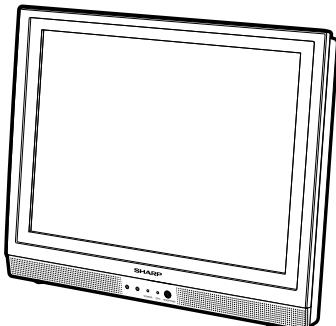


**SHARP****SERVICE MANUAL**

S44S1LC13S1US

**LCD COLOR TELEVISION****MODEL****LC-13S1U-S**

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

**OUTLINE**

The above model is based on the LC-13S2U-S. Its desktop stand has been redesigned. This Service Manual covers the modifications only. For other technical data, refer to the Service Manual for LC-13S2U-S (S83G8LC-13S2U).

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**SHARP CORPORATION**

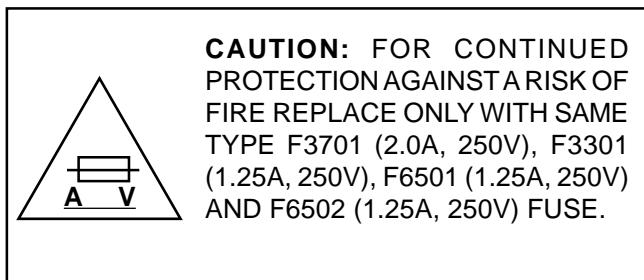
This document has been published to be used for  
after sales service only.  
The contents are subject to change without notice.

# IMPORTANT SERVICE SAFETY PRECAUTION

- Service work should be performed only by qualified service technicians who are thoroughly familiar with all safety checks and the servicing guidelines which follow:

## WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.



## BEFORE RETURNING THE RECEIVER (Fire & Shock Hazard)

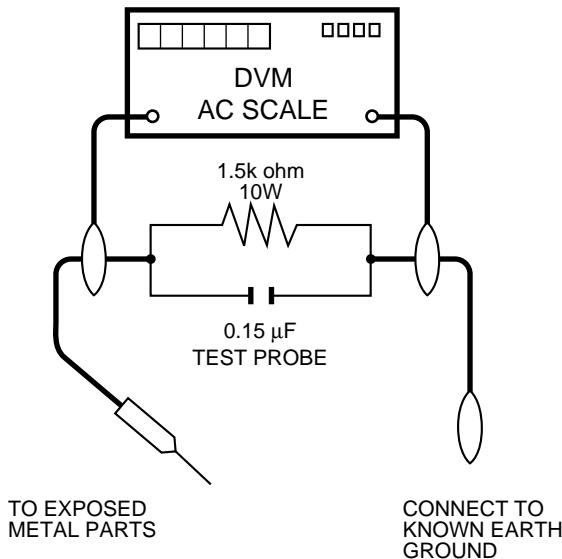
Before returning the receiver to the user, perform the following safety checks:

1. Inspect all lead dress to make certain that leads are not pinched, and check that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulation materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacitor networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, check for leakage current in the following manner.
  - Plug the AC cord directly into a 110~240 volt AC outlet, and connect the DC power cable into the receiver's DC jack. (Do not use an isolation transformer for this test).
  - Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15µF capacitor in series with all exposed metal cabinet parts and a known earth ground, such as electrical conduit or electrical ground connected to an earth ground.

- Use an AC voltmeter having with 5000 ohm per volt, or higher, sensitivity or measure the AC voltage drop across the resistor.
- Connect the resistor connection to all exposed metal parts having a return to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.

All checks must be repeated with the AC cord plug connection reversed. (If necessary, a nonpolarized adaptor plug must be used only for the purpose of completing these checks.)

Any reading of 0.75V peak (this corresponds to 0.5 mA. peak AC.) or more is excessive and indicates a potential shock hazard which must be corrected before returning the monitor to the owner.



## SAFETY NOTICE

Many electrical and mechanical parts in LCD television have special safety-related characteristics.

These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc.

Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by "⚠"

and shaded areas in the **Replacement Parts Lists** and **Schematic Diagrams**.

For continued protection, replacement parts must be identical to those used in the original circuit.

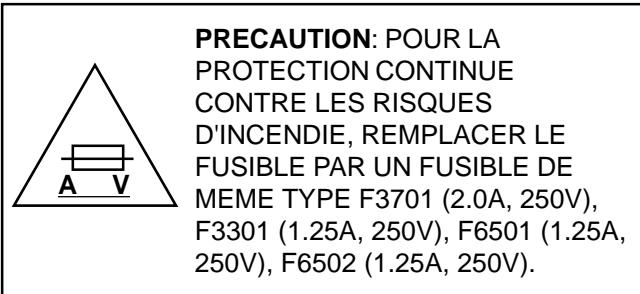
The use of a substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire or other hazards.

# PRECAUTIONS A PRENDRE LORS DE LA REPARATION

- Ne peut effectuer la réparation qu' un technicien spécialisé qui s'est parfaitement accoutumé à toute vérification de sécurité et aux conseils suivants.

## AVERTISSEMENT

1. N'entreprendre aucune modification de tout circuit. C'est dangereux.
2. Débrancher le récepteur avant toute réparation.



## VERIFICATIONS CONTRE L'INCEN-DIE ET LE CHOC ELECTRIQUE

Avant de rendre le récepteur à l'utilisateur, effectuer les vérifications suivantes.

