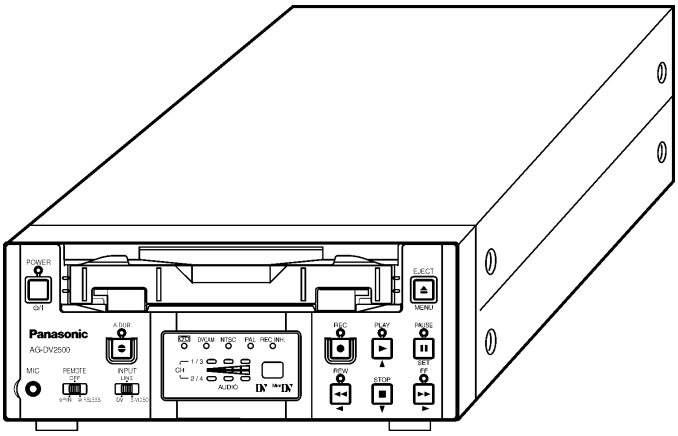
ORDER NO. BSD0303M901
D21

Service Manual

DV Mini DV

DV VIDEO CASSETTE RECORDER

AG-DV2500P/E



Panasonic

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

AG-DV2500P

■ General

Recording system: DV system (SP mode only)
Signal system : NTSC/PAL
Cassette : Standard/ mini DV cassette
Tape width : 6.35mm
Tape speed : 18.812mm/s (NTSC)
18.831mm/s (PAL)
Recording/ playback time
: 276 minutes (DV276)
63 minutes (DVM63)
Fast forward/ rewind time
: About 3 minutes (DV276)
About 1 minute (DVM63)
Power : DC12V⎓(supplied via the provided AC adapter)
Power consumption: 14W, 1.17A
External dimension : 174mm × (W) ×68mm (H) ×260mm (D) (Excluding protruding parts, e.g., foot)
Weight : About 2.3 kg
Allowable operating temperature
: 5˚C to 35˚C
Allowable storage temperature
: –20˚C to 60˚C
Allowable operating RH
: 30%RH to 80%RH

■ Video

Recording format: 8 bit, 13.5MHz,
4:1:1 (NTSC)
4:2:0 (PAL)
Video input
Line (composite) : 1.0V (p-p), 75Ω unbalance
S-VIDEO Y : 1.0V (p-p), 75Ω unbalance
C : 0.286V (p-p) (NTSC) /
0.3V (p-p) (PAL)
75Ω unbalance
Video output
Line (composite) : 1.0V (p-p), 75Ω unbalance
S-VIDEO Y : 1.0V (p-p), 75Ω unbalance
C : 0.286V (p-p) (NTSC) /
0.3V (p-p) (PAL)
75Ω unbalance

■ Audio

Recording format : 16 bit, 48kHz, 2 channels PCM audio/12 bit, 32kHz, 4-channel PCM audio
Number of track : 2 (16 bit,4 8kHz) /
4 (12 bit, 32kHz)
Audio input : –8dBu, 10kΩ unbalance
Mike input : –60dBu, 3kΩ unbalance
Audio output : –8dBu, 1kΩ unbalance
Frequency characteristics
: 20Hz to 20kHz (48kHz)
* 0 dBu = 0.775Vrms

■ DV interface

Input/output : IEEE1394

■ AC adapter section

Power : AC 100V to 240V∿,
50Hz/60Hz.
Power consumption
: 1.0A to 0.5A
Output : DC 12V ⎓ 3.5A

■ Accessories

Wireless remote controller ..... ×1
AC adapter ..... ×1
Mains Cable ..... ×1
Battery(AA) ..... ×2
Stand ..... ×1

AG-DV2500E

■ General

Recording system: DV system (SP mode only)
Signal system : NTSC/PAL
Cassette : Standard/ mini DV cassette
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Tape speed : 18.812mm/s (NTSC)
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Power consumption: 14W, 1.17A
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Mains Cable ..... ×2
Battery(AA) ..... ×2
Stand ..... ×1

SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been over-heated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohm meter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. The resistance value must be more than 5MΩ.

