SONY

FM/AM Portable CD Player

Operating Instructions

About the area code

The area code of the location in which you purchased the CD player is shown on upper left of the bar code label on the package. For accessories supplied with your CD player, check the area code of your model and see "Accessories (supplied/optional)."





D-F20

CAUTION

The use of optical instruments with this product will increase eye hazard.

Owner's Record

The model and the serial numbers are located at the rear. Record the serial number in the space provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

Model No.	D-F20
Serial No.	

Certain countries may regulate disposal of the battery used to power this product. Please consult with your local authority.

For the customers in the USA

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.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

Table of Contents

Getting started
Locating the controls 4
Playing a CD
1 . Prepare your CD player 6
2 . Insert a CD 6
3 . Play a CD 6
Playback options8
, , , , , , , , , , , , , , , , , , , ,
Using the radio
Listening to the radio9
Presetting radio stations
Playing preset radio stations 12
Changing the tuning interval 12
Available features
To maximize the skip protection performance (ESP MAX)
Emphasizing the bass sound (SOUND) 13
Protecting your hearing (AVLS)14
Locking the controls (HOLD) 14
Turning off the operation beep sound 15
Connecting your CD player

Connecting a stereo system 16

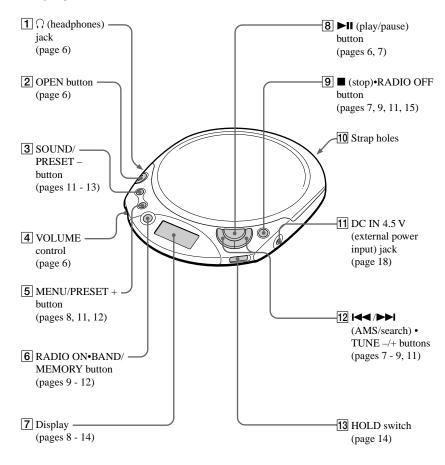
Connecting a power source			
Using the dry batteries			
Using the AC power adaptor 18			
Notes on the power source 18			
Additional information			
Precautions			
Maintenance			
Troubleshooting			
Specifications			
Accessories (supplied/optional)			

Getting started

Locating the controls

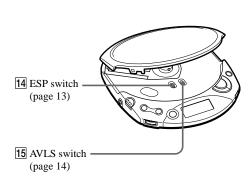
For details, see pages in parentheses.

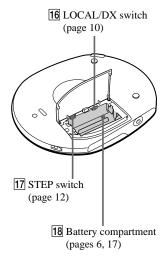
CD player (front)



CD player (inside)

CD player (rear)





Playing a CD

You can also use house current (AC power adaptor) as a power source.



1 Open the battery compartment

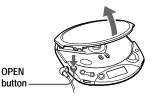


2 Insert two LR6 (size AA) alkaline batteries by matching the
to the diagram in the battery compartment.

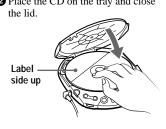


2. Insert a CD.

1 Press OPEN to open the lid.



2 Place the CD on the tray and close the lid.



See "Using the dry batteries."

Note

Be sure to remove the AC power adaptor when using the dry batteries.



То	Press	
Play/Pause	►II	
Stop	*2	
Find the beginning of the current track (AMS*1)	I◀◀ once quickly*2	
Find the beginning of the previous tracks (AMS)	I repeatedly* ²	
Find the beginning of the next track (AMS)	▶►I once quickly*2	
Find the beginning of the succeeding tracks (AMS)	►► repeatedly*2	
Go backwards quickly	Hold down I◀◀ *2	
Go forward quickly	Hold down ▶►I*2	

^{*1} Automatic Music Sensor

About the display

- When you press II after changing the CD or turning off and on the player, the total number
 of tracks in the CD and total playing time appear for about two seconds.
- During play, the track number and the elapsed playing time of the current track appear.
- · During pause, the elapsed playing time flashes.

If the volume level does not increase

Is AVLS set to "LIMIT"? Set AVLS to "NORM." For details, see "Protecting your hearing (AVLS)."

About CD-Rs

This CD player is compatible with CD-Rs but playback capability may vary depending on the quality of the disc, the recording device and application software.

