

JVC Service Bulletin

SUBJECT: INTRODUCING NEW LIGHT BOX

DATE: July, 2000

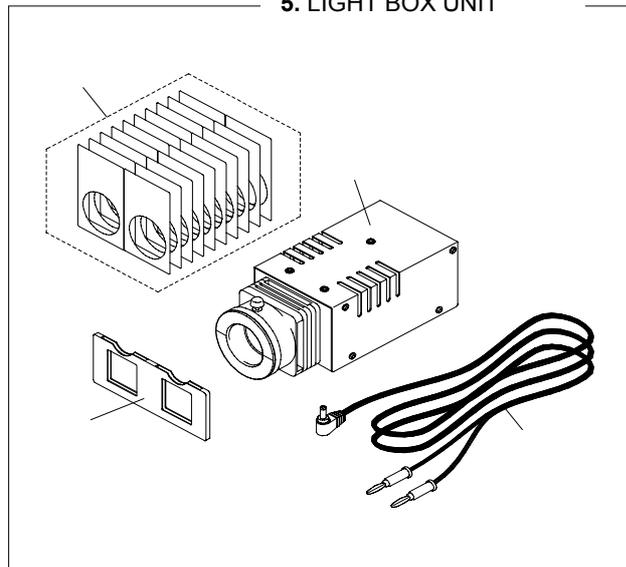
Model & Manual No. —	Performed at factory —	Priority () S. All Products. () A. Items in JVC/Dealer stock/Service return goods. () B. JVC stock/Units returned for service. () C. Sold items returned for service. (<input checked="" type="checkbox"/>) D. Only Units related to this bulletin. () E. Others.
Reference Information		

The new Light Box is drastically improved in workability besides various improvements in the specifications and performance such as the quantity of light, luminance, service life, space savability, and so on.

Regarding the ordinary light box and every kind of chart for it, only the articles in stock will be supplied because it is difficult to continue producing them in future.

For using the new light box with the previously supplied service support software (for the Windows OS), refer to the section "Use of the New Light Box with previously supplied service support software (for Windows OS)" appearing in this paper. The new service support software that will be supplied in or after 2001 won't be compatible with the ordinary light box.

5. LIGHT BOX UNIT



	Part No.	Part Name	Price [FOB/yen]
1	-	LIGHT BOX ASSEMBLY	-
	YTU94139	HALOGEN LAMP	1,500
2	YTU94135A	CHART HOLDER ASSEMBLY	700
3	YTU94136A	FILTER MOUNT ASSEMBLY	1,100
4	YTU94137A	DC CABLE ASSEMBLY	800
5	YTU93096A	LIGHT BOX UNIT	22,500

ATTACHMENT

- () NONE () EXPLODED VIEW () ADJUSTMENT PROCEDURE
() SCHEMATIC DIAGRAM () COMPONENT/PWB LAYOUT () SEE NEXT PAGE

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LIGHT BOX INSTRUCTIONS

Major Features

High-Intensity Luminance and Long Life Made Possible by 20 W/DC 12 V Halogen Lamp

Luminance: 1,900 cd/m² (Luminance conversion: \approx 5,900 lux) (Rate compared with conventional models: 2.4 times*)

Life: Over 1,000 hours (Rate compared with conventional models: Over 10 times)

*When compared using a white chart at the center point

A. Ultra-Compact Design

Specific volume compared with conventional models: Approx. 65%*

*Not including camera stand

Collimator (Infinity Adjustment Lens)

B. Attachment Mechanism

It is possible to attach a collimator directly to the Light Box. The collimator attachment has threads for screwing the collimator to it to easily compensate for the slant (shear of the optical axis) caused by the weight of the collimator itself.

C. Attachment Mechanism For Charts And

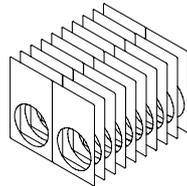
D. Thin-Film Filters

E. Normally, replacing charts with a conventional light box and collimator is difficult and troublesome. However, this new model Light Box is equipped with a slot for placing charts between the end of the collimator and the emission face of the Light Box, making it possible to replace charts quickly and easily. The Light Box is also equipped with a slot for thin-film neutral-density filters, one for color temperature conversion filters, and one for color temperature compensation filters. Now it is no longer necessary to detach the collimator from the Light Box each time a chart is replaced, making setting up the image pickup and performing adjustments easier than ever.