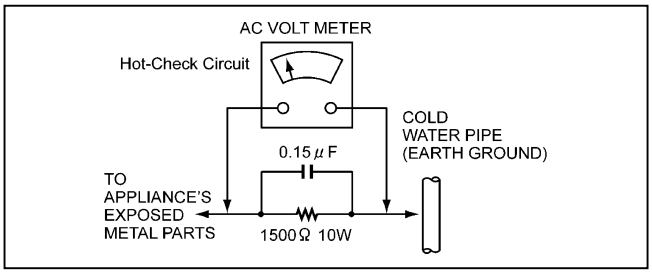


Figure1

LEAKAGE CURRENT HOT CHECK (See Figure 1)

1. Plug the AC cord directly into the AC outlet.
   Do not use an isolation transformer for this check.
2. Connect a 1.5KΩ, 10W resistor, in parallel with a 0.15μ F capacitor, between each exposed metallic part on the set an a good earth ground such as a water pipe, as shown in Figure1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet repeat each of the above measurements.
6. The potential at any point should not exceed 0.15 volts RMS. A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks, leakage current must not exceed 0.1 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

ABOUT LEAD FREE SOLDER (PbF)

Distinction of Pbf PCB:
PCBs (manufactured) using lead free solder will have a PbF stamp on the PCB.
Caution:

1. Pb free solder has a higher melting point than standard solder; Typically the melting point is 50–70˚F (30-40˚C) higher. Please use a high temperature soldering iron. In case of the soldering iron with temperature control, please set it to 700±20˚F (370±10˚C).
2. Pb free solder will tend to splash when heated too high (about 1100˚F/600˚C).

ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically sensitive (ED) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor “chip” components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground.
   Alternatively, obtain and wear a commercially available discharging wrist trap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as alminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device classified as “anti-static” can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it.
   (most replacement ES devices are package with leads electrically shorted together by conductive foam, alminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise hamless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device).

X-RADIATION

WARNING

1. The potential source of X-radiation in EVF sets is the High Voltage section and the picture tube.
2. When using a picture tube test jig for service, ensure that jig is capable of handling 10kV without causing X-Radiation.

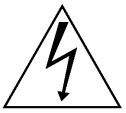
Note : It is important to use an accurate periodically calibrated high voltage meter.

3. Measure the High Voltage. The meter (electric type) reading should indicate 2.5kV,±0.15kV. If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure. To prevent an X-Radiation possibility, it is essential to use the specified picture tube.

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL



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.

WARNING:
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

This unit should be used with 120 V AC only.

CAUTION:
To prevent electric shocks and fire hazards, DO NOT use any other power source.

INFORMATION

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION

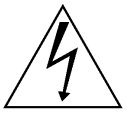
CHANGES OR MODIFICATIONS NOT APPROVED BY PANASONIC COULD VOID USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

ATTENTION

RISQUE D'ELECTROCUTION
NE PAS OUVRIR

ATTENTION: POUR EVITER TOUT RISQUE D'ELECTROCUTION
NE PAS OUVRIR LE BOITER.
AUCUNE PIECE INTERIEURE N'EST
A REGLER PAR L'UTILISATEUR.
SE REFERER A UN AGENT QUALIFIE EN CAS DE PROBLEME.



Le symbole de l'éclair à l'intérieur d'un triangle équilatéral est destiné à alerter l'utilisateur sur la présence d'une "tension dangereuse" non isolée dans le boîtier du produit. Cette tension est suffisante pour provoquer l'électrocution de personnes.

Le point d'exclamation à l'intérieur d'un triangle équilatéral est destiné à alerter l'utilisateur sur la présence d'opérations d'entretien importantes au sujet desquelles des renseignements se trouvent dans le manuel d'instructions.

*Ces symboles ne sont utilisés qu'aux Etats-Unis.

AVERTISSEMENT:
POUR EVITER LES RISQUES D'INCENDIE OU D'ELECTROCUTION, NE PAS EXPOSER L'APPAREIL A L'HUMIDITE OU A LA PLUIE.

Ce magnétoscope ne doit être utilisé que sur du courant alternatif en 120 V.

