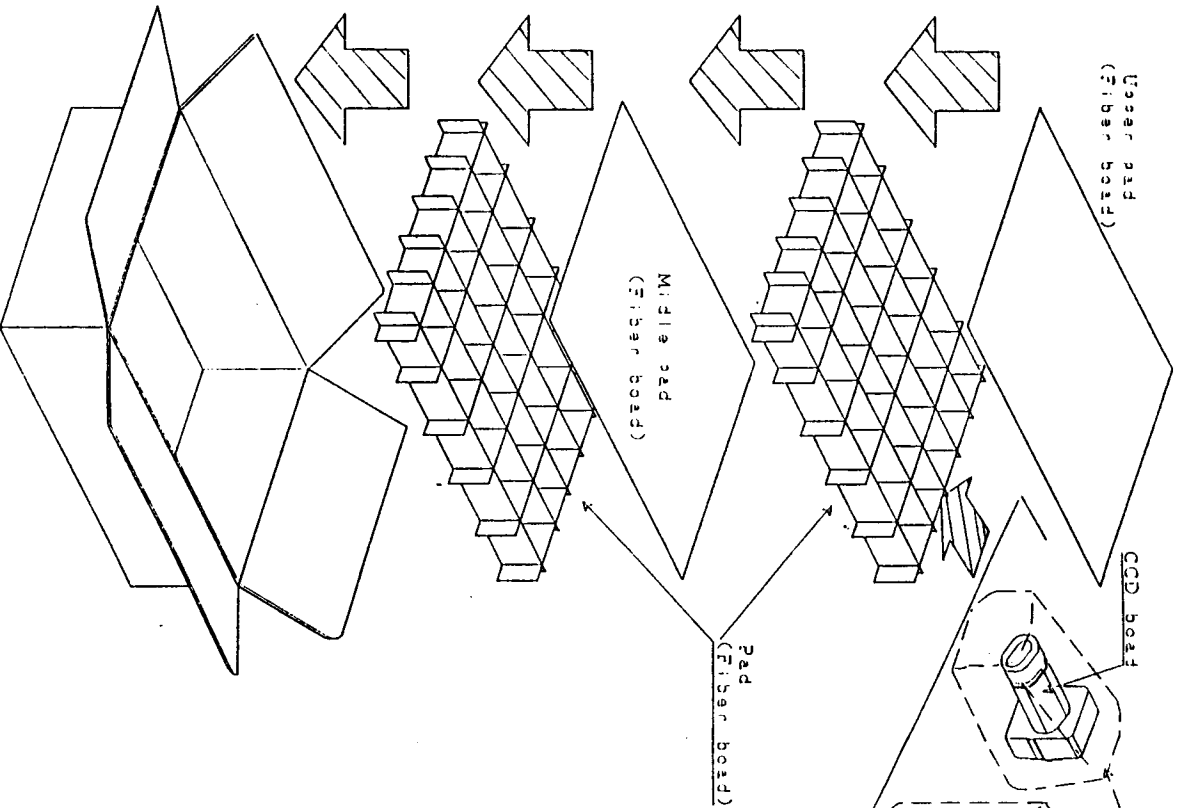
SHARP.
COLOR CCD CAMERA



20PIECES

SHARP CORPORATION
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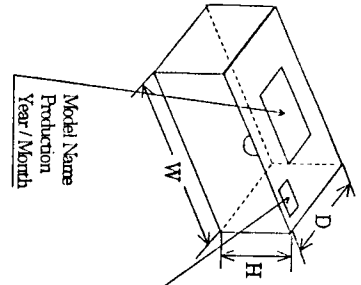
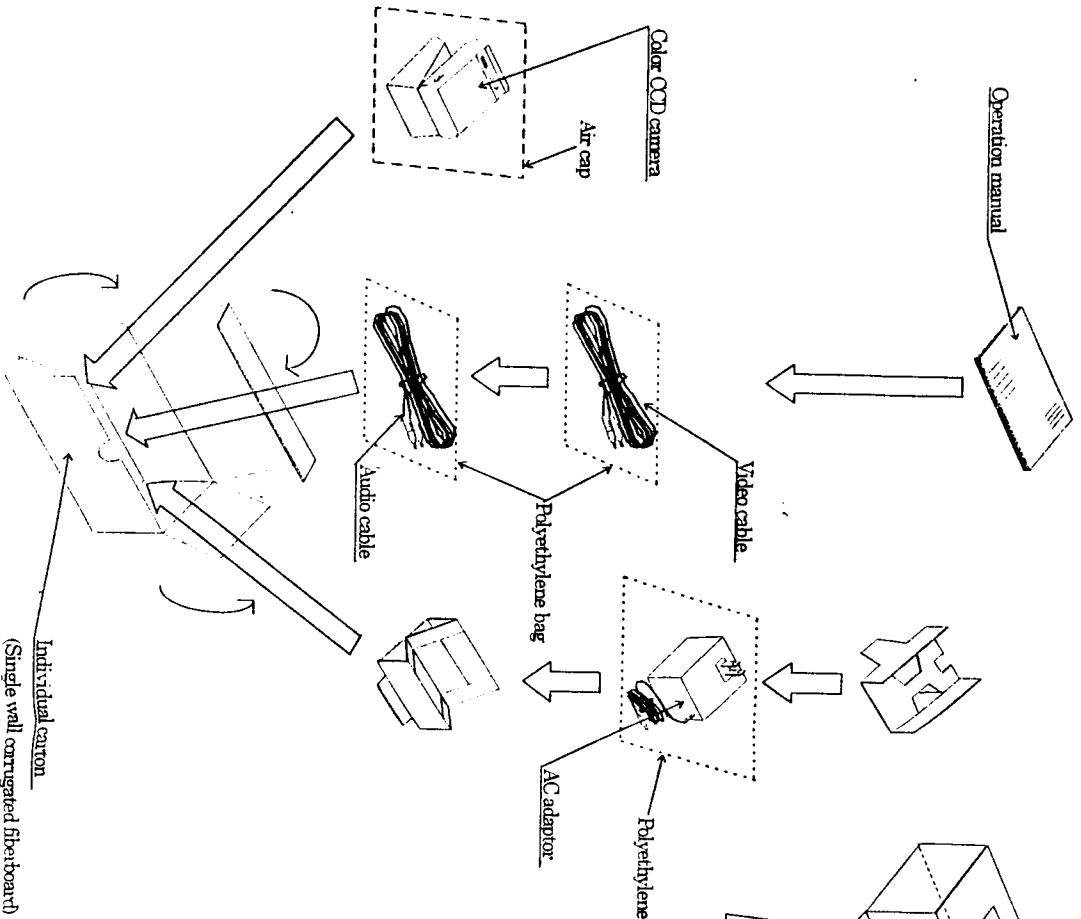
PACKAGE SPECIFICATION (Color CCD camera module)



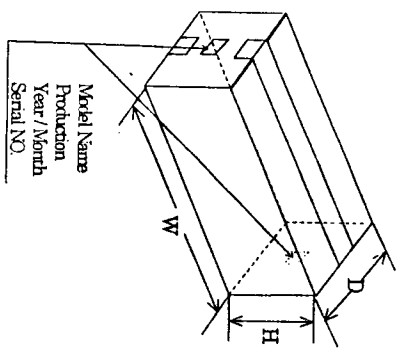
Master Carton
 A-1 type (Regular Slotted Container)
 I-Seal (Double wall corrugated fiberboard)
 Weight : approx. kg
 Size : 487(W) X 337(D) X 171(H) mm
 Quantity : 50 pieces/CTN

PARTS CODE	PROCESS	PIECES	MATERIAL	FINISH	PACKAGE SPEC.

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

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Camera, CCD, YH7B57, YH7B67, YH8B57, YH8B67