Removing the CD

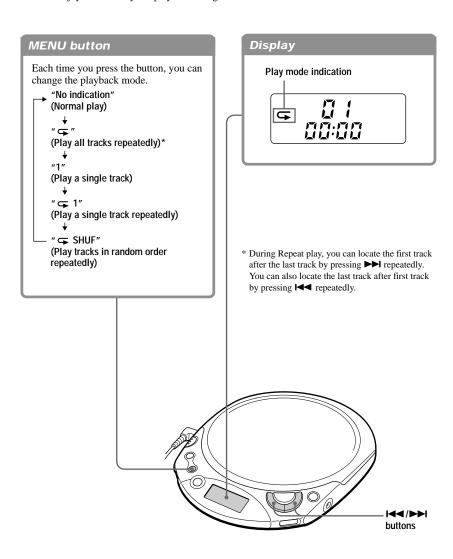
Remove the CD while pressing the pivot in the center of the tray.



^{*2} These operations can be done during both play and pause.

Playback options

You can enjoy various ways of playback using MENU.



Using the radio

Once you've preset the stations, you can easily tune in the station by pressing PRESET + or – button.

Listening to the radio

You can enjoy FM and AM programs.

- 1 Press RADIO ON•BAND to turn on the radio.
- 2 Press RADIO ON•BAND until the band you want appears.

Each time you press the button, the display changes as follows:

 \rightarrow FM1 \rightarrow FM2 \rightarrow FM3 \rightarrow FM4 \rightarrow FM5 \rightarrow AM

Press TUNE + or – to tune in the station you want and adjust the volume.

(FM)

To turn off the radio

Press ■•RADIO OFF.

To tune in the station quickly

Hold down TUNE + or - in step 3 until the frequency digits begin to change in the display. The CD player automatically scans the radio frequencies and stops when it finds a clear station.

(Continued)

Listening to the radio

To improve broadcast reception

For FM, extend the headphones cord.



For AM, reorient the CD player itself.

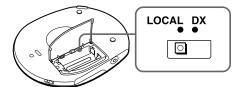


Note

Keep the headphones connected to the \bigcap jack of the CD player. The headphones cord works as the FM antenna.

If it is hard to hear the FM broadcast

Set the LOCAL/DX switch to "LOCAL" using a pointed material. Under the normal conditions, set to "DX."





When listening to the radio on batteries

If you connect the external power source plug to the DC IN 4.5 V jack of your CD player, the CD player will turn off. Turn it on by pressing RADIO ON•BAND to continue listening to it.

Presetting radio stations

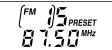
You can store radio stations into the CD player's memory. You can preset up to 30 stations, 5 for each band (FM1 - 5 and AM) in any order.

- 1 Press RADIO ON•BAND to turn on the radio.
- 2 Press RADIO ON•BAND to select the band.
- 3 Hold down MEMORY until "PRESET" flashes in the display.

 From this step on, start the next operation within 10 seconds after you finished the previous operation. If 10 seconds pass with nothing done, "PRESET" stops flashing which shows that the CD player has exited the PRESET MEMORY standby mode. If this happens, start from step 3 again.
- 4 Press PRESET + or repeatedly to select the preset number you want to store the station on while "PRESET" flashes.
- 5 Press TUNE + or to tune in the station you want while "PRESET" flashes.
- 6 Press MEMORY.

When the station is preset successfully, the beep sounds and "PRESET" stops flashing in the display. The new station replaces the old one.

FM:



AM:

AM PRESET

After 2 seconds, "PRESET" starts flashing again and the CD player enters the PRESET MEMORY standby mode.

7 Repeat steps 4 to 6 when you preset the stations in the same band. When you preset the stations in the different band, repeat steps 2 to 6 after "PRESET" stops flashing.

To exit the PRESET MEMORY standby mode

When the radio is turned on, you can exit the PRESET MEMORY standby mode using one of the following procedures. Preset stations, however, will remain stored in the CD player's memory.

- · Hold down MEMORY until "PRESET" stops flashing.
- Do not press any button for 10 seconds. "PRESET" stops flashing.
- Press ►II. The CD player enters the CD playing mode.
- Press ■•RADIO OFF. The radio turns off.

