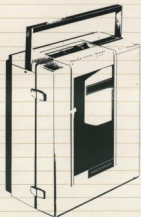


SONY

VIDEORECORDER[®] AV-3400

OWNER'S INSTRUCTION MANUAL



The SONY AV-3400 is a portable record/playback Videocorder designed to operate with the SONY AVC-3400 Video Camera.

The system will record "live" action, and the recorded picture can be immediately played back and viewed on the camera viewfinder screen.

It will greatly aid in teaching, training, promotional activities and in hundreds of other applications.

Please read this manual carefully and keep this booklet handy for future reference.

FEATURES

Record/Playback Functions with Complete Portability

The AV-3400 provides high quality video and audio record/playback functions in a truly portable compact unit.

The recorded material can be immediately played back and seen on the camera viewfinder screen, a video monitor with a connecting cable VMC-1M, supplied, or conventional TV screen using the RF Unit optional.

Fully Automatic Performance

The SONY-MATIC recording system adjusts audio and video recording levels automatically to assure perfect recording with very little effort.

AC/DC Operation

The self-contained rechargeable battery pack BP-20 provides 45 minutes of continuous operation with the camera. If desired, the Videocorder may be operated from household power by connecting Ac Power Adaptor AC-3400, supplied, or from a car battery with use of Car Battery Cord DCC-2400, optional.

Other Facilities

Additional sound, such as commentary or background music, may be recorded on the prerecorded picture during playback.

Stop-action can also be obtained for close examination.

The time counter shows the recording time minute by minute as well as indicating the amount of tape as an ordinary tape counter. Automatic shut-off occurs when the tape runs out. A manual tracking control corrects improper tracking in the playback picture and assures complete tape interchangeability between all AV-Series Videocorders.

WARNING

- To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.
- To prevent fire or shock hazard, do not expose the set to rain or moisture.

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PRECAUTIONS

Keep the Videocorder away from extreme temperatures and excessive dust and moisture.

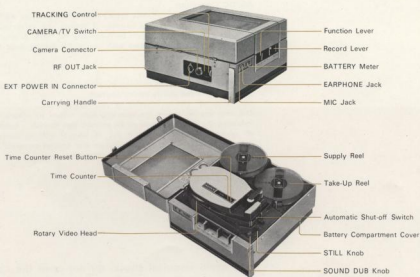
Keep both Videocorder and video tapes away from strong magnetic fields and sources of electronic noise such as motors, generators, and voltage regulators.

Avoid subjecting the tape transport mechanism to unnecessary shock or impact. Do not place anything or press down upon the head drum cover.

The rotary video heads are precisely engineered. Do not touch the heads except during cleaning or tape threading (with motor off). Never touch the heads while the head drum motor is running.

If you have any question or problem on the AV-3400, consult the SONY Authorized VTR Service Station or SONY VTR Factory Service Center.

LOCATION OF PARTS AND CONTROLS



Opening the lid



Removing the lid

The cover is easily removed by drawing the two hinge levers on the back cover to the center as shown.



POWER SOURCE

The AV-3400 Videocorder operates from a built-in rechargeable battery pack. Ac power is supplied by connecting the Ac Power Adaptor AC-3400, which also permits battery charging. Operation from a 12 V car battery is also possible using the Car Battery Cord DCC-2400 (optional).

Battery installation

1. Open the battery compartment cover by turning the screw with a coin.



2. Plug the cord from the battery pack into the jack inside the battery compartment as shown.



3. Install the battery pack and close the compartment cover.



Battery life

A fully-charged battery allows approximately 45 minutes of continuous operation of both Videocorder and camera.

The pointer of the BATTERY meter shows battery condition when the Videocorder is turned on; the white-zone reading shows that the battery is in good condition; a red-zone reading shows that the battery is discharged. The Videocorder and camera will not perform properly with a weak battery. If the pointer of the BATTERY meter is in the red zone, recharge the battery at once. Refer to page 6 for recharging procedure.



NOTE:

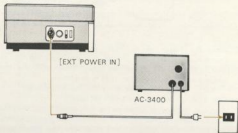
The battery is fully charged when it leaves the factory. However, an idle battery will discharge slowly over a long period of time. Therefore, the battery may not yield a full hour of operation when it is first put into service. Full capacity will be restored, however, after the first recharge.