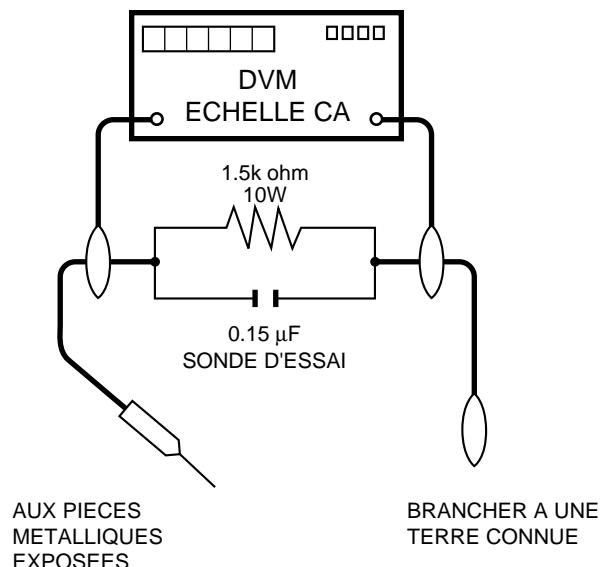
1. Inspecter tous les faisceaux de câbles pour s'assurer que les fils ne soient pas pincés ou qu'un outil ne soit pas placé entre le châssis et les autres pièces métalliques du récepteur.
  2. Inspecter tous les dispositifs de protection comme les boutons de commande non-métalliques, les isolants, le dos du coffret, les couvercles ou blindages de réglage et de compartiment, les réseaux de résistance-capacité, les isolateurs mécaniques, etc.
  3. S'assurer qu'il n'y ait pas de danger d'électrocution en vérifiant la fuite de courant, de la façon suivante:
- Brancher le cordon d'alimentation directement à une prise de courant de 110-240V. (Ne pas utiliser de transformateur d'isolation pour cet essai).
  - A l'aide de deux fils à pinces, brancher une résistance de  $1.5k\Omega$  10 watts en parallèle avec un condensateur de  $0.15\mu F$  en série avec toutes les pièces métalliques exposées du coffret et une terre connue comme une

conduite électrique ou une prise de terre branchée à la terre.

- Utiliser un voltmètre CA d'une sensibilité d'au moins  $5000\Omega/V$  pour mesurer la chute de tension en travers de la résistance.
- Toucher avec la sonde d'essai les pièces métalliques exposées qui présentent une voie de retour au châssis (antenne, coffret métallique, tête des vis, arbres de commande et des boutons, écusson, etc.) et mesurer la chute de tension CA en-travers de la résistance. Toutes les vérifications doivent être refaites après avoir inversé la fiche du cordon d'alimentation. (Si nécessaire, une prise d'adpatation non polarisée peut être utilisée dans le but de terminer ces vérifications.)

Tous les courants mesurés ne doivent pas dépasser 0.5 mA.

Dans le cas contraire, il y a une possibilité de choc électrique qui doit être supprimée avant de rendre le récepteur au client.



## AVIS POUR LA SECURITE

De nombreuses pièces, électriques et mécaniques, dans les téléviseurs présentent des caractéristiques spéciales relatives à la sécurité, qui ne sont souvent pas évidentes à vue. Le degré de protection ne peut pas être nécessairement augmentée en utilisant des pièces de remplacement étalonnées pour haute tension, puissance, etc.

Les pièces de remplacement qui présentent ces caractéristiques sont identifiées dans ce manuel; les pièces électriques qui présentent ces particularités sont

identifiées par la marque "  $\Delta$  " et hachurées dans la liste des pièces de remplacement et les diagrammes schématiques.

Pour assurer la protection, ces pièces doivent être identiques à celles utilisées dans le circuit d'origine. L'utilisation de pièces qui n'ont pas les mêmes caractéristiques que les pièces recommandées par l'usine, indiquées dans ce manuel, peut provoquer des électrocutions, incendies, radiations X ou autres accidents.

# Precautions for using lead-free solder

## 1 Employing lead-free solder

"All PWBS" of this model employs lead-free solder. The LF symbol indicates lead-free solder, and is attached on the PWBS and service manuals. The alphabetical character following LF shows the type of lead-free solder.

Example:

**LFa**

**Sn-Ag-Cu**

Indicates lead-free solder of tin, silver and copper.

## 2 Using lead-free wire solder

When fixing the PWB soldered with the lead-free solder, apply lead-free wire solder. Repairing with conventional lead wire solder may cause damage or accident due to cracks.

As the melting point of lead-free solder (Sn-Ag-Cu) is higher than the lead wire solder by 40°C, we recommend you to use a dedicated soldering bit, if you are not familiar with how to obtain lead-free wire solder or soldering bit, contact our service station or service branch in your area.

## 3 Soldering

As the melting point of lead-free solder (Sn-Ag-Cu) is about 220°C which is higher than the conventional lead solder by 40°C, and as it has poor solder wettability, you may be apt to keep the soldering bit in contact with the PWB for extended period of time. However, Since the land may be peeled off or the maximum heat-resistance temperature of parts may be exceeded, remove the bit from the PWB as soon as you confirm the steady soldering condition.

Lead-free solder contains more tin, and the end of the soldering bit may be easily corroded. Make sure to turn on and off the power of the bit as required.

If a different type of solder stays on the tip of the soldering bit, it is alloyed with lead-free solder. Clean the bit after every use of it.

When the tip of the soldering bit is blackened during use, file it with steel wool or fine sandpaper.

Be careful when replacing parts with polarity indication on the PWB silk.