(Continued)

Presetting radio stations

To cancel all preset stations

- **1** Disconnect the power source (alkaline batteries or AC power adaptor).
- 2 While you press and hold down MEMORY, insert alkaline batteries or connect the AC power adaptor again.

The indications in the display keep flashing until all preset stations are cleared, then stop flashing and disappear from the display.



Playing preset radio stations

You can tune in the station easily by pressing PRESET + or - button.

1 Press RADIO ON•BAND to select the band.

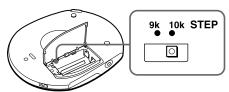
2 Press PRESET + or – to tune in a stored station.

Changing the tuning interval

When using the CD player abroad, change the AM tuning interval, if necessary. Set the STEP switch (in the battery compartment) to "9 kHz" or "10 kHz" using a pointed material.

9 kHz area: Asia and Europe

10 kHz area: the U.S.A., Canada and South America



Notes

- The interval will not change until you once turn off the radio and then turn it on again.
- · After changing the tuning interval, you need to preset radio stations again.

Available features

To maximize the skip protection performance (ESP MAX)

The typical ESP (Electronic Shock Protection) function minimizes skipping by using a buffer memory that stores music data and plays it back in the event of a shock. The ESP MAX system is an extremely sophisticated technology. Due to the light weight and improved anti-shock characteristics of the optical block, this system recovers from the skipping much quicker than conventional technology such as ESP or ESP²*

* Although ESP MAX provides excellent protection, skipping may occasionally occur.

Set ESP (under the lid) to "ON."





Displayed when the ESP MAX function is working.

To turn off the ESP MAX function

Set ESP to "OFF."

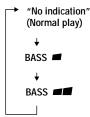
Notes

- Playing may stop when the CD player gets a strong shock even with the ESP MAX function on.
- You may hear a noise or sound may skip:
 - when listening to a dirty or scratched CD,
 - when listening to an audio test CD,
 - when the player receives continuous shock or
 - when using poor-quality CD-Rs or if there is a problem with the recording device or application software.

Emphasizing the bass sound (SOUND)

You can emphasize the bass-boosted sound.

Press SOUND to select "BASS ■" or "BASS ■■"."





The selected sound mode is displayed.

"BASS ■■" enhances the bass sound more than "BASS ■."

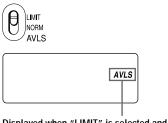
Notes

- If the sound is distorted when using the SOUND function, turn down the volume.
- When listening to the radio, the SOUND function does not work.

Protecting your hearing (AVLS)

The AVLS (Automatic Volume Limiter System) function keeps down the maximum volume to protect your hearing.

Set AVLS (under the lid) to "LIMIT."



Displayed when "LIMIT" is selected and AVLS function is working.

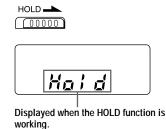
To turn off the AVLS function

Set AVLS to "NORM."

Locking the controls (HOLD)

You can lock the controls on your CD player to prevent accidental button presses.

Slide HOLD in the direction of the arrow.



To unlock the controls

Slide HOLD in the opposite direction of the arrow.

Turning off the operation beep sound

You can turn off the beep sound that is heard from your headphones when you operate your CD player.

- 1 Remove the power source (dry batteries or AC power adaptor) from the CD player.
- 2 Connect the power source while pressing on the CD player.

To turn on the beep sound

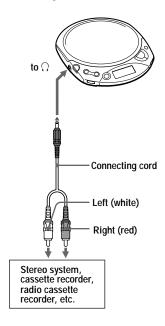
Remove the power source and then connect the power source without pressing \blacksquare .

► Connecting your CD player

Connecting a stereo system

You can listen to CDs through a stereo system and record CDs on a cassette tape. For details, see the instruction manual that comes with the connected device.

Be sure to turn off all connected devices before making connections.



Notes

- Before you play a CD, turn down the volume of the connected device to avoid damaging the connected speakers.
- We recommend that you use the AC power adaptor (not supplied) for recording. If you use the dry batteries as a power source, they may become completely depleted during recording.
- Adjust the volume properly on the connected device so that the sound will not be distorted.