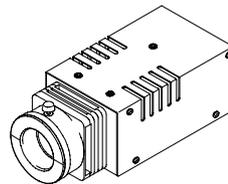
F. Integrated Cooling Fan

Prevents the temperature from rising inside the Light Box and extends the life of the lamp.

Package



Filter Mount: 1 set
(10 sheets)



Light Box: 1

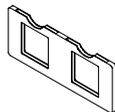
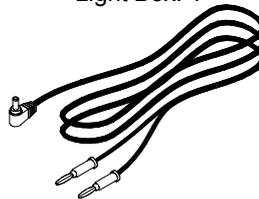


Chart Holder: 1



DC Cable: 1

Preparation

DC power supply: 1

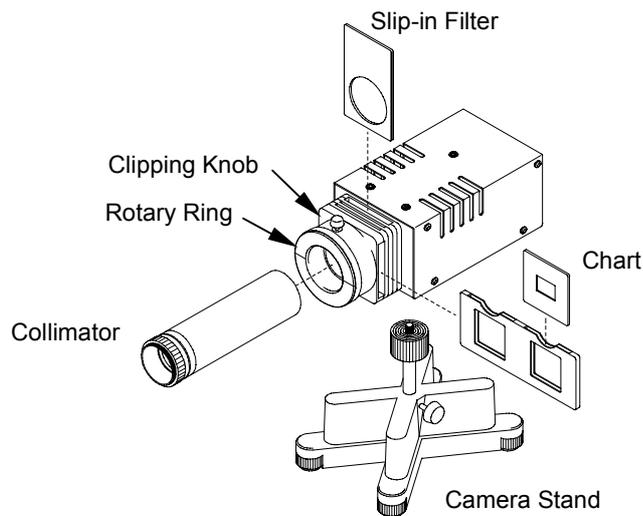
Compact transmission chart (gray-scale/color bar chart): 1

Camera stand: 2

Thin-film filters: Commercially available

Installation

1. Attach one camera stand to the bottom of the Light Box and attach the other one to the tripod mount at the bottom of the camcorder. Next, adjust the height of each camera stand (using coarse control) so that the central point of the emission face of the Light Box aligns with the central point of the camcorder's lens.
2. Detach the end of the collimator (Infinity Adjustment Lens). Be sure to loosen the Light Box's clipping knob* before attaching the collimator to the Light Box. Screw the end into the rotary ring on the front of the Light Box to attach.
3. Attach the other end (lens side) of the collimator to the filter mounting screw of the camcorder's lens. If it does not fit, use the step-up ring provided with the collimator.
4. Load the compact transmission chart (gray-scale/color chart) in the chart holder and insert the chart holder into the chart slot.
5. Connect the DC regulated power supply (DC 12 V \pm 0.2 V, approx. 1.7 A) to the Light Box using the provided DC cord (red (+), black (-)) and turn on the power switch at the rear of the Light Box.
6. While shooting the chart with the camcorder, adjust (using fine control) the chart holder position as well as the height of the Light Box and camcorder until the desired angle of view is achieved.



***Hint**

Tightening the clipping knob fixes the rotary ring firmly. When it is completely tightened, the collimator attached to the rotary ring is at right angles to the emission face of the Light Box or chart.

If the collimator cannot be attached to the camcorder, try tightening the clipping knob to compensate for shearing of the optical axis in the collimator.

On the other hand, if the collimator can be attached to the camcorder, try loosening the clipping knob slightly to make a little room around the clipping knob.

Thin-Film Filter Attachment

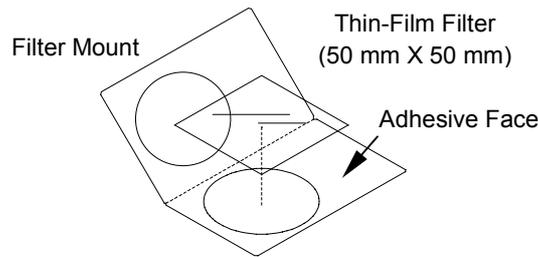
Camcorder adjustment requires a commercially-available neutral-density filter, a color temperature conversion filter and a color temperature compensation filter. For all kinds of thin film filters, use the provided filter mount.

To make a slip-in filter with the desired optical characteristics, follow the procedures below.

To use a slip-in filter, insert it into the Light Box filter slot. It is possible to insert 7 slip-in filters at a time into the filter slot.

How to Make a Slip-in Filter

1. Cut the desired thin-film filter to 50 mm x 50 mm.
2. Remove the seal at the rear of the filter mount, stick the thin-film filter in the filter mount (over the hole), then fold the mount in half.
3. It is recommended that you write the filter factor on the filter mount.