Lead-free wire solder for servicing

Part No,	★	Description	Code
ZHNDAi123250E	J	φ0.3mm 250g(1roll)	BL
ZHNDAi126500E	J	φ0.6mm 500g(1roll)	BK
ZHNDAi12801KE	J	φ1.0mm 1kg(1roll)	BM

# SPECIFICATIONS

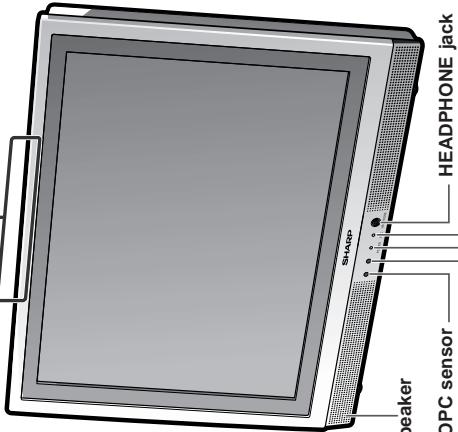
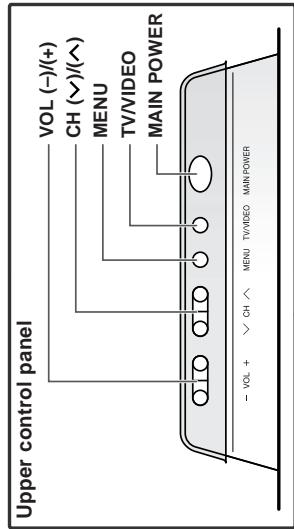
Items	Model	LC-13S1U
LCD panel		13" Advanced Super View& BLACK TFT LCD
Number of dots		921,600 dots VGA
Video color systems		N358, N443, PAL, PAL-M, PAL-N, SECAM, PAL-60
TV function	TV Standard (CCIR)	NTSC/PAL-M/PAL-N
	TV Tuning System	PLL 181 ch.
	STEREO	MTS+SAP
	CATV	125 ch.
Y/C FILTER		3-LINE COMB FILTER
Brightness		430 cd/m <sup>2</sup>
Viewing angles		H: 170° V: 170°
Audio amplifier		2.1 W x 2
Speakers		3 x 7.5 cm, 2 pcs.
Terminals	AV-IN1	AV-IN1, S-VIDEO-IN
	AV-IN2	AV-IN2, S-VIDEO-IN/AV-OUT
	COMPONENT	COMPONENT-IN, AUDIO-IN
	Antenna	F-Type
	Headphone	Mini-jack for stereo (ø3.5 mm)
OSD language		English/French/Spanish
Power supply		DC 12 V, AC 110–240 V, 50/60 Hz (AC Adapter), AC 125V MAX (AC Cord)
Power consumption		39 W (0.5 W Standby)AC 120 V(with AC adapter)
		34 W: DC 12 V
Weight		7.9 lbs. (3.6 kg), w/o accessories
Accessories		Remote control, Battery (x2), Antenna cable, AC adapter, AC cord, Cable clamp, Operation manual

As a part of policy of continuous improvement, SHARP reserves the right to make design and specification changes for product improvement without prior notice. The performance specification figures indicated are nominal values of production units. There may be some deviations from these values in individual units.

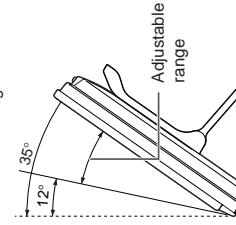
# OPERATION MANUAL

## DISPLAY AND CONTROL OVERVIEW

### Controls



The screen can be adjusted backwards to an angle between 12 degrees and 35 degrees. The screen cannot be set up straight. When changing the angle, make sure to hold the stand and adjust the screen to the best viewable angle.



**HEADPHONE Jack**  
Plug the headphone mini-plug into the HEADPHONE jack located on the front of the TV set.

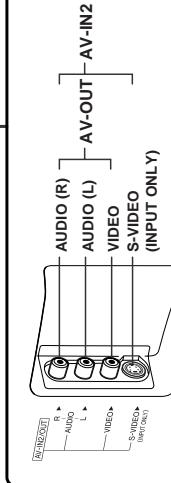
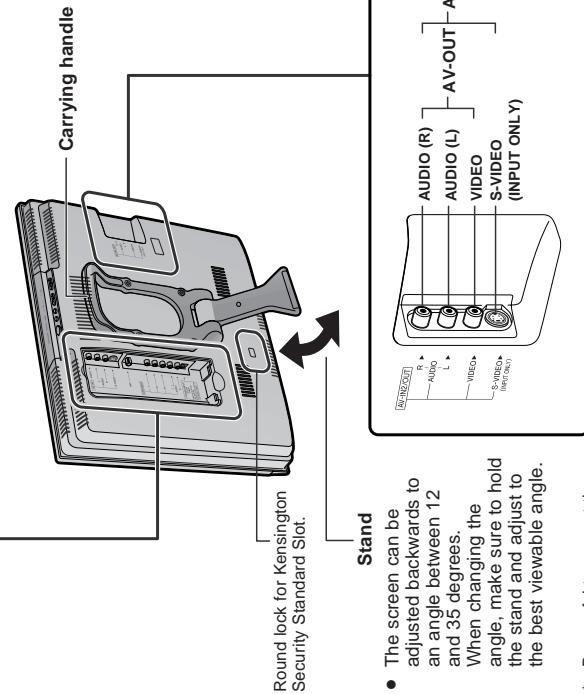
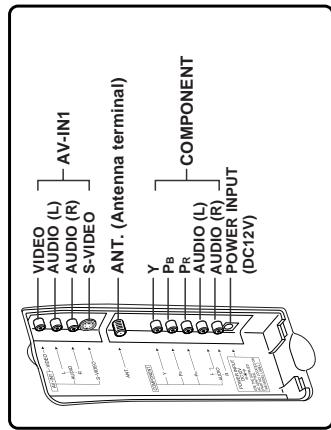
**OPC indicator (Optical Picture Control)**  
The Optical Picture Control indicator lights up green when the BRIGHTNESS is set to AUTO.

### POWER indicator

A green indicator lights when the power is on and a red indicator lights when in the standby mode (the indicator will not light when the main power is off).