► Connecting a power source

You can use the following power sources:

- LR6 (size AA) alkaline batteries (see "Playing a CD")
- · AC power adaptor

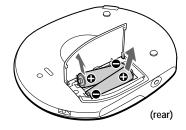
For the battery life, see "Specifications."

Using the dry batteries

For inserting procedure, see "Playing a CD."

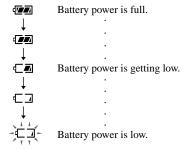
To remove the batteries

Remove the batteries as illustrated below.



When to replace the batteries

You can check the remaining power of the batteries in the display.



Lo batt* Batteries are depleted.

* Beep sounds.

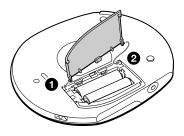
When the batteries are depleted, replace both batteries with new ones

Notes

- The indicator sections of roughly shows the remaining battery power. One section does not always indicate one-fourth of the battery power.
- Depending on operating conditions, the indicator sections of may increase or decrease.

To attach the battery compartment lid

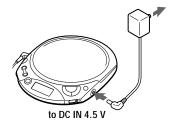
If the battery compartment lid is detached by an accidental drop, excessive force, etc., attach it as illustrated below.



Using the AC power adaptor

Connect the AC power adaptor (not supplied) to the DC IN 4.5 V jack and an AC outlet.

to an AC outlet



Notes on the power source

Disconnect all power sources when the CD player is not used.

On AC power adaptor

 Use only the AC power adaptor recommended in "Accessories (supplied/ optional)." Do not use any other AC power adaptor. It may cause a malfunction.

Polarity of the plug



- When disconnecting the AC power adaptor from the AC outlet, grasp the adaptor itself. Do not pull it by the cord.
- Do not touch the AC power adaptor with wet hands.

On dry batteries

- Do not charge the dry batteries.
- · Do not throw the batteries into fire.
- Do not carry the batteries with coins or other metallic objects. It can generate heat if the positive and negative terminals of the battery are accidentally contacted by a metallic object.
- Do not mix rechargeable batteries with dry batteries.
- · Do not mix new batteries with old ones.
- Do not use different types of batteries together.
- When the batteries are not to be used for a long time, remove them.
- If battery leakage occurs, wipe off any deposit in the battery compartment, and install new batteries. In case the deposit adheres to you, wash it off thoroughly.

Precautions

On safety

- Should any solid objects or liquid fall into the CD player, unplug it and have it checked by qualified personnel before operating it any further.
- Do not put any foreign objects in the DC IN 4.5 V (external power input) jack.

On the CD player

- Keep the lens on the CD player clean and do not touch it. If you do so, the lens may be damaged and the CD player will not operate properly.
- Do not put any heavy object on top of the CD player. The CD player and the CD may be damaged.
- Do not leave the CD player in a location near heat sources, or in a place subject to direct sunlight, excessive dust or sand, moisture, rain, mechanical shock, unleveled surface, or in a car with its windows closed.
- If the CD player causes interference to the radio or television reception, turn off the CD player or move it away from the radio or television.
- Discs with non-standard shapes (e.g., heart, square, star) cannot be played on this CD player. Attempting to do so may damage the CD player. Do not use such discs.

On handling CDs

- To keep the CD clean, handle it by its edge. Do not touch the surface.
- Do not stick paper or tape onto the CD.





 Do not expose the CD to direct sunlight or heat sources such as hot air ducts. Do not leave the CD in a car parked under direct sunlight.

On headphones/earphones Road safety

Do not use headphones/earphones while driving, cycling, or operating any motorized vehicle. It may create a traffic hazard and is illegal in some areas. It can also be potentially dangerous to play your headsets at high volume while walking, especially at pedestrian crossings. You should exercise extreme caution or discontinue use in potentially hazardous situations.

Preventing hearing damage

Avoid using headphones/earphones at high volume. Hearing experts advise against continuous, loud and extended play. If you experience a ringing in your ears, reduce volume or discontinue use.

Consideration for others

Keep the volume at a moderate level. This will allow you to hear outside sounds and to be considerate to the people around you.