About ND Filters

Thin-film ND filters (Neutral Density Filters) sold by Fuji Film and Kodak indicate their density as a filter factor. i.e.) ND0.1, ND0.2, ND0.3

On the other hand, glass ND filters sold by Kenko indicate the exposure control level. i.e.) ND-2, ND-4, ND-8

The conversion formula for ND filters is as follows:

$$\log_{10}(\text{Exposure Control Level}) = \text{Density}$$

$$\text{Exposure Control Level} = 10^{(\text{Density})}$$

$$\text{Transmittance (\%)} = \frac{1}{\text{Exposure Control Level}} = \frac{1}{10^{(\text{Density})}}$$

e.g.) For Kenko ND-4

$$\text{Density} = \log_{10}(4) \approx 0.6$$

Equivalent to Fuji Film or Kodak ND0.6

e.g.) For Fuji Film and Kodak ND1.2

$$\text{Exposure Control Level} = 10^{(1.2)} \approx 16$$

Equivalent to Kenko ND-16

To set the luminance of the Light Box to 950 cd/m^2 (luminance conversion: $\approx 2,900 \text{ lux}$) using the above conversion formula,

$$\frac{950 \text{ cd/m}^2}{1,900 \text{ cd/m}^2} = 0.5 = \frac{1}{2} = \frac{1}{10^{0.3}}$$

Fuji Film or Kodak ND0.3 is the best choice.

Specifications

Size: 90 mm (W) x 197.5 mm (D) x 70 mm (H)

Weight: 750 g

Power Supply: External DC regulated power supply
(DC 12 V)

Lamp: 20 W/DC 12 V halogen lamp: 1
(Life: 2,000 hours)

Luminance: $1,900 \text{ cd/m}^2 \pm 100 \text{ cd/m}^2$
(center of the emission face)
(luminance conversion: $\approx 5,900 \text{ lux}$)

Homogeneity: Within $\pm 10\%$

Color temperature:
 $3,100 \text{ K} \pm 100 \text{ K}$
(center of the emission face)

CIE chromaticity coordinate:
 $x = 0.430 \pm 0.02$
 $y = 0.400 \pm 0.02$

Internal filter: LB 60 + M 50 (modified: 1.5 mm thickness)

Use of the New Light Box with previously supplied service support software (for Windows OS)

For using the new light box with the previous service support software (for Windows OS) that is incompatible with the new light box, follow the instruction of the items 2 to 7. The service support software whose version number is YTU94057-39 or higher is consistent with the new light box.

1. Version numbers of service support softwares (for Windows OS) that are incompatible with the new light box

YTU94057-16, YTU94057-19, YTU94057-20, YTU94057-22, YTU94057-23, YTU94057-24, YTU94057-26, YTU94057-27, YTU94057-28, YTU94057-29, YTU94057-33, YTU94057-34, YTU94057-35, YTU94057-37, YTU94057-38

2. Equalization of light quantity

For equalizing the light quantity of the new light box with that of the ordinary light box, apply the ND0.4 filter (Fuji Photo Film made) to the new light box always except for the AE Hall Curve adjustment (use the ND0.3 filter for this adjustment only).

3. White Chart

The light diffusing plate built in the new light box also serves as a white chart. For the adjustment specified by a note of "with White Chart", the new light box needs no white chart.

4. Conversion of ND filter's light quantity adjustment value

The ND filters used for the ordinary light box are made by Kenko Co. (PUJ53341A-ND*), however, those used for the new light box are made by Fuji Photo Film (YTU94152-ND*.*). Such being the case, there are differences in the light quantity adjustment value between the filters of the two brands. For using the new light box with Fuji Photo Film made ND filters with the service support software of an old version, it is required to convert the light quantity adjustment value (exposure factor for Kenko filters) specified by the old service support software into the light quantity adjustment value (filter factor) for Fuji Photo Film made ND filters according to the following conversion table.

For example, if the old service support software indicates a set of "ND8 + ND8 + ND4" filters, the conversion table shows that it corresponds to a set of "ND0.9 + ND0.9 + ND0.6" Fuji Film filters. When two or more Fuji Film ND filters are used, the total light quantity adjustment value is equal to the sum of the filter factors (numbers) of the respective filters. In case of the above example, the total filter factor is ND2.4. In the conversion table, Fuji Film ND filters that are supplied as service parts are those printed in gray. In case of the above example, the ND0.9 and ND0.6 filters are unavailable as service parts, therefore, it is recommended to use other available filters in combination so that the total filter factor becomes 2.4.