\* The examples used throughout this manual are based on the LC-20S1U model.  
• TV/VIDEO, CH (>)/(<), VOL (-)/(+), and MENU on the main unit have the same functions as the same buttons on the remote control. Basically, this operation manual provides a description based on operation with the remote control.

### Terminals

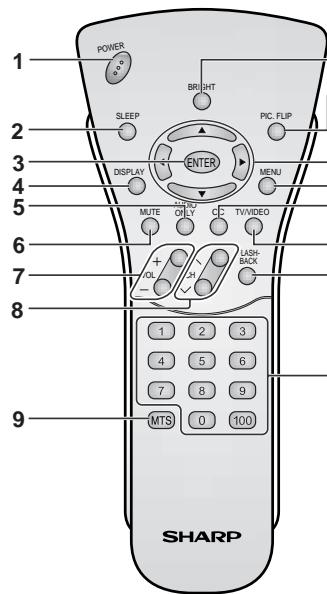


- The screen can be adjusted backwards to an angle between 12 and 35 degrees. When changing the angle, make sure to hold the stand and adjust to the best viewable angle.

- \* Be careful to prevent the product from falling over when adjusting the angle. Also place the product on a stable base.

- NOTE**
- TV/VIDEO, CH (>)/(<), VOL (-)/(+), and MENU on the main unit have the same functions as the same buttons on the remote control. Basically, this operation manual provides a description based on operation with the remote control.

## REMOTE CONTROL



- 1 POWER**  
Switch the Liquid Crystal Television power on or off.
- 2 SLEEP**  
Set the sleep timer.
- 3 ENTER**  
Execute a command.
- 4 DISPLAY**  
Display the channel and time information.
- 5 AUDIO ONLY**  
Output audio without screen image.
- 6 MUTE**  
Mute the sound.
- 7 VOL (+)/(-)**  
Set the volume.
- 8 CH (↑)/(↓)**  
Select channel.
- 9 MTS**  
Select audio settings.
- 10 BRIGHT**  
Adjust the brightness of the screen.
- 11 PIC. FLIP**  
Set the orientation of the picture.
- 12 ▲/▼◀▶ (Cursor control)**  
Select a desired item on the screen.
- 13 MENU**  
Display the menu screen.
- 14 CC**  
Display Closed Caption subtitles.
- 15 TV/VIDEO**  
Select a Liquid Crystal Television input source.
- 16 FLASHBACK**  
Return to the previous channel.
- 17 Channel Select**  
Set the channel.

## PREPARATION

### Batteries for the Remote Control

Before using the LCD TV set for the first time, install two ("AAA" size) batteries (supplied). When the batteries become depleted and the remote control fails to operate, replace the batteries with new ("AAA" size) batteries.

- 1** Open the battery cover.
  - 2** Insert two ("AAA" size) batteries.
  - 3** Close the battery cover.
- Slide the cover while pressing the (▼) part.  
■ Position the positive and negative ends of the batteries as indicated in the compartment.  
■ Engage the claw on the cover into the battery housing and slide shut.

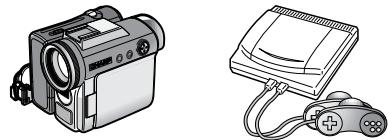
## CONNECTING EXTERNAL DEVICES

You can enjoy picture and sound by connecting a VCR or a home video game system to the terminals located on the rear of the TV set.  
When connecting an external device, turn off the power of the main unit first to prevent any possible damage.

### Example of external devices that can be connected

#### To AV-IN1 terminal

- <Example>
- Camcorder
- Home video game system



\* If your external device has an S-video terminal, S-VIDEO connection is recommended.

#### To AV-IN2 terminal

- <Example>
- VCR
- Laser disc player

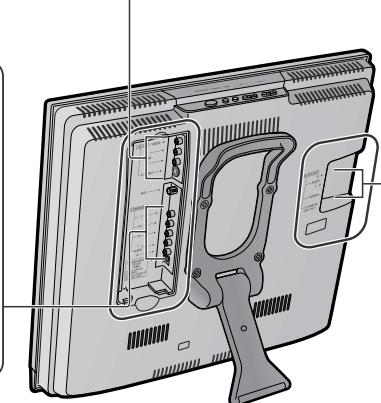


#### To COMPONENT terminal

- <Example>
- DVD Player, etc.
- Playback from 480 progressive output for DVD and DTV is available.



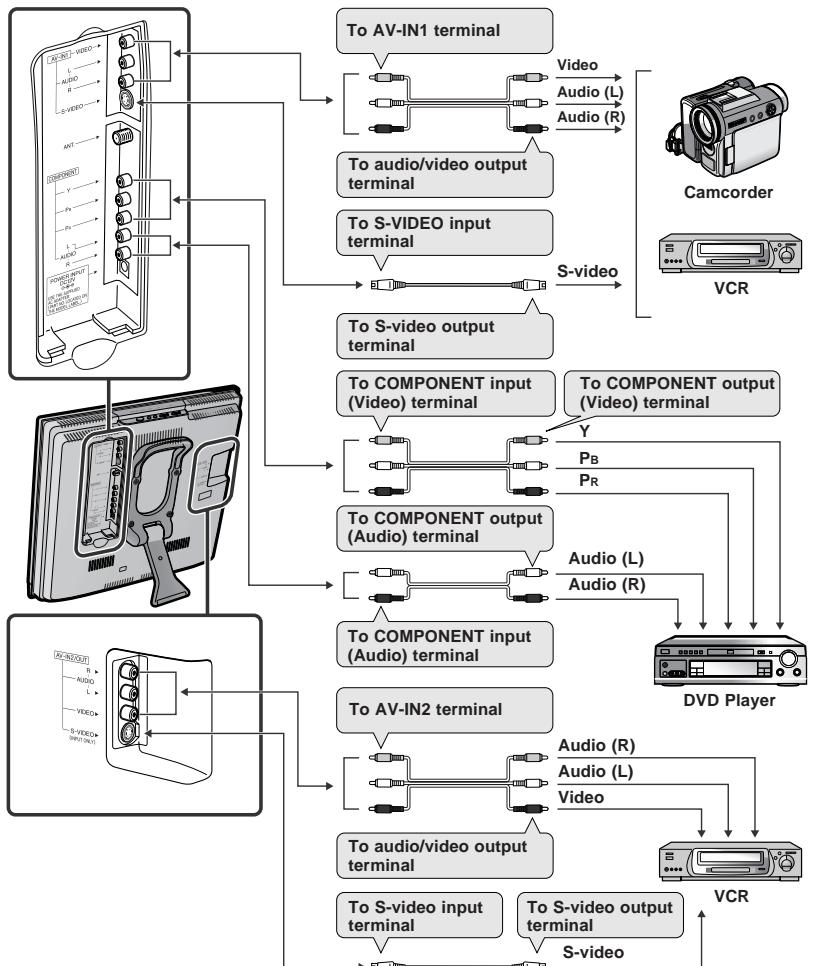
\* If your external device has a component terminal, COMPONENT connection is recommended (you can view high-quality pictures).