Maintenance

To clean the casing

Use a soft cloth slightly moistened in water or a mild detergent solution. Do not use alcohol, benzine or thinner.

Troubleshooting

Should any problem persist after you have checked these symptoms, consult your nearest Sony dealer.

CD player

Symptom	Cause and/or corrective actions		
The volume does not increase even if the VOLUME control is adjusted to the maximum level.	→ Set the AVLS switch to "NORM." (page 14)		
No sound, or noise is heard.	 → Connect the plugs firmly. (pages 6, 18) → Plugs are dirty. Clean the plugs with a dry soft cloth periodically. 		
The playing time is too short when powered with the dry batteries.	 → Check that you are using alkaline batteries and not manganese batteries. (page 6) → Replace the batteries with new LR6 (size AA) alkaline batteries. (page 6) 		
When you press ►II, "Lo batt" or "00" appears in the display. The CD does not play.	→ Replace the batteries with new LR6 (size AA) alkaline batteries. (page 6)		
"HI dc In" appears in the display.	 → Use only the AC power adaptor or car battery cord in "Accessories (supplied/optional)." (page 23) → Remove all power sources, then insert the batteries or connect the AC power adaptor again. (pages 6, 18) 		
The CD does not play or "no dISC" appears in the display when a CD is placed in the CD player.	 → The buttons are locked. Slide the HOLD switch back. (page 14) → The CD is dirty or defective. (page 19) → Check that the CD is inserted with the label side up. (page 6) → Moisture condensation has occurred. Leave the CD player aside for several hours until the moisture evaporates. → Close the lid of the battery compartment firmly. (page 6) → Make sure the batteries are inserted correctly. (page 6) → Connect the AC power adaptor to an AC outlet securely. (page 18) → The CD-R was not finalized. Finalize the CD-R with the recording device. → There is a problem with the quality of the CD-R, recording device, or application software. 		
"Hold" appears in the display when you press a button, and the CD does not play.	→ The buttons are locked. Slide the HOLD switch back. (page 14)		
The rechargeable batteries cannot be charged in the battery compartment of this player.	→ This CD player does not have the function to charge the rechargeable batteries.		
Playback starts from the point you stopped. (resume function)	→ The resume function is working. To start from the first track, open the lid of the CD player; or remove all power sources, then insert the batteries or connect the AC power adaptor again. (pages 6, 18)		

Radio

Symptom	Cause and/or corrective actions	
The audio is weak or has poor quality.		Replace the batteries with new LR6 (size AA) alkaline batteries. (page 6) Move the CD player away from the TV.

Specifications CD player

System

Compact disc digital audio system

Laser diode properties

Material: GaAlAs

Wavelength: $\lambda = 780 \text{ nm}$ Emission duration: Continuous Laser output: Less than 44.6 μ W

(This output is the value measured at a distance of 200 mm from the objective lens surface on the optical pick-up block with 7 mm aperture.)

D-A conversion

1-bit quartz time-axis control

Frequency response

 $20 - 20\ 000\ Hz_{-2}^{+1}\ dB$ (measured by EIAJ CP-307)

Output (at 4.5 V input level)

Headphones (stereo minijack)

Approx. 12 mW + Approx. 12 mW at 16 Ω

Radio

Frequency range (STEP switch)

9 kHz step:

FM: 87.5 - 108.0 MHz

AM: 531 - 1 710 kHz

10 kHz step:

FM: 87.5 - 108.0 MHz AM: 530 - 1 710 kHz

Antenna

FM: Headphones cord antenna AM: Built-in ferrite bar antenna

General

Power requirements

For the area code of the model you purchased, check the upper left side of the bar code on the package.

- Two LR6 (size AA) batteries: 3 V DC
- AC power adaptor (DC IN 4.5 V jack): U2/U/CA2/E92/MX2/TW2/BR3 model: 120 V, 60 Hz

CED/CET/CEW/CEX/CE7/EE/EE1/E13/G5/

G6/G7/G8/BR1 model: 220 - 230 V, 50/60 Hz

CEK/3CE7 model: 230 - 240 V, 50 Hz

AU2 model: 240 V, 50 Hz

JE.W/E33/EA3/KR4 model: 100 - 240 V,

50/60 Hz

HK2 model: 220 V, 50/60 Hz AR1/CN2 model: 220 V, 50 Hz

Battery life* (approx. hours)

(When you use the CD player on a flat and stable surface.)