Car battery operation

Insert the cigarette-lighter plug of the car battery cord into the cigarette lighter socket in the car and male plug of the other end into the EXT POWER IN connector on the Videocorder. For further details, refer to the instruction manual included with the Car Battery Cord DCC-2400.

Ac power operation

1. Plug the power cord of the Ac Power Adaptor AC-3400 into an ac outlet.
2. Insert the round plug of the adaptor into the EXT POWER IN connector on the Videocorder.
3. Press the adaptor POWER switch on. The red Pilot Lamp will light and power will be supplied to the Videocorder.



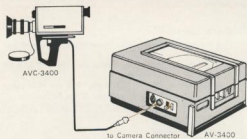
TAPE THREADING

1. Place an empty reel on the Take-Up Reel Spindle and a full reel on the Supply Reel Spindle.
2. Unwind about 2 feet of tape and thread it onto the Take-Up Reel according to the direction of the arrow.
3. Turn the Take-Up Reel by hand to take up any excess slack in the tape path.

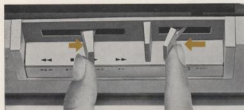


RECORDING WITH THE VIDEO CAMERA

1. Insert the camera cable of the AVC-3400 Camera into the Camera Connector of the Videocorder:
Plug the 10-pin connector into the Camera Connector on the Videocorder by matching the slot in the plug with the guide pin on the receptacle. Turn the locking collar of the cable clockwise until the cable locks firmly into place.
2. Set the CAMERA/TV switch to CAMERA.



3. Press the Time Counter Reset Button to set the Time Counter to [000]. This counter indicates recording time as well as the amount of the tape used. When you read the counter as a time indicator, read it as follows.
13.5.....13.5 minutes or 13 minutes 30 seconds
0.9.....0.9 minutes or 54 seconds
4. First, set the Record Lever to the REC position and then the Function Lever to FWD (before releasing the Record Lever). The Record Lever will lock into place and the Videocorder and camera will remain in the Standby mode.

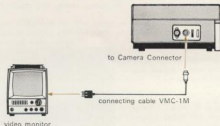


5. Adjust the camera to obtain a satisfactory picture as displayed on the viewfinder.
6. To start the recording, press the Grip Switch on the hand grip of the camera, or push the Start Button at the right side of the lens mount.
7. To monitor the sound, plug the earphone into the EARPHONE jack on the control panel of the Videocorder.
Sound picked up by the microphone built into the camera will be recorded simultaneously. Picture and sound levels are automatically adjusted by the SONY-MATIC recording system in the Videocorder and camera.
8. To stop recording, press the Grip Switch on the hand grip or the Start Button again.
At the end of the recording, set the Function Lever to STOP.

4

RECORDING TV PROGRAMS

1. Connect the 8-pin connector on the SONY video monitor to the 10-pin Camera Connector on the Videocorder using a VMC-1M connecting cable (supplied).



2. Set the CAMERA/TV switch to TV.
3. Set the Time Counter to [000].
4. Turn on the monitor and set the TV/VTR switch on the monitor to VTR.
5. Hold the Record Lever in the REC position to place the Videocorder in the E-to-E mode. Adjust the controls on the monitor so that the monitor produces the best possible picture on the channel whose program is to be recorded.
6. Holding the Record Lever, set the Function Lever to FWD. Video and audio recording will start. No adjustment of video and audio signal levels is required.
7. To stop recording, set the Function Lever to STOP.

WARNING:

Television programs, films, video tapes and other materials may be copyrighted. Unauthorized recording of such material may be contrary to the provisions of United States copyright laws.

TAPE PLAYBACK

The playback picture can be viewed on the camera viewfinder screen, a monitor screen, or a conventional TV screen with appropriate accessories.

NOTE:

When playing back a tape which has been interrupted during Record mode, picture distortion may be incurred at the transitions.

Playback on the viewfinder screen

Connect the AVC-3400 Camera to the Camera Connector of the Videocorder and set the Function Lever to FWD.

Playback on the monitor screen

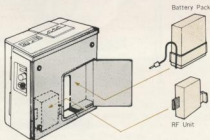
Connect the monitor to the Camera Connector using the VMC-1M connecting cable and set the Function Lever to FWD.