#### NOTE

- PC connection is not possible.
- For the cable, use a commercially available audio/video cable.
- Only connect audio/video signals to AV-IN1 and 2 terminals. Connecting other signals may result in a malfunction.
- AV-IN1 has 2 video input terminals: VIDEO and S-VIDEO. When you connect external devices to both terminals (and if you select AV-IN1), you can only view pictures from the S-VIDEO terminal. To view the picture from the VIDEO terminal, do not connect any external device to the S-VIDEO terminal.
- For more information about external device connections, see the manuals of your external devices.
- If HDTV (720P/1080I) signals are input to the COMPONENT terminals, "NOT COMPATIBLE WITH THIS SIGNAL" will appear and playback cannot be viewed.

### Connecting a VCR, DVD player or a video camera (AV-IN1/2/COMPONENT)

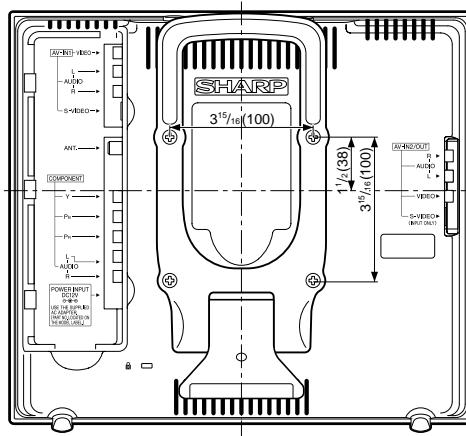
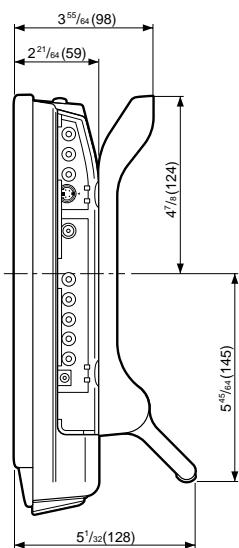
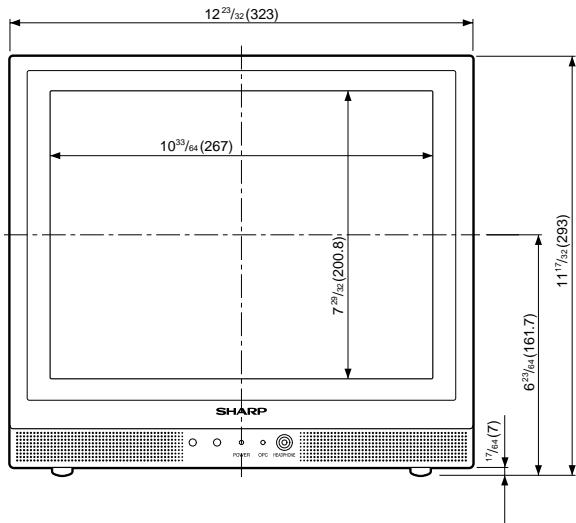
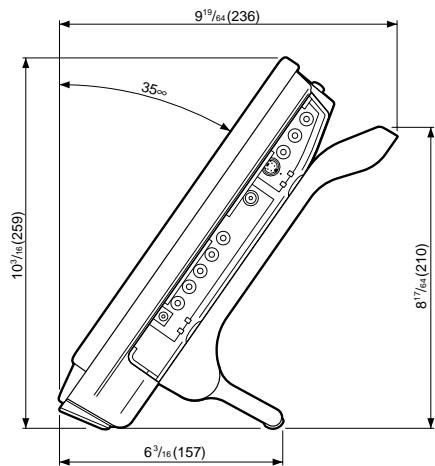
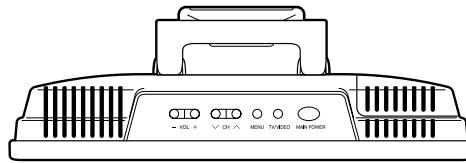
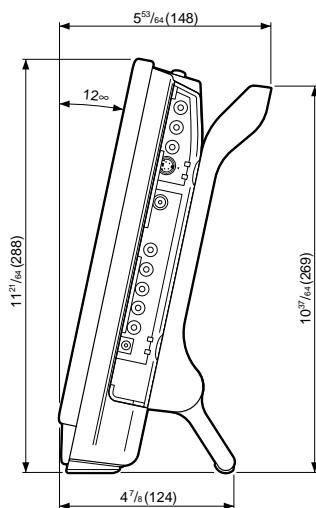


#### NOTE

- If your VCR (or other external devices) has an S-video terminal, S-VIDEO connection is recommended. (Use an S-video cable.)
- When you connect external devices to both S-VIDEO and VIDEO terminals (and if you select AV-IN1), you can only view pictures from the S-VIDEO terminal.
- You cannot view multiple or synthesized pictures by connecting two or more external devices. When connecting an external device, use care to connect the video and audio cables to the corresponding terminals.