Playing time varies depending on how the CD player is used.

When using	ESP		RADIO	
	on	off	on	
Two Sony alkaline	24	25	66	
batteries LR6SG				

- * Measured value by the standard of JEITA (Japan Electronics and Information Technology Industries Association).
- **Charging time varies depending on how the rechargeable battery is used.

Operating temperature

5°C - 35°C (41°F - 95°F)

Dimensions (w/h/d) (excluding projecting parts and controls)

Approx. $161 \times 26.3 \times 130.3$ mm $(6\frac{3}{8} \times 1\frac{1}{16} \times 5\frac{1}{4}$ in.)

Mass (excluding accessories)

Approx. 210 g (7.5 oz.)

Design and specifications are subject to change without notice.

Accessories (supplied/optional)

Supplied accessories

For the area code of the location in which you purchased the CD player, check the upper left side of the bar code on the package.

Headphones (1)

Optional accessories

AC power adaptor	AC-E45HG		
Active speaker system	SRS-A21		
Car battery cord	DCC-E345		
Car battery cord with car	connecting pack		
	DCC-E34CP		
Car connecting pack	CPA-9C		
Connecting cord	RK-G129		
	RK-G136		
Earphones	MDR-E848LP		
	MDR-EX70LP		
Headphones	MDR-A44L		
	MDR-A110LP		

Your dealer may not handle some of the above listed accessories. Please ask the dealer for detailed information about the accessories in your country.

SONY

LIMITED WARRANTY

Portable Audio

Sony Electronics Inc. ("Sony") warrants this Product (including any accessories) against defects in material or workmanship as follows:

- LABOR: For a period of 90 days from the date of purchase, if this Product is determined to be defective, Sony will repair or replace the Product, at its option, at no charge, or pay the labor charges to any Sony authorized service facility. After the Warranty Period, you must pay for all labor charges.
- 2. PARTS: In addition, Sony will supply, at no charge, new or rebuilt replacements in exchange for defective parts for a period of one (1) year. After 90 days from the date of purchase, Jabor for removal and installation is available from Sony authorized service facilities or a Sony Service Center at your expense.

To obtain warranty service, you must take the Product, or deliver the Product freight prepaid, in either its original packaging or packaging affording an equal degree of protection, to any authorized Sony service facility.

This warranty does not cover customer instruction, installation, set up adjustments or signal reception prob-

This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or modification of, or to any part of the Product, including the antenna. This warry does not cover damage due to improper operation or maintenance, connection to improper voltage supply, or attempted repair by anyone other than a facility authorized by Sony to service the Product. This warranty does not cover Products sold AS IS or WITH ALL FAULTS, or consumables (such as fuses or batteries). This warranty is valid only in the United States.

Proof of purchase in the form of a bill of sale or receipted invoice which is evidence that the unit is within the Warranty period must be presented to obtain warranty service.

This warranty is invalid if the factory applied serial number has been altered or removed from the Product.

REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE CONSUMER. SONY SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR BREACH OF ANY EXPRESS OR IMPLIED WARRANTY ON THIS PRODUCT. EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ON THIS PRODUCT IS UNITED IN DIVINITION TO THE DURATION OF THIS WARRANTY.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or allow limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to go, the limitation, if you enter into a service contract with the Sony Partnership within 90 days of the date of sale, the limitation on how long an implied warranty lasts does not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

For your convenience, Sony Electronics Inc. has established telephone numbers for frequently asked questions:

To locate the servicer or dealer nearest you, or for service assistance or resolution of a service problem, or for product information or operation, call:

Sony Direct Response Center

1-(800)-222-7669 or write to: Sony Direct Response Center 12451 Gateway Blvd. Fort Myers, FL 33913

For an accessory or part not available from your authorized dealer, call:

1-(800)-488-SONY (7669)

W 455714701 (T1)