ATTENTION:
Afin d'éviter tout resque d'incendie ou d'électrocution, ne pas utiliser d'autres sources d'alimentation électrique.

WARNING:
The battery used in the AG-DV2500P must be replaced by a PANASONIC authorized service dealer only.

AVERTISSEMENT:
La pile utilisée dans l'appareil AG-DV2500P doit être remplacée chez un marchand de services autorisé par PANASONIC.

The Class B digital apparatus complies with Canadian ICES-003.

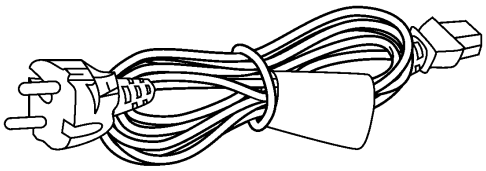
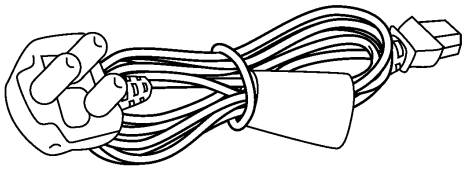
Cet appareil numerique de la Classe B est conforme a la nonne NMB-003 du Canada.

L'appareil digital (Classe B) est conforme à l'ICES-003 canadien.

Caution for AC Mains Lead

FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY.

This product is equipped with 2 types of AC cable. One is for continental Europe, etc. and the other one is only for U.K. Appropriate mains cable must be used in each local area, since the other type of mains cable is not suitable.

FOR CONTINENTAL EUROPE, ETC.	**FOR U.K. ONLY**
Not to be used in the U.K.	If the plug supplied is not suitable for your socket outlet, it should be cut off and appropriate one fitted.
	

FOR U.K. ONLY

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 13 amp fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 13 amps and that it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark or the BSI mark on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local Panasonic Dealer.

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.

WARNING : THIS APPLIANCE MUST BE EARTHED.

IMPORTANT : The wires in this mains lead are coloured in accordance with the following code:

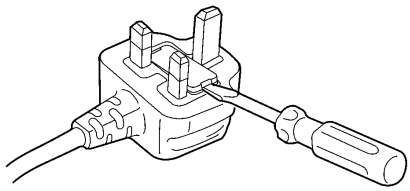
Green-and-Yellow	: Earth
Blue	: Neutral
Brown	: Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

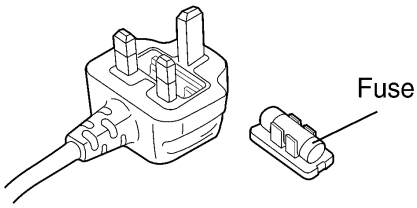
- The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked with the letter E or by the Earth symbol or coloured GREEN or GREEN-AND-YELLOW.
- The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.
- The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

How to replace the fuse

1. Open the fuse compartment with a screwdriver.



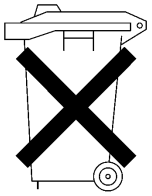
2. Replace the fuse.



Warning Notice
FOR YOUR SAFETY

1. Insert this plug only into effectively earthed three-pin power outlet.
2. If any doubt exists regarding the earthing, consult a qualified electrician.
3. Extension cord, if used, must be three-core correctly wired.

Attention/Attentie



- Batteries are used for memory back-up in the product and remote controller.
  At the end of their useful life, you should not throw them away.
  Instead, hand them in as small chemical waste.
- Baterrijen zijn gebruik gemaak voor inladen van geheugen voor allerlei producten onder ander afstandbediening.
  Wanneer de batterij niet meer beruikbaar is, mag u deze niet gewoon weggooien, maar dient u ze als klein chemisch afval weg te doen.

WARNING:
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION
To prevent electric shock, do not open the cabinet. No user serviceable parts inside. Refer servicing to qualified service personnel.

The POWER button does not completely shut off mains power from the unit, but switches operating current on and off.

WARNING
It should be noted that it may be unlawful to re-record pre-recorded tapes, records, or discs without the consent of the owner of copyright in the sound or video recording, broadcast, or cable programme and in any literary, dramatic, musical or artistic work embodied therein.

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