# DIMENSIONS

Unit: inch (mm)



# PARTS LIST

## PARTS REPLACEMENT

Replacement parts which have these special safety characteristics identified in this manual ; electrical components having such features are identified by  and shaded areas in the Replacement Parts Lists and Schematic Diagrams. The use of a substitute replacement part which does not have the same safety characteristic as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

### "HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

- |                 |                |
|-----------------|----------------|
| 1. MODEL NUMBER | 2. REF. NO.    |
| 3. PART NO.     | 4. DESCRIPTION |

in **USA**: Contact your nearest SHARP Parts Distributor to order. For location of SHARP Parts Distributor, Please call Toll-Free; 1-800-BE-SHARP

★ MARK: SPARE PARTS-DELIVERY SECTION

Ref. No.	Part No.	★	Description	Code
<b>CABINET AND MECHANICAL PARTS</b>				
1	CCABAA375WJ05	J	Cabinet A Ass'y	BE
1-1	Not Available	—	Cabinet A	—
1-2	HDECQA269WJSA	J	R/C, LED Cover	AE
1-3	PSPAHA061WJZZ	J	Space(L), x2	AC
1-4	PSPAHA062WJZZ	J	Space(S), x2	AC
1-5	QCNW-B662WJQZ	J	Connecting Cord(SP)	AH
1-6	QEZRZ0047CEZZ	J	Grounding Part	AC
1-7	VSP7530PB628B	J	Speaker, x2	AN
1-8	XEBSN30P08000	J	Screw, x6	AA
1-9	TLABZA635WJZZ	J	"Energy Star" Label	AC
2	CCABBA270WJ01	J	Cabinet B Ass'y	BD
2-1	Not Available	—	Cabinet B	—
2-2	GLEGGA027WJSA	J	Rubber Leg, x2	AF
2-3	HiNDPA543WJSA	J	Model Label	AF
2-4	JBTN-A183WJKA	J	Operation Button	AK
2-5	JBTN-A186WJKA	J	Power Button	AF
2-6	LANGF2155CEFW	J	Round Lock	AD
2-7	LANGTA080WJFW	J	Reinforcement Angle	AM
2-8	MSPRCA015WJFW	J	Power Button Spring	AB
2-9	PMLT-A091WJZZ	J	Light Shielding Spacer, x1	AC
2-10	PMLT-0402CEZZ	J	Light Shielding Spacer, x1	AC
2-11	XEBSN30P08000	J	Screw, x3	AA
3	CDAI-A089WJ01	J	Stand Ass'y	BC
3-1	CDAI-A089WJ02	J	Stand Base Ass'y	AZ
3-1-1	Not Available	—	Stand Base	—
3-1-2	GLEGGA029WJSA	J	Rubber Leg, x1	AF
3-1-3	PSPAZA083WJZZ	J	Spacer, x2	AB
3-2	JHNDPA004WJSA	J	Stand Handle	AT
3-3	XESSN40P10000	J	Screw, x8	AB
4	Not Available	—	13" LCD Panel Unit Ass'y	—
4-1	RLCDTA023WJZZ	J	13" LCD Panel Unit	CQ
4-2	Not Available	—	Back Shield Ass'y	—
4-2-1	PSLDMA253WJFW	J	Back Shield	AP
4-2-2	TCAUZA031WJZZ	J	Caution Label	AB
4-3	KLMP-0120CEZZ	J	Lamp Unit	BD
4-4	PGDMA010WJZZ	J	Light Guide Plate	AY
4-5	PMIR-0292CEZZ	J	Reflection Mirror(L), x2	AG
4-6	PMIR-0293CEZZ	J	Reflection Mirror(S), x2	AF
4-7	PSHEP0276CEZZ	J	Reflection/deflection Sheet	BB
4-8	PSHEPA143WJZZ	J	Prism Sheet	AV

# LISTE DES PIECES

## CHANGE DES PIECES

Les pièces de rechange qui présentent ces caractéristiques spéciales de sécurité sont identifiées dans ce manuel : les pièces électriques qui présentent ces particularités, sont repérées par la marque  et sont hachurées dans les listes de pièces et dans les diagrammes schématiques.

La substitution d'une pièce de rechange par une autre qui ne présente pas les mêmes caractéristiques de sécurité peut entraîner une électrocution, un incendie ou tout autre sinistre.

### "COMMENT COMMANDER LES PIÈCES DE RECHANGE"

Pour que votre commande soit rapidement et correctement remplie, veuillez fournir les renseignements suivants.