Playback on a conventional TV screen

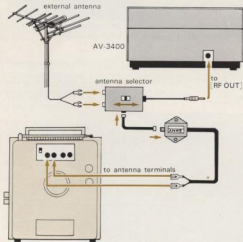
The output signal of the Videocorder is converted to an ordinary TV (rf) signal by an optional accessory SONY RF Unit, which can be installed inside the battery compartment. The rf signal is fed to the antenna terminals of the TV set through the Antenna Selector ANS-6, supplied with the RF Unit.

The optional RF Unit is set to a particular channel. Refer to page 8 and choose an RF Unit whose preset channel is not in use in your area.

1. Take the battery pack out of the battery compartment and insert the RF Unit as shown.



2. Replace the battery pack as before.
3. Connect the Antenna Selector through the EAC-20W Adaptor to the external antenna terminals (300 ohms) of the TV set.
4. Set the ANT/VTR switch on the Antenna Selector to VTR.
 - When the Videocorder is not in use, TV set may be operated as a normal television receiver by setting the ANT/VTR switch to ANT position and connecting the 300-ohm external antenna to the antenna terminals of the Antenna Selector.
5. Plug the cord from the Antenna Selector into the RF OUT jack on the Videocorder.
6. Set the TV channel selector to the channel to which the RF Unit is set.



CAUTION:

Connection between the AV-3400 RF OUT terminal and antenna terminals of a TV receiver should be made as shown in these instructions. Failure to do so may result in operation that violates the regulations of the Federal Communications Commission regarding the use and operation of RF devices.

Still playback

A stop-motion picture is obtained by pulling the STILL knob down in the direction of the arrow. To release the Still mode, return the knob to its normal position.



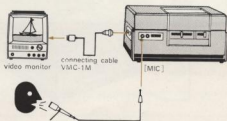
Tracking adjustment

When playing back a tape recorded on a different AV-Series Videocorder, adjust the TRACKING control should any noise appear in the picture. For normal playback, set the red mark on the knob to the center position.

SOUND DUBBING

New sound (from a microphone, tape recorder, phonograph, radio, etc.) can be recorded on a prerecorded tape.

1. Connect the sound source to the MIC jack on the Videocorder.
2. Play back the prerecorded tape and watch the playback picture on the viewfinder, monitor, or television receiver.



3. When the desired position for dubbing sound is reached, set the Function Lever to STOP.
4. Pull the SOUND DUB knob in the direction of the arrow and then set the Function Lever to FWD.



5. When dubbing is complete, set the Function Lever to STOP.

TAPE ERASING

Erasure of prerecorded tapes is accomplished automatically as the tape first passes the erase head then moves on to the rotary video (recording) heads.

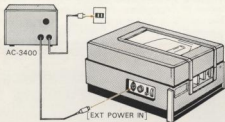
Should you desire to erase tape without recording, run the tape in the record mode with no signal source connected.

BATTERY CHARGING

The built-in battery pack can be recharged with or without removing it from the Videocorder.

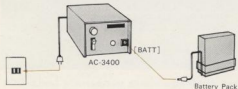
Charging the battery pack inside the Videocorder

1. Connect the Ac Power Adaptor AC-3400 to the Videocorder and to an ac outlet.
2. Press the POWER switch to turn on the adaptor. The red Pilot Lamp will light.
3. Set the Function Lever of the Videocorder to STOP. Charging will then be started and the Charging Meter on the adaptor will indicate charging condition. While charging, the pointer remains in the black zone [CHARGING]. When the battery is completely charged, the pointer stops at the end of the red zone [FULL]. About 6 hours is required for full charging.



Charging the battery pack outside the Videocorder

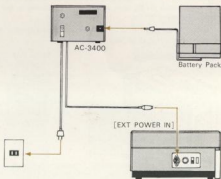
1. Take the battery pack out of the Videocorder.
2. Connect the adaptor AC-3400 to an ac outlet.
3. Insert the plug from the battery pack into the Charging Jack [BATT] on the adaptor.
4. Press the POWER switch to turn on the adaptor. Battery charging will start and the Charging Meter will indicate charging condition.



NOTE:

Two battery packs can be recharged simultaneously, one inside and one outside the Videocorder.

When the Charging Meter stops at the FULL position, the two battery packs are fully charged. In this case, about 10 hours is required for full charging.



To check whether or not the battery is fully charged, turn off the power, then turn it on again. The pointer should swing down a little and in a few seconds swing back to the FULL position. This shows a completely charged battery.