For example, ND1.5 + ND0.8 + ND0.1 (filters) = ND2.4

Conversion table of ND filter factor

Kenko filter	-	-	ND2	-	ND4	-	ND8	ND16	ND32	ND64	ND1024
Fuji Film ND filter	ND0.1	ND0.2	ND0.3	ND0.4	ND0.6	ND0.8	ND0.9	ND1.2	ND1.5	ND1.8	ND3.0

5. Conversion of color filter's decamired value (color temperature conversion value)

The color filters (PUJ53340A-C*) used for the ordinary light box and those (YTU94152-LBB*) used for the new light box are the same in the decamired value.

If the color filter whose decamired value is "C2" is specified by the old service support software, use the "LBB2" color filter for the new light box.

6. Note on AE Hall Curve adjustment

The old service support softwares differently specify the light quantity adjustment value of ND filter for the AE Hall Curve adjustment. However, use only the ND0.3 filter for the AE Hall Curve adjustment with the new light box. The ND0.4 filter for equalizing the light quantity is not needed for this adjustment.

7. Note on Color Separation adjustment

The service support softwares YTU94057-24, YTU94057-29, YTU94057-37 and YTU94057-38 specify the color filter whose decamired value is C2 for the Color Separation adjustment. However, don't use any color filter but use only the ND0.4 filter for the Color Separation adjustment with the new light box.

For other adjustment, use the color filter of the specified decamired value following the directions of the service support software in use.

8. Table of filters to be used for adjustment

	General adjustment	AE Hall Curve	Color Separation
YTU94057-16	ND0.4 + Filter's conversion value	-	ND0.4 + Decamired value
YTU94057-19	ND0.4 + Filter's conversion value	ND0.3	ND0.4 + Decamired value
YTU94057-20	ND0.4 + Filter's conversion value	-	ND0.4 + Decamired value
YTU94057-22	ND0.4 + Filter's conversion value	-	ND0.4 + Decamired value
YTU94057-23	ND0.4 + Filter's conversion value	ND0.3	ND0.4 + Decamired value
YTU94057-24	ND0.4 + Filter's conversion value	ND0.3	ND0.4
YTU94057-26	ND0.4 + Filter's conversion value	-	ND0.4 + Decamired value
YTU94057-27	ND0.4 + Filter's conversion value	ND0.3	ND0.4 + Decamired value
YTU94057-28	ND0.4 + Filter's conversion value	-	ND0.4 + Decamired value
YTU94057-29	ND0.4 + Filter's conversion value	ND0.3	ND0.4
YTU94057-33	ND0.4 + Filter's conversion value	ND0.3	ND0.4 + Decamired value
YTU94057-34	ND0.4 + Filter's conversion value	ND0.3	ND0.4 + Decamired value
YTU94057-35	ND0.4 + Filter's conversion value	ND0.3	ND0.4 + Decamired value
YTU94057-37	ND0.4 + Filter's conversion value	ND0.3	ND0.4
YTU94057-38	ND0.4 + Filter's conversion value	ND0.3	ND0.4

9. Table of filters and charts for the new light box (YTU93096A)

	Part Name	Filter No.	Price [FOB/yen]
1	COLOR BAR CHART	YTU94133C	4,500
2	GRAY SCALE CHART	YTU94133A	3,600
3	ND FILTER	YTU94152-ND0.1	3,300
4	ND FILTER	YTU94152-ND0.2	3,300
5	ND FILTER	YTU94152-ND0.4	3,300
6	ND FILTER	YTU94152-ND0.8	3,300
7	ND FILTER	YTU94152-ND1.5	3,300
8	LBB FILTER	YTU94152-LBB2	2,000
9	LBB FILTER	YTU94152-LBB4	2,000
10	LBB FILTER	YTU94152-LBB8	2,000
11	LBB FILTER	YTU94152-LBB12	2,000

10. Instructions of the service support software YTU94057-23 for example

Adjustment with light box	Filter(s) for the ordinary light box	Filter(s) for the new light box
Passage Level	ND8 + ND2	ND0.4 + ND1.2
Y Level	No filter is needed.	ND0.4
Color Separation	C2	ND0.4 + LBB2
White Balance	C12	ND0.4 + LBB12
AE Hall Curve	No filter is needed.	ND0.3
AGC	ND8 + ND8 + ND8 + ND2	ND0.4 + ND3.0
AFFilter	ND8 + ND2	ND0.4 + ND1.2