- |                     |                |
|---------------------|----------------|
| 1. NUMERO DU MODELE | 2. NO. DE REF  |
| 3. NO. DE PIECE     | 4. DESCRIPTION |

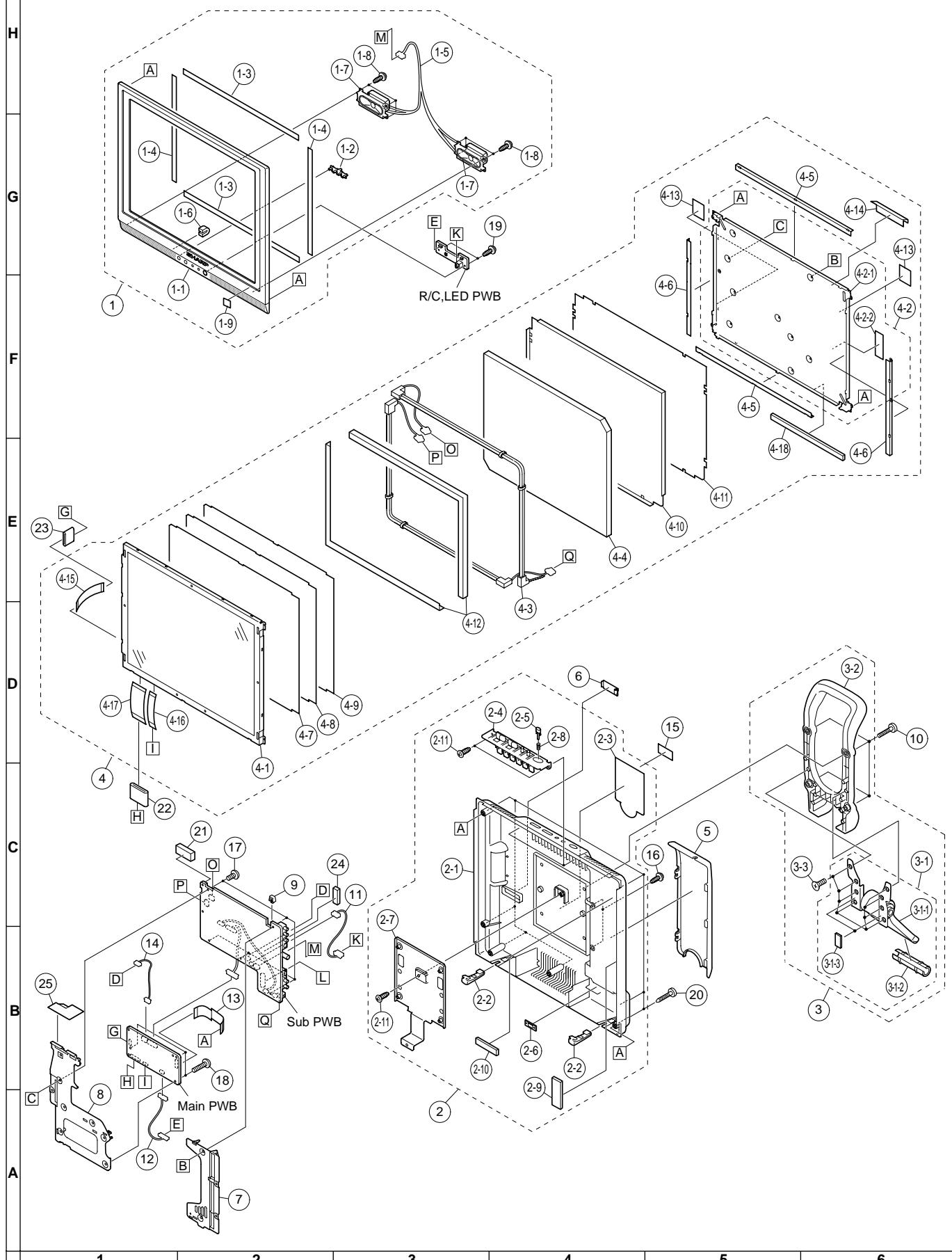
in **CANADA**: Contact SHARP Electronics of Canada Limited  
Phone (416) 890-2100

★ MARQUE: SECTION LIVRAISON DES PIÈCES DÉCHANGE

Ref. No.	Part No.	★	Description	Code
4-9	PSHEP0278CEZZ	J	Diffusion Sheet	AL
4-10	PSHEP0279CEZZ	J	Reflection Sheet-1	AG
4-11	PSHEP0280CEZZ	J	Reflection Sheet-2	AG
4-12	PSHEP0306CEZZ	J	Reflection Sheet(Cover)	AC
4-13	PSLDMA284WJZZ	J	Shield, x2	AE
4-14	PSPAKA014WJZZ	J	Spacer, x1	AD
4-15	QCNW-B531WJQZ	J	Connecting Cord	AD
4-16	QCNW-B532WJQZ	J	Connecting Cord	AF
4-17	QCNW-B779WJQZ	J	Connecting Cord	AE
4-18	PMLT-A074WJZZ	J	Light Shielding Spacer, x1	AD
5	GCOVAA502WJKA	J	Terminal Cover	AH
6	GCOVAA505WJKA	J	Bass Cone Cover	AD
7	LCHSMA050WJKA	J	Chassis Frame(R)	AK
8	LCHSMA055WJKA	J	Chassis Frame(L)	AL
9	LHLDZA251WJKZ	J	Power Button Holder	AD
10	LX-BZ3442CEF9	J	Screw, x4	AB
11	QCNW-B528WJQZ	J	Connecting Cord	AG
12	QCNW-B529WJQZ	J	Connecting Cord	AG
13	QCNW-B534WJQZ	J	Connecting Cord	AF
14	QCNW-B535WJZZ	J	Connecting Cord	AH
15	Not Available	—	Serial No. Label	—
16	XBBS930P05000	J	Screw, x2	AA
17	XBPSN30P10JS0	J	Screw, x5	AB
18	XBPSN30P18JS0	J	Screw, x3	AA
19	XEBSN30P08000	J	Screw, x2	AA
20	XEBSN30P14000	J	Screw, x7	AA
21	PMLT-0401CEZZ	J	Light Shielding Spacer	AB
22	RCORFA009WJZZ	J	Ferrite Core, x1	AH
23	RCORFA031WJZZ	J	Ferrite Core, x1	AH
24	QEZRZA045WJZZ	J	Grounding Part, x1	AF
25	PSPAKA031WJZZ	J	Spacer, x1	AD