MAINTENANCE

If the picture becomes noisy, cleaning and demagnetizing the heads and/or cleaning the tape path may be required.

NOTE:

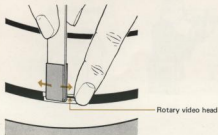
Before attempting to clean the rotary video heads, be sure that the Function Lever is set to the STOP position.

Cleaning the heads

1. Move the video head to the cleaning groove (as shown below) by gently pushing the head with the tip of the head cleaner.



- Carefully hold the edge of the head with your fingertip to keep the head from moving.
- Saturate the tip of the cleaner with the cleaning fluid (supplied). Press the tip lightly against the head and clean by moving the tip horizontally. Never move the tip vertically.



- Another head is located at the opposite side of the rotary video head. Rotate the assembly so that the other head faces to the cleaning groove. Repeat cleaning as described above.
- Clean the audio/control head and erase head in the same manner.



Demagnetizing the heads

Through constant use the heads may become slightly magnetized; this could cause a distorted picture. In extreme cases, it could cause partial erasure of the tape. Heads may be demagnetized using a standard head demagnetizer.



Cleaning tape path

To keep an intimate contact between heads and tape it is advisable to clean the tape path and the tape guides from time to time; take a soft cloth and carefully wipe the portion over which the tape travels. In case the deposits cannot be removed, dampen the cloth with the cleaning fluid or denatured alcohol.

Cleaning the cabinet

If the cabinet or panel becomes dirty, clean it with the polishing cloth (supplied). Never use solvents, such as thinners or acetone, for cleaning as they may damage the cabinet or panel. Wipe the surface of the head drum with the cleaning fluid before and after operating the set on or near the sea or in locations where acid or alkali gases are used.

SPLICING TAPE

- Use the splicing tape supplied with the Videocorder (Video Splicing Tape Scotch #390 may be substituted).

NOTE:

Never use regular audio splicing tape as damage to rotary heads will result.

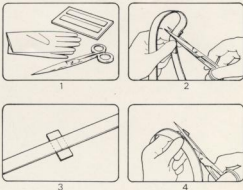
- Overlap the tape ends approximately 1/2 inches and make a cut across both tapes at right angles to the length of the tape.
- Align the ends carefully so that they fit together perfectly, and press a piece of splicing tape firmly over the outer sides of the ends.

Make sure the joint is firm.

NOTE:

If any space is left between joints, the rotary head may be damaged.

- Trim excess splicing tape slightly into the video tape so that edges are even.



SPECIFICATIONS

Video recording system	Rotary 2-head scan system, full field, composite video signal based on American TV standards (supplied from the Video Camera AVC-3400)
Recording time	30 minutes continuously with a V-30H tape
Tape speed	7½ ips
Tape width	½ inch
Video modulation system	Frequency modulation
Horizontal resolution	More than 300 lines
Video signal-to-noise ratio	Greater than 40 dB
Video input	1.0 V (p-p), 75 ohms, unbalanced
Video output	1.0 V (p-p), 75 ohms, unbalanced
RF output	75 ohms, 65 dB ± 4 dB (0 dB = 1 µV/m)
Audio input (microphone input)	3.6 k ohms, -65 dB, AGC
Audio output (earphone output)	high impedance
Audio frequency response	100 Hz-10 kHz
Power requirements	DC, 12 V AC, 120V ± 10% (with use of AC-3400) 12 W (without AVC-3400)
Power consumption	
Dimensions	11 (w) × 6½ (h) × 11¾ (d) in
Weight	18 lb, 12 oz (with battery pack, tape and reel)
Accessories supplied	Ac Power Adaptor, AC-3400 Battery Pack, BP-20 Tape, V-30 H Empty Reel, RH-5E Earphone, CE-3 Monitor connecting cable, VMC-1M Polishing Cloth Splicing Tape Cleaning Fluid Head Cleaner Shoulder Bag
Optional accessory	RF Units; RFU-62FW (for CH-2) RFU-63FW (for CH-3) RFU-64FW (for CH-4) RFU-65FW (for CH-5) (Antenna Selector, ANS-6 is supplied.)

Versatile Use of the AV-3400 with the SONY AVC-3400 Video Camera



Shoulder Bag



- Hz=cycles per second
- U.S. Pat. No. 3,215,772
- Design and specifications subject to change without notice