 4-3	KLMP-0120CEZZ	J	Lamp Unit	BD
4-4	PGDMA010WJZZ	J	Light Guide Plate	AY
4-5	PMIR-0292CEZZ	J	Reflection Mirror(L), x2	AG
4-6	PMIR-0293CEZZ	J	Reflection Mirror(S), x2	AF
4-7	PSHEP0276CEZZ	J	Reflection/deflection Sheet	BB
4-8	PSHEPA143WJZZ	J	Prism Sheet	AV

# CABINET AND MECHANICAL PARTS

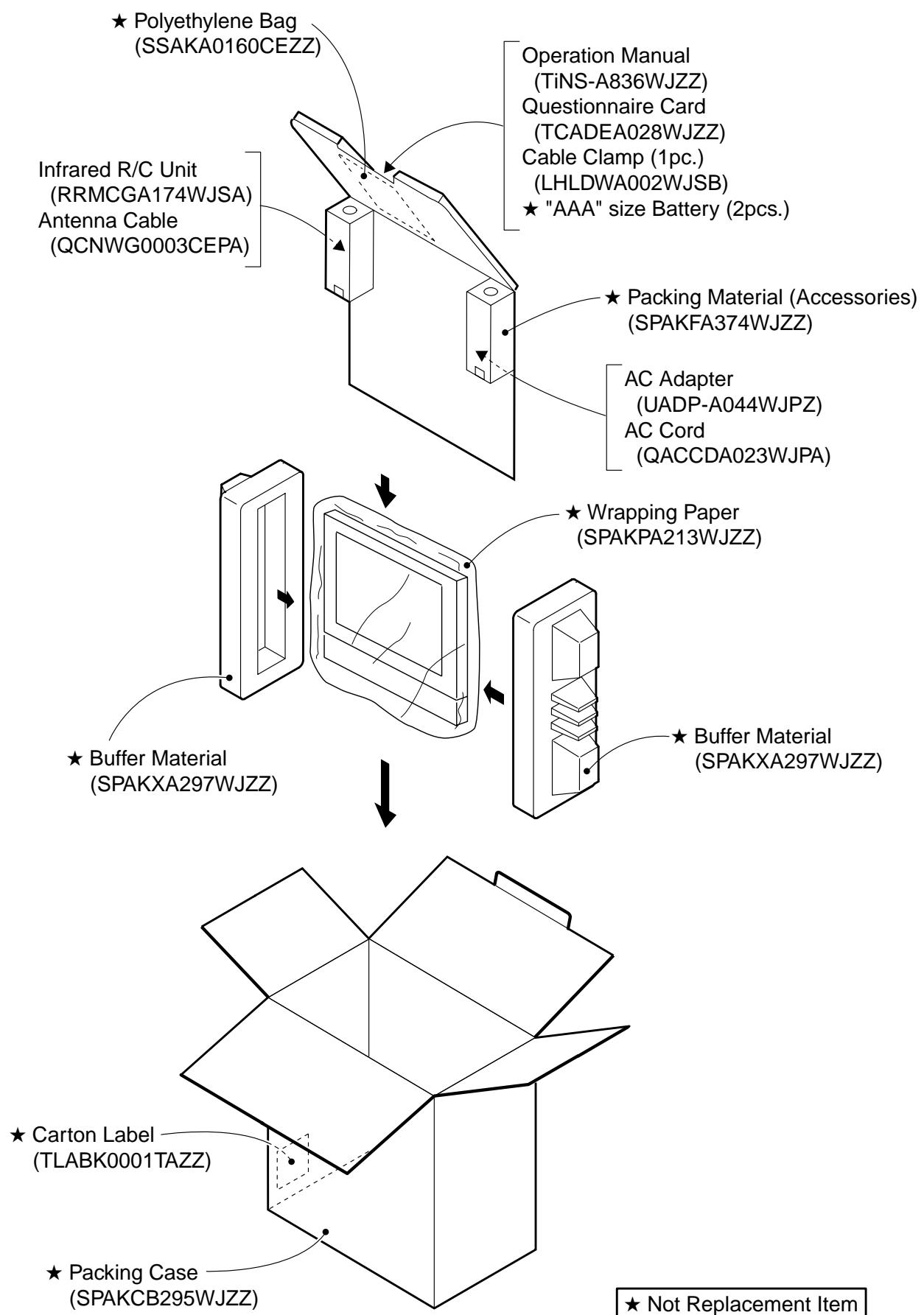


Ref. No.	Part No.	★	Description	Code	Ref. No.	Part No.	★	Description	Code
<b>SUPPLIED ACCESORIES</b>									
△	LHLDWA002WJSB	J	Cable Clamp, x1	AD	SPAKCB295WJZZ	—	Packing Case	—	—
	QACCDA023WJPA	J	AC Cord	AK	SPAKFA374WJZZ	—	Packing Material (Accessories)	—	—
	QCNWG0003CEPA	J	Antenna Cable	AM	SPAKPA213WJZZ	—	Wrapping Paper	—	—
	RRMCGA174WJSA	J	Infrared R/C Unit	AS	SPAKXA297WJZZ	—	Buffer Material	—	—
	TCADEA028WJZZ	J	Questionnaire Card	AE	SSAKA0160CEZZ	—	Polyethylene Bag	—	—
△	TiNS-A836WJZZ	J	Operation Manual	AT	TLABK0001TAZZ	—	Carton Label	—	—
	UADP-A044WJPZ	J	AC Adapter	BC					

### **SERVICE JIGS (USE FOR SERVICING)**

QCNW-A553WJZZ	J	Extension Cable 30-pin (SC1204-LCD)	BA
QCNW-A555WJZZ	J	Extension Cable 20-pin (SC1202-LCD)	AU
QCNW-A556WJZZ	J	Extension Cable 50-pin (SC2001-SC3401)	AU

## PACKING OF THE SET



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